Technische Universität München

sebis

Design and Prototypical Implementation of a Web-based Spreadsheet System for Managing and Analyzing Semi-structured Data

Alexander Meissner, 16/11/2015

Software Engineering for Business Information Systems (sebis)
Department of Informatics
Technische Universität München, Germany

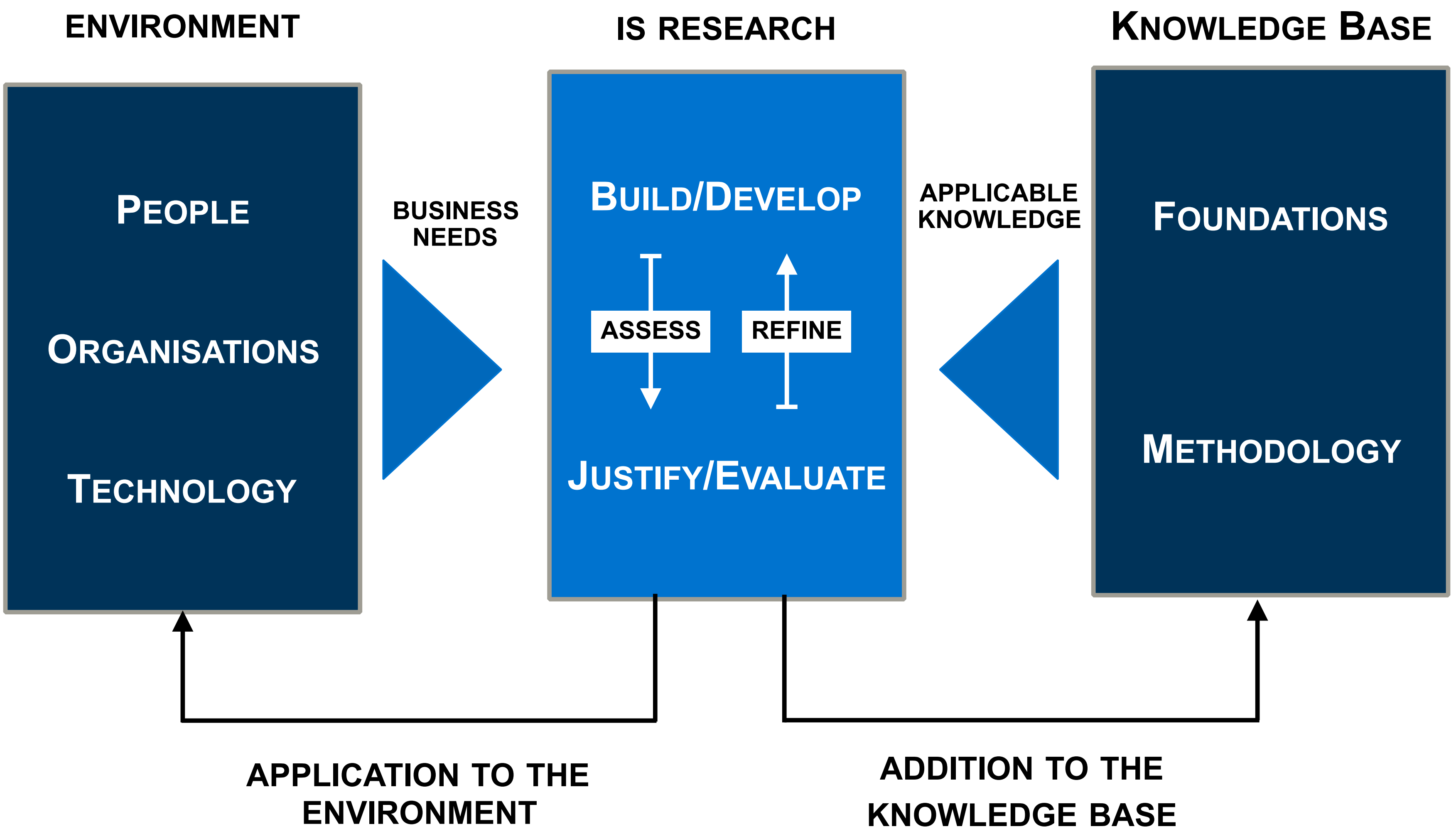
wwwmatthes.in.tum.de

Motivation

Motivation

What is a **model driven approach** to **managing complex linked data** in order to **prevent erroneous input** in web-based spreadsheet systems?

Research Methodology



Environment

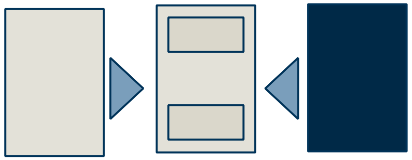
SLATE

Google Sheets

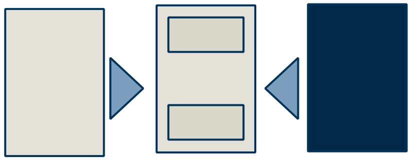
ZOHO Work · Online

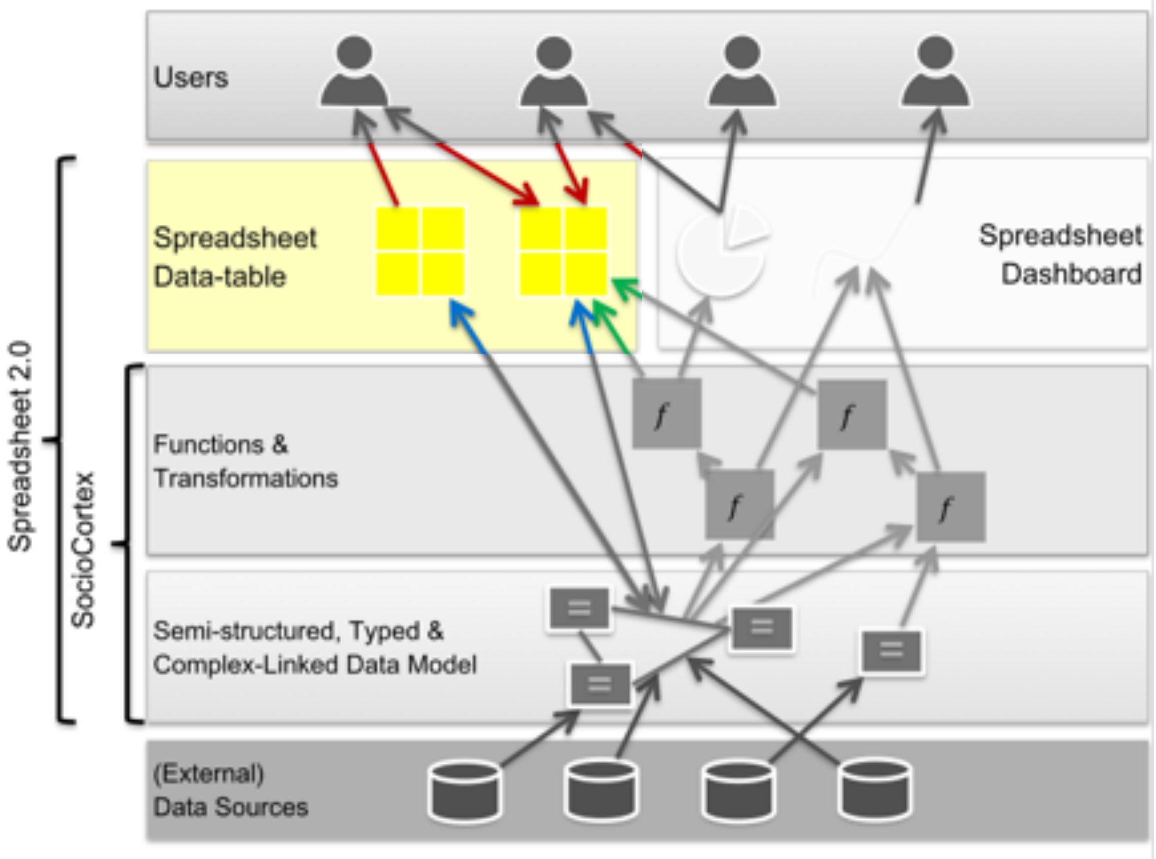
smartsheet

Knowledge Base

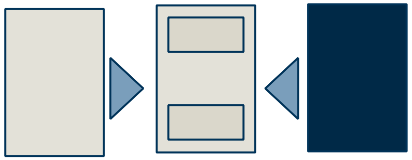


Knowledge Base

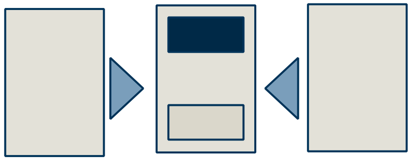


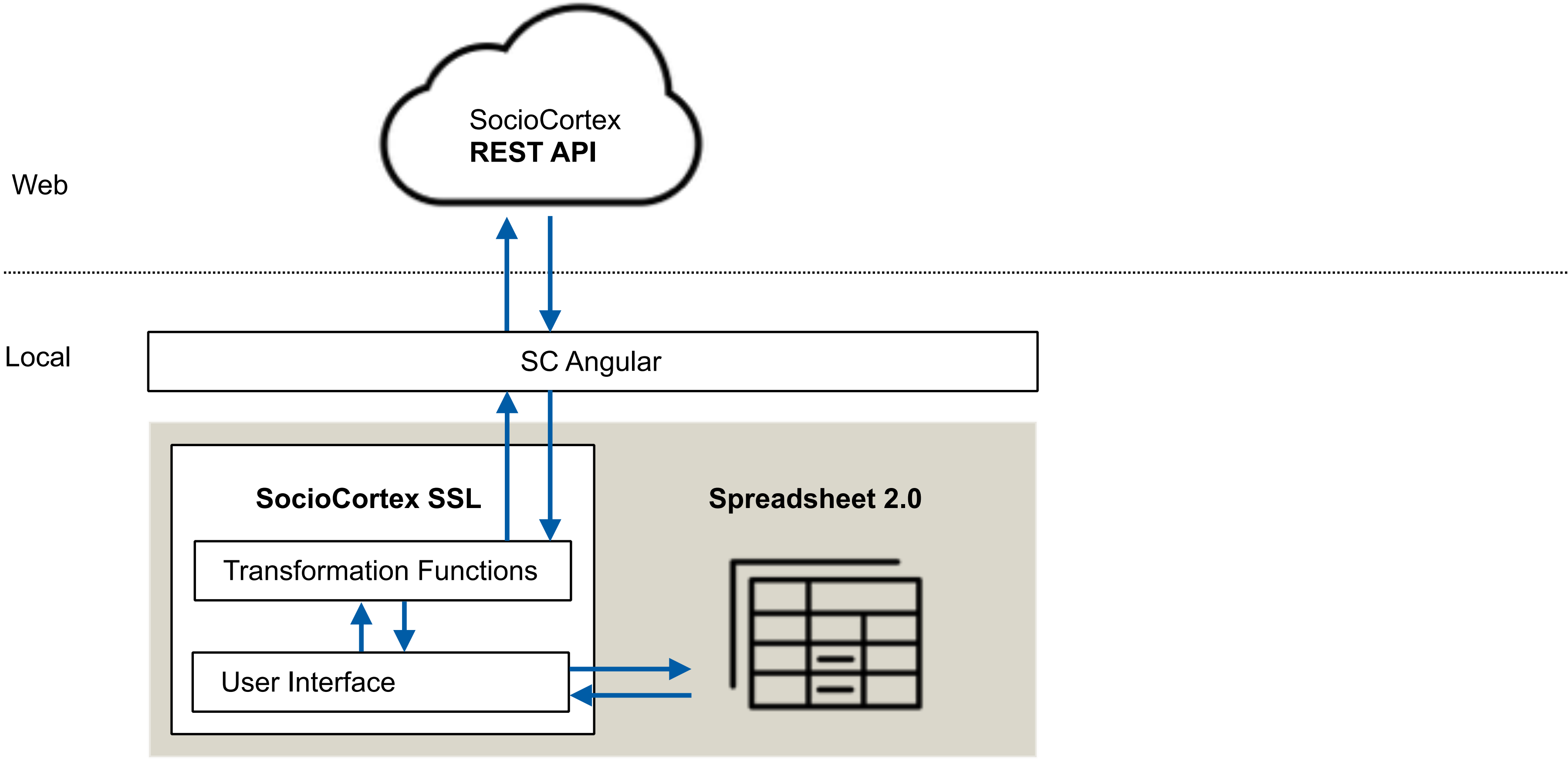


Knowledge Base



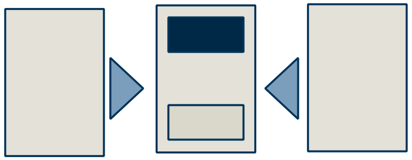
Concept



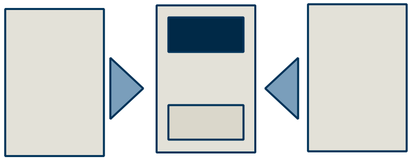

SocioCortex
REST API
Web
Local
SC Angular
SocioCortex SSL
Transformation Functions
User Interface
Spreadsheet 2.0

Concept

sebis

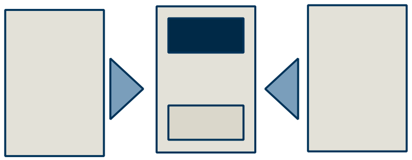


Concept



Name (Text)	Quantity (Number)	Order Date (Date)	Status (Enum)	Referenced Products (Multi Ref.)	Shortcodes (Multi Text)	Warehouse Quantities (Multi Text)	Unit price (Number)	Notes (No Type)
2-XMC-DD	25	26.03.2015	Open	{4-XMMP}{4-XMC}	[2XMC][2X][2M]	[1][20][45]	2.90	[26.03.2015][14.08.2019]
4-XMMP	50	12.04.2015	Pending	{2-XMC-DD}	[4XMMP][4X][4M]	[8][22]	1.25	Donec sit...
2-XMC-3P	44	07.07.2015	Closed		[3P]	[9][18][47][8]	2.33	[22][23][24]
4-AMC	10	08.03.2015	Open	{1-YMC-XC}	[4A][4M]	[1][23][22]	1.40	{2-XMC-DD}{3MC-DD}
1-YMC-XC	10	29.11.2015	Open		[1Y]	[23][40]	2.35	26.06.2015

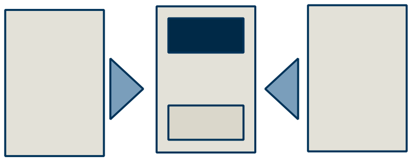
sebis



Referenced Entities

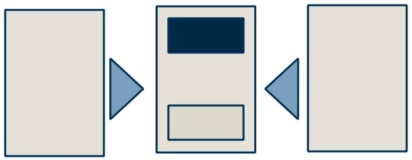
Name (Text)	Quantity (Number)	Order Date (Date)	Status (Enum)	Referenced Products (Multi Ref.)	Shortcodes (Multi Text)	Warehouse Quantities (Multi Num.)	Unit price (Number)	Notes (No Type)
2-XMC-DD	25	26.03.2015	Open	{4-XMMP}{4-XMC}	[2XMC][2X][2M]	[1][20][45]	2.90	[26.03.2015][14.08.2019]
4-XMMP	50	12.04.2015	Pending	2-XMC-DD	[4XMMP][4X][4M]	[8][22]	1.25	Donec sit...
2-XMC-3P	44	07.07.2015	Closed	2-XMC-3P 2-XYCC-5PU	[3P]	[9][18][47][8]	2.33	[22][23][24]
4-AMC	10	08.03.2015	Open		[4A][4M]	[1][23][22]	1.40	{2-XMC-DD}{3MC-DD}
1-YMC-XC	10	29.11.2015	Open		[1Y]	[23][40]	2.35	26.06.2015

Concept



Multiple Input

Name (Text)	Quantity (Number)	Order Date (Date)	Status (Enum)	Referenced Products (Multi Ref.)	Shortcodes (Multi Text)	Warehouse Quantities (Multi Num.)	Unit price (Number)	Notes (No Type)
2-XMC-DD	25	26.03.2015	Open	{4-XMMP}{4-XMC}	[2XMC][2X][2M]	[1][20][45]	2.90	[26.03.2015][14.08.2019]
4-XMMP	50	12.04.2015	Pending	{2-XMC-DD}	[4XMMP][4X][4M] -	[8][22]	1.25	Donec sit...
2-XMC-3P	44	07.07.2015	Closed			[9][18][47][8]	2.33	[22][23][24]
4-AMC	10	08.03.2015	Open			[1][23][22]	1.40	{2-XMC-DD}{3MC-DD}
1-YMC-XC	10	29.11.2015	Open		[1Y]	[23][40]	2.35	26.06.2015

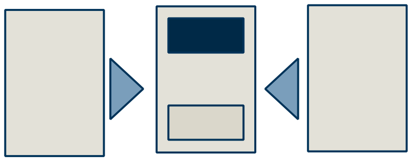


Enumerable Data

Name (Text)	Quantity (Number)	Order Date (Date)	Status (Enum)	Referenced Products (Multi Ref.)	Shortcodes (Multi Text)	Warehouse Quantities (Multi Num.)	Unit price (Number)	Notes (No Type)
2-XMC-DD	25	26.03.2015	Open	{4-XMMP}{4-XMC}	[2XMC][2X][2M]	[1][20][45]	2.90	[26.03.2015][14.08.2019]
4-XMMP	50	12.04.2015	Pending	{2-XMC-DD}	[4XMMP][4X][4M]	[8][22]	1.25	Donec sit...
2-XMC-3P	44	07.07.2015	Open Pending Closed		[3P]	[9][18][47][8]	2.33	[22][23][24]
4-AMC	10	08.03.2015		{1-YMC-XC}	[4A][4M]	[1][23][22]	1.40	{2-XMC-DD}{3MC-DD}
1-YMC-XC	10	29.11.2015	Open		[1Y]	[23][40]	2.35	26.06.2015

Concept

sebis

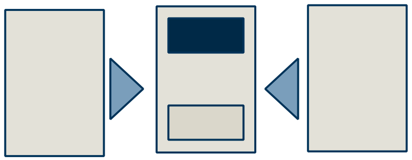


Date Selector

Name (Text)	Quantity (Number)	Order Date (Date)	Status (Enum)	Referenced Products (Multi Ref.)	Shortcodes (Multi Text)	Warehouse Quantities (Multi Num.)	Unit price (Number)	Notes (No Type)
2-XMC-DD	25	26.03.2015	Open	{4-XMMP}{4-XMC}	[2XMC][2X][2M]	[1][20][45]	2.90	[26.03.2015][14.08.2019]
4-XMMP	50			{2-XMC-DD}	[4XMMP][4X][4M]	[8][22]	1.25	Donec sit...
2-XMC-3P	44				[3P]	[9][18][47][8]	2.33	[22][23][24]
4-AMC	10			{1-YMC-XC}	[4A][4M]	[1][23][22]	1.40	{2-XMC-DD}{3MC-DD}
1-YMC-XC	10	29.11.2015	Open		[1Y]	[23][40]	2.35	26.06.2015

March 2015

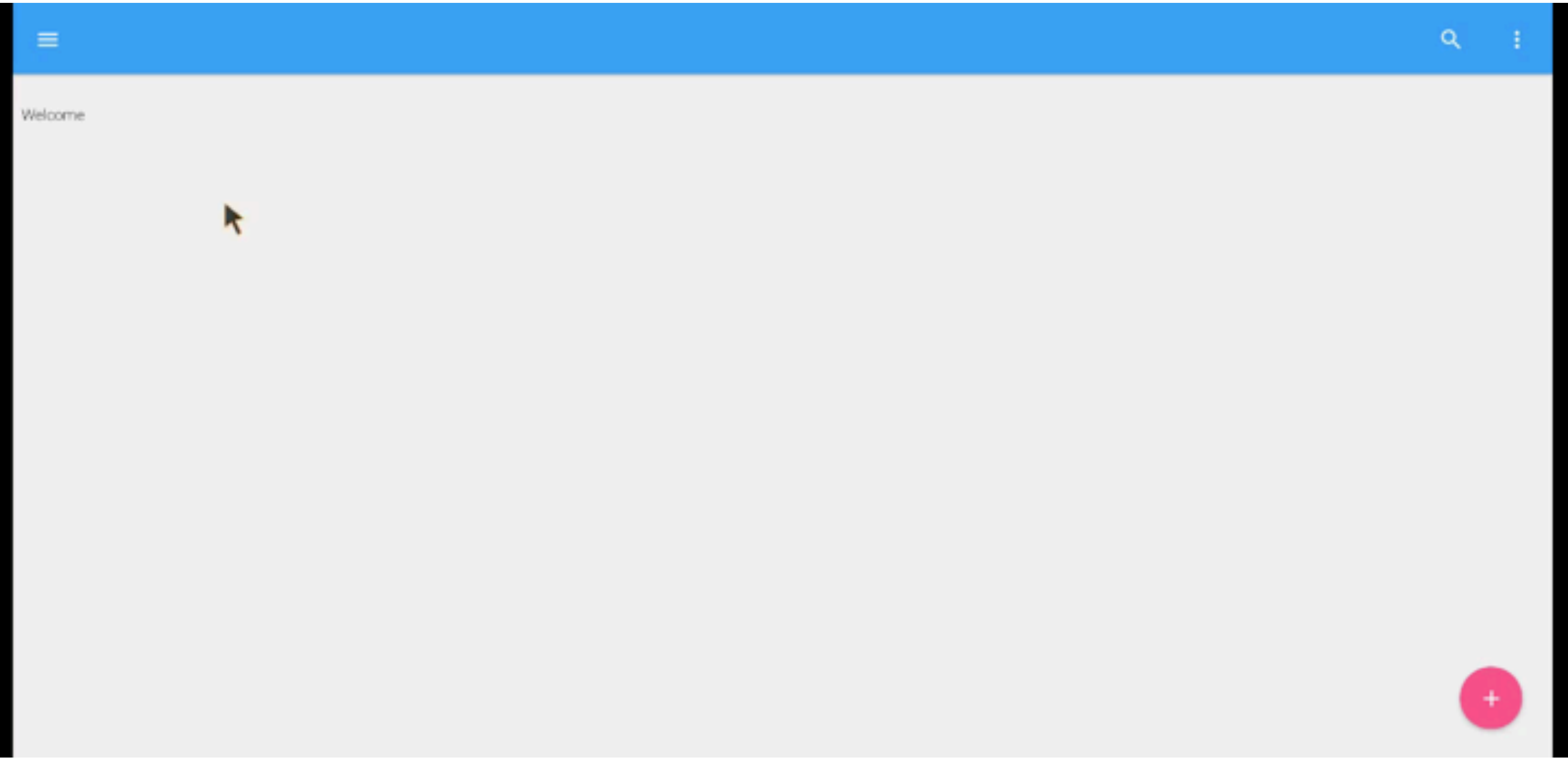
sebis



Number Selector

Name (Text)	Quantity (Number)	Order Date (Date)	Status (Enum)	Referenced Products (Multi Ref.)	Shortcodes (Multi Text)	Warehouse Quantities (Multi Text)	Unit price (Number)	Notes (No Type)
2-XMC-DD	25	26.03.2015	Open	{4-XMMP}{4-XMC}	[2XMC][2X][2M]	[1][20][45]	2.90	[26.03.2015][14.08.2019]
4-XMMP	50	12.04.2015	Pending	{2-XMC-DD}	[4XMMP][4X][4M]	[8][22]	1.25	Donec sit...
2-XMC-3P	44	07.07.2015	Closed		[3P]	[9][18][47][8]	2.33	[22][23][24]
4-AMC	10	08.03.2015	Open	{1-YMC-XC}	[4A][4M]	[1][23][22]	1.40	{2-XMC-DD}{3MC-DD}
1-YMC-XC	10	29.11.2015	Open		[1Y]	[23][40]	2.35	26.06.2015

Prototype



Prototype

Spreadsheet 2.0 Protoype

Welcome to the Spreadsheet 2.0 Protoype. To continue plase select your workspace.

CONTINUE

Results & Outlook

Reached Goals

- Environment – **Establishment of Business Needs**
- Knowledge Base – **Establishment of Current Research**
- Concept & Architecture – **Conception**
- Prototype – **Creation**

Further Improvement & Research

- Real Industry Evaluation
- Forms part of larger research study - Spreadsheet 2.0
- Implement with open source Framework

Thank you for your attention.

Questions?