

# Social Content and Model Management using SocioCortex

Thinking and working together

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## 1. **Motivation: Thinking and working together**

- Social content and model management
- Typical concerns in social content and model management
- Limitations of today's tools and integration approaches

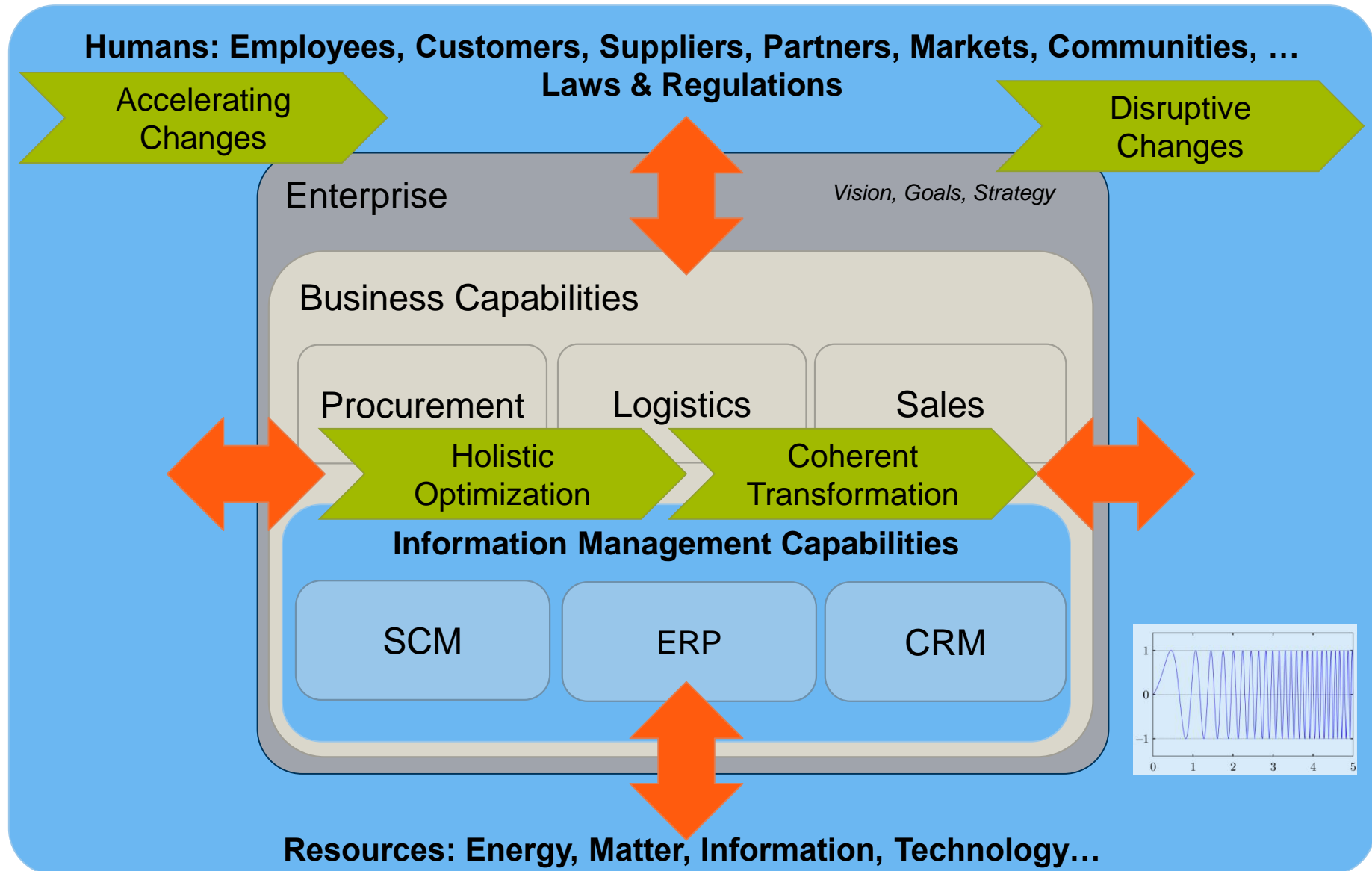
## 2. **SocioCortex overview**

Architecture, capabilities and user interface

## 3. **Summary and outlook**



# Enterprises have to adapt to an increasingly turbulent environment.





- in **organizations** to invent, design, build, provide, analyze and manage **services and products**

Support for  
Problem-Solving  
Processes

- involves stakeholders with **different interests & background**  
*customers, R&D, marketing, sales, customer support, finance, legal, HR, partners, suppliers, IT specialists, data scientists*

Social  
Integration

- that want to use **their preferred content representations**  
*tables, texts, hypertexts, images, drawings, maps, pictures, 3d models, animations, videos, matrices, mathematical formulas, ...*

Semantic  
Integration

- which involve **diverse content sources and channels**  
*internet, intranet, enterprise applications, desktop tools, commercial information providers, social media, monitors, sensors, ...*

Content  
Integration



Co-existence and reconciliation of  
multiple individual and group perspectives

**Social &  
Semantic  
Integration**

Who can do what?  
Who has to do what?

Who should do what?

Why did it happen?

What will happen, if ...?  
What will others do, if ...?

How is it?  
profitable, fast, usable,  
timely, reliable, safe,  
secure, flexible, ...

What could be?

What has been?

What is?

What should be?

*Past*

*Presence*

*Futures*

**Coordination**

*Rights*

*Obligations*

*Commitments*

*Capabilities*

**Reasoning**

*Causality*

*Intentions*

*Uncertainty*

**Assessment**

*Goals*

*Questions*

*Metrics*

**Modeling**

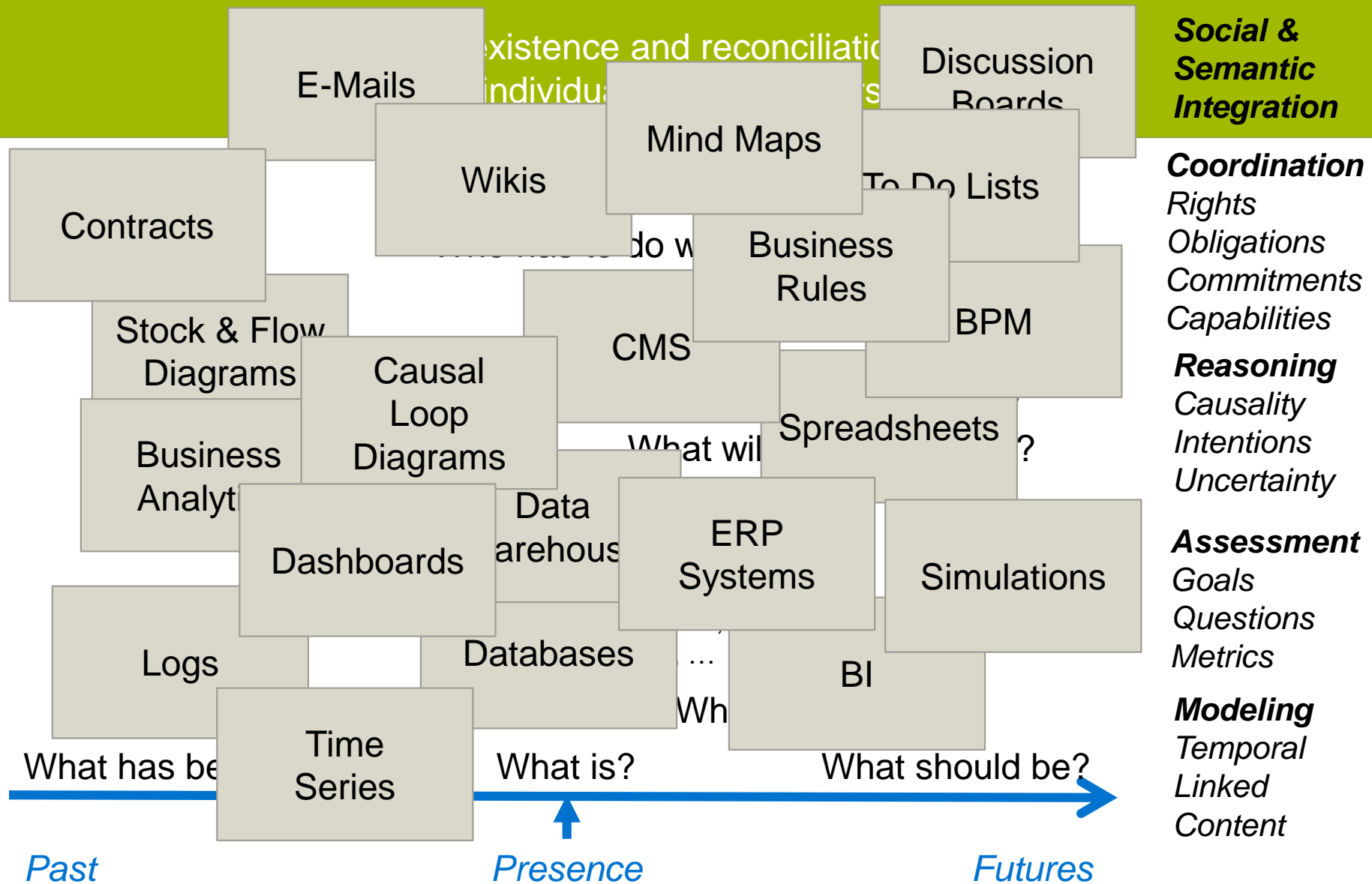
*Temporal*

*Linked*

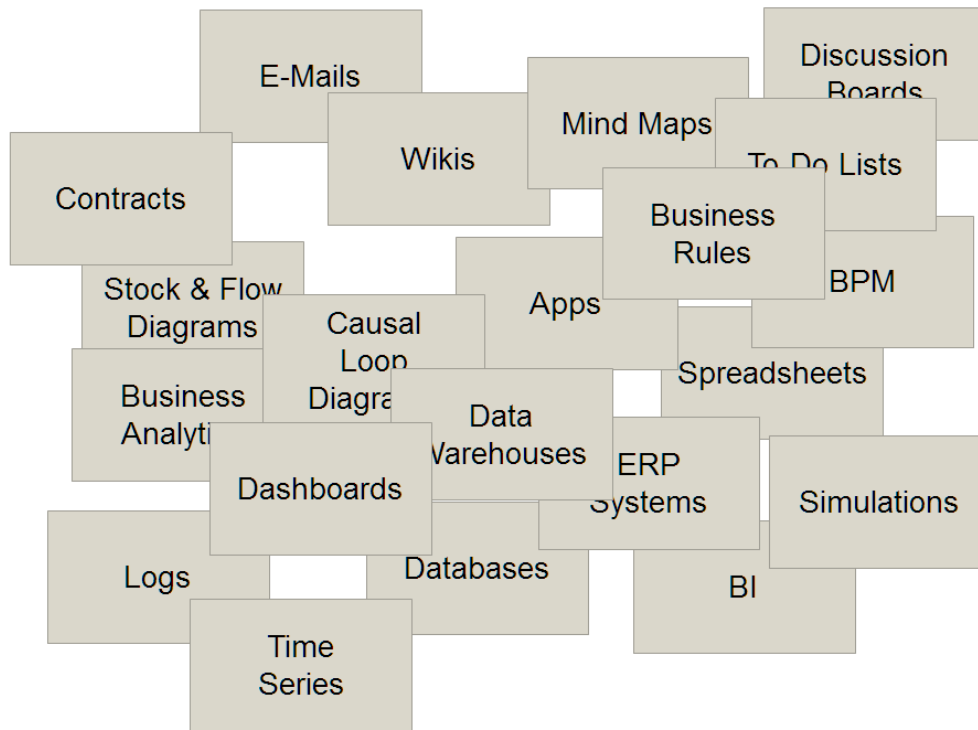
*Content*



# Today's tools are poorly integrated.







## Difficult Content Integration

- Multiple content representations
- Mismatches of content models
- Fragmented content
- Inaccessible content (silos)
- Error-prone manual content transformation and logistics
- Limited assessment and reasoning support
- Lack of temporal information

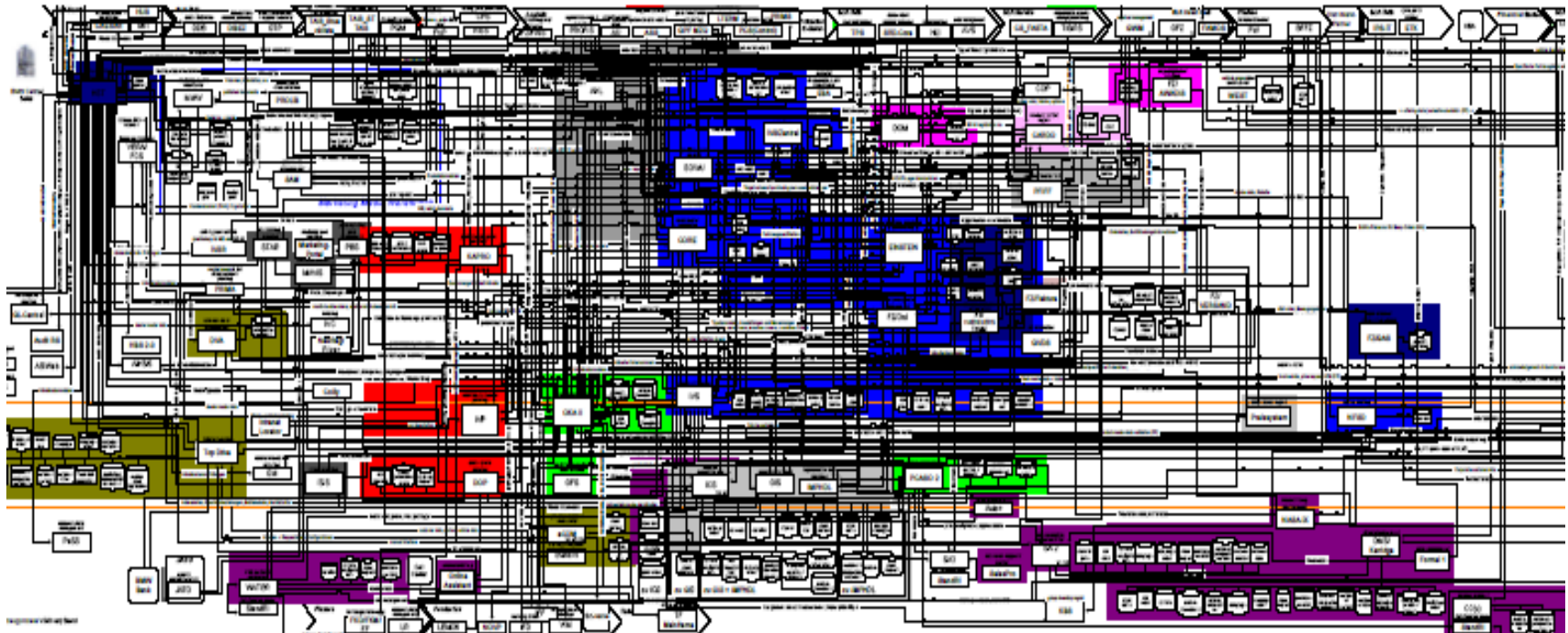
## Lack of Social Integration

- Roles & responsibilities (RACI)
- Authentication & confidentiality (ACL)
- Stakeholder-specific information selection & presentation
- Cross-tool coordination support

## Limited Flexibility

- Difficulty to adapt content flows and processes to unforeseen changes.

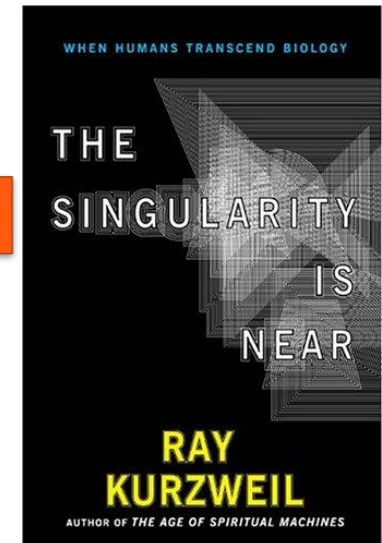
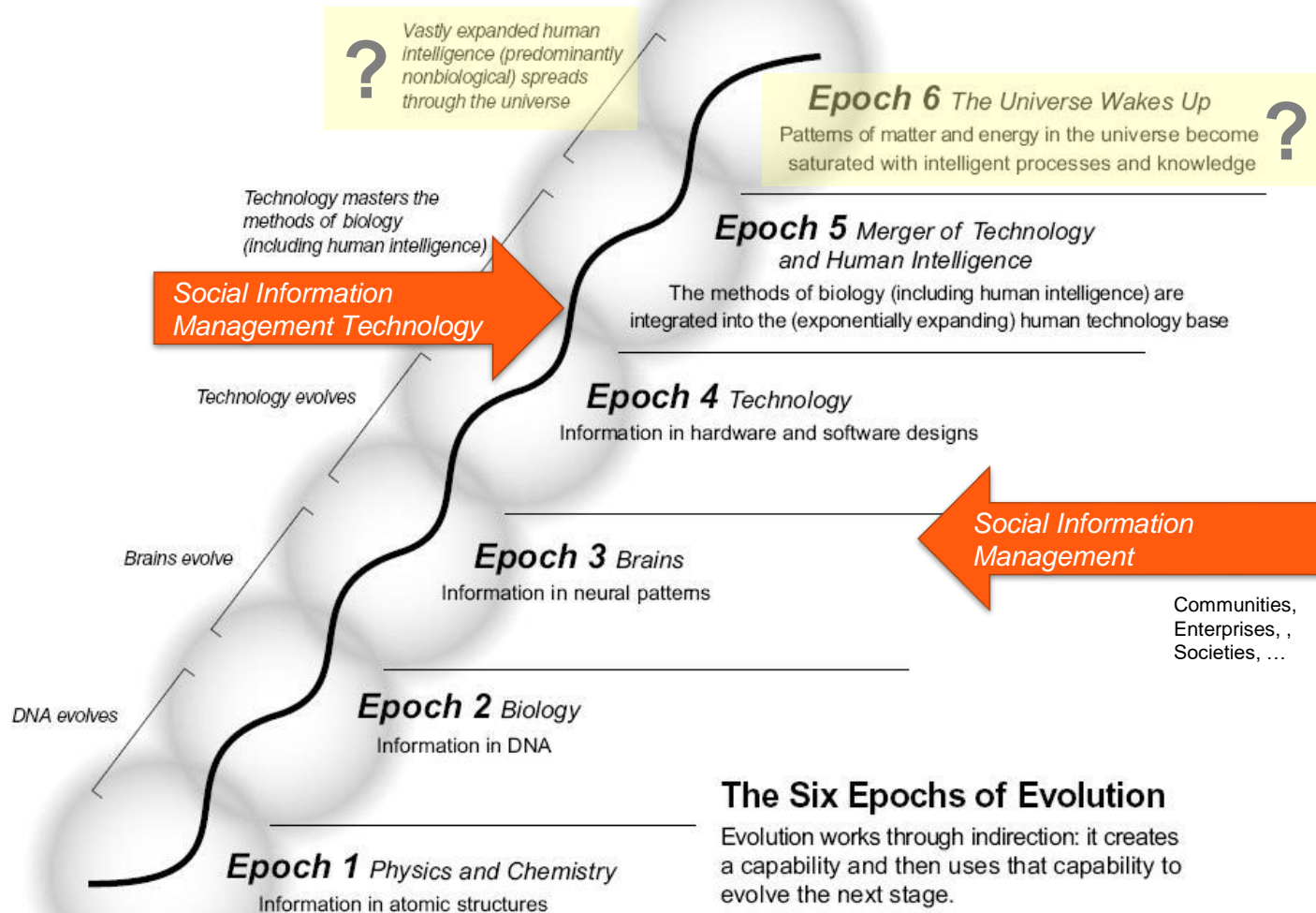




- $10^2 - 10^3$  networked and highly diverse information systems
- Complexity ~ number of relationships between systems
- IT does not keep pace with accelerating speed of business
- Maintenance costs *eat up* IT budget and limit ability to transform



# Speculation: Where does the evolution of information technology lead?





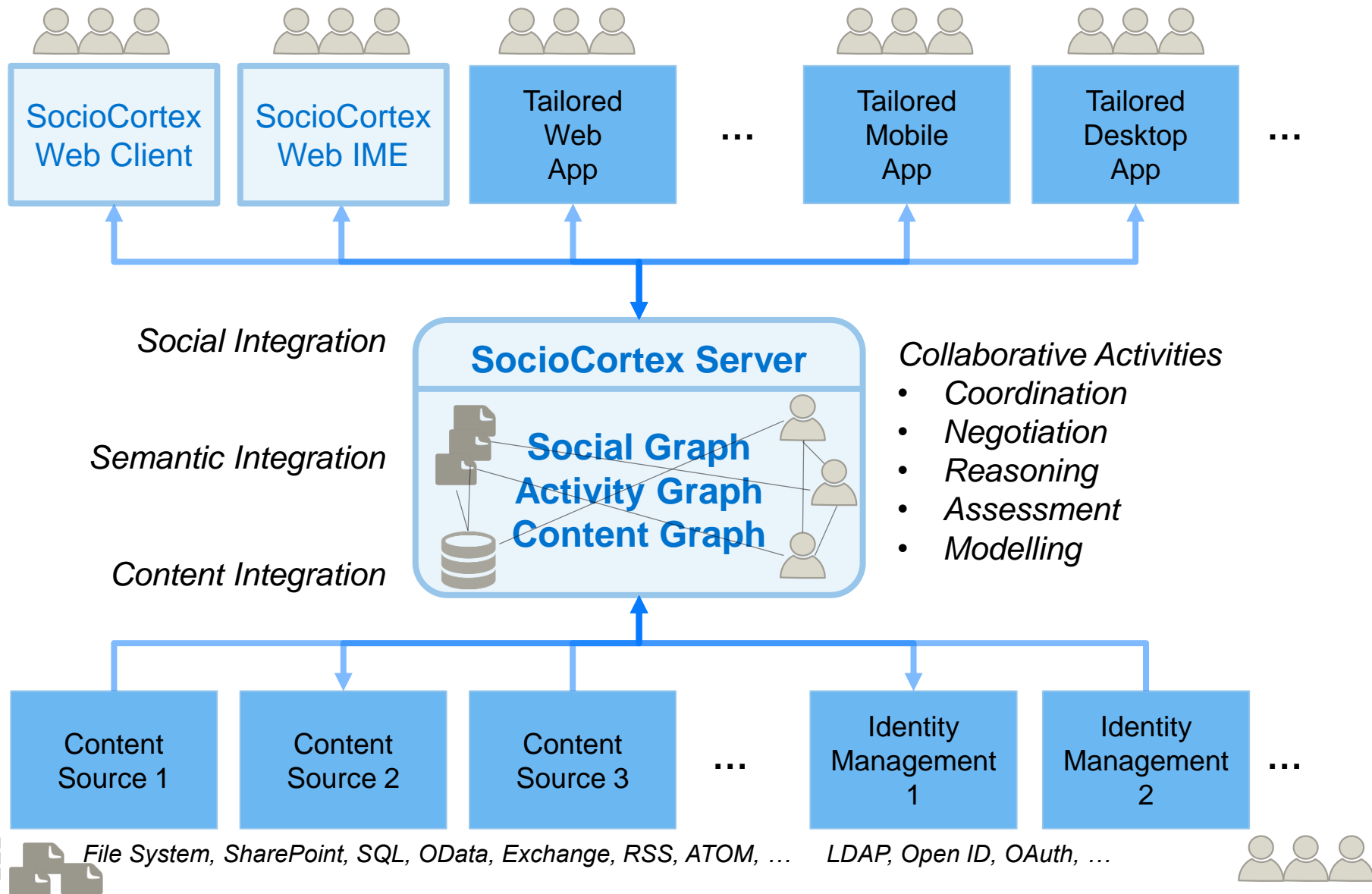
## 1. Motivation: thinking and working together

## 2. SocioCortex overview

Architecture, capabilities and user interface

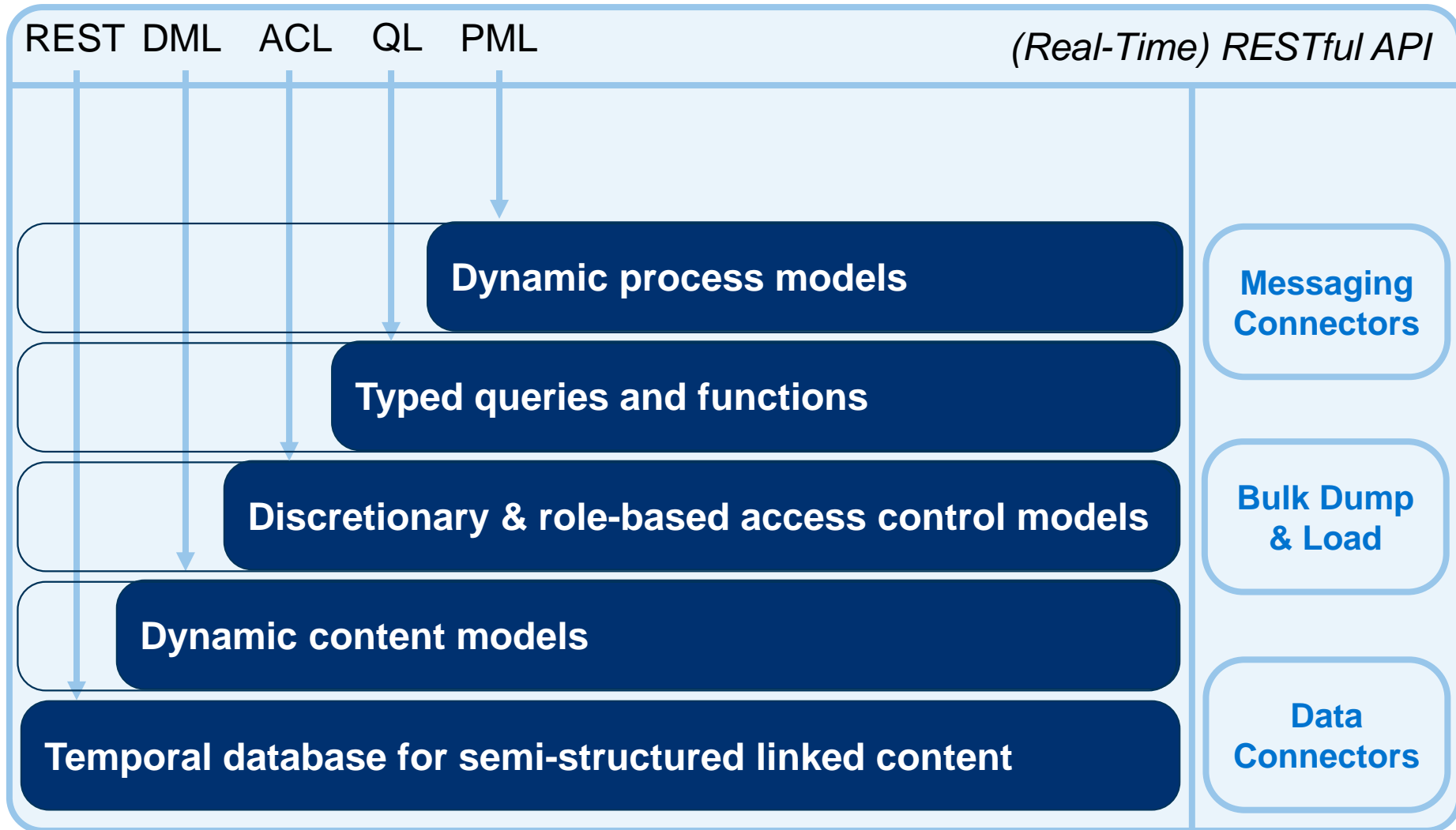
## 3. Summary and outlook







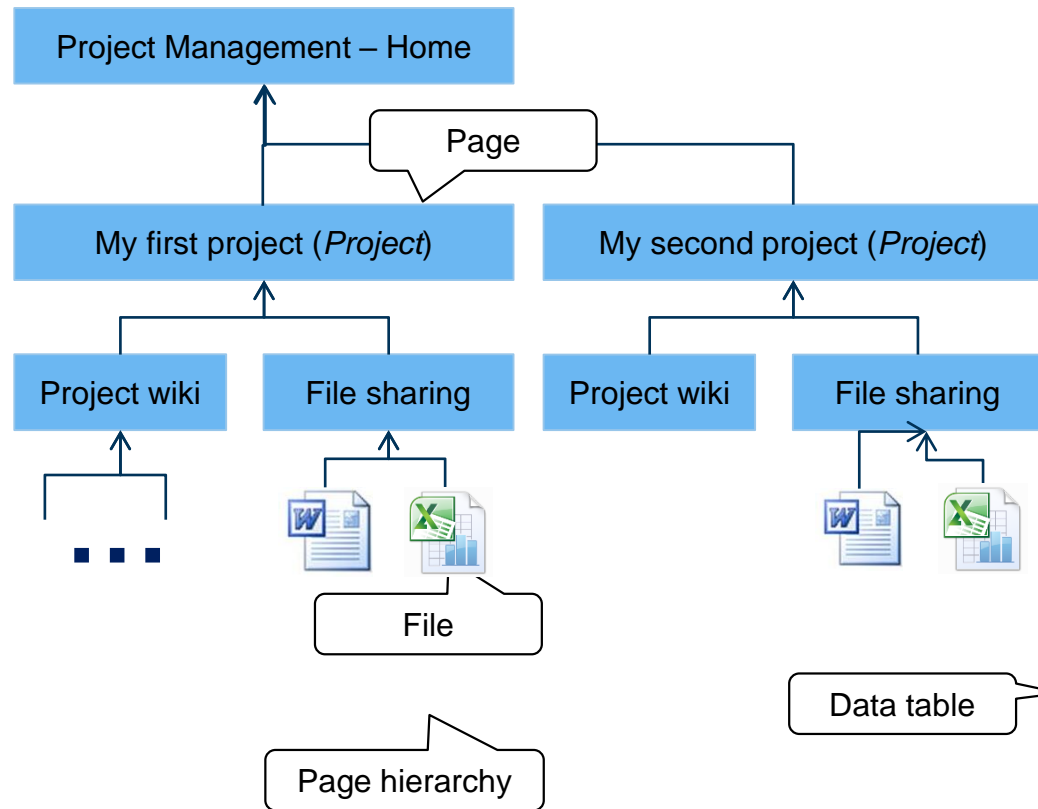
# SocioCortex is a platform for social content & model management.





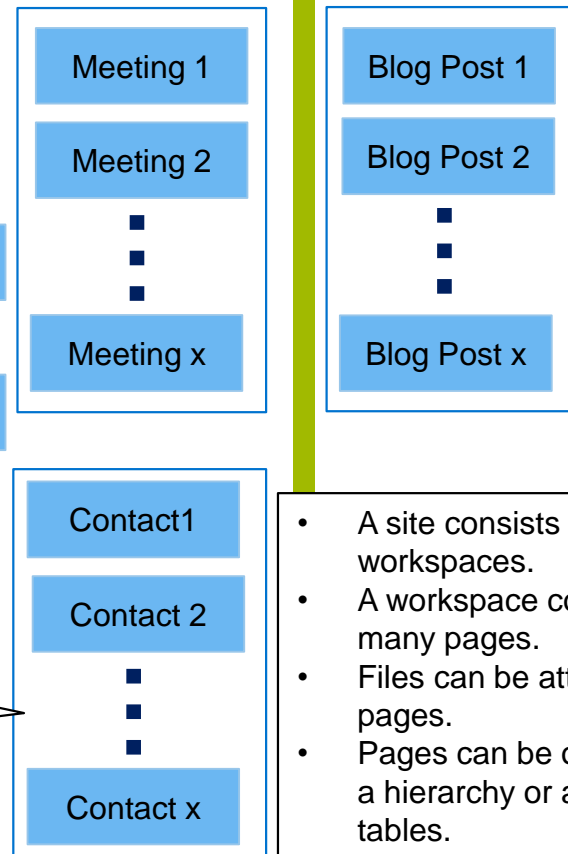
## SocioCortex

### Project Management



Workspace

### Project blog



- A site consists of multiple workspaces.
- A workspace contains many pages.
- Files can be attached to pages.
- Pages can be organized in a hierarchy or as data tables.



# The generic SocioCortex web client

The screenshot displays the SocioCortex web client interface. On the left is a sidebar with an 'Explorer' section showing a hierarchical tree of project spaces, including 'Projektmanagement' and 'Mein erstes Projekt'. A callout points to this sidebar, stating: 'Explorer shows the current position in the page hierarchy'. The top navigation bar includes links for 'My Home', 'Activity Stream', and 'Users & Groups', along with a search bar and a '+ New' button. A callout points to the breadcrumb navigation path: '/ Projektmanagement / Projektmanagement - Home / Mein erstes Projekt', stating: 'Navigation path to the current page'. Below the navigation bar, the main content area is titled 'Mein erstes Projekt'. A callout points to this title, stating: 'Title of the current page'. To the right of the title is a section for 'Attributes of this Projekt' with an 'Edit' button. The main content area is currently empty, with a large text overlay that reads: 'Content of the current page "My first project"\$'. A callout points to the main content area, stating: 'Current workspace contains the current page'. At the bottom of the sidebar, there is a '+ New Workspace' button and links for 'Deleted Items' and 'Site Settings'.



# A page contains structured and unstructured information.

🏠 / Projektmanagement / Projektmanagement - Home / Mein erstes Projekt

View Details Settings 2 Comments 1 Task

Watch

## Mein erstes Projekt

Title of the page

Created Feb 21 - Last modified by Nastaran Matthes 1 minute ago View Versions

schulung beispiel

Tags help to find the page using the full text search

### Projektziel

Sie lernen an einem einfachen Beispiel, wie Sie Projektaufgaben und Projektinformationen mit Tricia verwalten. Am Ende des Projekts sind Sie in der Lage, Ihr eigenes Projekt gemäß dieser Vorlage als Kopie anzulegen (10 Ein eigenes Projekt anlegen).

Text with embedded images, tables, links, expressions, data widgets, ...

### Projektaufgaben

Die Projektaufgaben werden bei dem Reiter My Delegated Tasks-Seite des Benutzers angezeigt, der die Aufgabe angelegt hat, sowie auf dem My Tasks Reiter der Benutzer, denen die Aufgabe zugeordnet wurde.

Ein Projekt kann bei Bedarf in Arbeitspakete aufgeteilt werden. Jedes Arbeitspaket verweist auf das Projekt, zu dem es gehört.

Projektaufgaben können auch diesen Arbeitspaketen (zum Beispiel Teilprojekt, Release, Sprint, ...) direkt zugeordnet werden.

### Projektdiskussion

Alle Projektbeteiligten können unter dem Reiter Comments ihre Kommentare zum Projekt abgeben und auf Kommentare antworten. Alternativ können Sie ein separates Projektblog als eigenen Workspace mit dem Layout (Theme) blog anlegen.

### Neuigkeiten

- An dieser Stelle können Sie neue Informationen für das gesamte Team verfügbar machen.
- Jeder Eintrag kann auch Links auf weitergehende Informationen enthalten.
- Sehen Sie sich jetzt bitte das Projektwiki an.

### Ergebnisse

- Sie können auf Wunsch wichtige Ergebnisse (Publikationen, Präsentationen, ...) hier veröffentlichen.

### Attributes of this Projekt

Type of the page

Status	Aktiv
Auftraggeber	Name des Auftraggebers
Start	21.02.2013
Ende	21.02.2013
Team (interne Nutzer)	Florian M. Nastaran M.
Team (externe Kontakte)	
Erklärung	Hier können Sie bei Bedarf weitere Attribute angeben.

Attributes

References to other pages

### Incoming links

+ Projekt	Meeting
+ Projekt	Arbeitspaket

What links to this page?

Ad-hoc definition of additional attributes (name, values/references)



# A page can contain subpages and files.

- Subpages and files inherit the permissions of their parent page and are included during copying, moving and deleting.

## Filesharing

Created by Nastaran Matthes Feb 21 - Last modified by Florian Matthes Feb 22 [View Versions](#)

folder

Sie können Dateien, die für das Projekt relevant sind, als Anlagen zu Tricia-Seiten hochladen.

Wenn Sie viele Dateien verwalten müssen, können Sie Unterseiten in Tricia anlegen, und die Dateien bei den Unterseiten hochladen.

Sie können mehrere Dateien auf einmal als ZIP-Datei hochladen und herunterladen.

- [Schauen Sie sich den Inhalt der Seite "Präsentationen" an, und laden Sie sie hoch.](#)

## Subpages and Files

	Name	Type	Size	Last Modification	Last Editor	
<input checked="" type="checkbox"/>	Präsentationen	Text Page		21.02.2013	Florian	
<input checked="" type="checkbox"/>	Readme.txt	File	1 KB	22.02.2013	Florian	

Bulk download as a ZIP file

Table of files and subpages

Operations are applied to all selected files and subpages

Select multiple files and subpages

Upload files with drag & drop



# All content items have a version history.

## Projektmanagement - Home

Created Feb 8 - Last modified by Max Mustermann Feb 23 [View Versions](#)

Click here

[Home](#) / [Projektmanagement](#) / [Projektmanagement - Home](#) / Versions

☐ combine similar changes

## Versions of Projektmanagement - Home

yesterday

Changed: Description ⓘ

[Edited by Max Mustermann]

View a single change

yesterday (compare with current)

Changed: Description ⓘ

[Edited by Max Mustermann]

View the differences with the current version

yesterday (compare with current)

Changed: Hide Files and Subpages ⓘ

[Edited by Nastaran Matthes]

2 days ago (compare with current)

Changed: Description ⓘ

[Edited by Florian Matthes]



**Navigation:** *Project Management* → *View Versions* → *compare with current*

[🏠](#) / [Projektmanagement](#) / [Projektmanagement - Home](#) / [Version Comparison](#)

[View](#) [Details](#) [Settings](#) [0 Comments](#) [0 Tasks](#)




## Differences between Projektmanagement - Home and version of Feb/

[Restore this version](#)

Property	Difference						
<b>Description</b>	<p>→ <a href="#">DaisyDiff</a></p> <p>Alternative display of the text changes</p> <table> <tr> <td>→</td><td>[...] Überblick über sämtliche Projekte erhalten Sie , indem Sie auf <del>der Seite Sie können später bei Bedarf den Inhalt dieser Seite und die Tabelle an Ihre Wünsche anpassen</del> Projekte in der linken Navigation (Explorer) klicken . [...]</td></tr> <tr> <td>✗</td><td>           [...] in der linken Navigation (Explorer) klicken.            [...]                       Navigieren Sie jetzt zu [...]         </td></tr> <tr> <td>→</td><td>Navigieren Sie jetzt zu <del>"Mein erstes Projekt" durch Klick auf den Namen des Projekts- [...] "Team (externe Kontakte)" , "Team (interne Nutzer)" }</del> <code>\$embedSearch\$</code> der Tabelle Projekte und klicken Sie [...]</td></tr> </table>	→	[...] Überblick über sämtliche Projekte erhalten Sie , indem Sie auf <del>der Seite Sie können später bei Bedarf den Inhalt dieser Seite und die Tabelle an Ihre Wünsche anpassen</del> Projekte in der linken Navigation (Explorer) klicken . [...]	✗	[...] in der linken Navigation (Explorer) klicken. [...] Navigieren Sie jetzt zu [...]	→	Navigieren Sie jetzt zu <del>"Mein erstes Projekt" durch Klick auf den Namen des Projekts- [...] "Team (externe Kontakte)" , "Team (interne Nutzer)" }</del> <code>\$embedSearch\$</code> der Tabelle Projekte und klicken Sie [...]
→	[...] Überblick über sämtliche Projekte erhalten Sie , indem Sie auf <del>der Seite Sie können später bei Bedarf den Inhalt dieser Seite und die Tabelle an Ihre Wünsche anpassen</del> Projekte in der linken Navigation (Explorer) klicken . [...]						
✗	[...] in der linken Navigation (Explorer) klicken. [...] Navigieren Sie jetzt zu [...]						
→	Navigieren Sie jetzt zu <del>"Mein erstes Projekt" durch Klick auf den Namen des Projekts- [...] "Team (externe Kontakte)" , "Team (interne Nutzer)" }</del> <code>\$embedSearch\$</code> der Tabelle Projekte und klicken Sie [...]						



# Example: Structured information management




Fakultät für Informatik


Workspaces

Search

- + CML Workspace
- + Fakultätenwegweiser
- + Software Engineering @ TUM
- + Ausbaumittel 2015
- + Workshops
- + Direktorium
- + Ehler
- + Fakultätsrat
- + Fakultätsstatistik
- + GD-F Informatik Wiki
- + Gremien\_Informatik
- + Infokaffee-Wiki
- + Internationales
- + Internet und Intranet
- + Intranet-FAQ
- + ITüpfel
- + Leitungsrunde Informatik Wiki
- + Mitgliedschaften
- + MoNetCom-Audit
- + Öffentlichkeitsarbeit
- Promotions- und Habilitationsumläufe
- + Rechnerbetriebsgruppe, RBG
- + Schwarzes Brett der Fakultät für Informatik
- + Servicebüro Finanzen, SB-F-IN



Intranet

Technische Universität München 

Promotions- und Habilitationsumläufe

Ansicht Dateien und Unterseiten Versionen

Arbeitsbereich beobachten

Zuletzt geändert von Büchner, Thomas Nov 23, 2013

## Alle Promotions- und Habilitationsumläufe

Search table

<input type="checkbox"/>	Name	Modified	Typ	Zustand	Ablaufdatum	# Stimmen	Organisator(en)
<input type="checkbox"/>	<a href="#">Promotionsumlauf</a>	2015/06/11	Promotionsumlauf	Geschlossen	11.06.2015 - 14:19:50	20	<a href="#">Müller, Marlene</a>
<input type="checkbox"/>	<a href="#">Habilitationsumlauf</a>	2015/06/11	Habilitationsumlauf	Geschlossen	21.04.2015 - 11:47:41	39	<a href="#">Fischer-Russenberger, Manuela</a>
<input type="checkbox"/>	<a href="#">Promotionsumlauf</a>	2015/06/11	Promotionsumlauf	Offen	25.06.2015 - 10:25:30	15	<a href="#">Remmes, Herta</a>
<input type="checkbox"/>	<a href="#">Promotionsumlauf</a>	2015/06/09	Promotionsumlauf	Offen	23.06.2015 - 14:40:14	19	<a href="#">Hinterwimmer, Beate Christine</a>
<input type="checkbox"/>	<a href="#">Promotionsumlauf</a>	2015/06/09	Promotionsumlauf	Noch nicht geöffnet		0	<a href="#">Müller, Marlene</a>
<input type="checkbox"/>	<a href="#">Promotionsumlauf</a>	2015/06/09	Promotionsumlauf	Noch nicht geöffnet		0	<a href="#">Guggenmos, Susanne</a>
<input type="checkbox"/>	<a href="#">Promotionsumlauf</a>	2015/06/08	Promotionsumlauf	Offen	22.06.2015 - 13:36:09	23	<a href="#">Hinterwimmer, Beate Christine</a>



Embed an expression

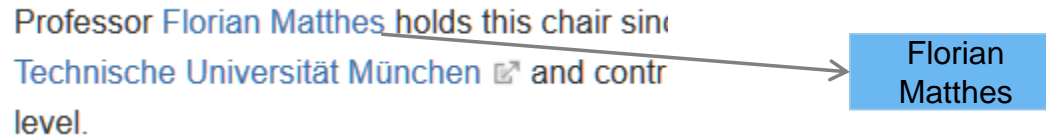
Embed a data widget

Draft saved at 10:00:49 PM.

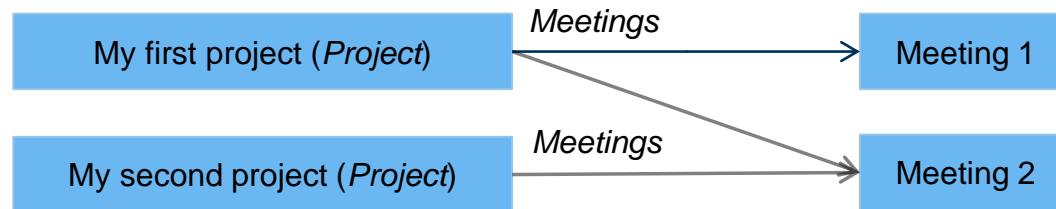
The screenshot shows a rich text editor interface. At the top, a status bar indicates "Draft saved at 10:00:49 PM." Below this is a toolbar with various icons for text formatting (bold, italic, underline, strikethrough), paragraph alignment, font family, font size, bulleted and numbered lists, link, unlink, bookmark, image, table of contents, and code. A second row of icons includes undo, redo, indent, outdent, quote, unquote, link, unlink, subscript, superscript, insert link, insert image, insert table, and a code icon. The main text area is empty, with a cursor at the top left. A context menu is open over the text area, listing the following options: "Insert link", "Insert image", "Insert table" (with a right-pointing arrow), "Cell" (with a right-pointing arrow), "Row" (with a right-pointing arrow), "Column" (with a right-pointing arrow), and "Delete table". At the bottom left of the editor are "Save" and "Cancel" buttons. At the bottom right, a status bar shows "Words: 747".



- **Embedded links** in a rich text, image, data widget, video, 3D model, ...



- Named **references** as content attributes

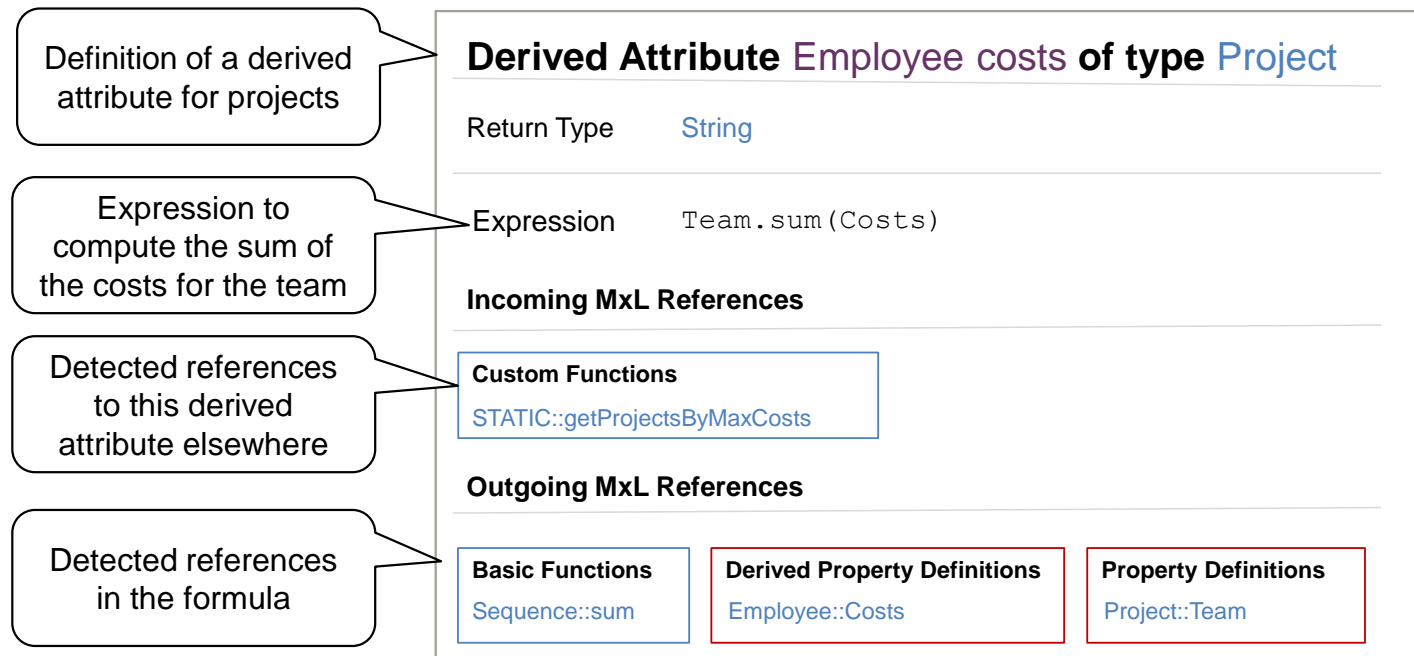
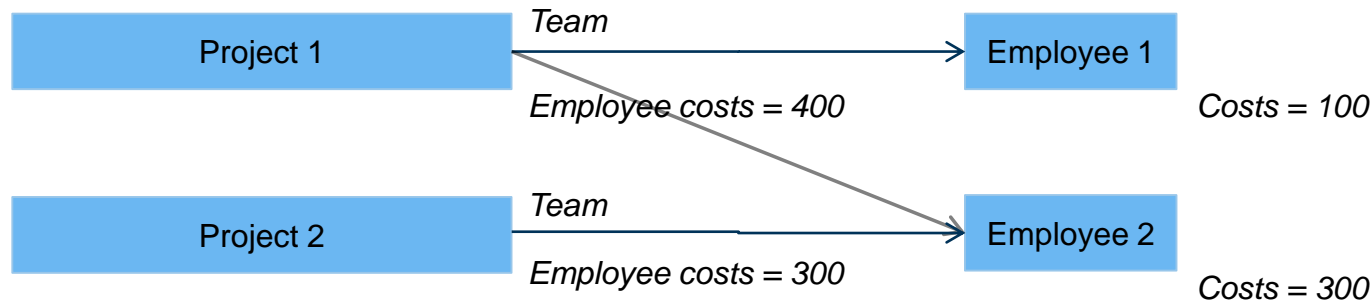


- **Part of relationships** between subpages, files, comments, tasks, versions.
- Named **references** in derived attributes and embedded expressions

`this.Team.sum(Costs)`



# Example: Link management for derived attributes





- Validation of static semantics
  - Resolving identifiers
  - Determining semantics of operators
- Expression analysis
  - Determination of an MxL 2.0 expression's dependencies
  - Enables reference management by tool (Tricia)
  - Navigation through the computation graph
- Automated change propagation
  - Keep consistency on schematic change (e.g., renaming of type)
  - Recalculate on data change (e.g., change of attribute value)

## Exemplary MxL 2.0 Derived Attribute

### Derived Attribute **Employee costs** of type **Project**

Return Type **String**

Expression `Team.sum(Costs)`

#### Incoming MxL References

##### Custom Functions

[STATIC::getProjectsByMaxCosts](#)

#### Outgoing MxL References

##### Basic Functions

[Sequence::sum](#)

##### Derived Property Definitions

[Employee::Costs](#)

##### Property Definitions

[Project::Team](#)



### Business users love spreadsheets

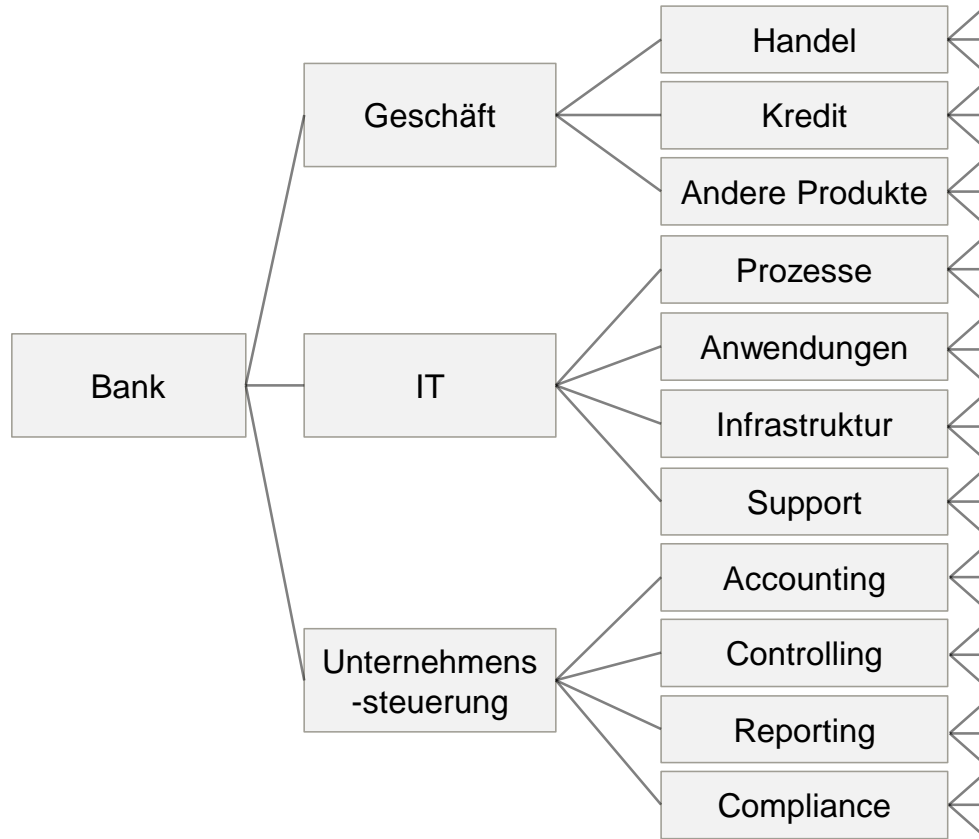
- Declarative and interactive paradigm to capture functional dependencies
- Modeling, analysis, simulation, visualization
- Empowerment of business-users
- Emergent structures (data, logic)

### Limitations of spreadsheets

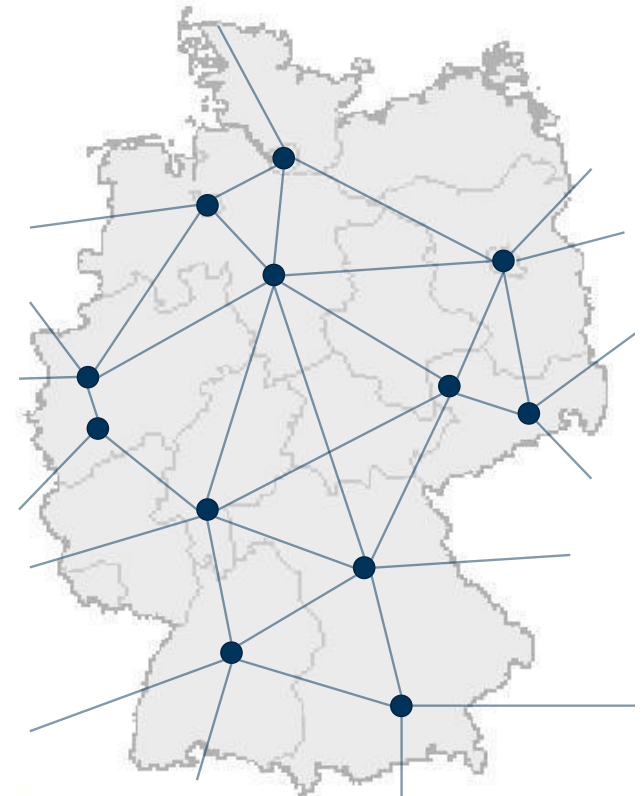
- Collaborative work
- Complex linked data
  - social networks, logistic networks, IT architectures, product models, multi-project plans
- Software engineering qualities
  - modularity, reusability, typing, binding, naming



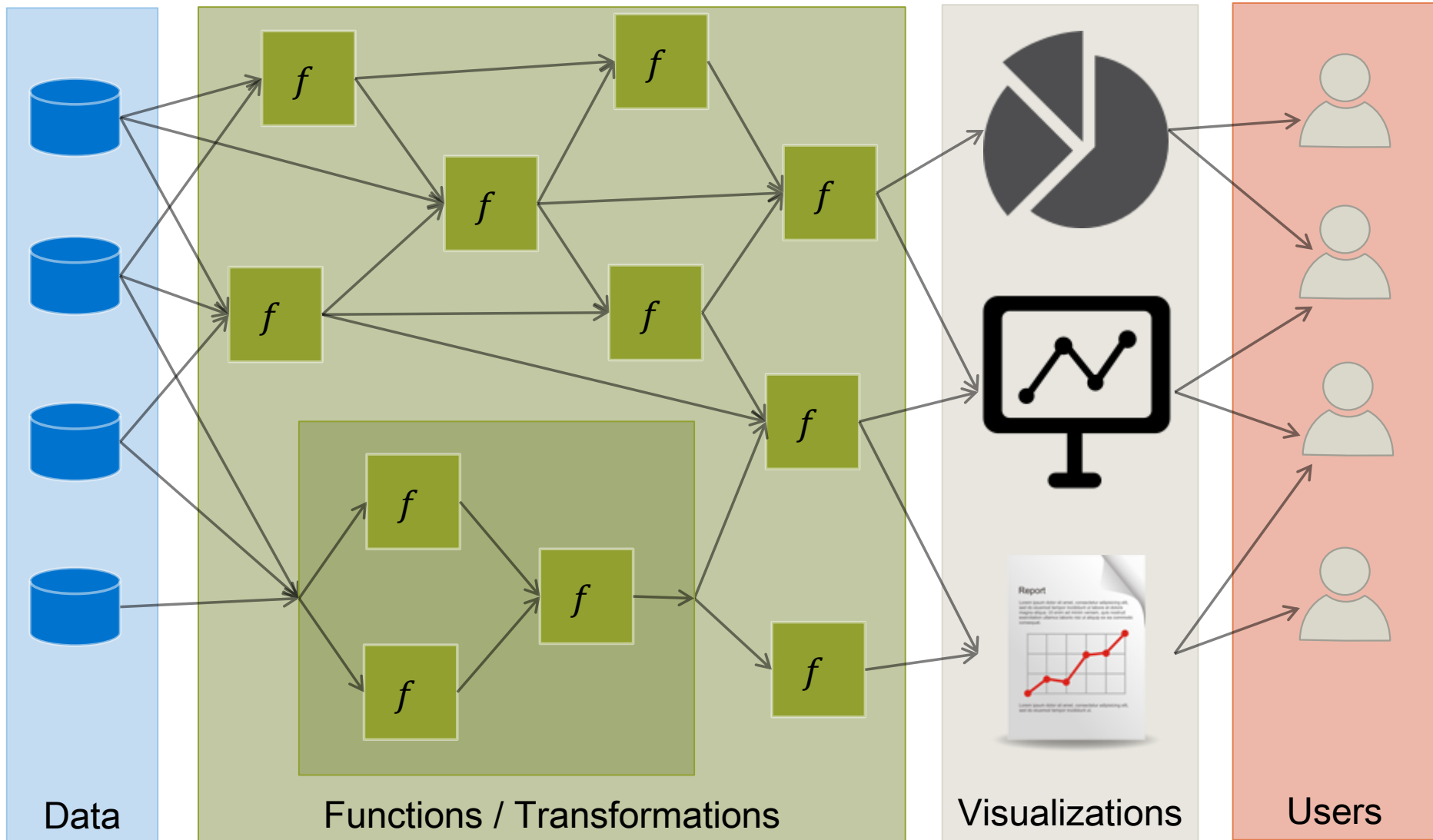
## Hierarchical data structures



## Networks







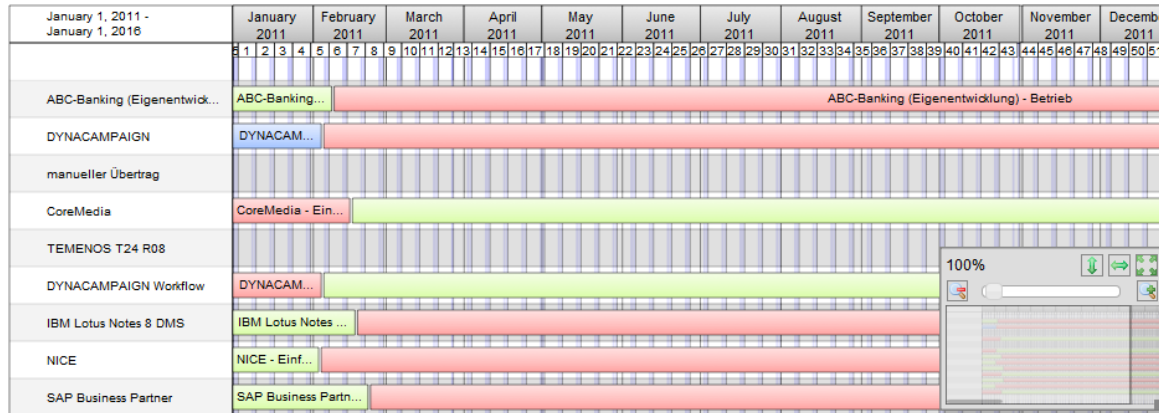
For more information visit [Spreadsheet 2.0](http://www.matthes.in.tum.de) (<http://www.matthes.in.tum.de>)



# Examples of diagram types

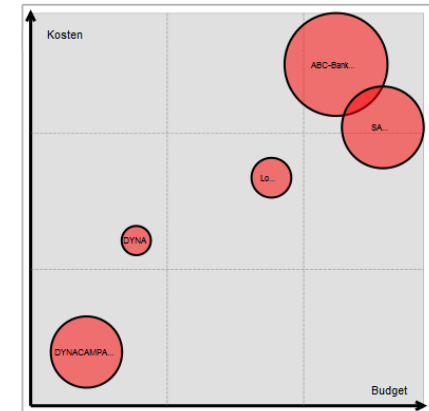
## Anwendungslebenszyklen

Tags: [timeinterval](#) [alignment-visualisierung](#) [map](#)



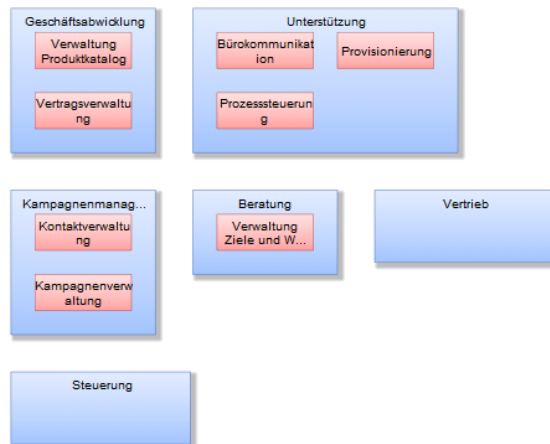
## Portfolio Diagramm

Tags: [alignment-visualisierung](#) [map](#)



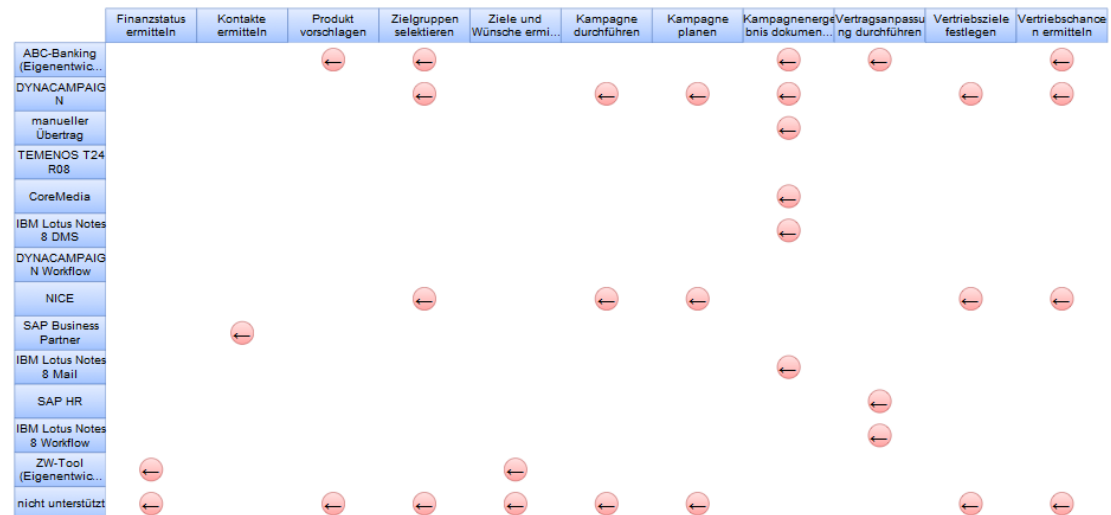
## Geschäftsdomäne-Geschäftsfähigkeiten

Tags: [map](#) [geschäfts-visualisierung](#) [cluster](#)



## Bebauungsplan (Ist) - Welcher Geschäftsprozess nutzt welche Anwendung?

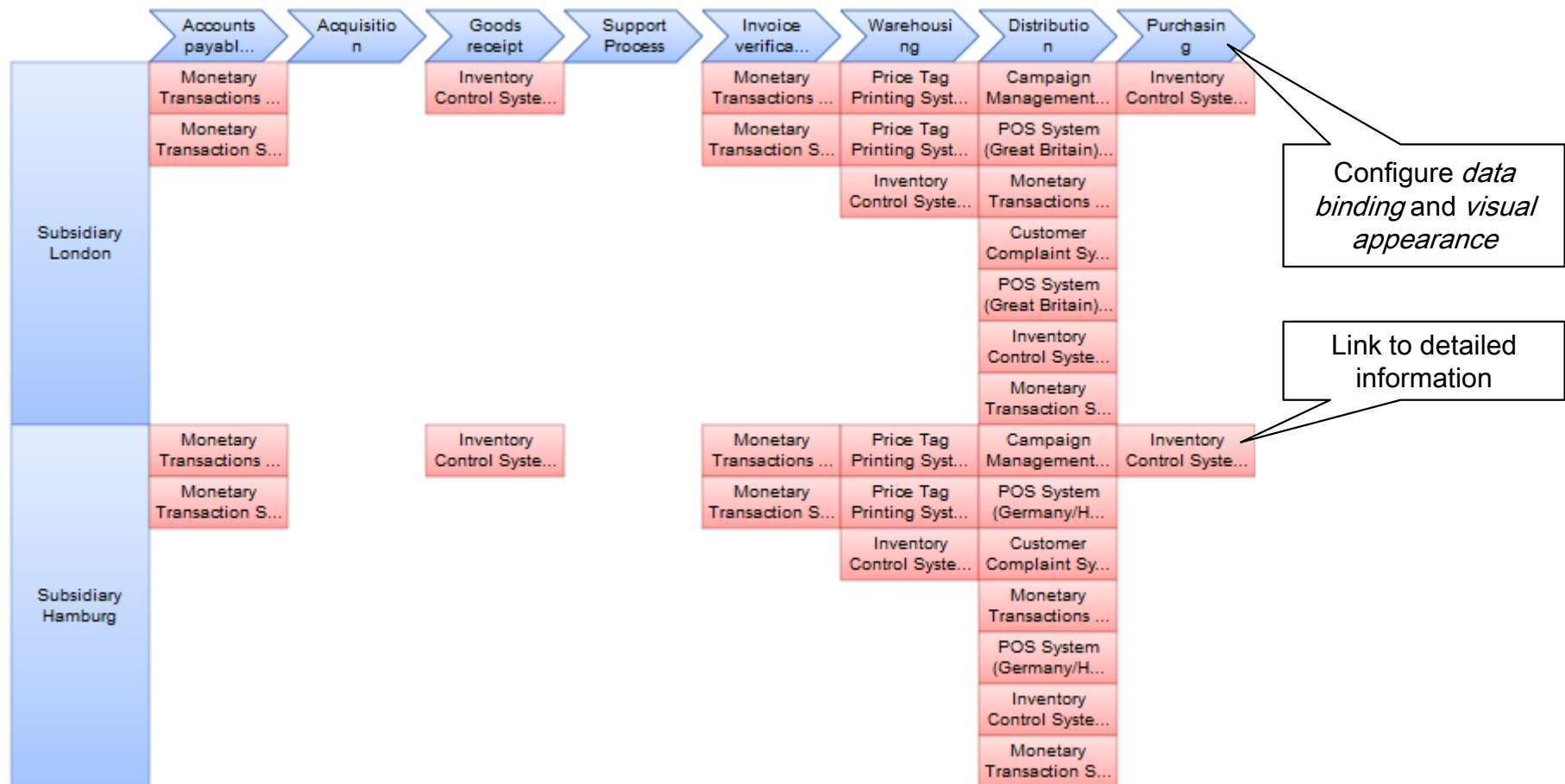
Tags: [alignment-visualisierung](#) [map](#)





# Example of a stakeholder-specific diagram

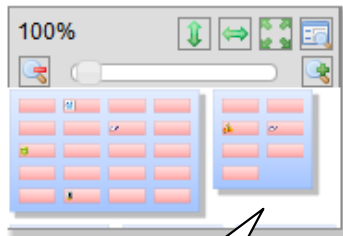
Which business application supports a business unit in a particular process step?





# Example of a stakeholder-specific diagram

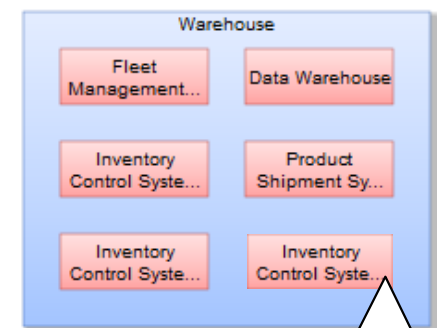
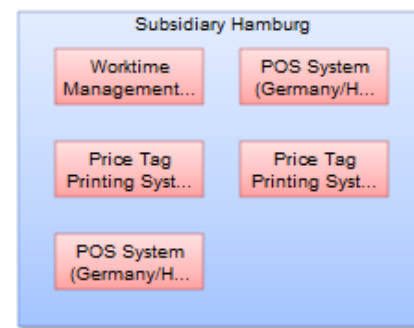
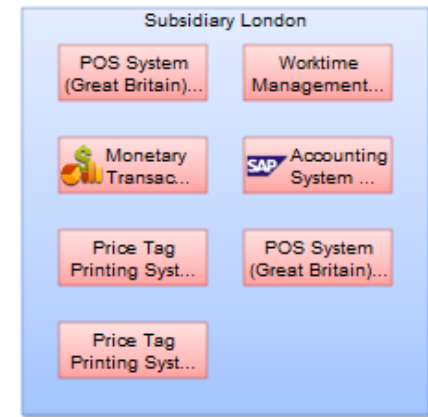
Which organizational unit is responsible for which business application?



Navigation mechanisms for large views

Link to detailed information

Create/update/delete *Business applications*



Interact



# Step 1: Selecting the diagram type

## Diagram editor > Step 1 of 3: Select diagram

Binary matrix diagram

Ternary matrix diagram

Data matrix diagram

Cluster diagram

Gantt diagram

Bubble diagram

MultiLevel Cluster Map



This example shows a cluster diagram displaying which business processes (inner cell) belong to which business domain (outer cell).

Cancel

Next

Back to top



# Step 2: Specify queries for the data sources

## Diagram editor > Step 2 of 3: Specify the data sources

Cluster diagram selected

Query for outer items

\* 🔍

Query for Inner Cell items

\* 🔍

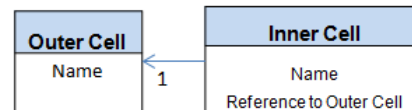
Reference to Outer Cell

\*

Or reference to Inner Cell

\*

Attribute that contains a link to an image



To configure the cluster diagram please enter queries for items that match the above UML class diagram, and that have the indicated (reference) attributes.

Cancel

Back

Next

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# Step 1: Selecting the diagram type

## Diagram editor > Step 1 of 3: Select diagram

Binary matrix diagram

Ternary matrix diagram

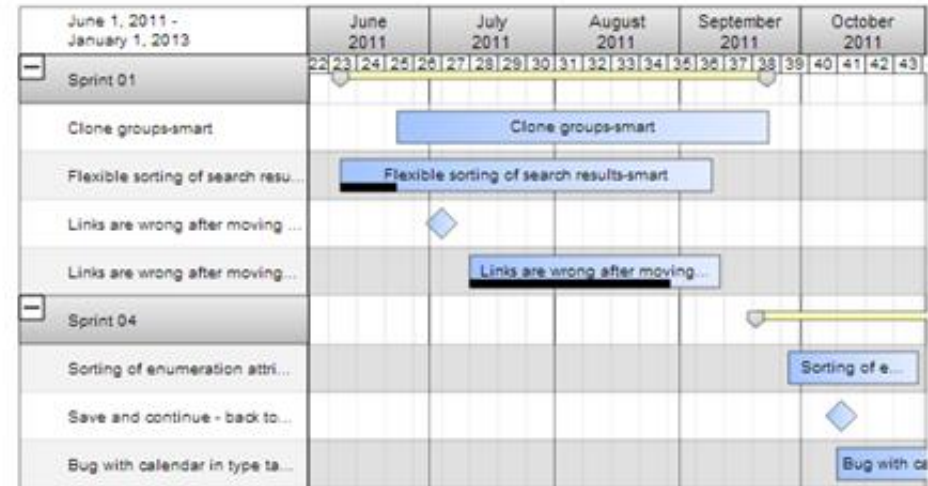
Data matrix diagram

Cluster diagram

**Gantt diagram**

Bubble diagram

MultiLevel Cluster Map



This example shows a Gantt diagram that visualizes the start and finish dates of projects (thin yellow bars) and of their tasks (blue bars) and milestones (diamonds). The black bar inside the tasks visualizes their progress.

Cancel

Next



# Step 2: Specify queries for the data sources

## Diagram editor > Step 2 of 3: Specify the data sources

Gantt diagram selected

Query for Project items

  \*

Query for Task items

  \*

Reference from Tasks to Project

 ▼ \*

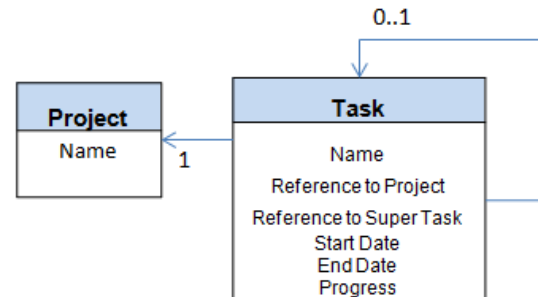
Or reference from Projects to Tasks

 ▼ \*

Reference from tasks to their Subtasks

 ▼

Or reference from tasks to their Supertasks

 ▼

To configure the Gantt diagram please enter queries for items that match the above UML class diagram, and that have the indicated (reference) attributes.

A Task may be the subtask of another Task.

The Progress is a numeric value between 0 and 100.

Cancel

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# Executable work plans on wiki pages

The screenshot displays the 'Sprint 7' page in the sebis application. The page is divided into three main sections: 'Tasks for this page', 'Timeline', and 'Attributes of this Sprint'.

**Tasks for this page:** A list of tasks with progress indicators. The tasks are:

- Add task to this page ...
- Refactor getExpertises
- Delete history tab for pages
- Refactor picture in feed
- Refactor picture in profile
- Add comment function in feed
- Fix file controller
- Show completed tasks in profile
- Fix picture width in editor

2 completed tasks

**Timeline:** A horizontal bar chart showing the progress of tasks. The tasks and their progress are:

- Refactor getExpertises: 95%
- Delete history tab for pages: 20%
- Refactor picture in feed: 45%
- Refactor picture in profile: 75%
- Add comment function in feed: 85%
- Fix file controller: 15%
- Show completed tasks in profile: 95%
- Fix picture width in editor: 10%

**Attributes of this Sprint:** A table listing attributes and their values.

Attribute	Value
Automatic MongoDB Update	✓
Expertise refactored	Add value ...
Meeting	17.12.2014
Mockup for feed	Add value ...
Mockup for profile	Profile Mockup.png
Picture in feed refactored	Add value ...
Picture in profile refactored	Add value ...
Picture width fixed	Add value ...
UserHistory deleted	✓

**Types:** A sidebar on the left lists the types of tasks: Project, Scrum, and Sprint. 'Sprint' is currently selected.

**Code Snippets:**

```
@echo off

REM move into the backups directory
CD C:\Users\hauder\h\Desktop\mongoDB BackUps\
```



Tasks for this page

Add task to this page ...

Refactor getExpertises

Delete history tab for pages

Refactor picture in feed

Refactor picture in profile

Add comment function in feed

Fix file controller

Show completed tasks in profile

Fix picture width in editor

2 completed tasks

Delete user history entity

Automatic MongoDB backup

Metadata for current task:

Start date: 16.11.2014

End date: 26.11.2014

Progress: 75

Expertise: Backend Html

Add keyword...

Close

**Sprint 7**

64

TODAY

Task	Progress (%)
Refactor getExpertises	95%
Delete history tab for pages	20%
Refactor picture in feed	45%
Refactor picture in profile	75%
Add comment function in feed	85%
Fix file controller	75%
Show completed tasks in profile	95%
Fix picture width in editor	10%

### Attributes:

String input field

Integer input field

☐

Boolean input field

Page input field

Usability

Usability

Maintainability

Availability

Reliability

Enum input field

Stakeholder Model

Stakeholder\_Model.pdf

Uploaded file

new date

October 2014

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
39	28	29	30	01	02	03	04
40	05	06	07	08	09	10	11
41	12	13	14	15	16	17	18
42	19	20	21	22	23	24	25
43	26	27	28	29	30	31	01
44	02	03	04	05	06	07	08

Date input field



# Expertises and past achievements as credits for contribution

## Profile of froehlichs

Expertises

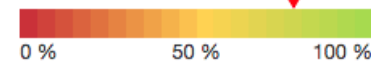


Highcharts.com

## Ranking

### Percentile

froehlichs completed more tasks than 80% of the other users.



Name: froehlichs

Email: froehlichs

Open tasks

### Open Tasks 1

0

Submit project document

Document

11.02.2015 - 27.02.2015

Ends in 4 days

Warning

Closed tasks

### Closed Tasks 27

100

Improve loading time for profile method

Sprint 13

Finished on: 03.02.2015

100

Solve empty expertise error

Sprint 13

Finished on: 27.01.2015

100

Solve wrong date format error

Finished on: 27.01.2015



## 1. Motivation: thinking and working together

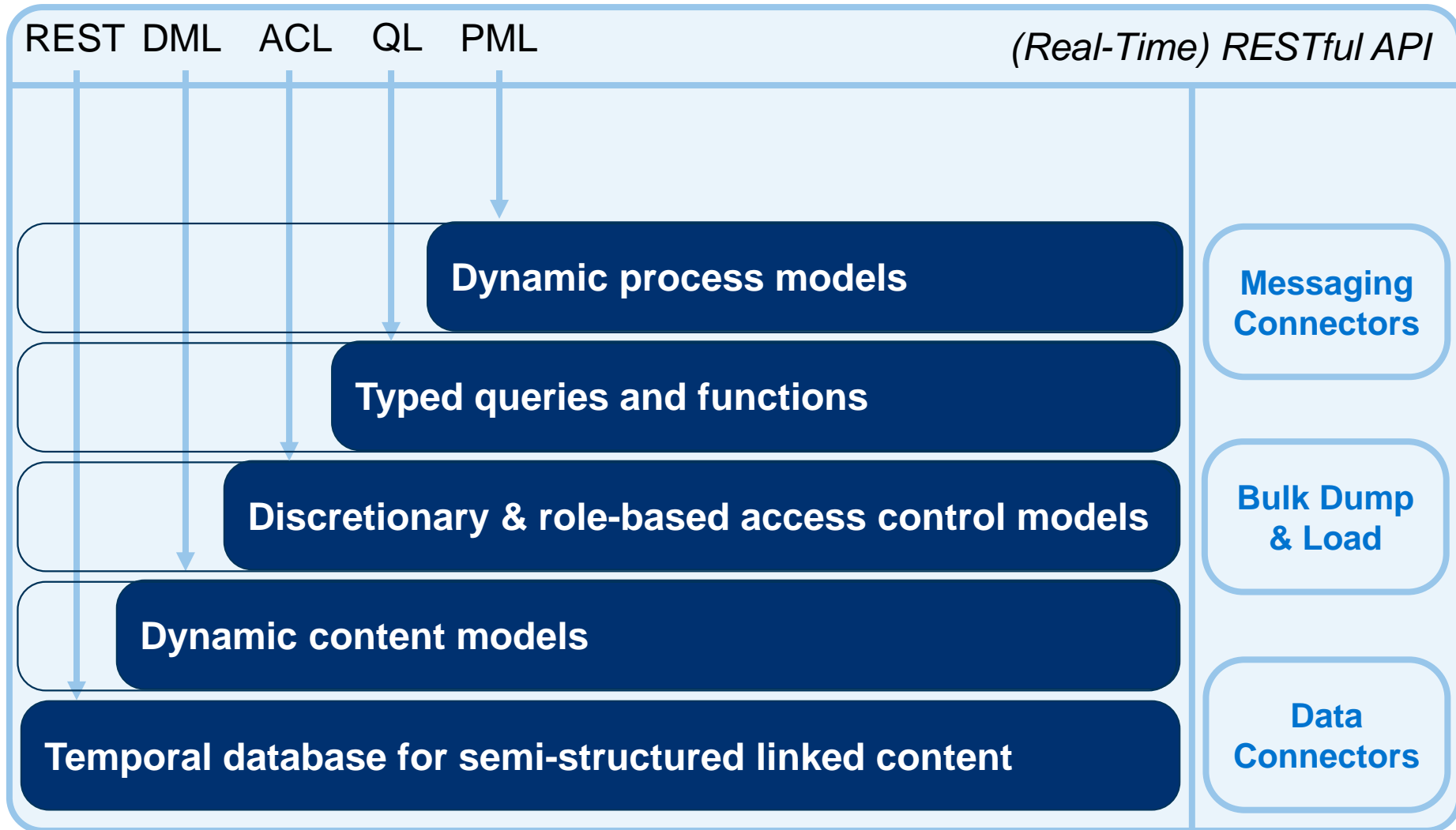
## 2. SocioCortex overview

Architecture, capabilities and user interface

## 3. Summary and outlook

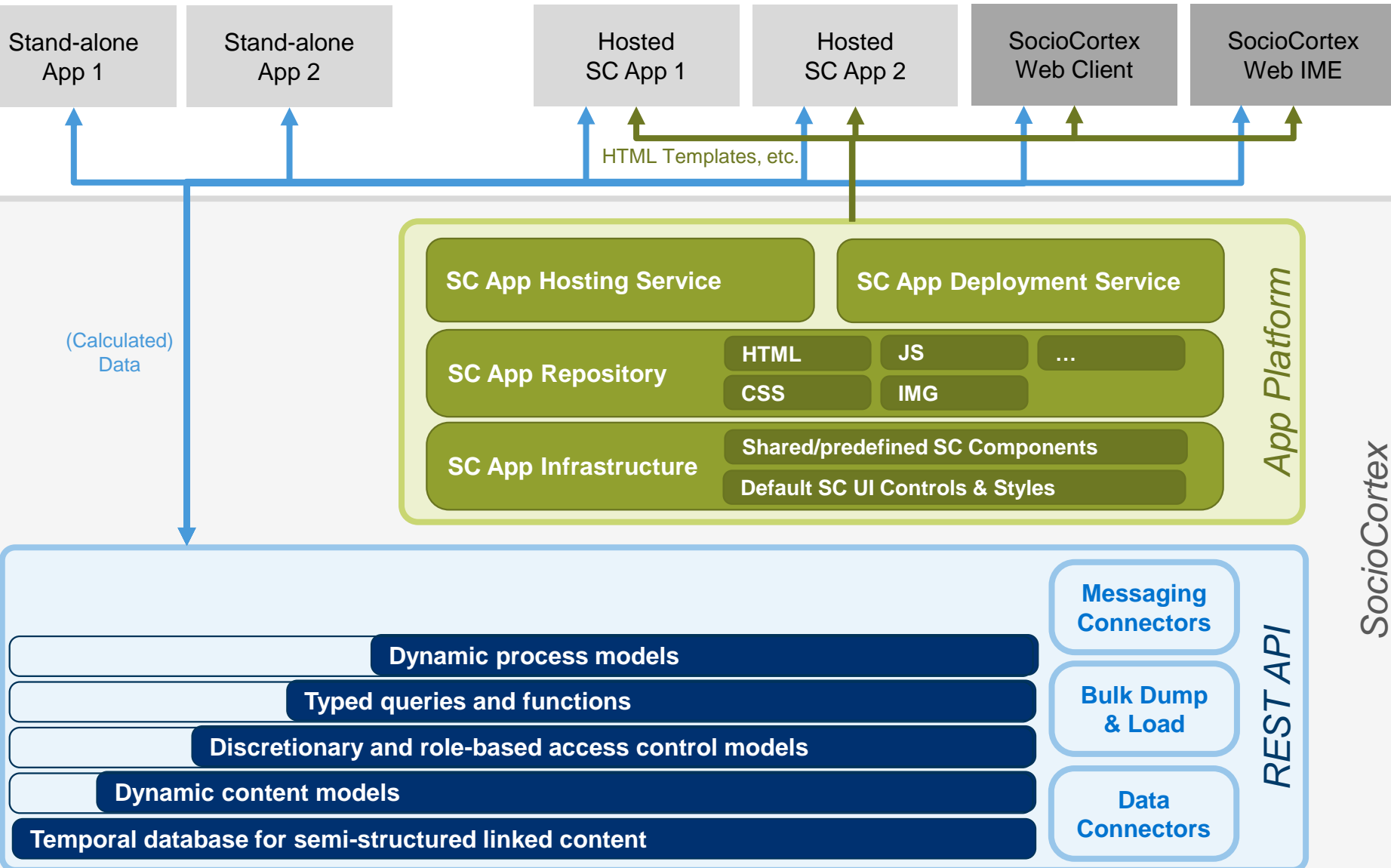


# SocioCortex is a social content & model management platform.





# SocioCortex also provides services for managing and hosting SocioCortex web apps.





## Summary

- Based on the experience of 15 years of research and engineering
- Main design goals
  - Content integration, social integration, flexibility
- Separation of
  - short-cycle vertical special-purpose apps
  - long-lived integrating content and model-centric platform

## Outlook – Evaluation in innovative content and social integration cases

- Collaborative legal text analysis (Lexalyze, LMU)
- Vertical social software (Siemens)
- Connected mobility services platform and ecosystem (TUM, BMW, SIEMENS)
- InCoBate
- Patient-centered integrated health care management





Thank you for your attention. Questions?



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## **Social Content and Model Management using SocioCortex**

45 min incl. discussion / English / Prof. Florian Matthes TU München

In this talk we report on the latest results of our social software engineering research at TU München.

SocioCortex is a web-based platform that provides a novel mix of content and model management concepts and services to support problem-solving processes in organizations. These processes involve stakeholders with different interests and background that want to use their preferred content representations (tables, hypertexts, images, drawings, maps, 3d models, matrices, mathematical formulas) which involve diverse content sources and channels.

Using examples from industry projects we illustrate how SocioCortex enables the emergence of data models, access-control modes, process models and UI models shaped by the actual problem-solving processes performed on the platform.