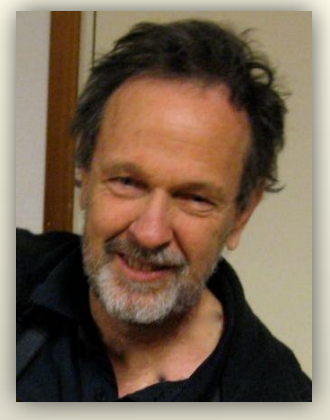
Rethinking the Integrative Foundation of Enterprises – The Activity Domain Theory

Lars Taxén
Linköping University
www.neana.se
lars.taxen@telia.com

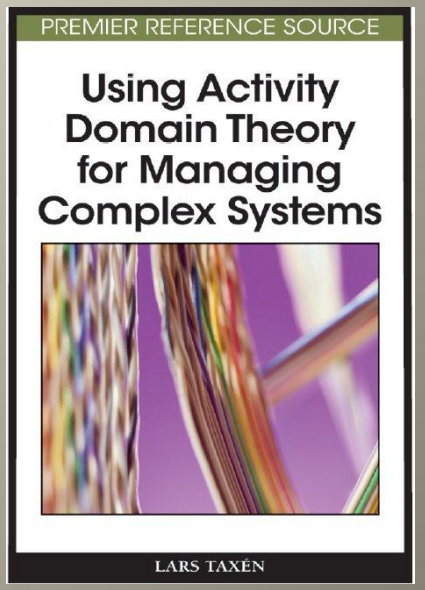
My background



ERICSSON 34 yrs Methods, processes, IT, Information systems project management

LINKÖPINGS UNIVERSITET >15 yrs Coordination & Integration
PhD (2003), Associate prof. (2007)

> 10 yrs Consulting

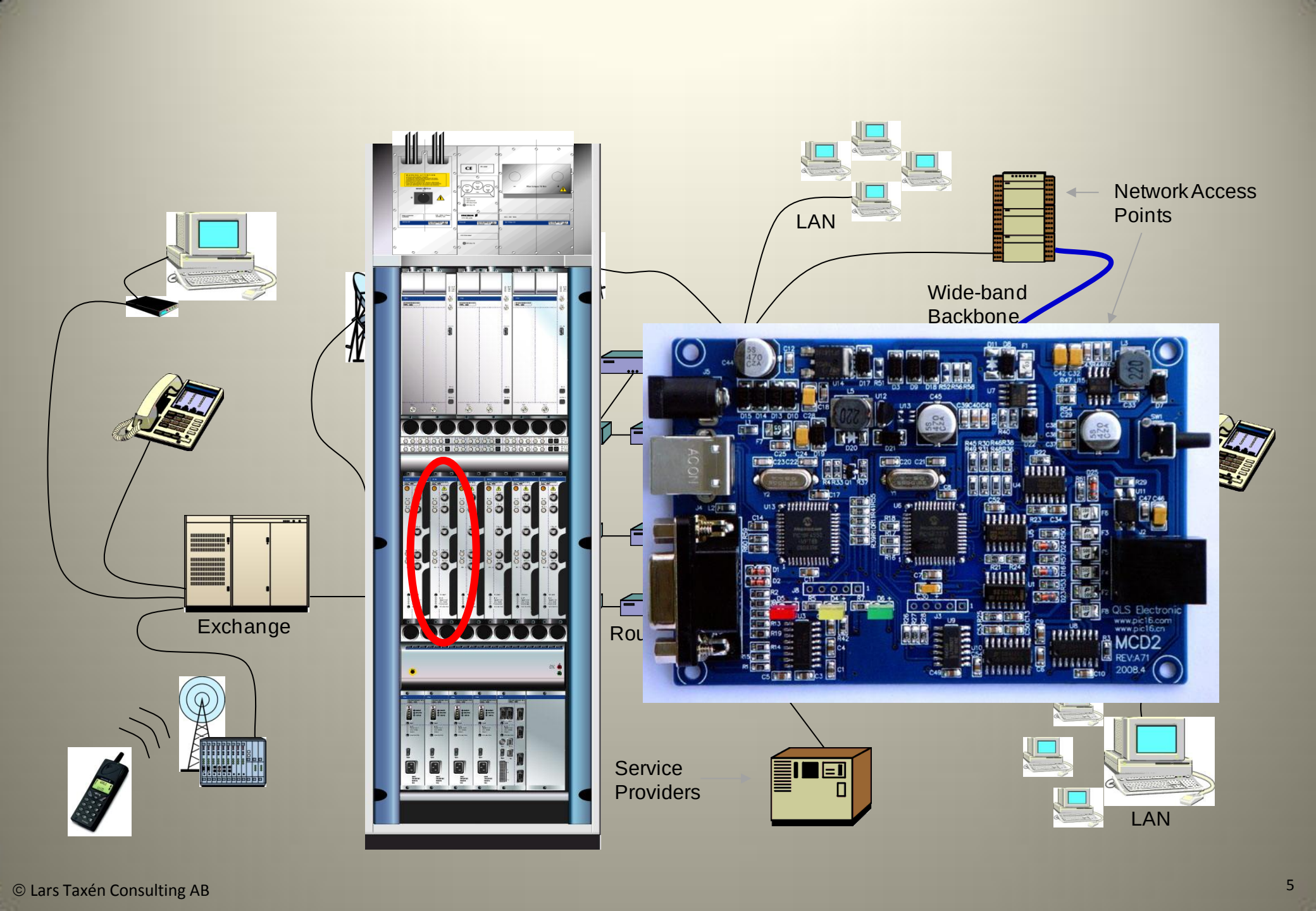


(2009)

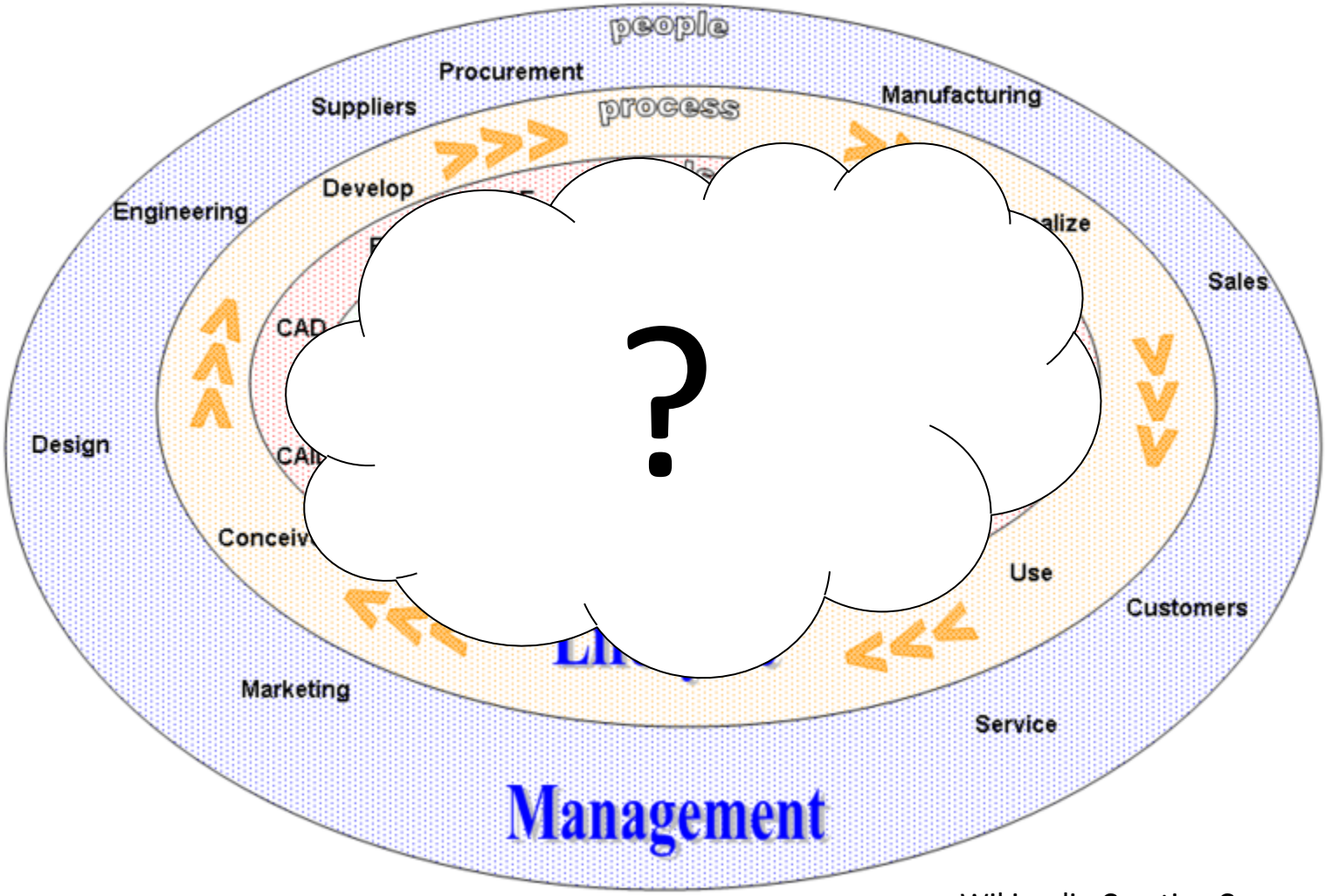
Outline

- My professional context
- Some existing integrational approaches
- The Activity Domain
- Integrating product development
- The System Anatomy
- The Enterprise Anatomy
- IT system implementation
- Some takeaways

My professional context



Enterprise Integration!

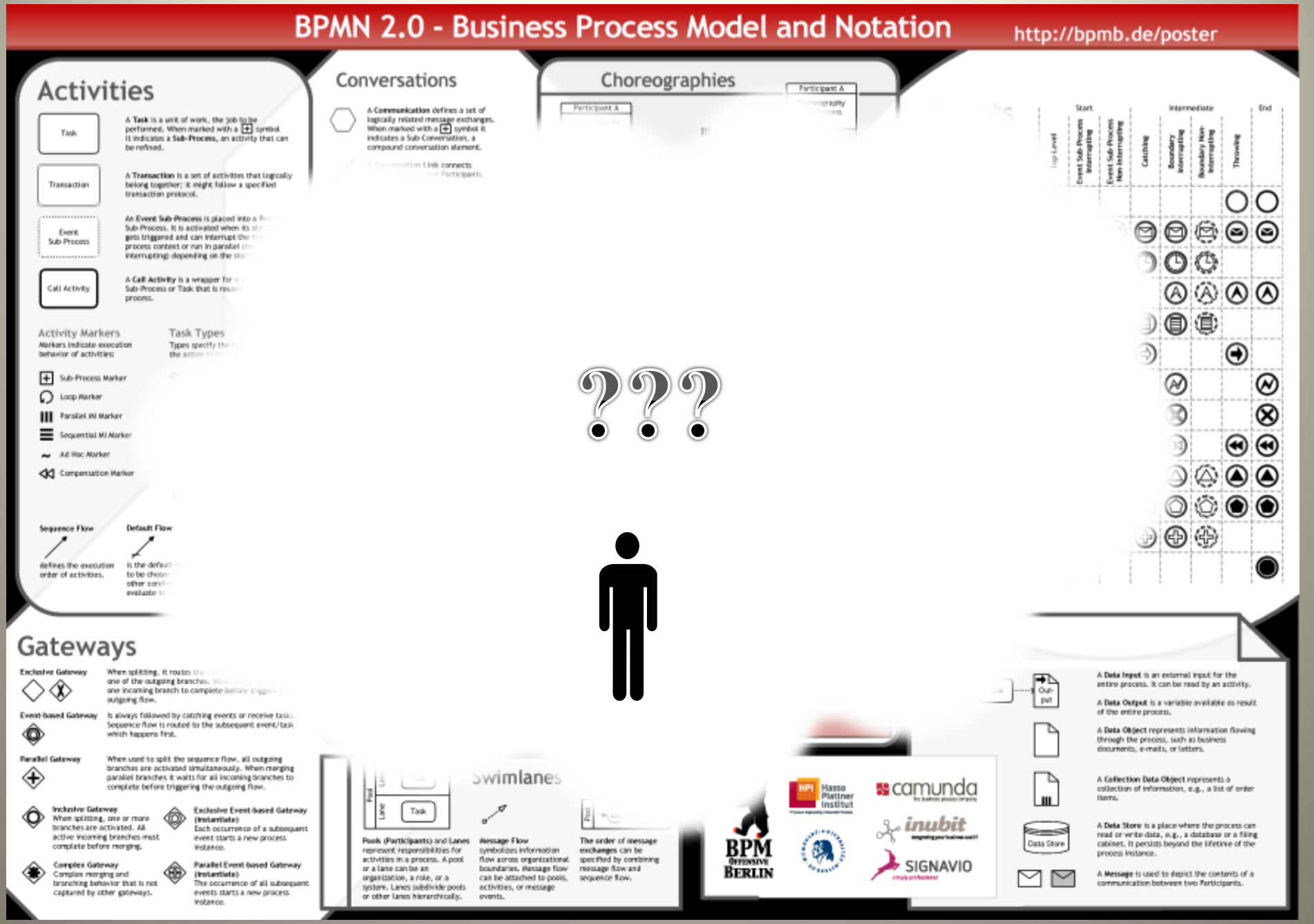


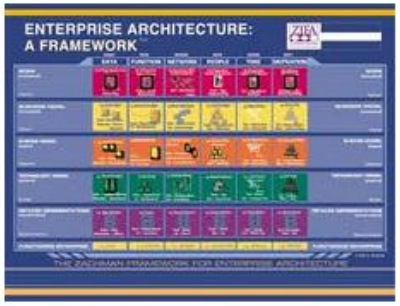
Wikipedia Creative Commons

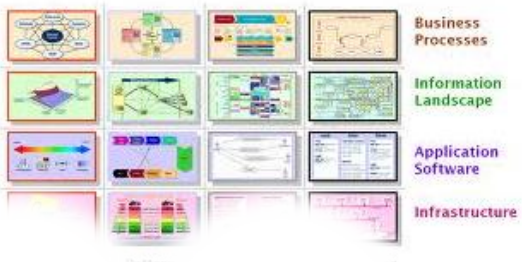
Some existing integrational approaches

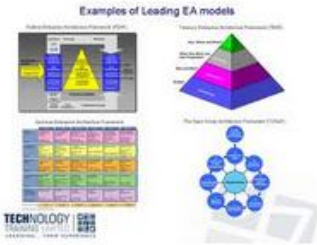
Outline No.	Title	Start Date	Projected	Completed
	Apollo Beyond	**6/13/2005 8:00 AM**	**6/18/2006**	**100%**
1	**Research/Investigate AR Tech**	**6/14/2005 8:00 AM**	**7/28/2005**	**100%**
1.1	**Investigate ARToolkit**	**6/14/2005 8:00 AM**	**6/29/2005**	**100%**
1.1.1	Buy webcam	6/14/2005 8:00 AM	6/14/2005	100%
1.1.2	Download ARToolkit and Tutorials	6/14/2005 8:00 AM	6/14/2005	100%
1.1.3	**Learn XCode IDE**	**6/15/2005 8:00 AM**	**6/21/2005**	**100%**
1.1.3.1	Download/Install XCode and Developer's Tools for Mac	6/15/2005 8:00 AM	6/15/2005	100%
1.1.3.2	Work through XCode/GLUT tutorial	6/21/2005 8:00 AM	6/21/2005	100%
1.1.4	Install ARToolkit	6/15/2005 12:00 PM	6/15/2005	100%
1.1.5	Install Camera and drivers	6/15/2005 1:00 PM	6/15/2005	100%
1.1.6	Print Markers	6/16/2005 8:00 AM	6/16/2005	100%
1.1.7	Download & Intall GLUT 3.8	6/16/2005 8:00 AM	6/16/2005	100%
1.1.8	Compile, run, and mod ARToolkit example code	6/16/2005 12:00 PM	6/29/2005	100%
1.2	**Investigate MXR Toolkit**	**6/27/2005 8:00 AM**	**7/25/2005**	
1.2.1	Download MXR Toolkit and Documentation	6/27/2005 8:00 AM	6/27/2005	
1.2.2	Install MXR Toolkit		6/27/2005	
1.2.3	Analyze MXR Toolkit Benefits, and Problems		7/25/2005	
1.3	**Investigate DART**			
1.3.1	Download/Install DART			
1.3.2	Run and Mod DART			
2	**Implement Project Website**			
2.1	Design/Build Site			
2.2	Request Webspace from Gavi			
2.3	Upload Site			
2.4	Update/Maintain Site			
3	**Acquire Outside Funding**			
3.1	Research Grants			
4	Research Networking Opti			
5	Research Controller/Senso			
6	Research Content/Collect			
7	Research Tangible Interfac			
8	Research AR Tracking O			
9	Research Dis			
10	Researc			
11	Des			
12				
12.1				
12.1.1				
14.2	Integ			
14.3	Progra			
15	Investigate			
16	**Develop Conte**			
16.1	Build 3D Models & A			
16.2	**Develop 2D Imagery Content**			
16.2.1	Edit 2D Images			
16.2.2	Edit Video Clips			
16.2.3	Build Working TUI Interface			
16.3	**Develop Sound Effects Content**			
16.3.1	Record/Collect Sound Effects			
16.3.2	Edit Sound Effects			100%
16.4	**Develop Voice Over/Narration Content**	2/1/2006 8:00 AM	5/9/2006	**100%**
16.4.1	Record Voice Overs/Narration	2/1/2006 8:00 AM	4/25/2006	100%
16.4.2	Edit Voice Overs/Narration	4/26/2006 8:00 AM	5/9/2006	100%
16.5	**Develop Music Content**	**3/1/2006 8:00 AM**	**6/6/2006**	**100%**
16.5.1	Write/Collect Music	3/1/2006 8:00 AM	5/13/2006	100%
16.5.2	Record/Edit Music	5/14/2006 8:00 AM	6/6/2006	100%
17	Final Presentation	6/7/2006 8:00 AM	6/7/2006	100%

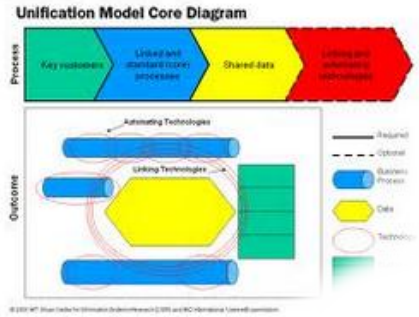
- ....
- Design/ Build Hubble Wi
- Construct Hardware
- Design / build Mission C
- ....

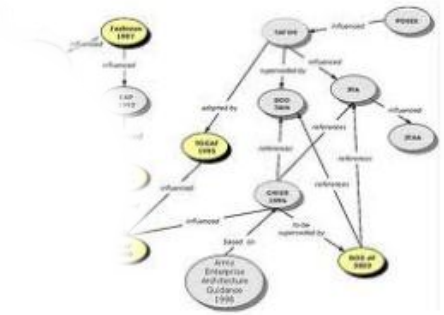


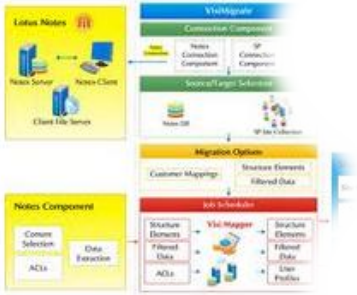


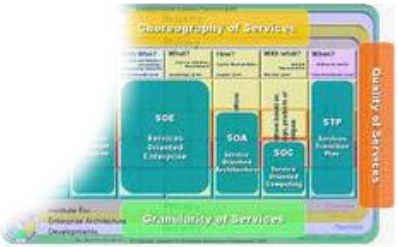


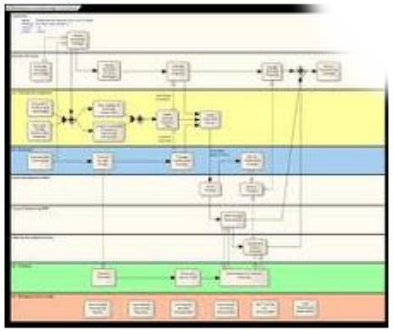








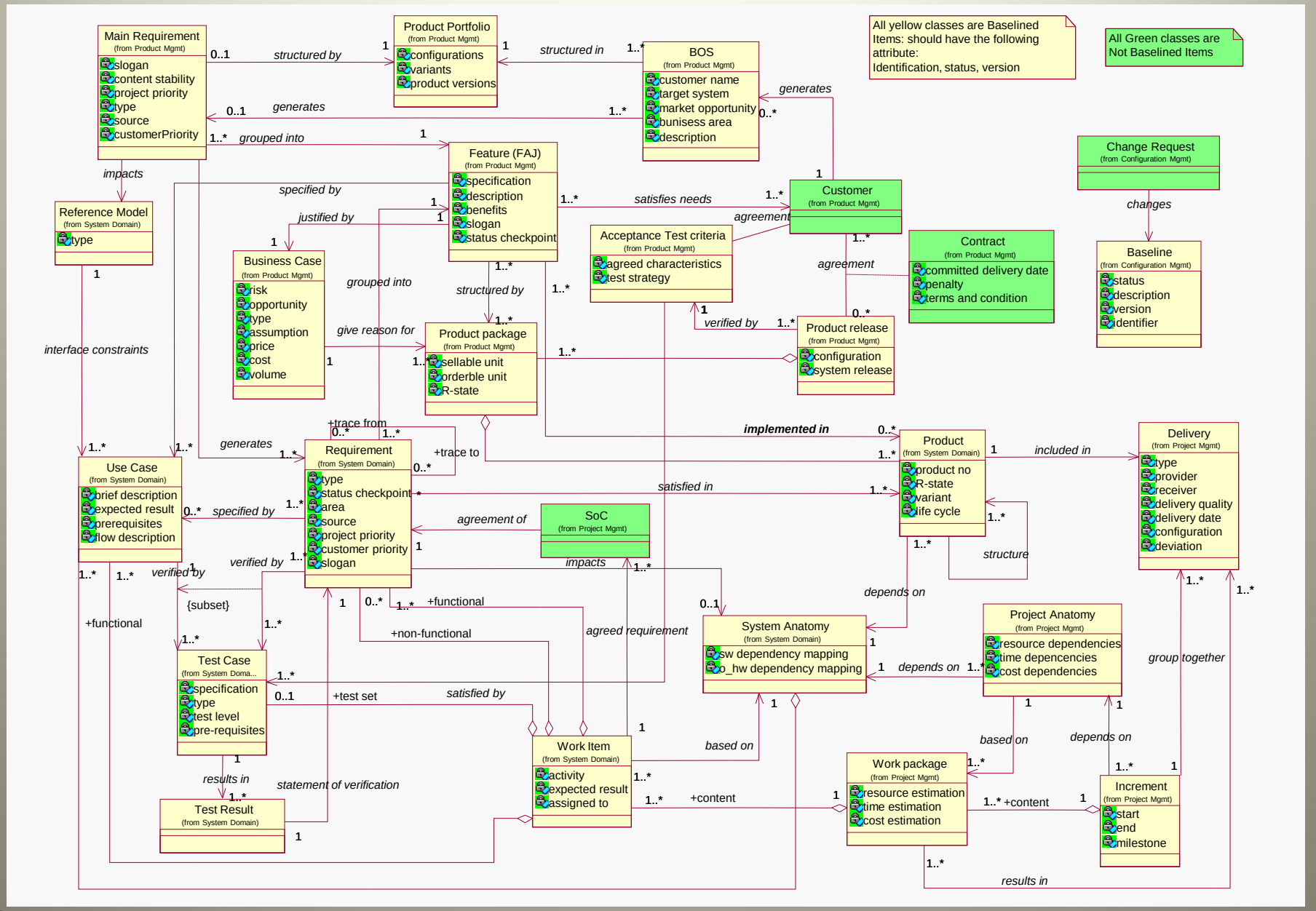




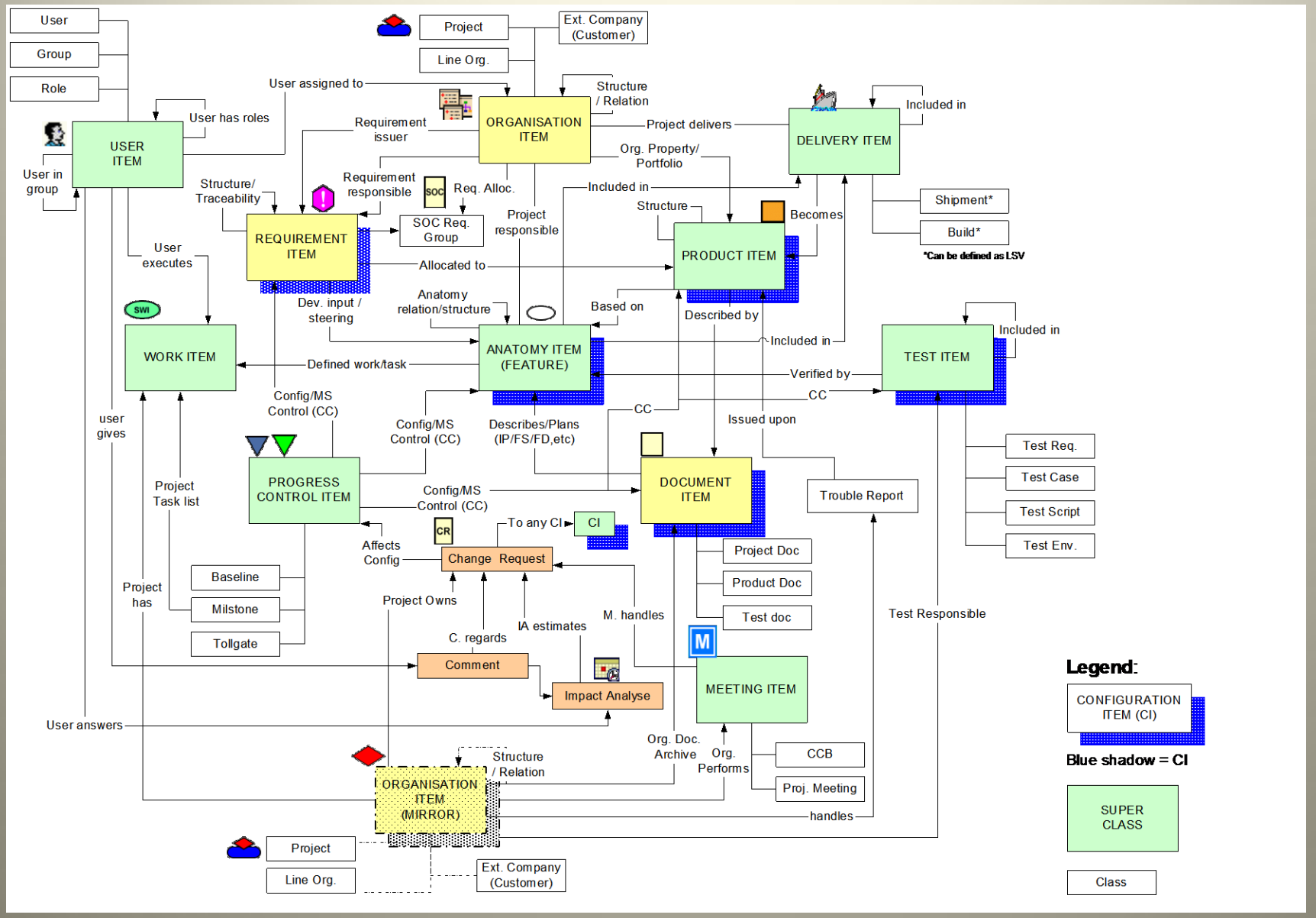
Zachman EA

		WHAT A	HOW B	WHERE C	WHO D	WHEN E	WHY F	
SCOPE	1	List of things important to business	List of processes the business performs	List of locations which the business operates	List of organisations / agents that are important	List of significant events	List of business goals / strategies	**Planner**
BUSINESS MODEL	2	Semantic Model	Business Process Model	Business Logistics Syst.	Work Flow Model	Master Schedule	Business Plan	**Owner**
SYSTEM MODEL	3	Logical Data Model	Application Architecture	Distributed System Architecture	Human Interface Architecture	Processing Structure	Business Rule Model	**Designer**
TECHNOLOGY MODEL	4	Physical Data Model	System Design	Technology Architecture	Presentation Architecture	Control Structure	Rule Design	**Builder**
DETAILED REPR.	5	Data Definition	Program	Network Architecture	Security Architecture	Timing Definition	Rule Specification	**Programmer**
FUNCTIONING ENTERPRISE	6	Usable Data	Working Function	Usable Network	Functioning Organization	Implemented Schedule	Working Strategy	**User**
		DATA	**FUNCTION**	**NETWORK**	**PEOPLE**	**TIME**	**MOTIVATION**	

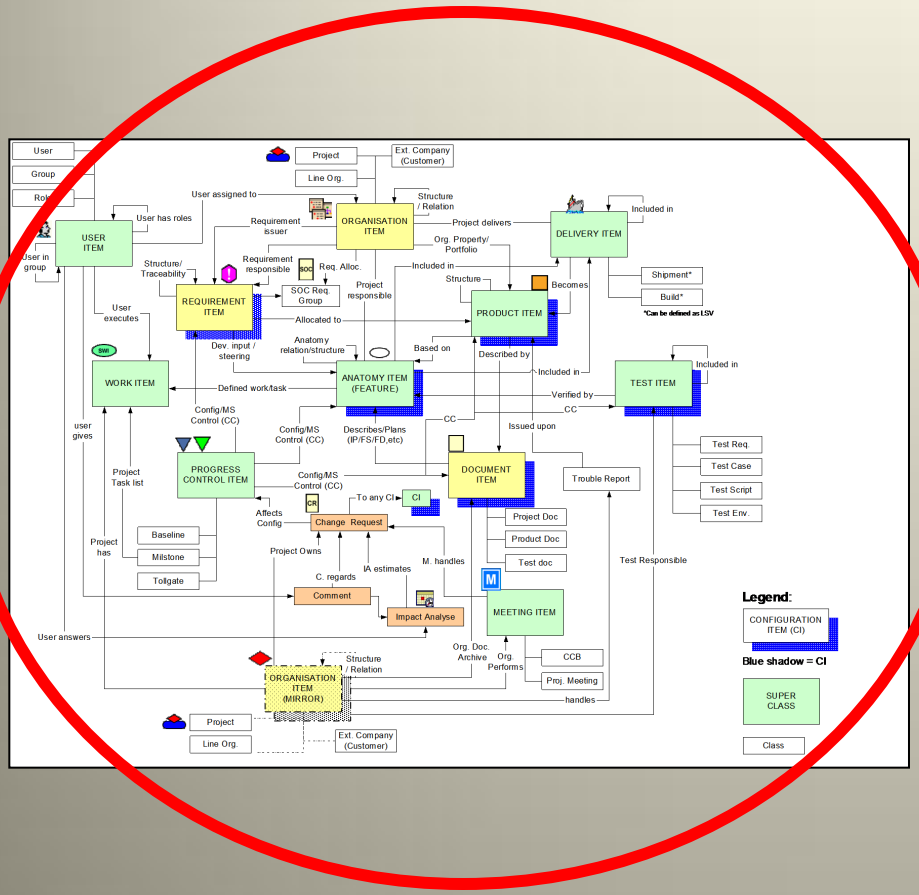
A Logical Data Model in practice…

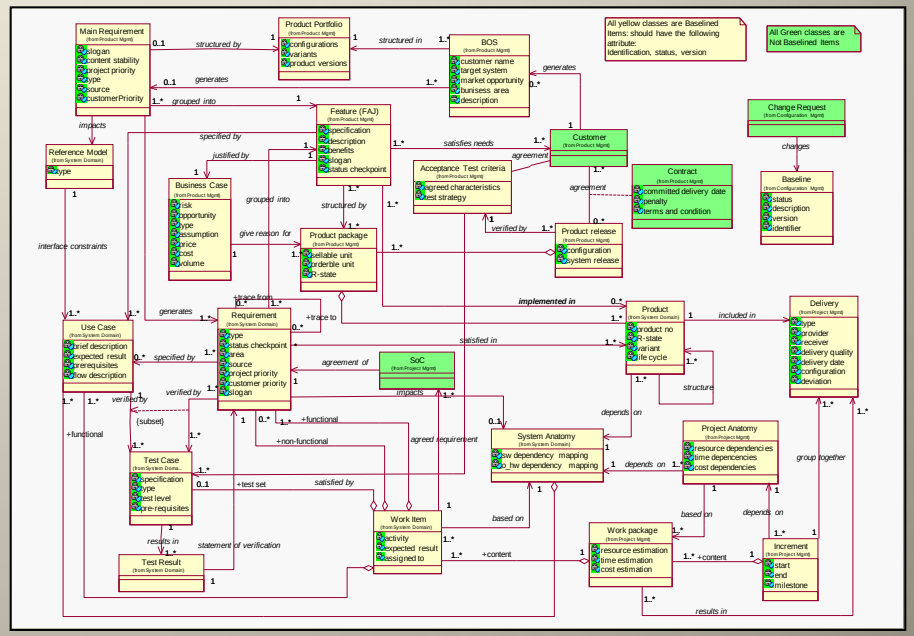


Another Logical Data model …

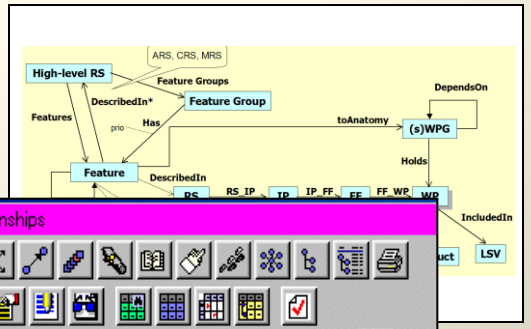


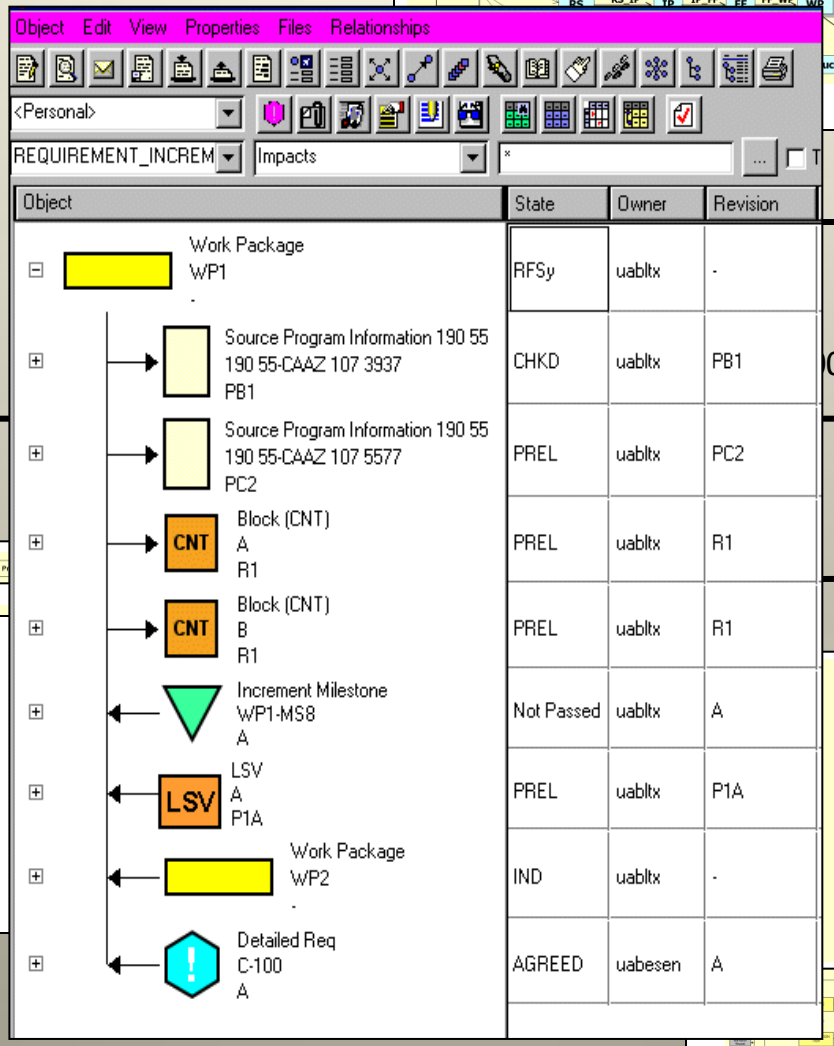
What's the difference?

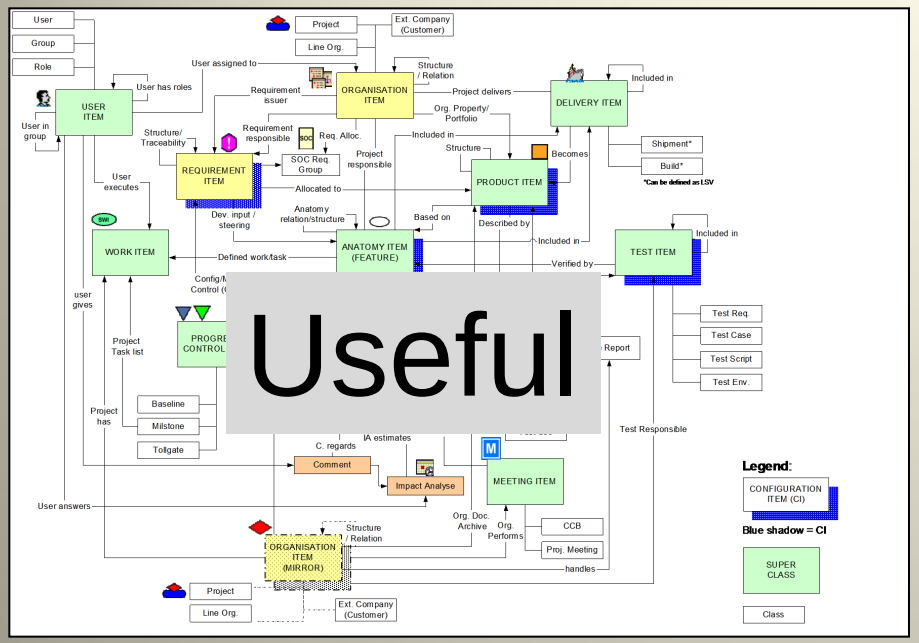


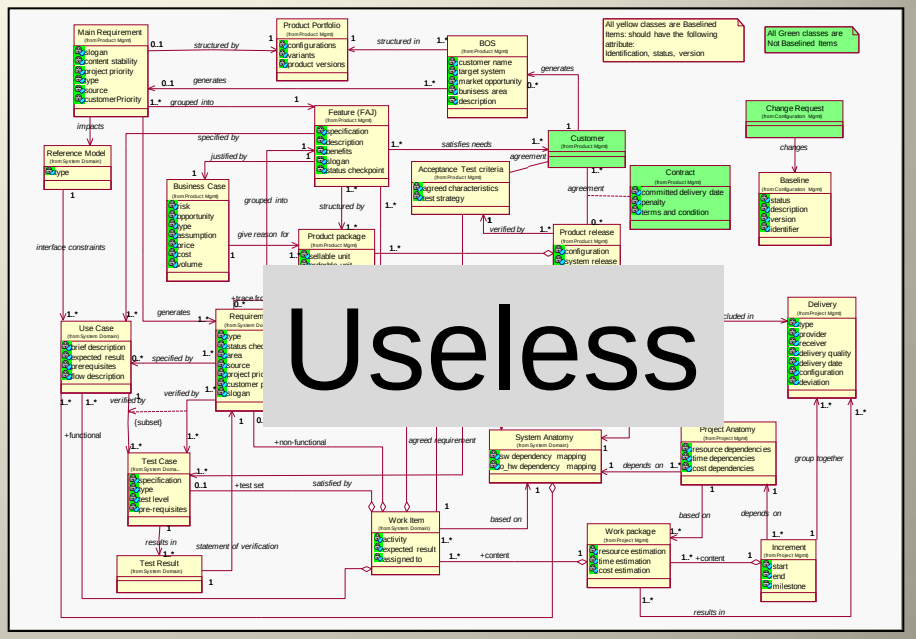


Model evolution

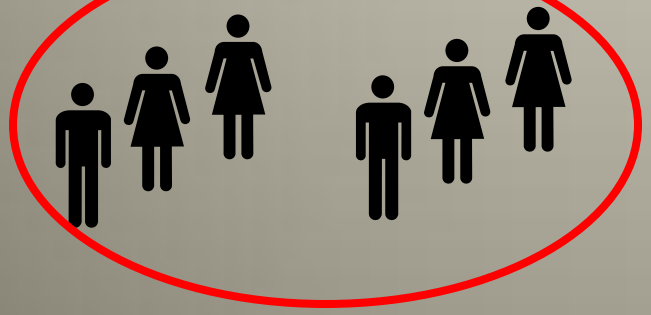








Chiseled out “on the combat field” between 1996 - 2003



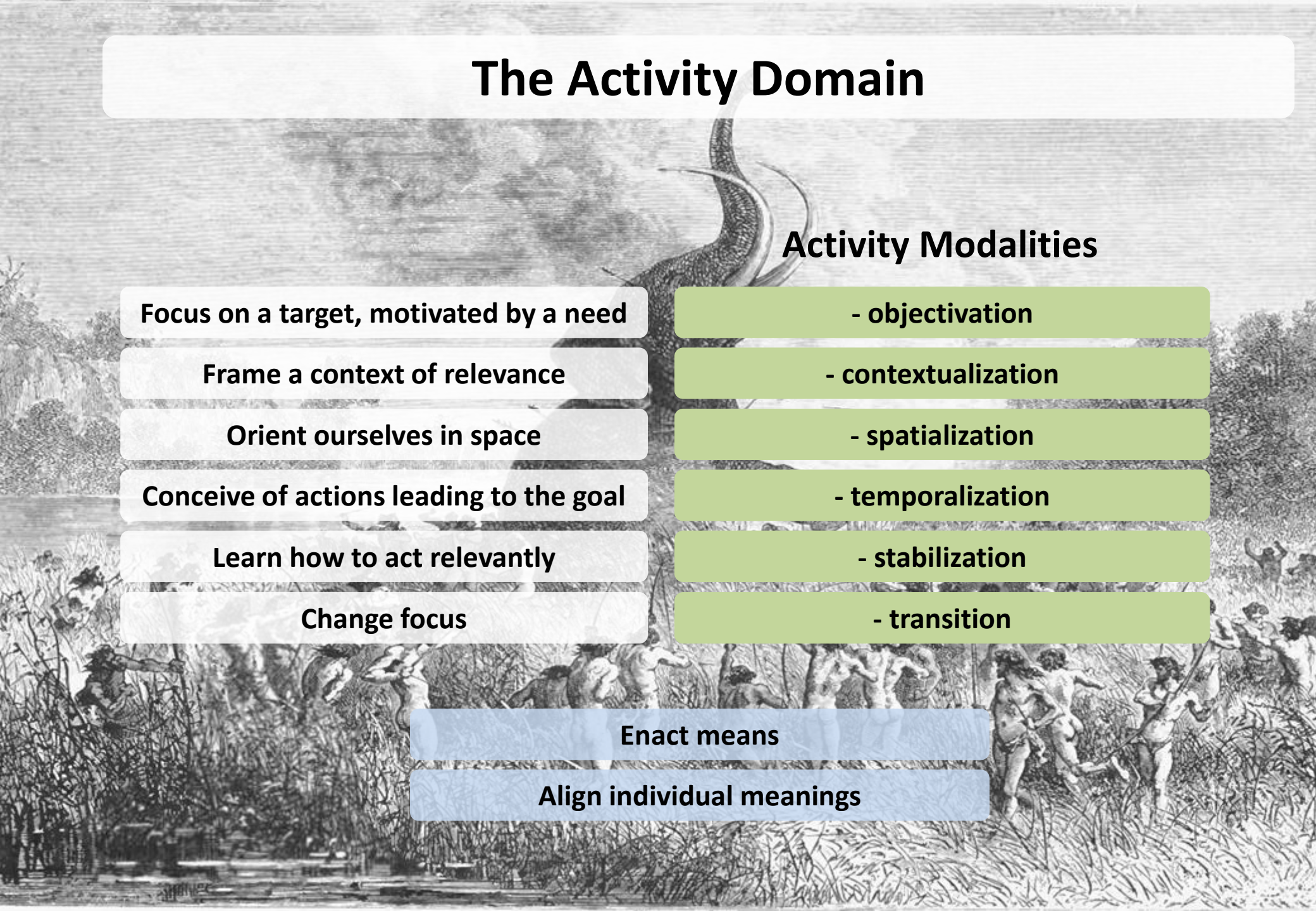
Defined by a consultant “in the chamber”

Existing integrating approaches not particularly successful

The Activity Domain

- Back to basics
- What does it take to integrate an activity?

The Activity Domain



Activity Modalities

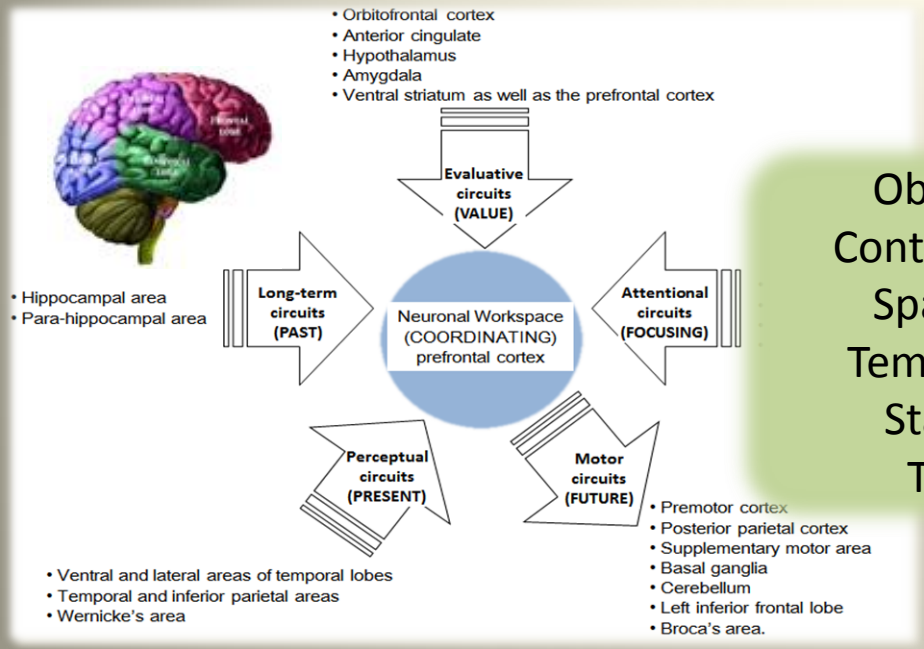
Focus on a target, motivated by a need	- objectivation
Frame a context of relevance	- contextualization
Orient ourselves in space	- spatialization
Conceive of actions leading to the goal	- temporalization
Learn how to act relevantly	- stabilization
Change focus	- transition

Enact means

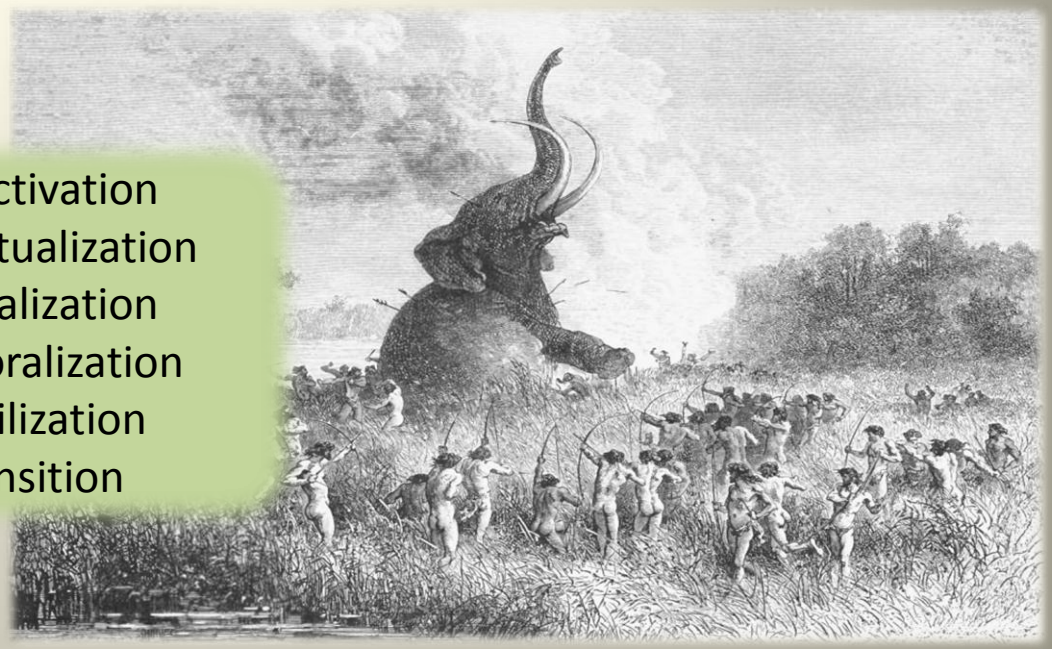
Align individual meanings

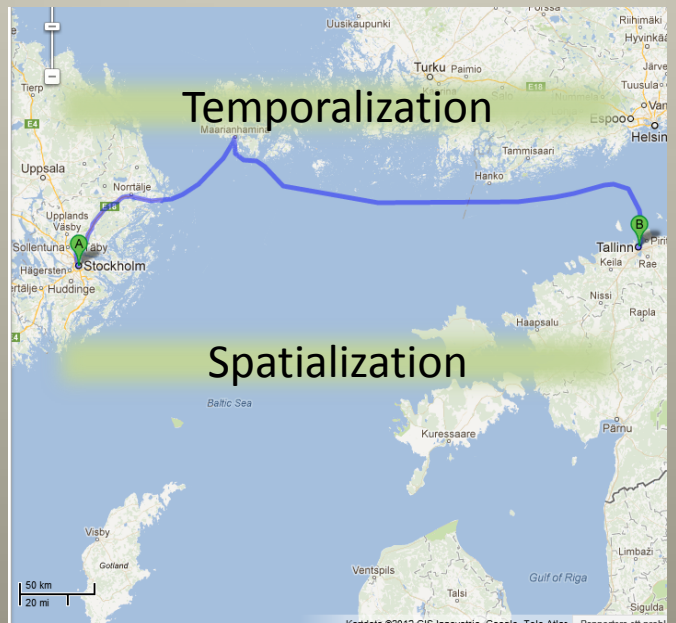
Cognitive –Neural, inner realm

Social, external realm



Objectivation
Contextualization
Spatialization
Temporalization
Stabilization
Transition





The Activity Domain is regarded as the **integrative foundation** for all human activities, including organizational ones

Why?

Because we still employ the same biological abilities in all situations we encounter in every-day life, including organizations

A contemporary Activity Domain

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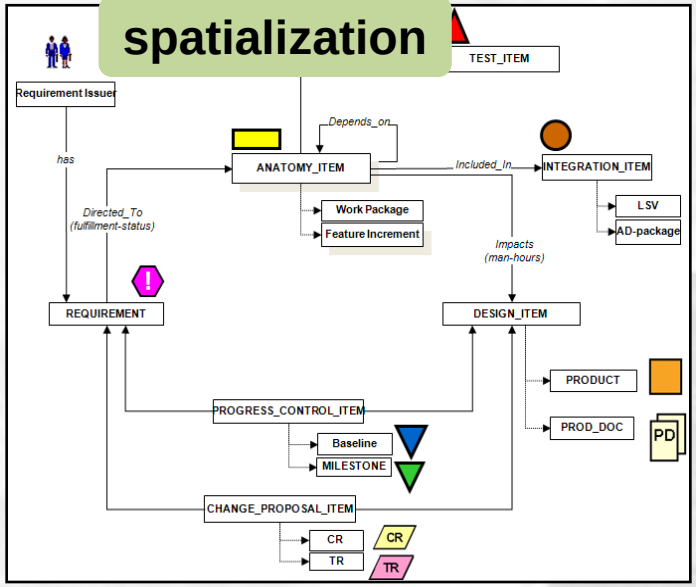
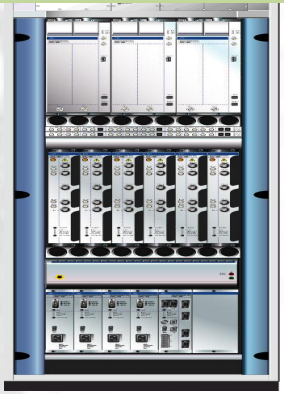
Information models

spatialization



Target

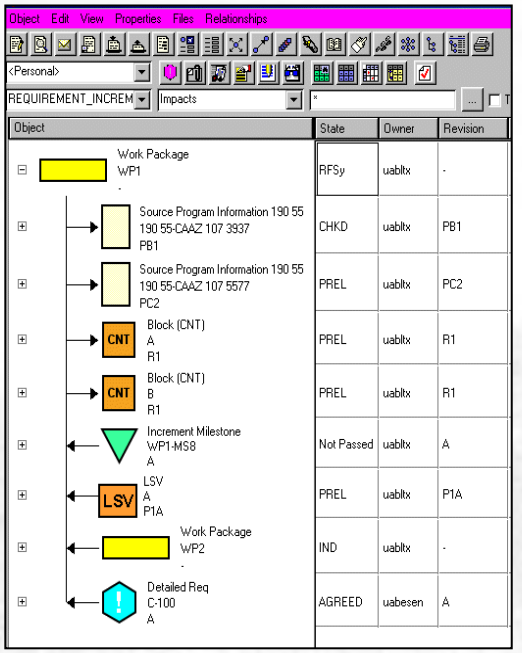
objectivation



Enact means

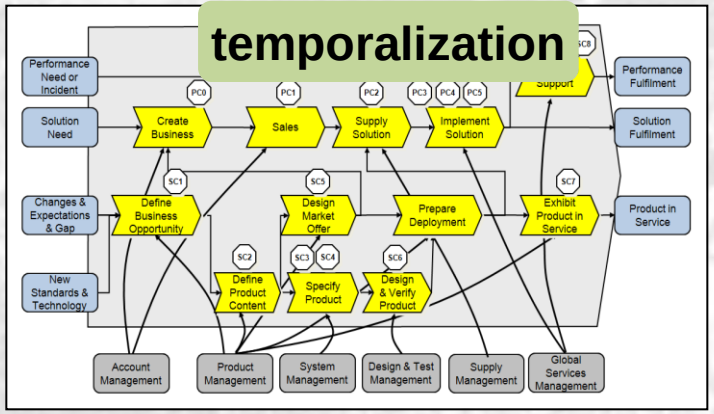
Align individual meanings

PLM systems



Process models

temporalization



Cooperation

transition

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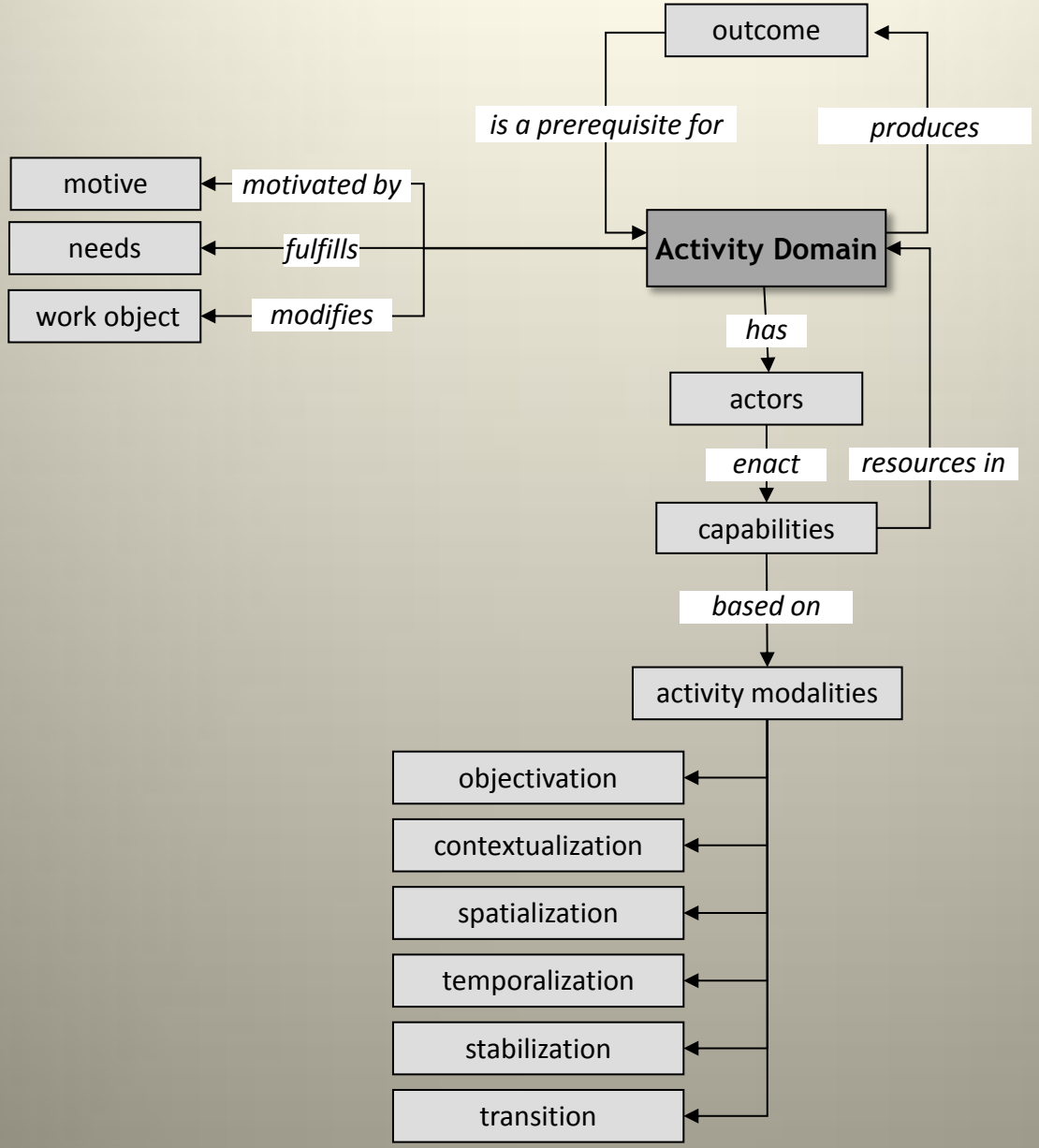
Business rules

stabilization

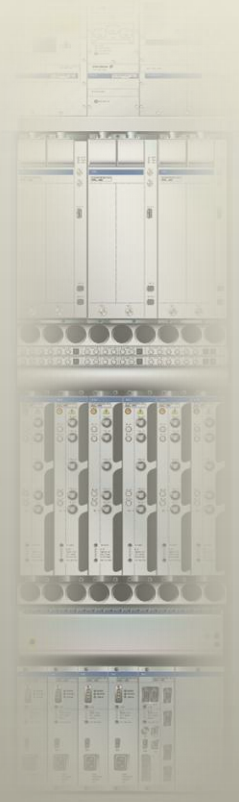
The structure of the Activity Domain



Integrating product development

Management based on Activity Domains

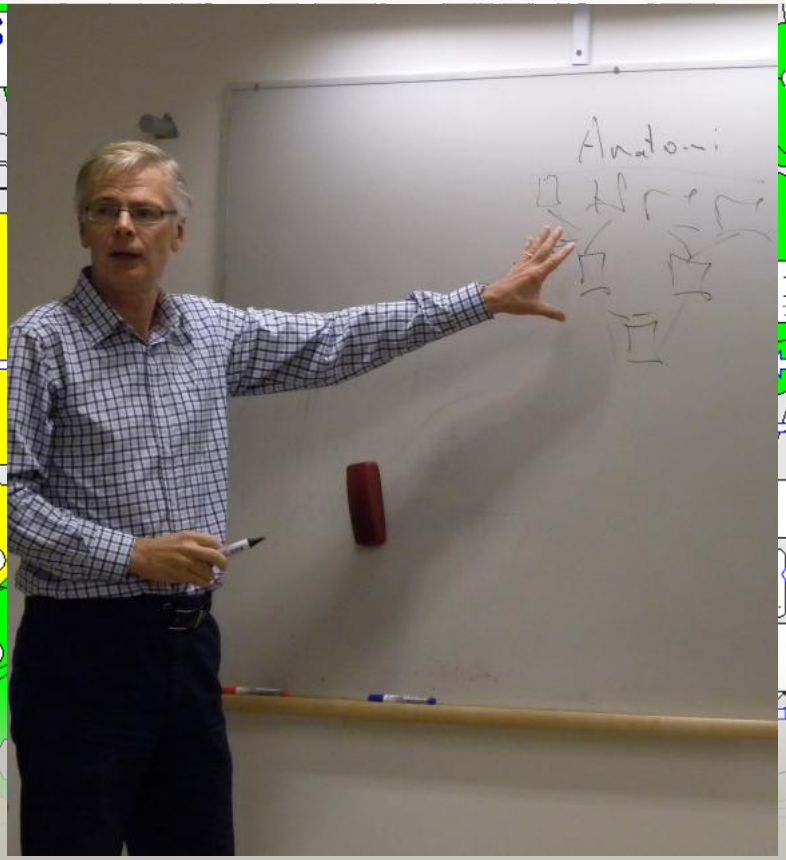
Early phases?



?

"The most important thing when working with complex systems is to ***manage dependencies***"

Jack Järkvik (1990s)



The System Anatomy
- an integrating image in early phases

Entrance | Comfort | Cleaning | Sanitation | Nutrition

?

Ground

Entrance | Comfort | Cleaning | Sanitation | Nutrition

The System Anatomy

What capabilities are needed?

How do they depend on each other ?

Ground

Comfort

Cleaning
[*shower, washing machine, water*]

Sanitation
[*water toilet, water*]

Nutrition
[*stove, refrigerator, food*]

Basic comfort

Heating and cooling
[*heating element, AC*]

Entering
[*door*]

Light inside
[*window*]

Precipitation protection
[*roof*]

Wind protection
[*wall, door*]

Isolation
[*wall, floor, roof*]

Distribution
[*pipes, cables*]

Structure support
[*frame studs*]

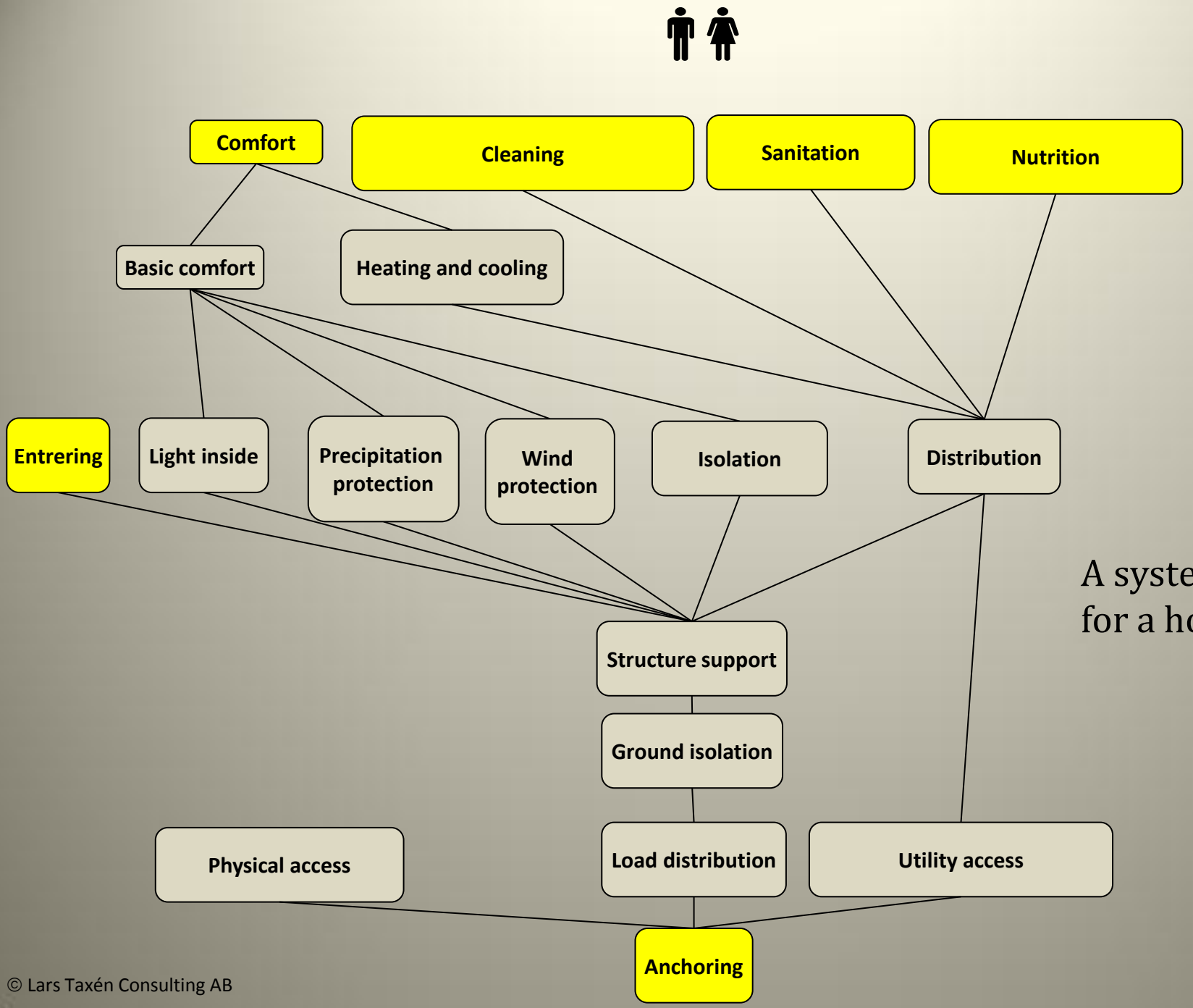
Ground isolation
[*floor*]

Physical access
[*road*]

Load distribution
[*foundation*]

Utility access
[*waste-pipe, electricity, water*]

Anchoring
[*ground*]



A system anatomy for a house

An anatomy for a processor

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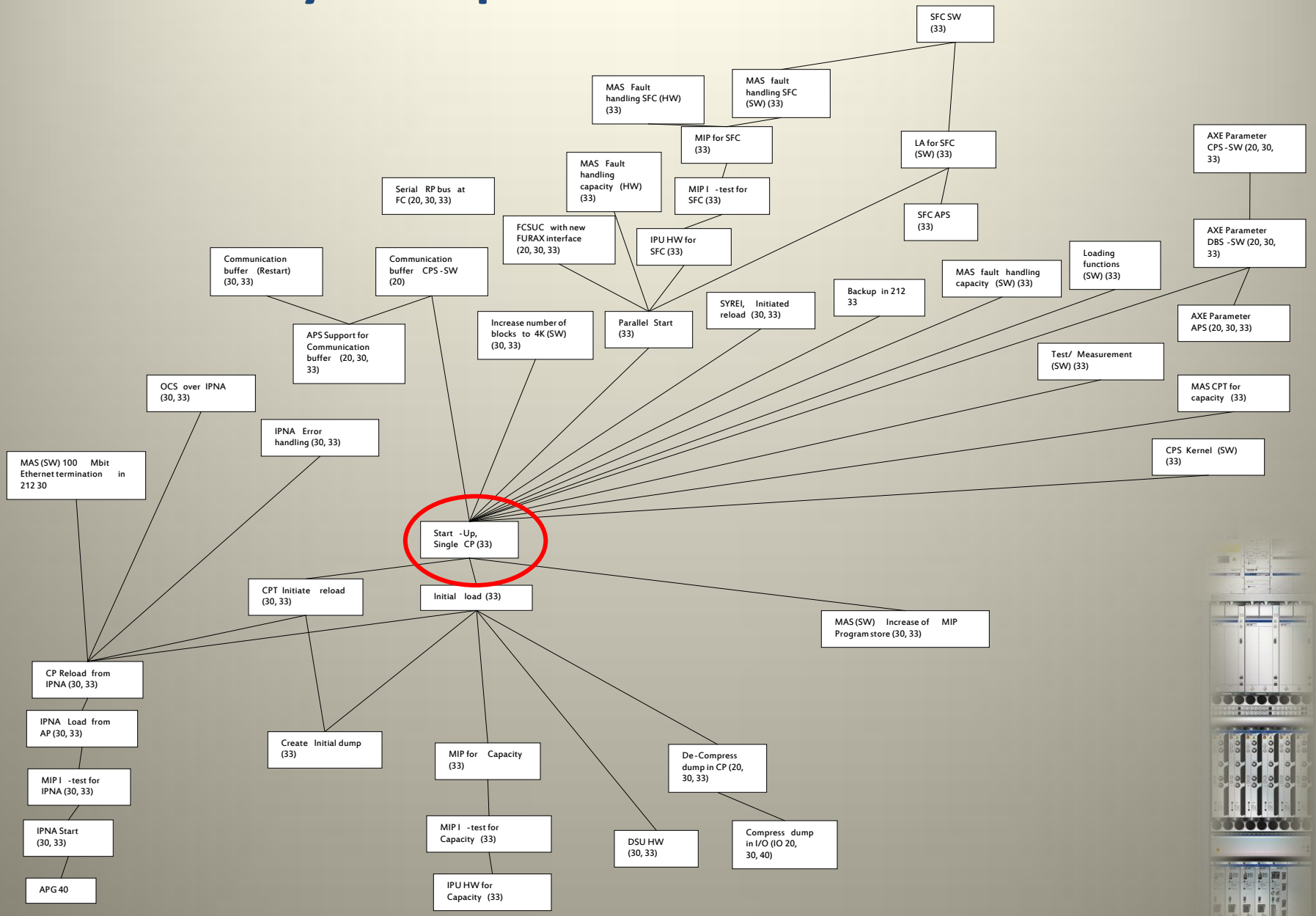

An anatomy for a processor (*objectivation*)

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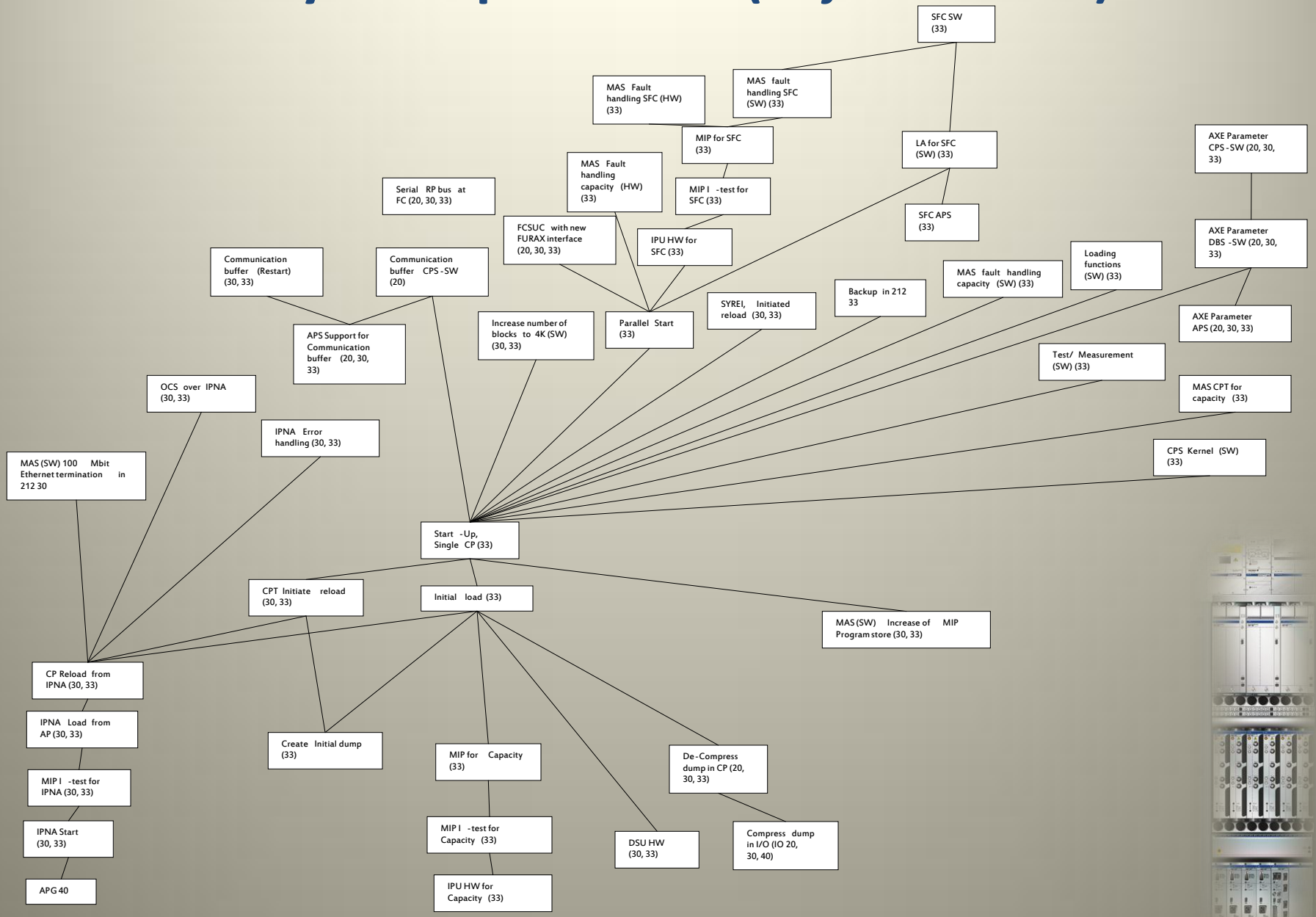
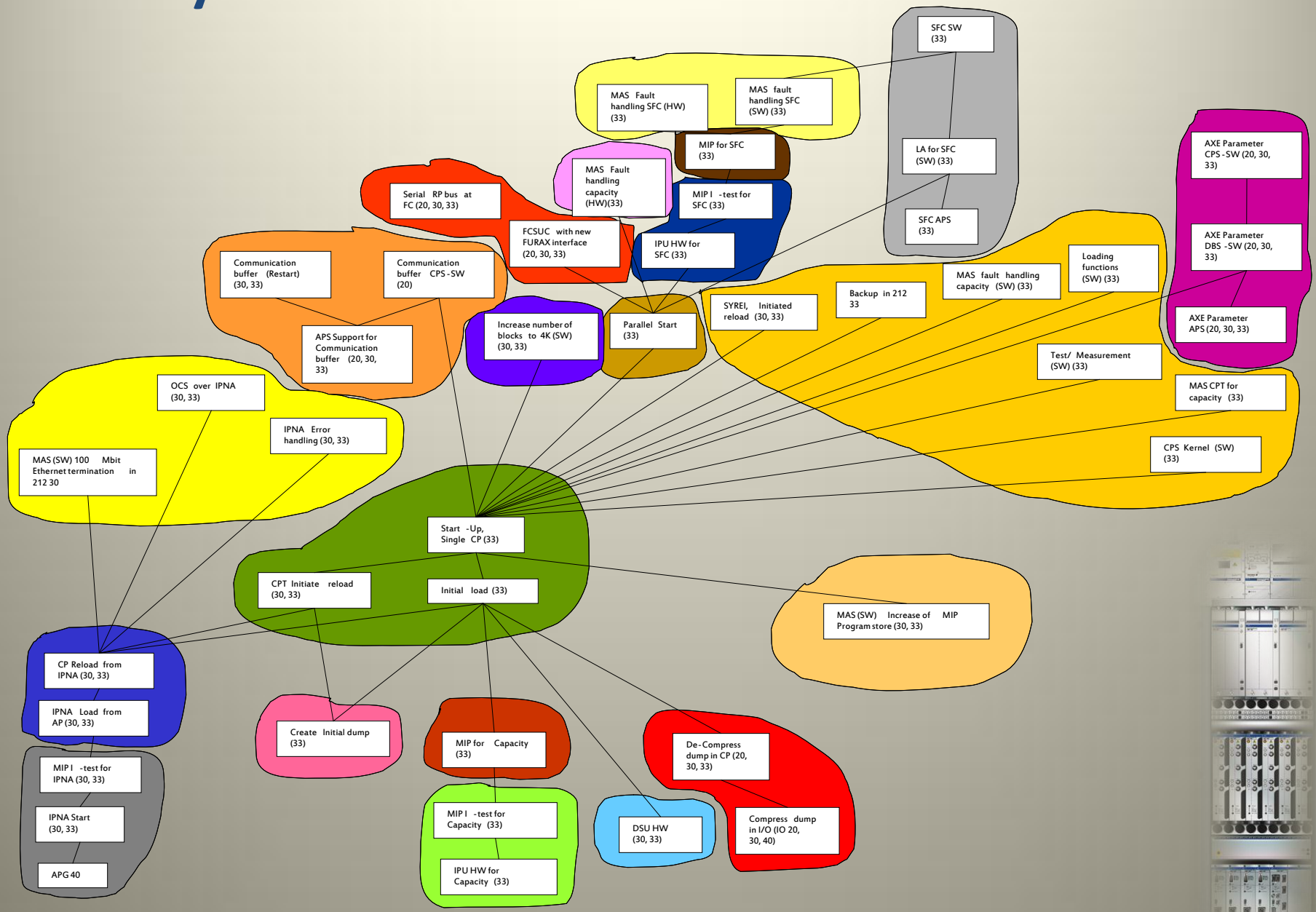


Activity domains



Activity domains (*contextualization*)

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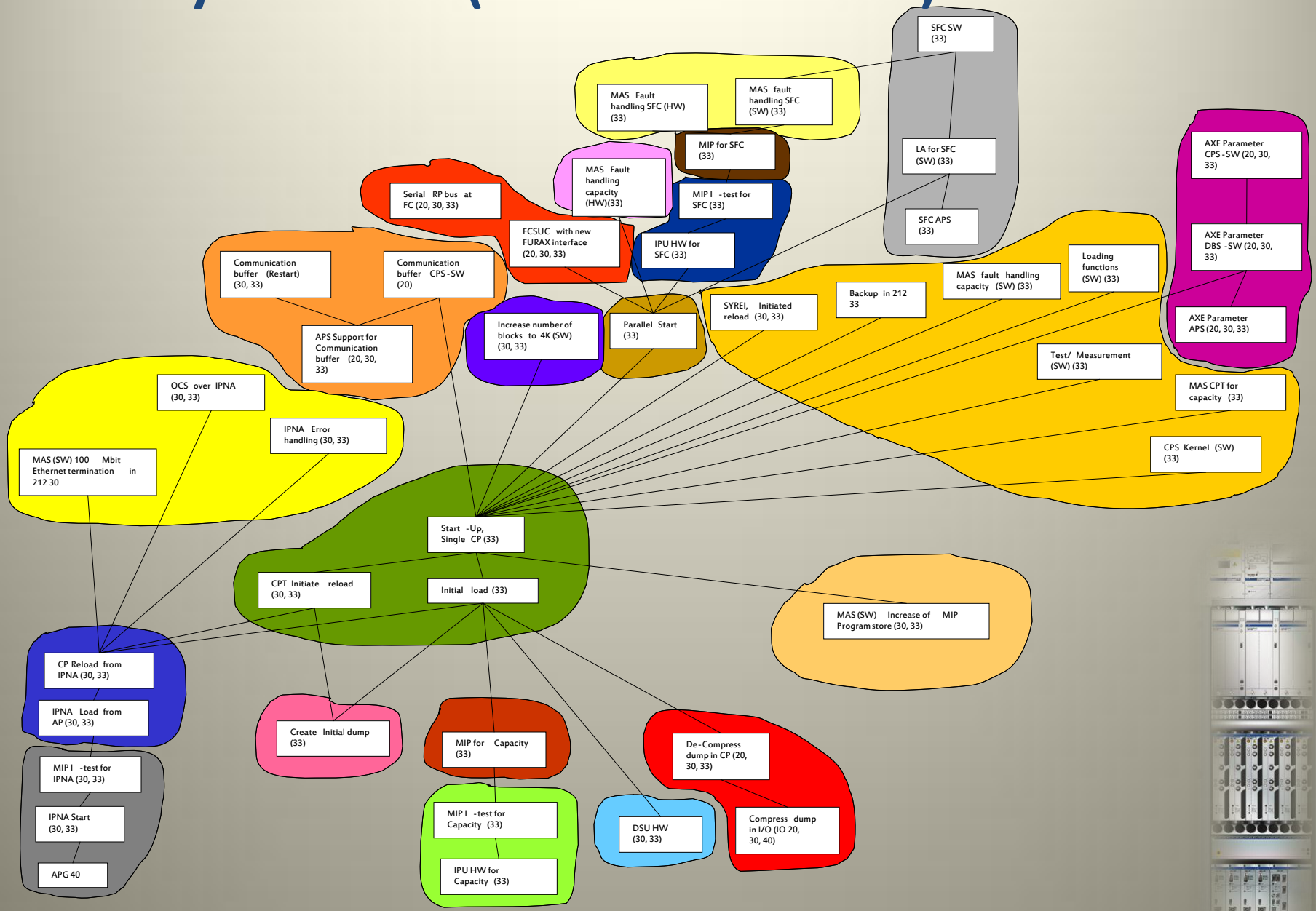
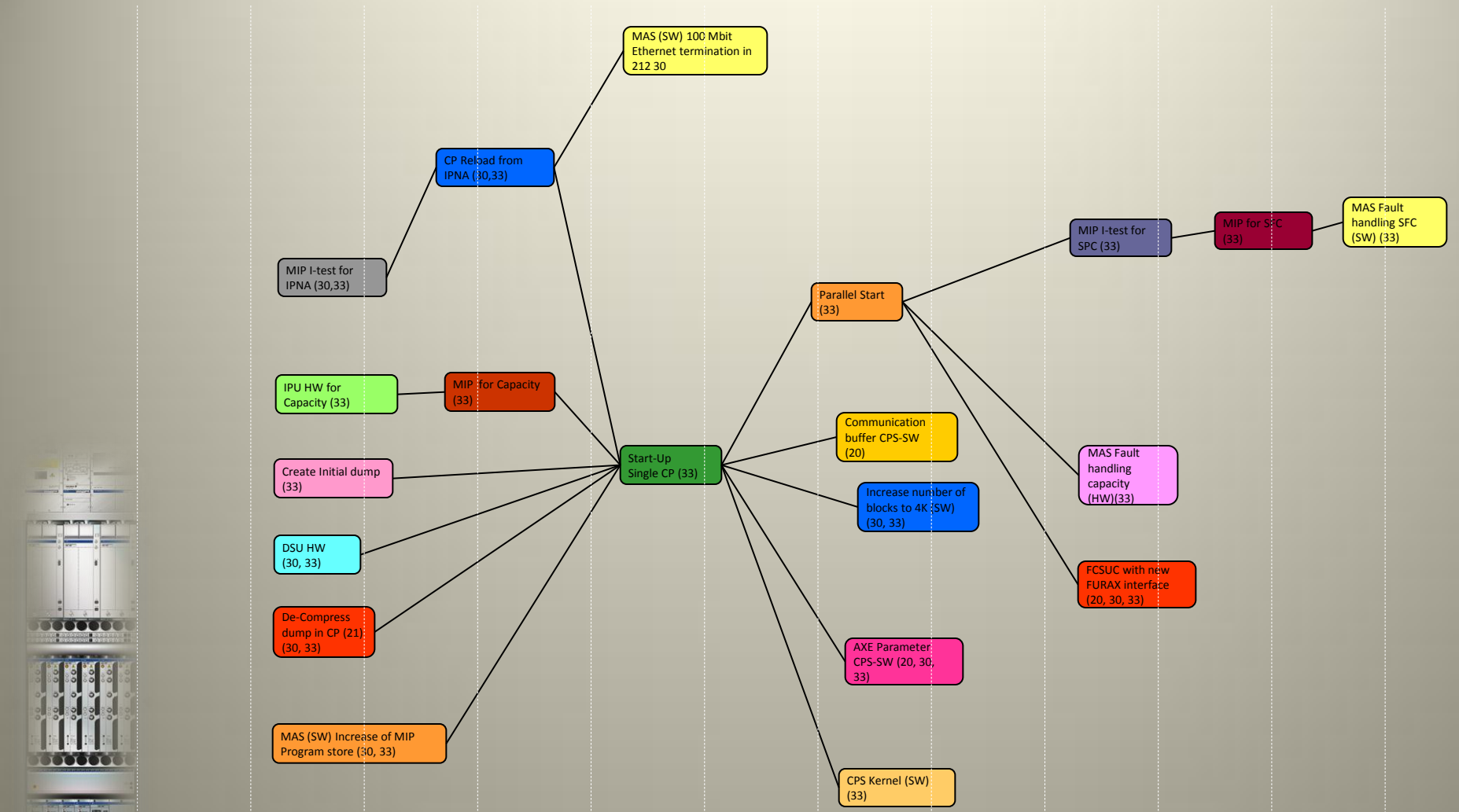
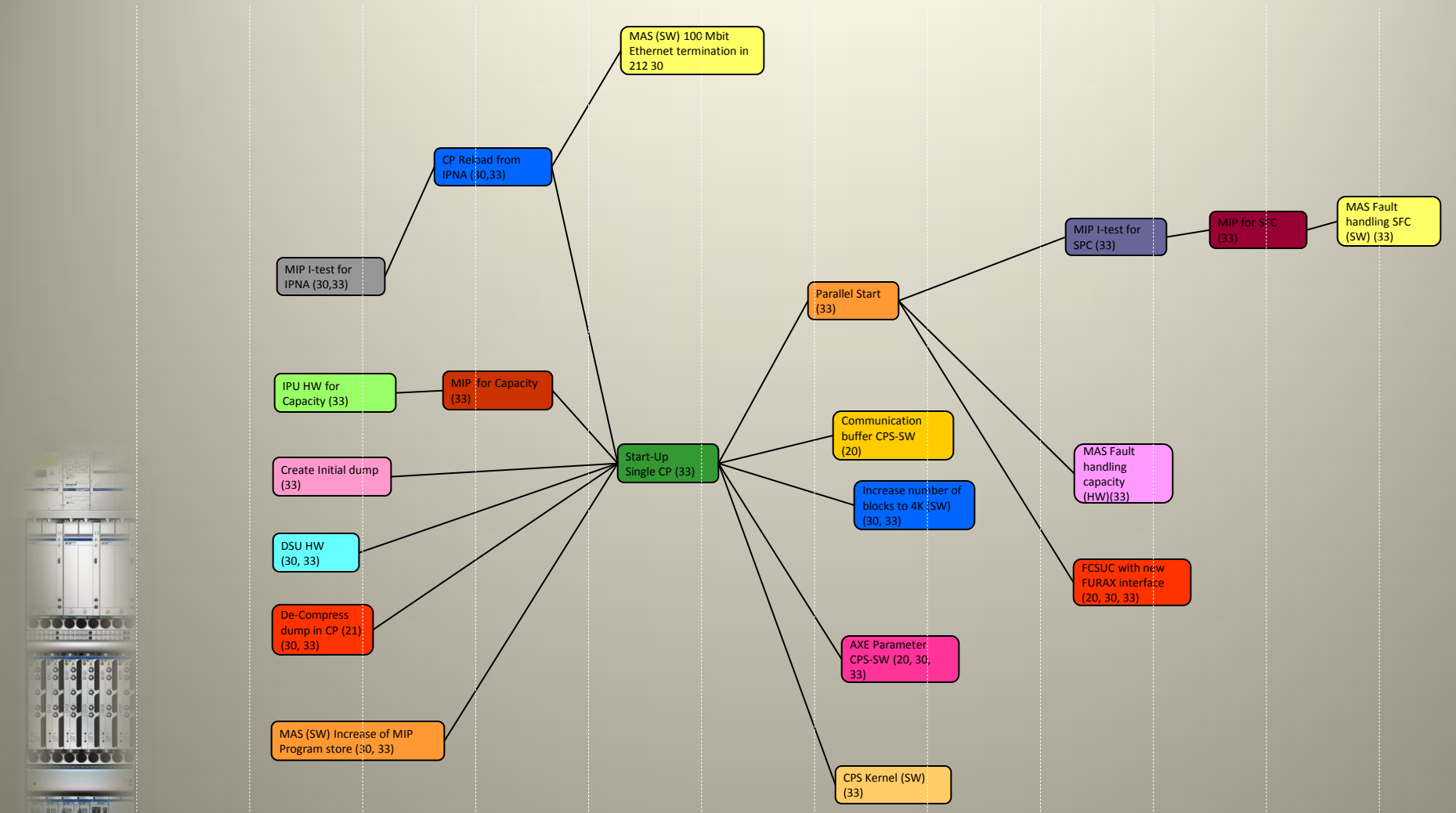


Integration plan



Integration plan (*temporalization*)

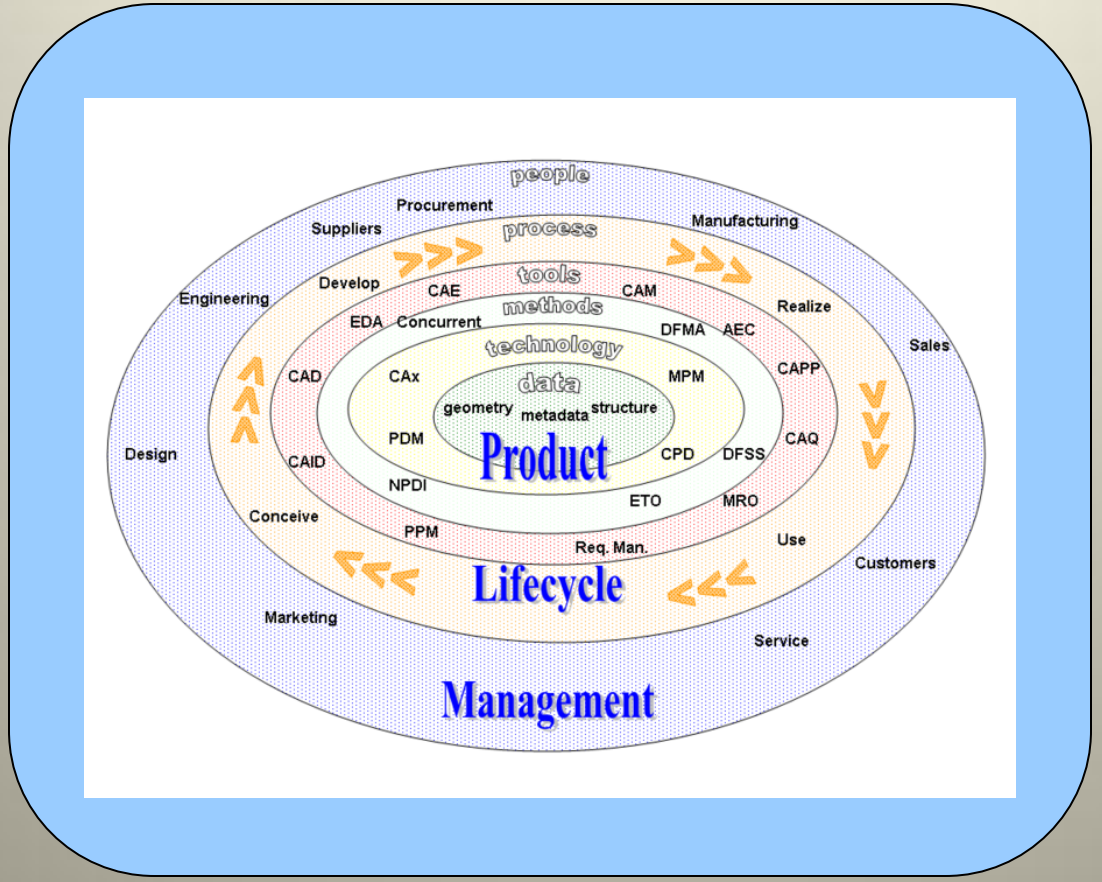


Target trajectory through Activity Domains

The Enterprise Anatomy

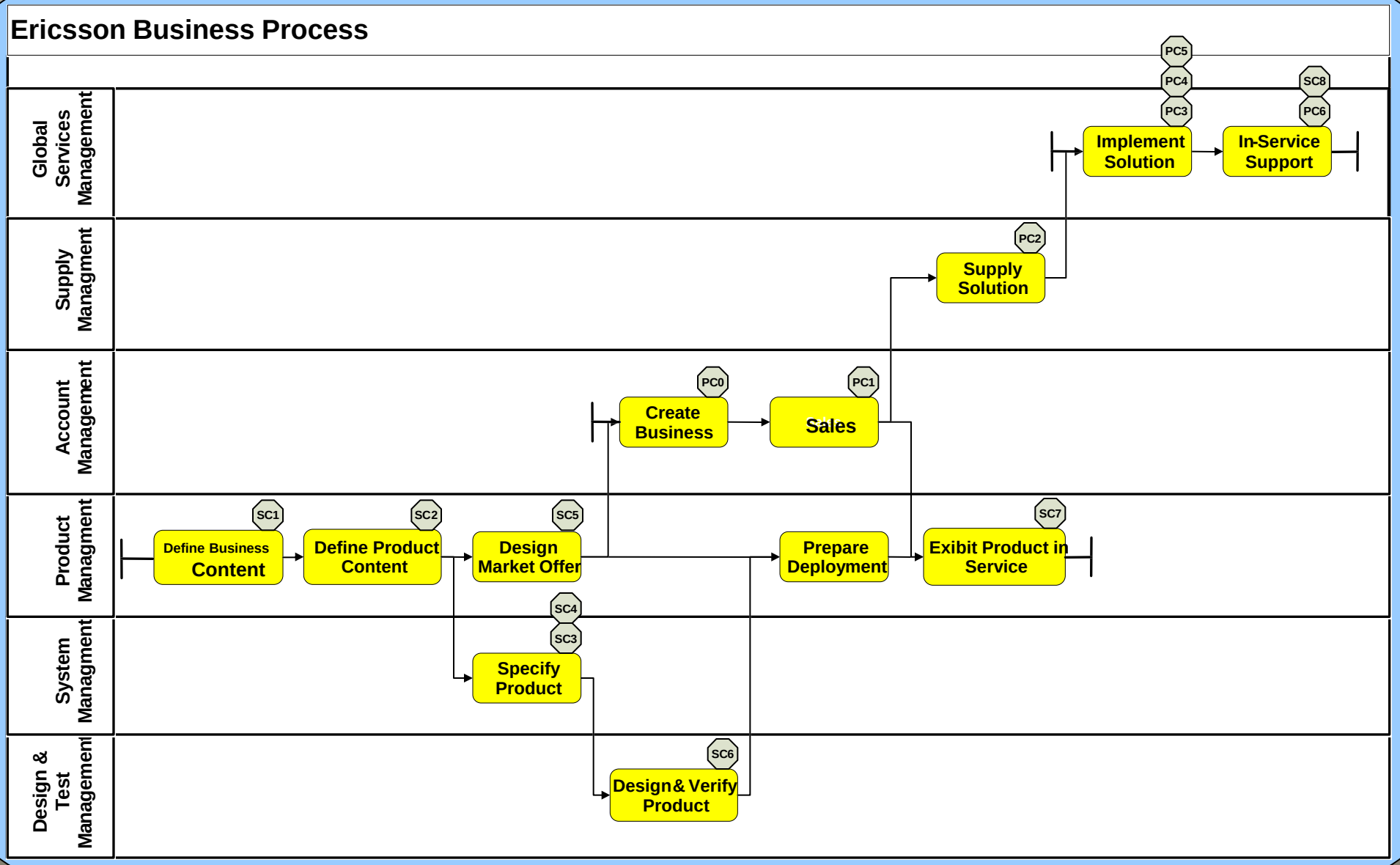
The ERICSSON Activity Domain

Needs

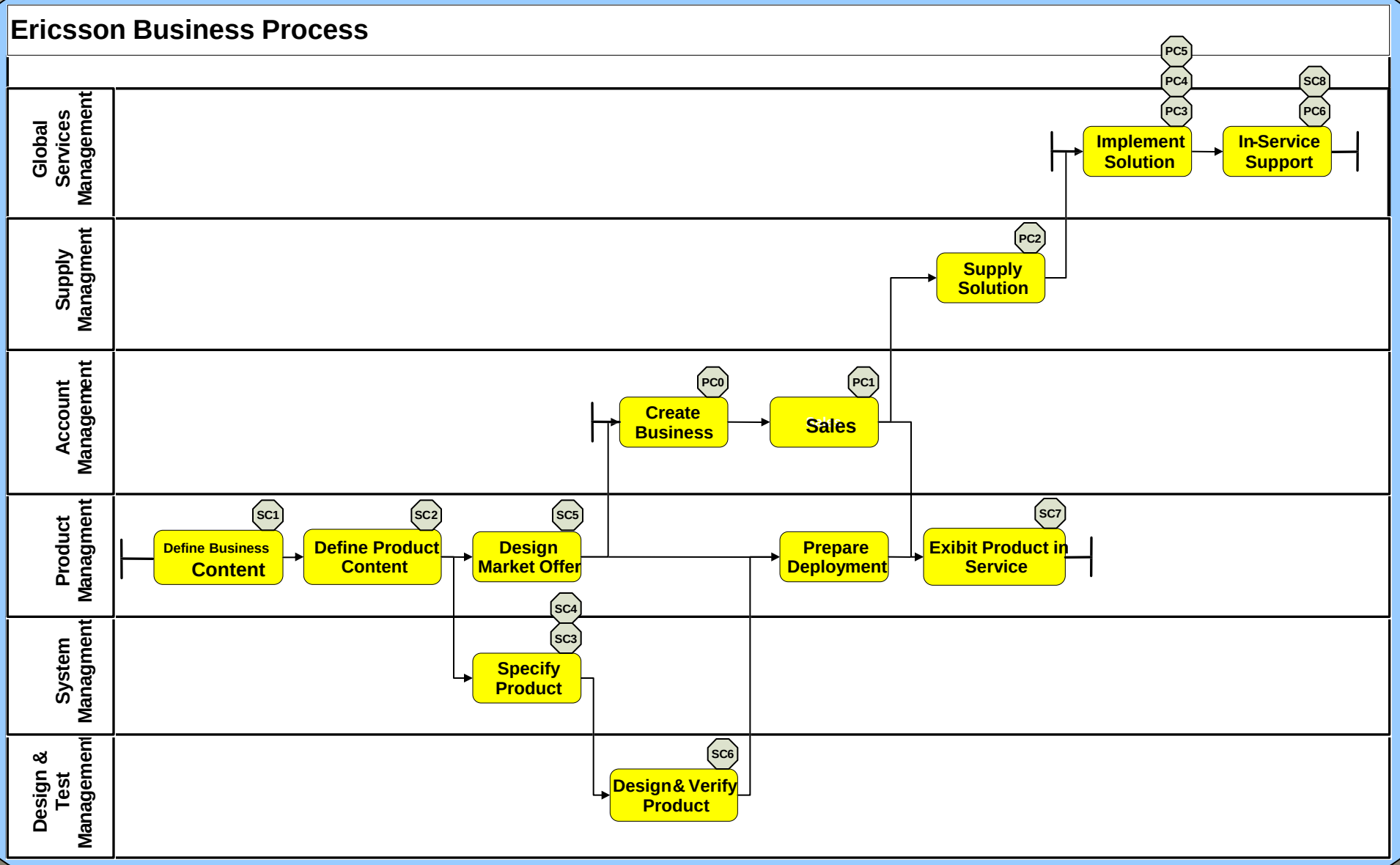


Product

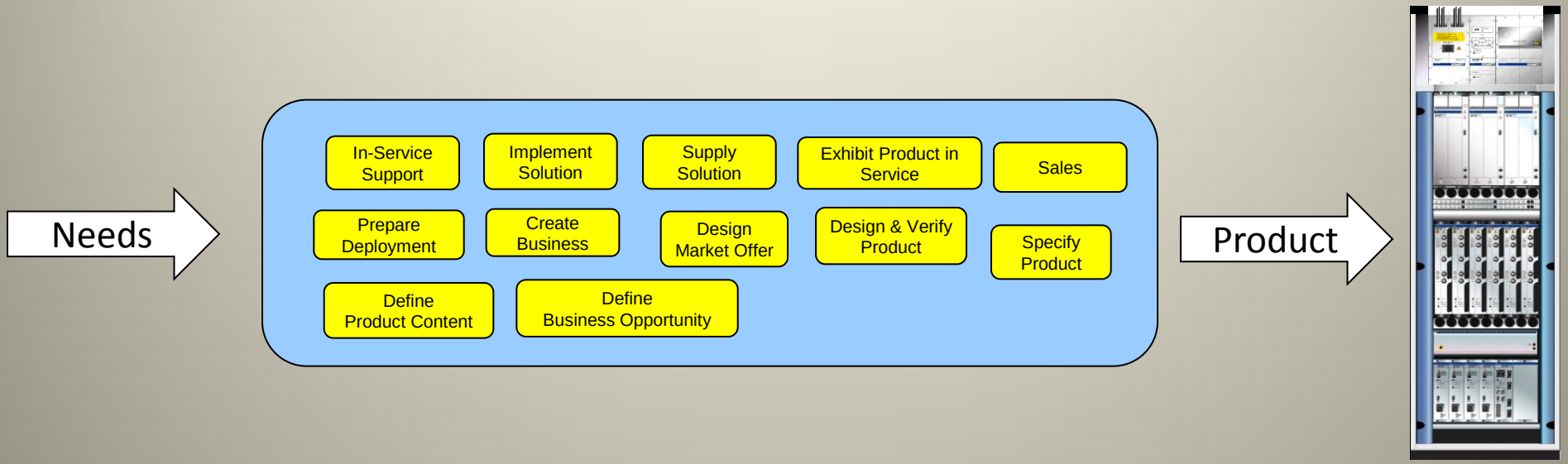
Business process



Business process (*temporalization*)

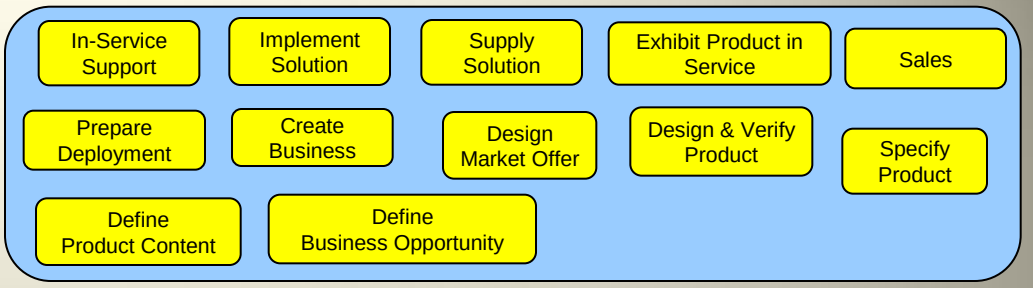


Activity Domains as Business Capabilities



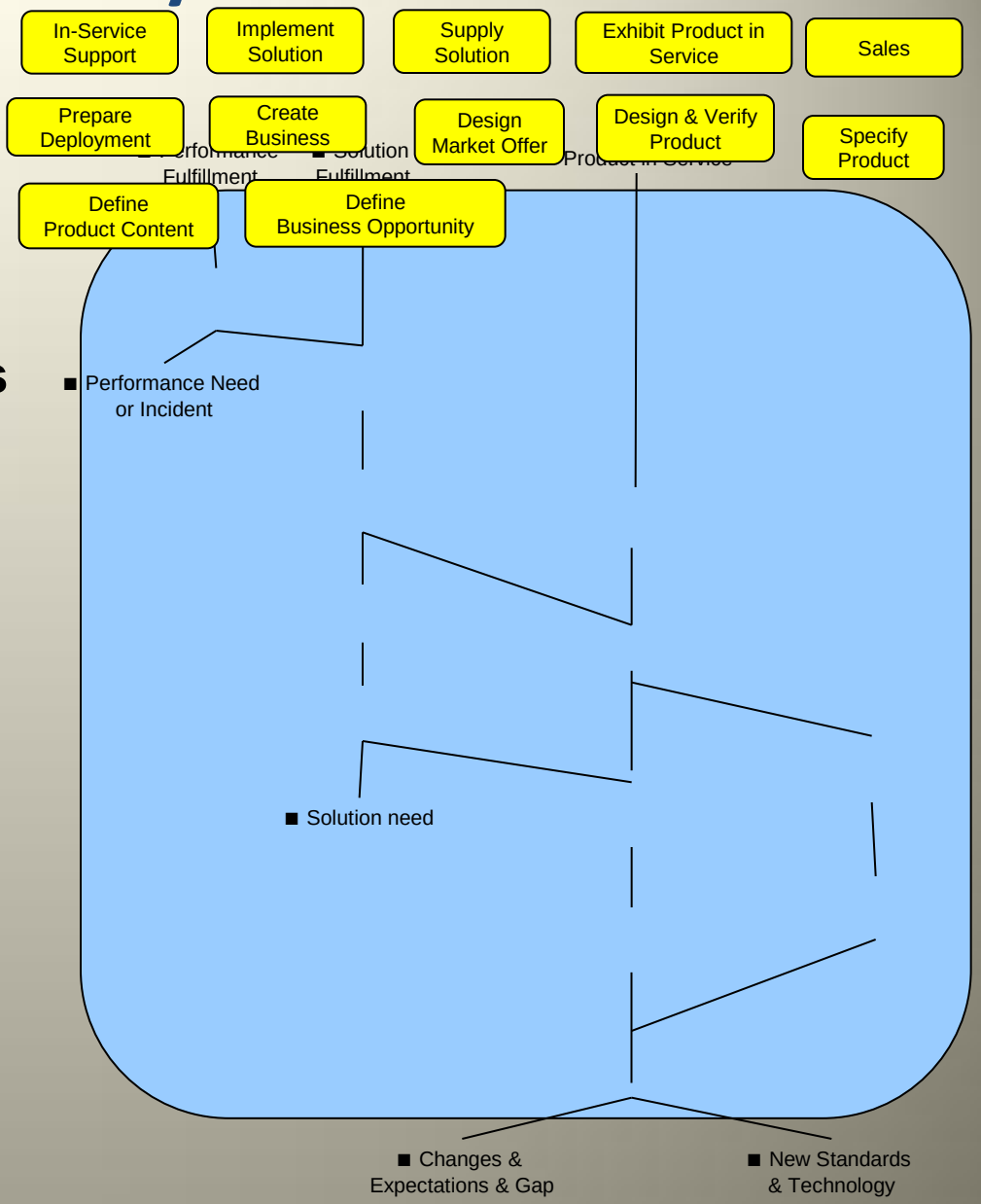
Define activity domains

- **Activity Domains**
  - Target
  - Motive



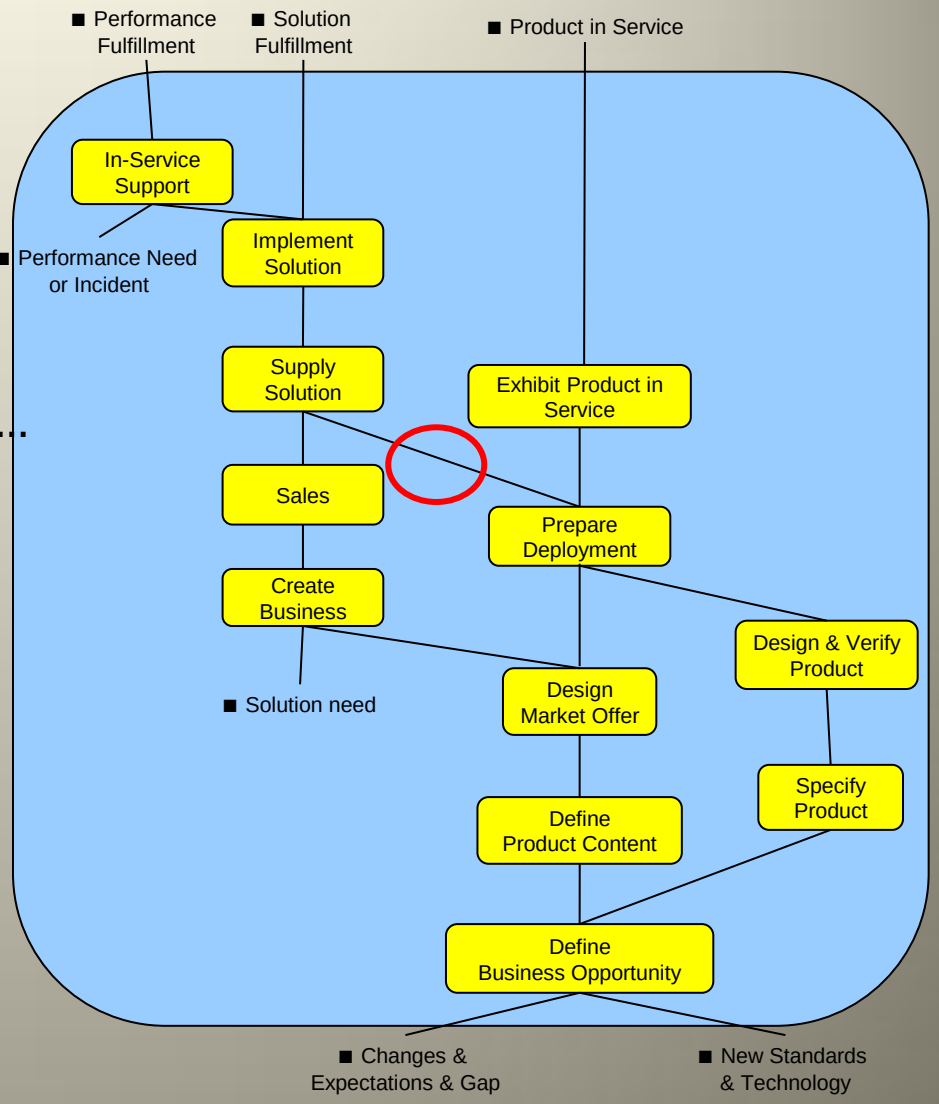
Define the enterprise anatomy

- **Activity Domains**
  - Target
  - Motive
- **Dependencies between domains**



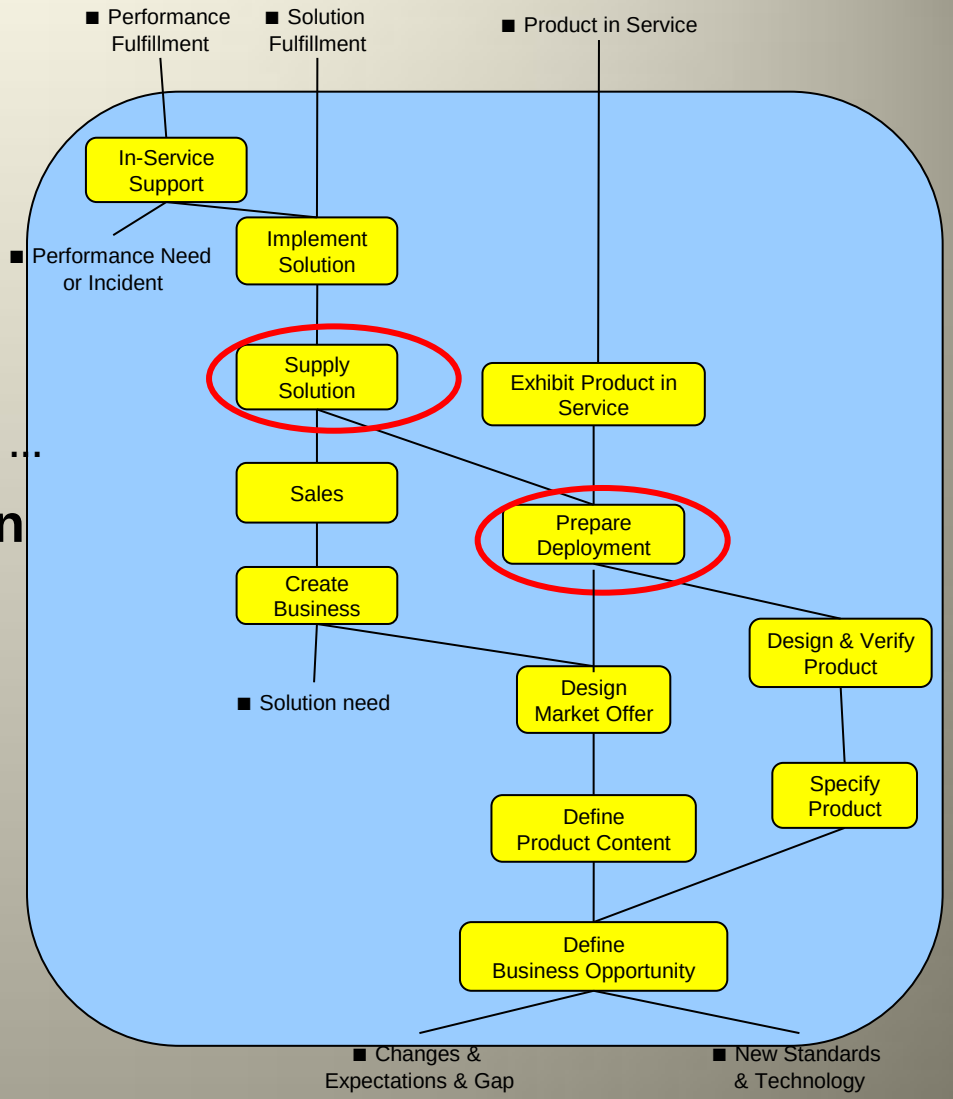
Transitions

- **Activity Domains**
  - Target
  - Motive
- **Dependencies between domains**
- **Transitions between domains**
  - Mapping rules, translations, interfaces …

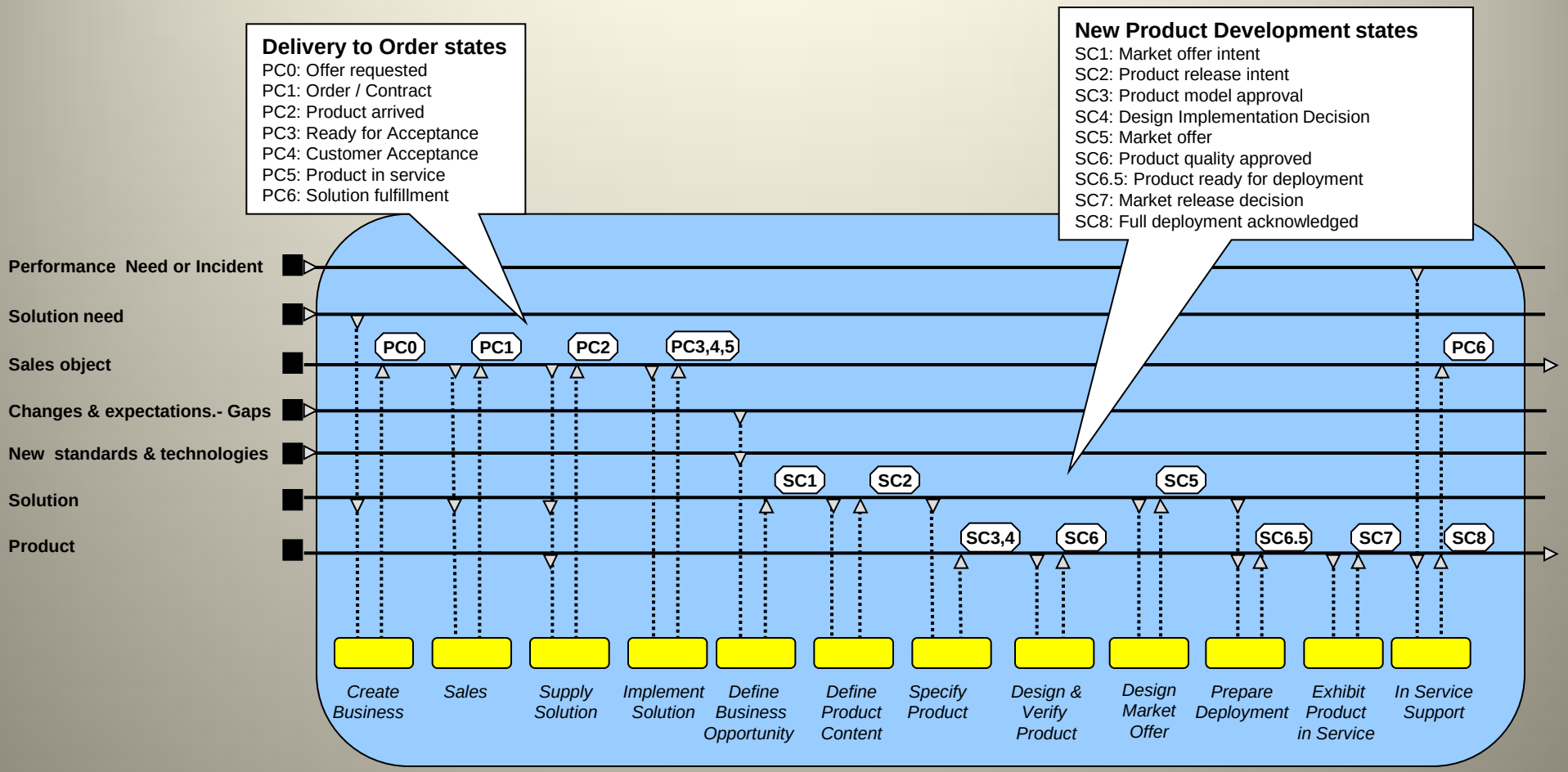


The internals of each domain

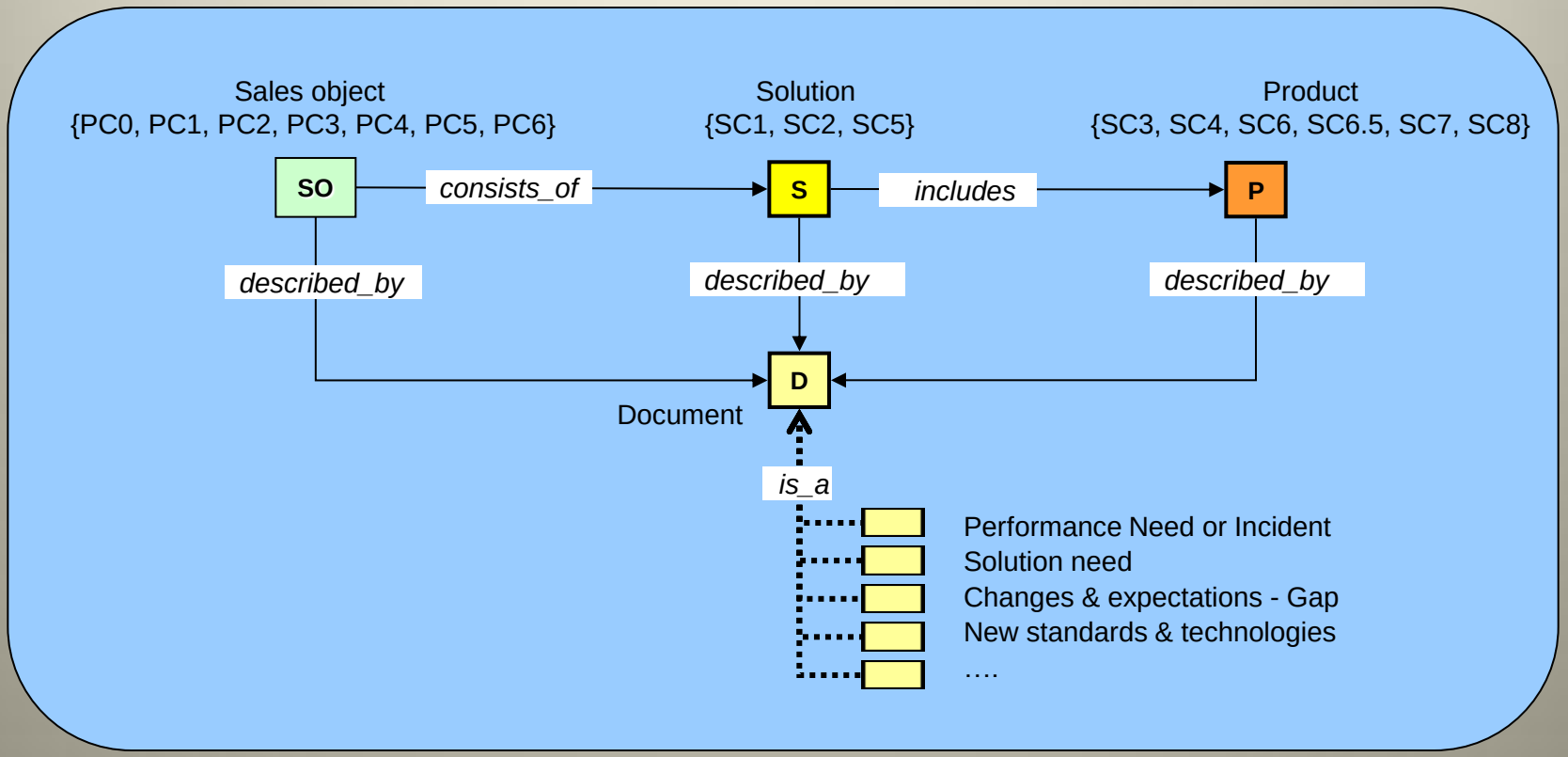
- **Activity Domains**
  - Target
  - Motive
- **Dependencies between domains**
- **Transitions between domains**
  - Mapping rules, translations, interfaces …
- **Activity modalities for each domain**
  - Information Model – relevant things
  - Process Models – ordered actions
  - Business rules – valid actions
  - PLM, ERP – means
  - Enacting means
  - Aligning individual meanings



Activity Domain process model (*temporalization*)

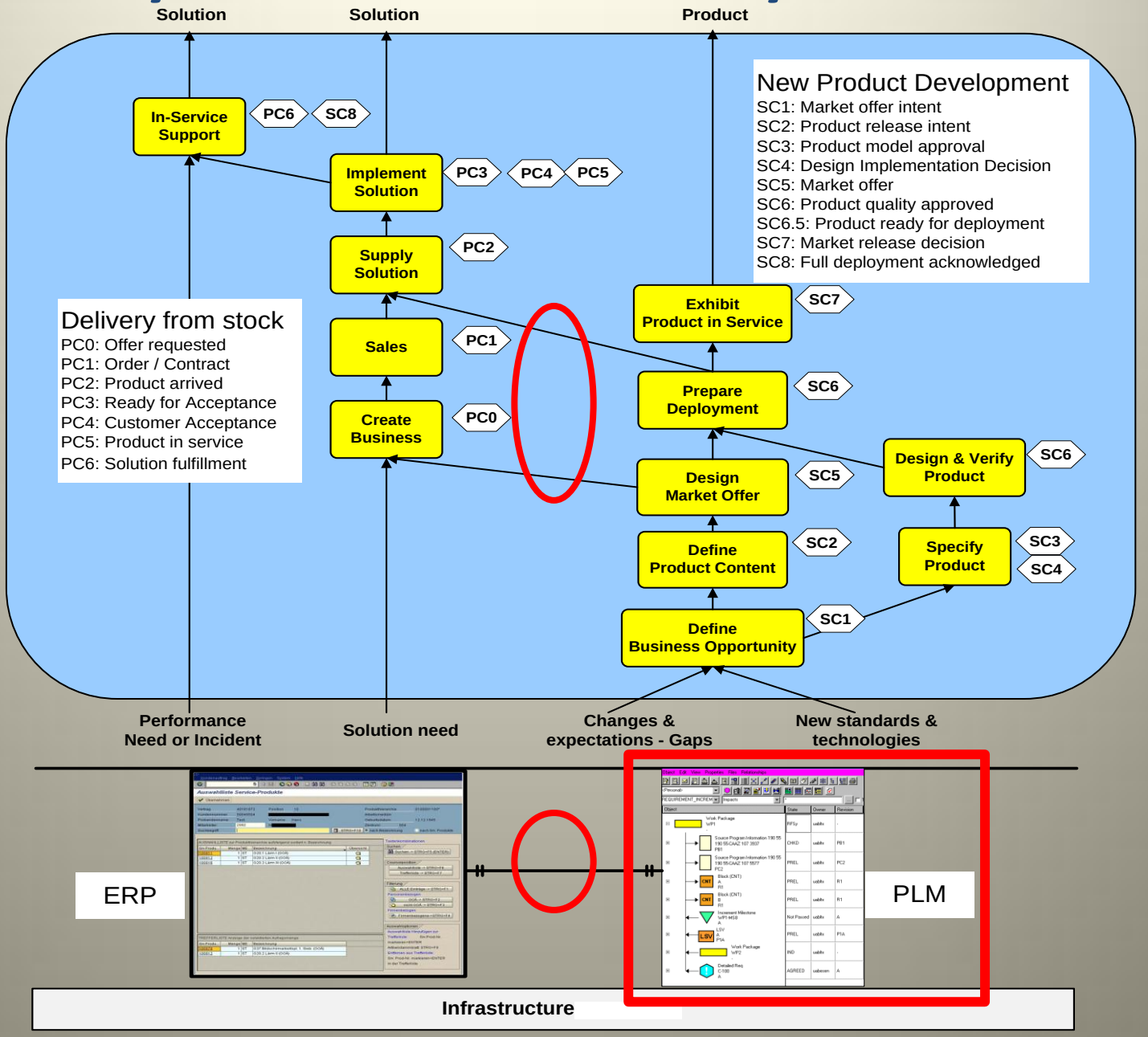


Activity Domain information model (*spatialization*)

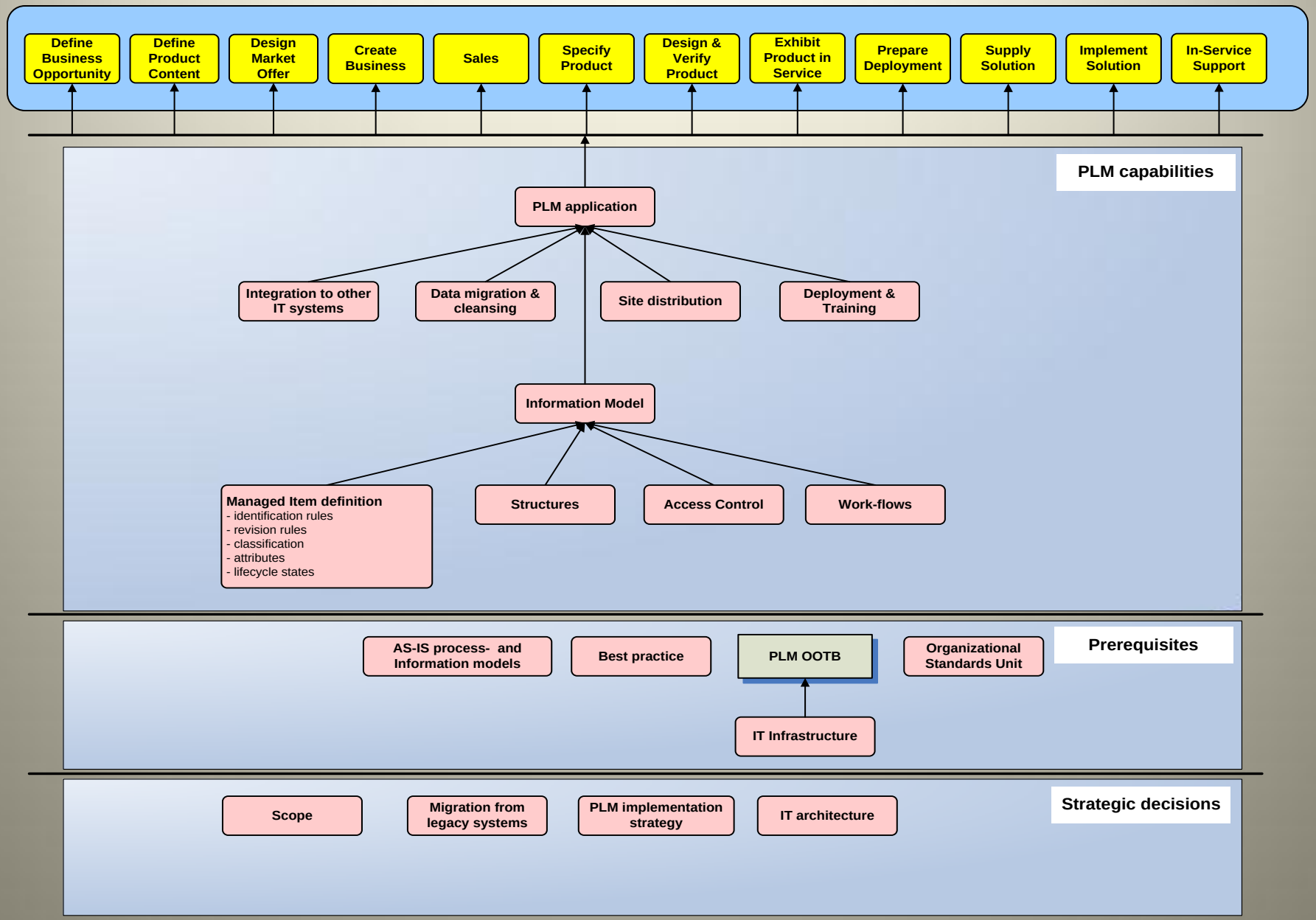


IT system implementation

Enterprise systems in the anatomy

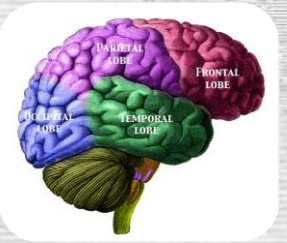


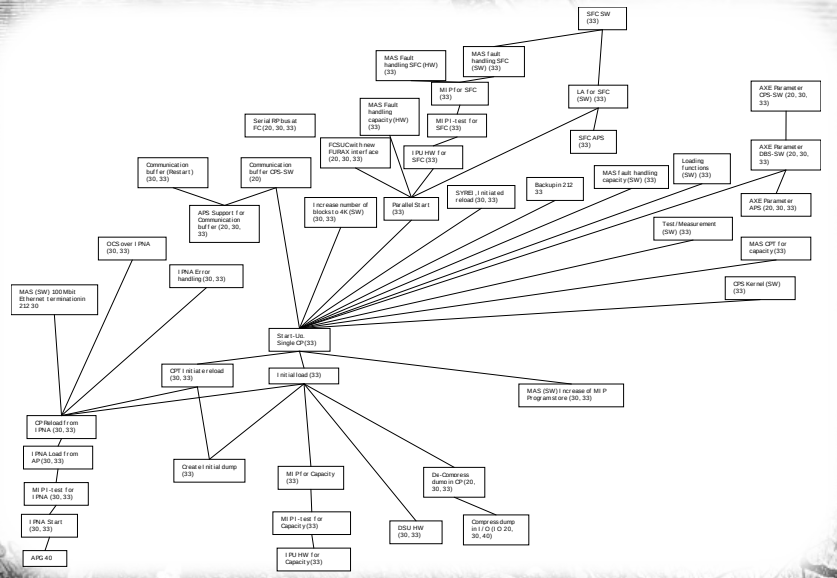
PLM system anatomy



Some takeaways

Our biological outfit has not changed!

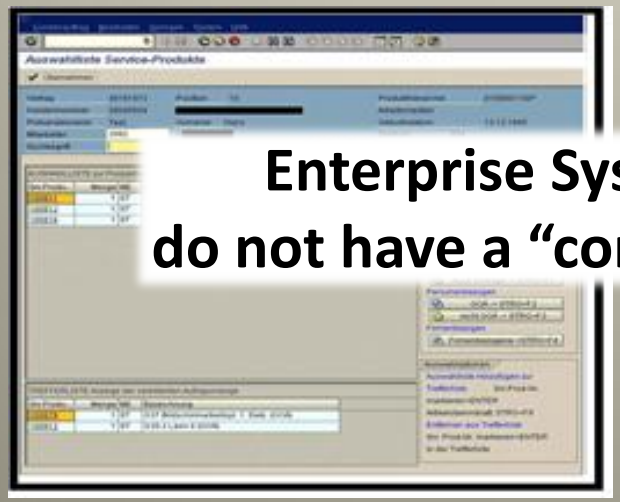


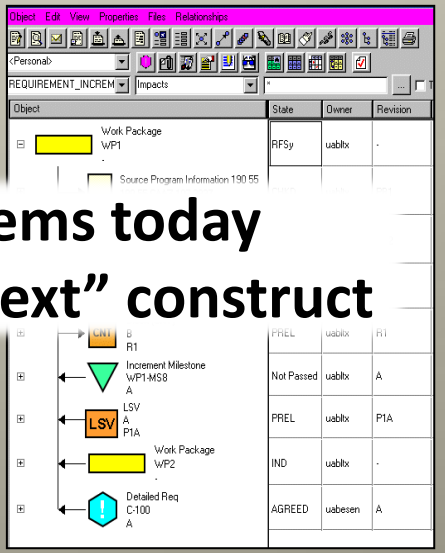


Context is King!

Tones!

Tons!



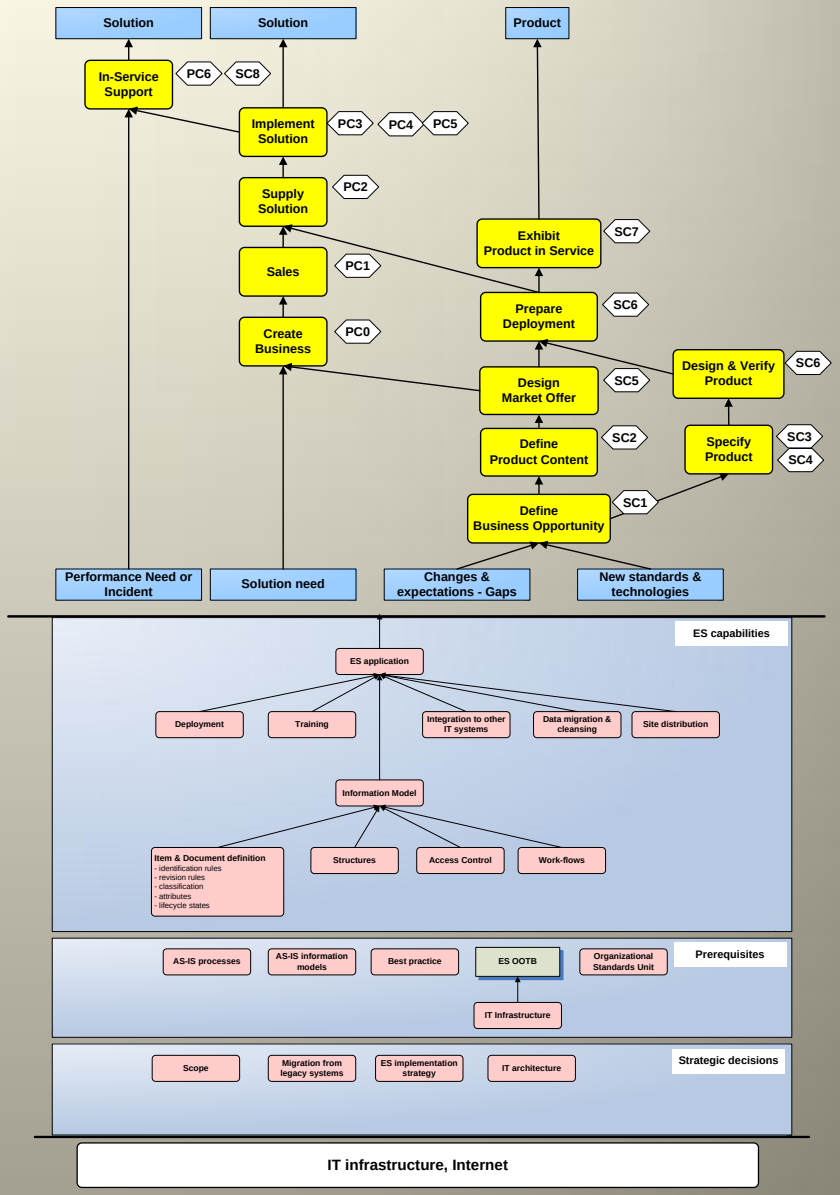


Enterprise Systems today
do not have a “context” construct

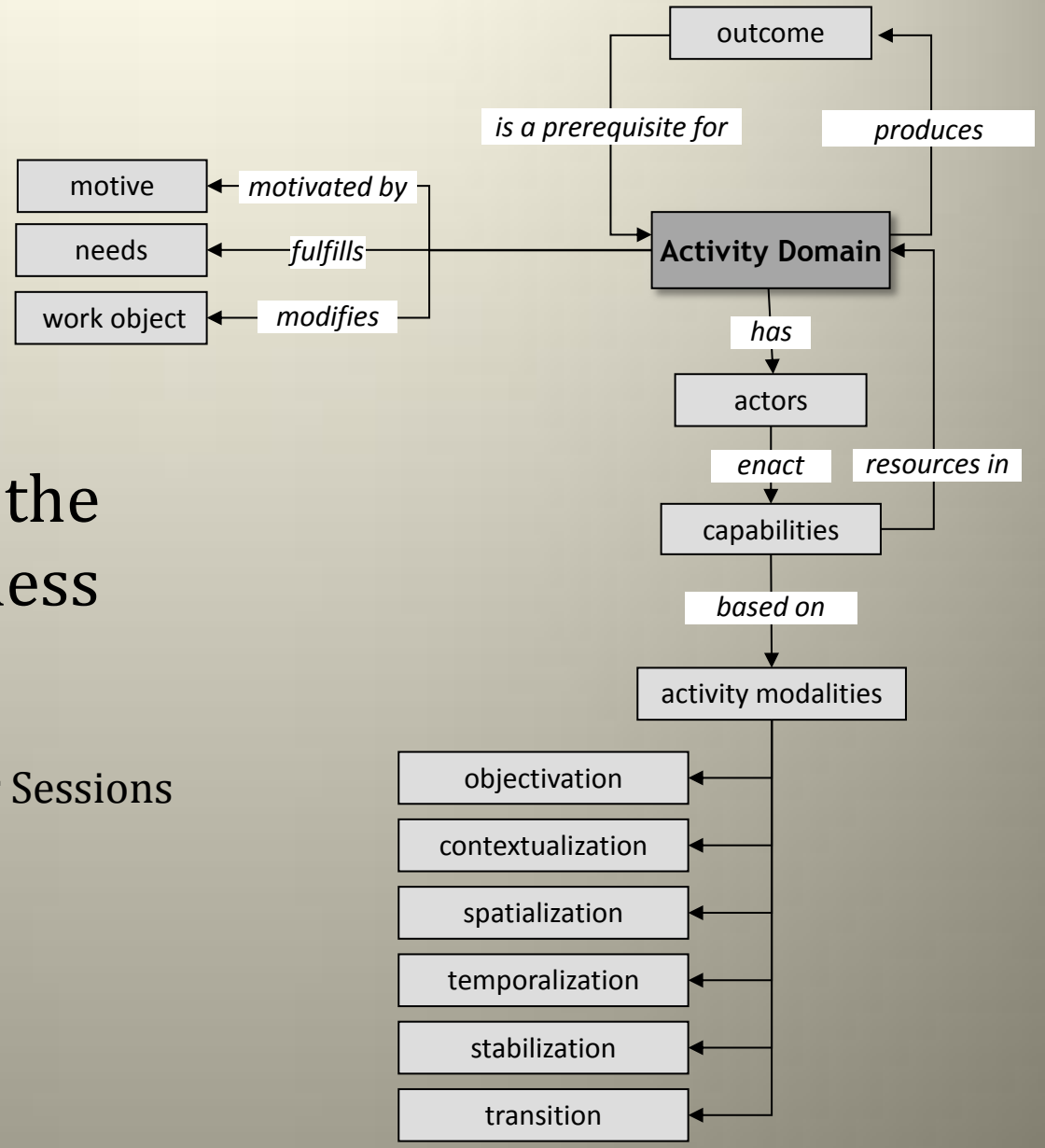
An integrating visualization of the EA

One image where business and IT are visualized in a common notation: dependencies between capabilities

- Enterprise anatomy
- IT system anatomy
- Infrastructure anatomy



A core Enterprise Architecture



Enterprise architecture, the science of aligning business needs and IT solutions

Roger Sessions

The Activity Domain Theory

– An alternative approach to EA
– Great potential
– Work in progress!

The end is near …

lars.taxen@telia.com
+46 73 09 77864