On the Integration of System Anatomy, System Architecture and Project Management

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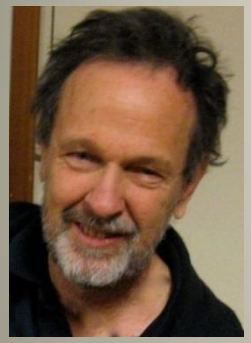
Who we are



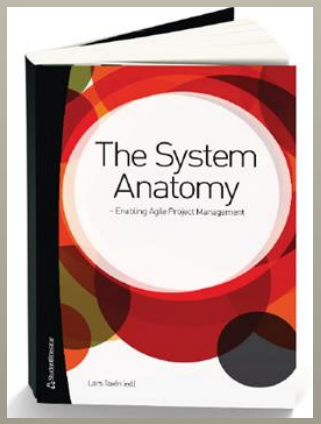
Lars Taxén

- Ericsson +30 years
- LiU +20 years
- Associate Professor
- Now researching coordination from neurobiology to the development of complex systems

Peter Olow

- 30 years in the SW industry
- Experienced systems architect
- 15 years of using System Anatomies
- Consultant in change management and organizational efficiency

Research, academia



Practice, industry

Outline

- **The System Anatomy**
  - Basis for Integration Driven Development (IDD)
  - Extremely successful development method at Ericsson
  - Huge unused potential for Swedish industry
- **Problem – how to include all stakeholder views of the system?**
  - Architectures "don't see" their contributions
  - May resist to accept IDD
- **Solution proposal**
- **Theoretical aspects**
- **Topics for academia – industry collaboration**
- **Conclusions**

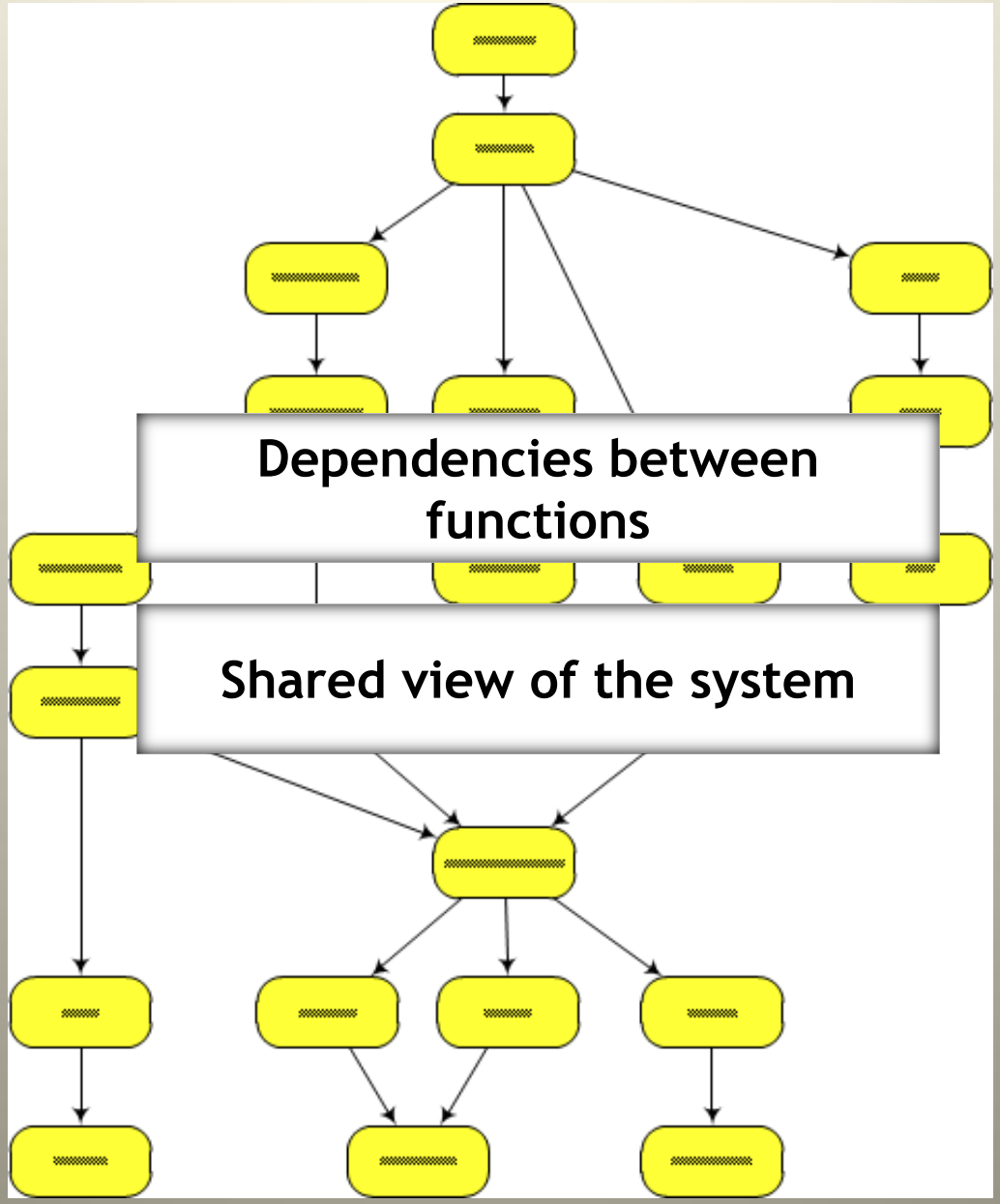
Integration Driven Development

- **Conceived in the 90´s at Ericsson**
  - Jack Järkvik et al. introduced System Anatomies
  - Purpose - to facilitate integration driven thinking
- **Planning focus on functionality instead of components**
- **Potential to efficiently coordinate development efforts across the organization**

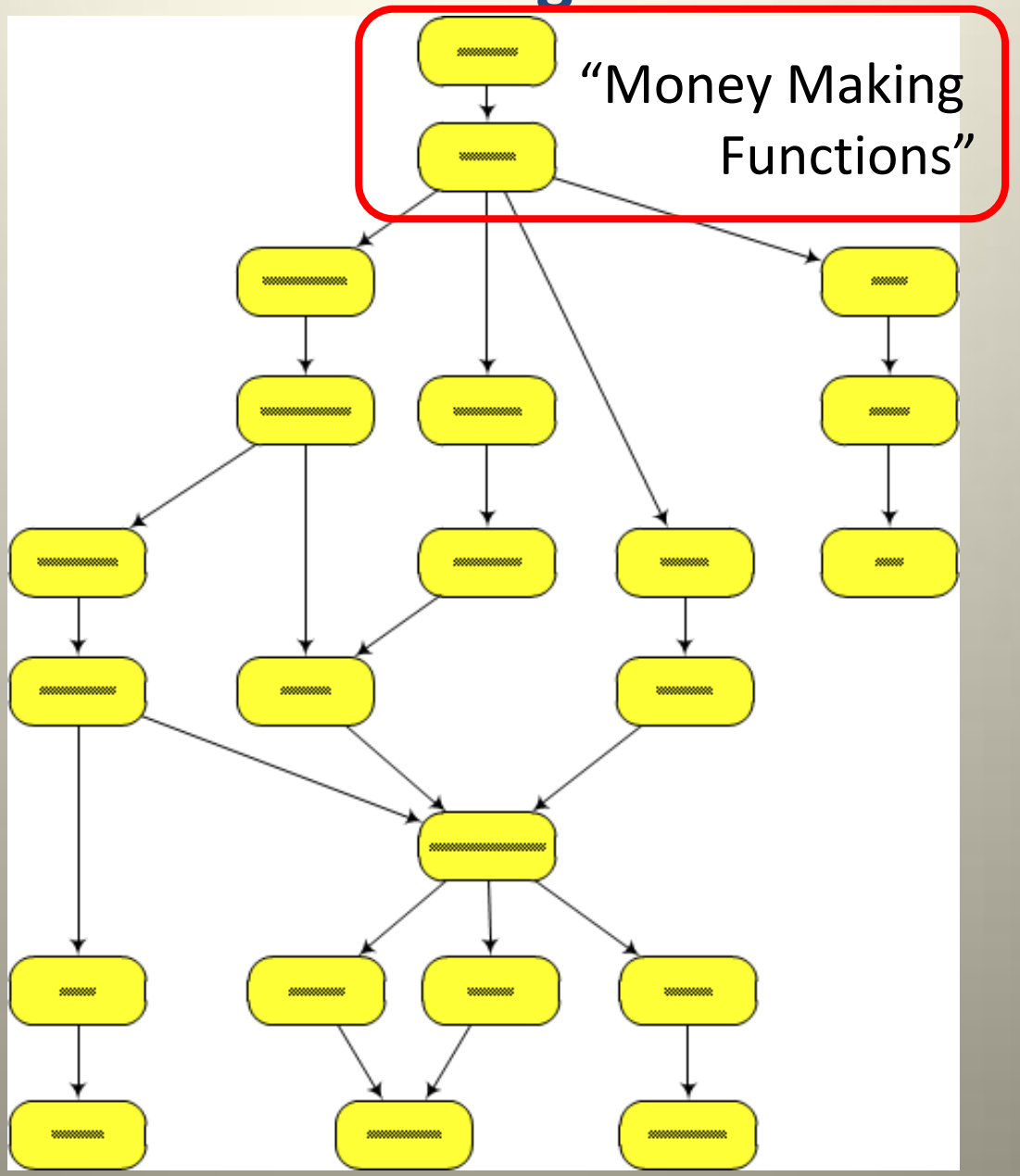
The System Anatomy

- basis for Integration Driven Development

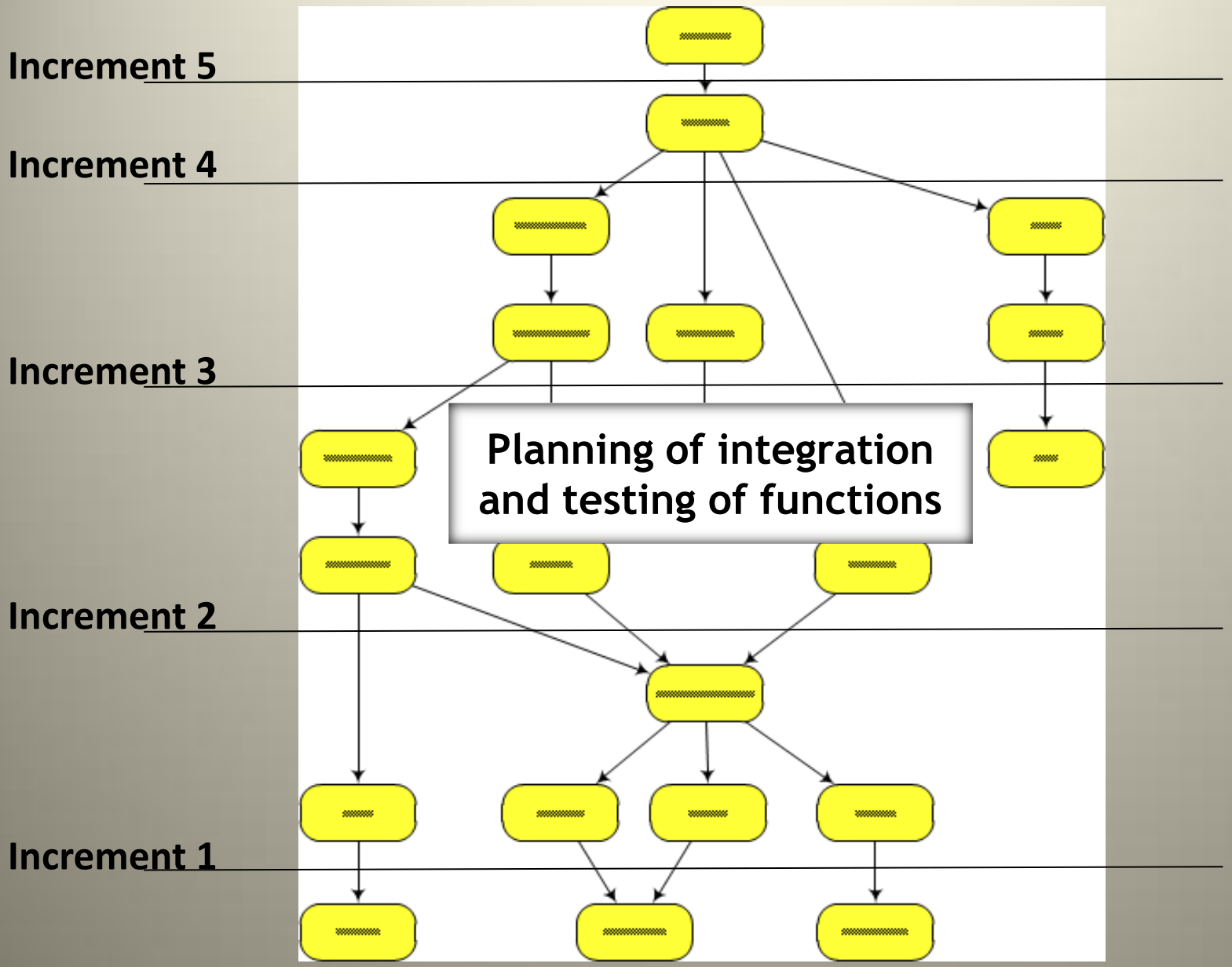
The System Anatomy



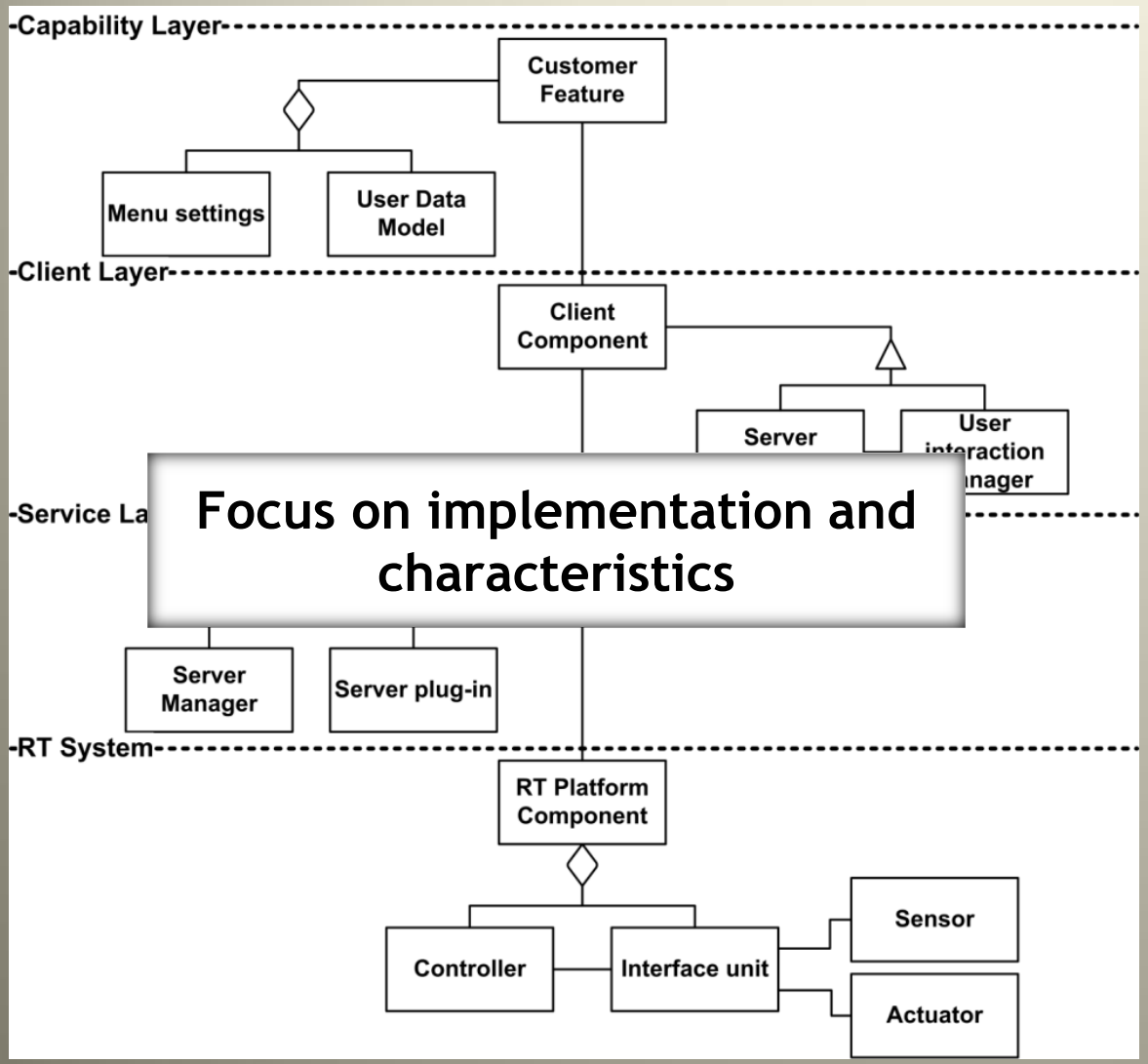
Product Manager's view



Project Manager's view



But, what about, for example, an architect's view?



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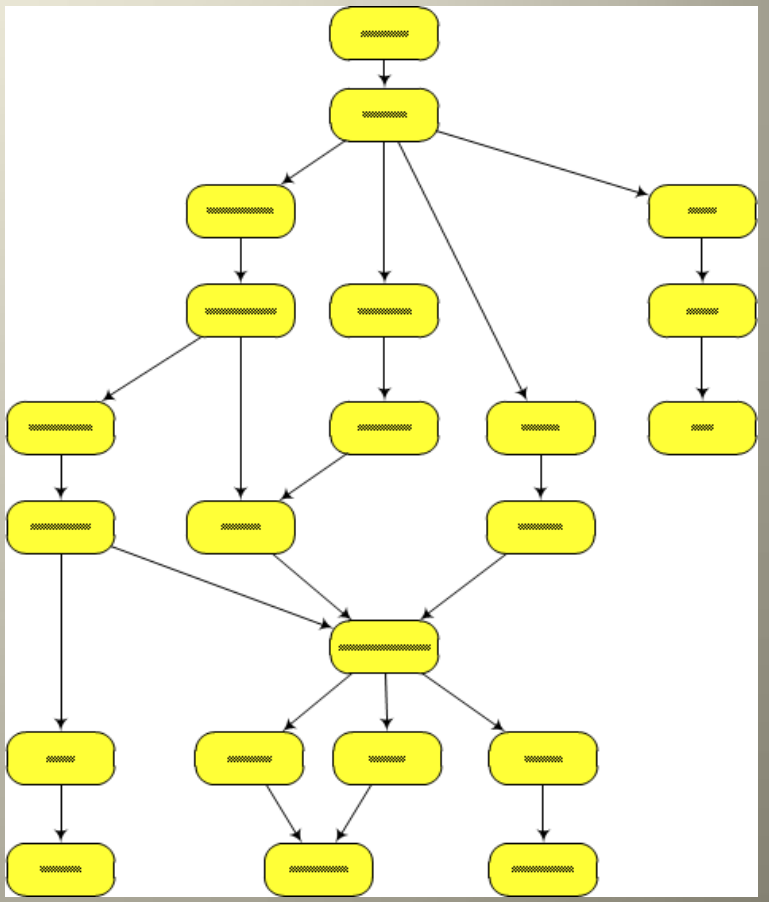


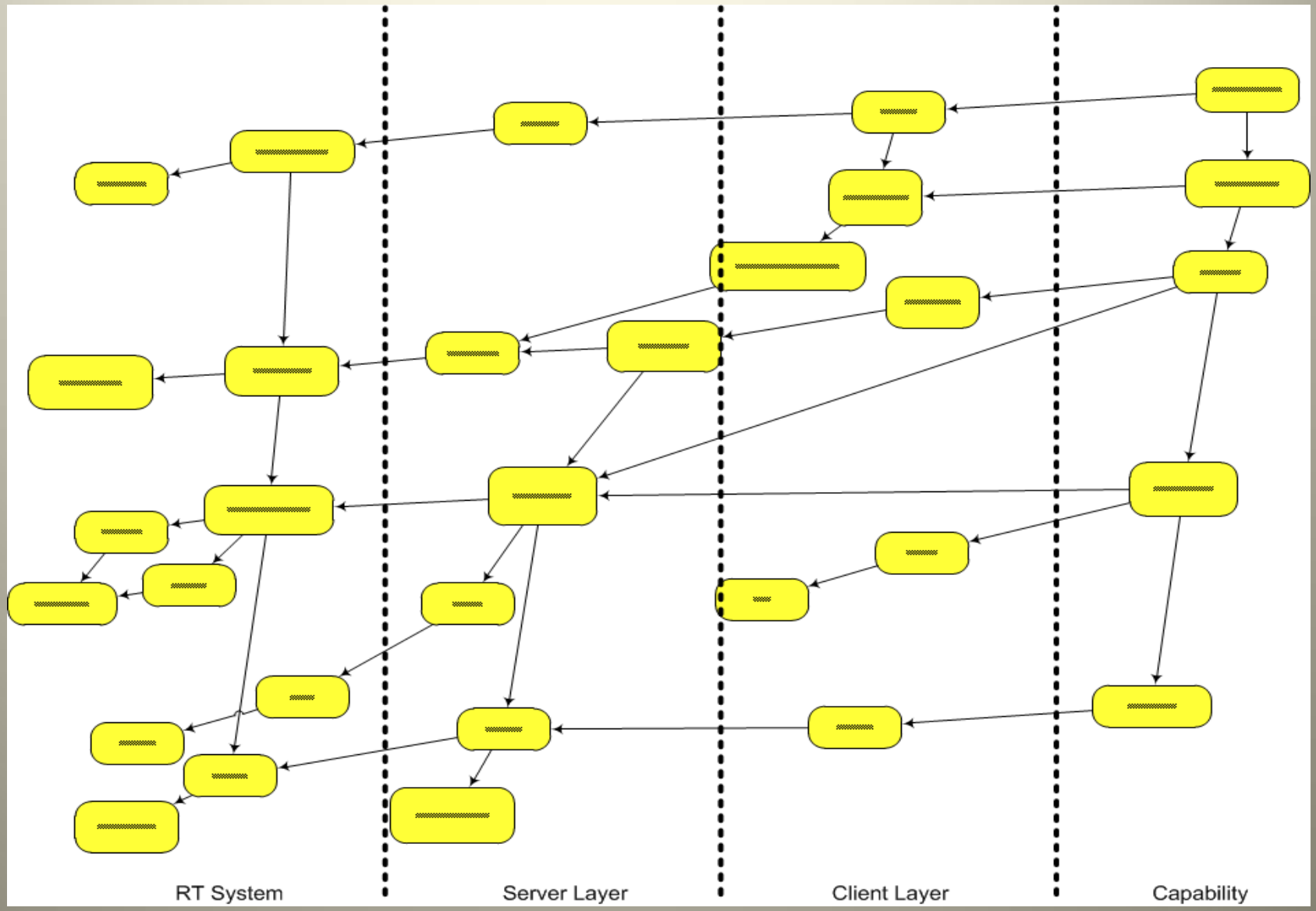
Problem – architects can't relate to the anatomy

- Architectural view not visible in the anatomy
- Resistance to participate, no motivation
- Benefits to the overall project not realized
- Hard to disseminate IDD in an organization

Issue

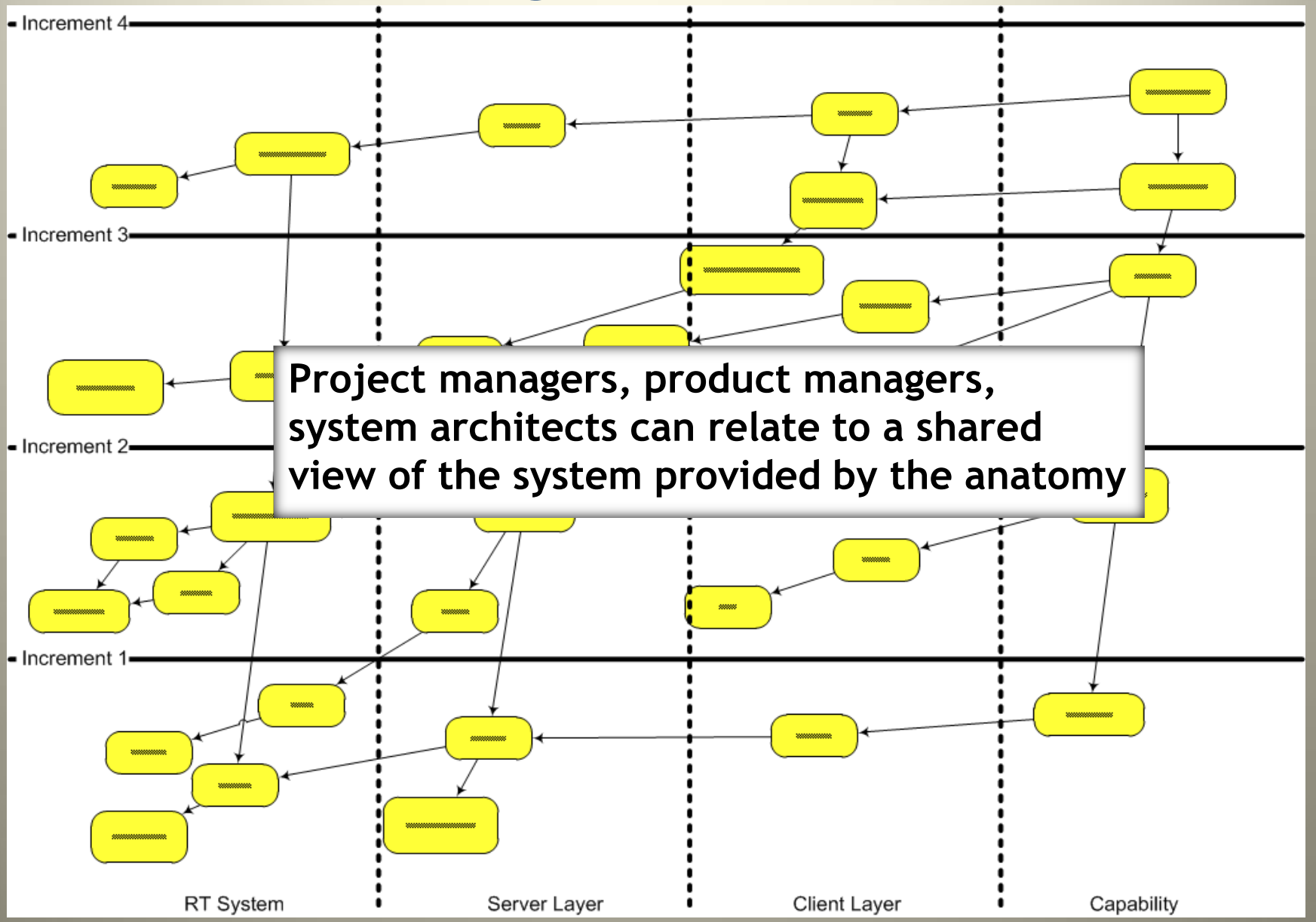
- how to integrate the architectural view?

Solution – add an “architectural twist”

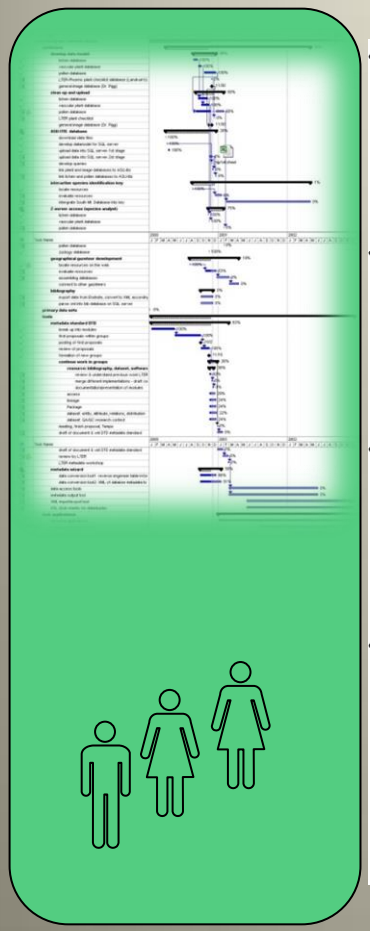


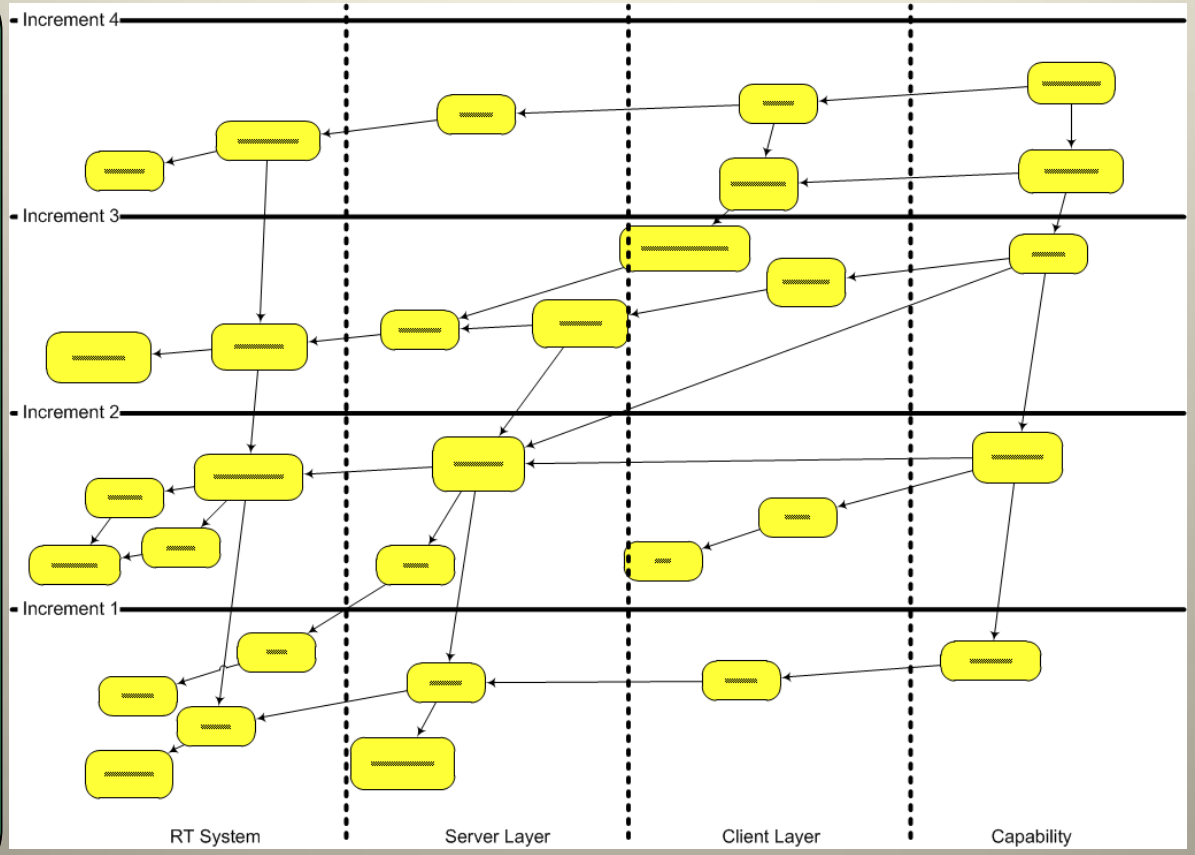
Architectural layers

Integrated view

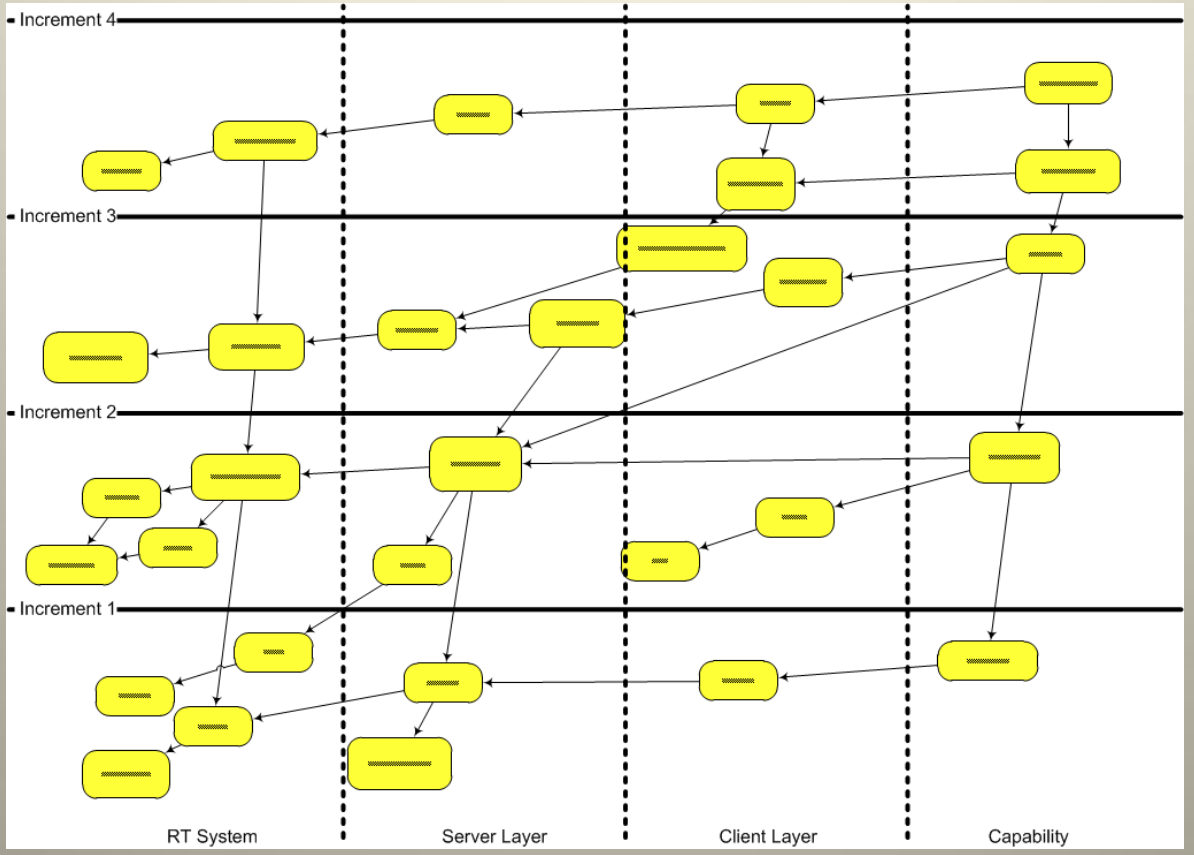


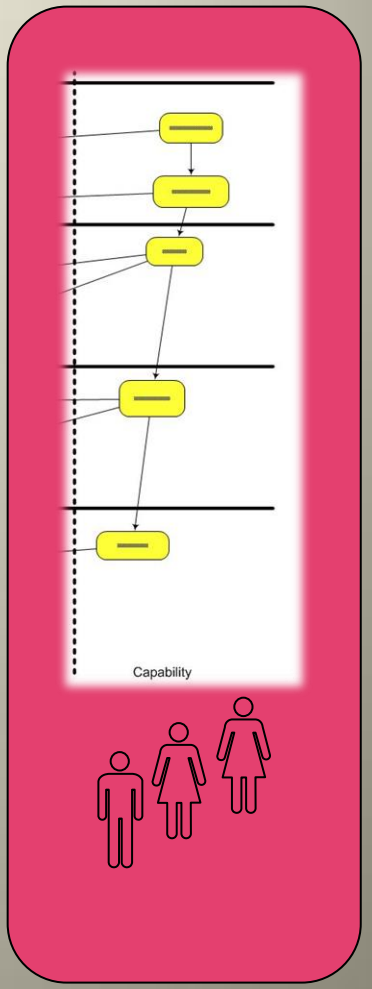
Project managers



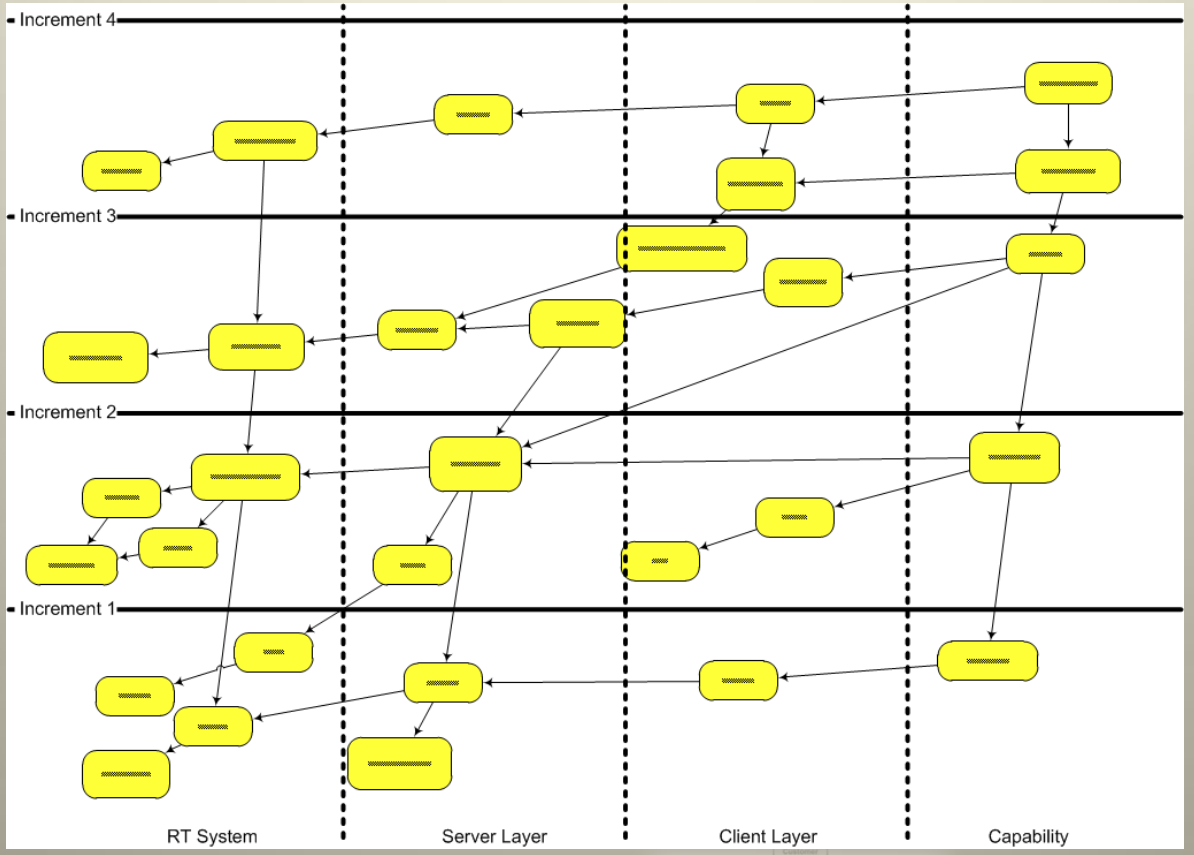


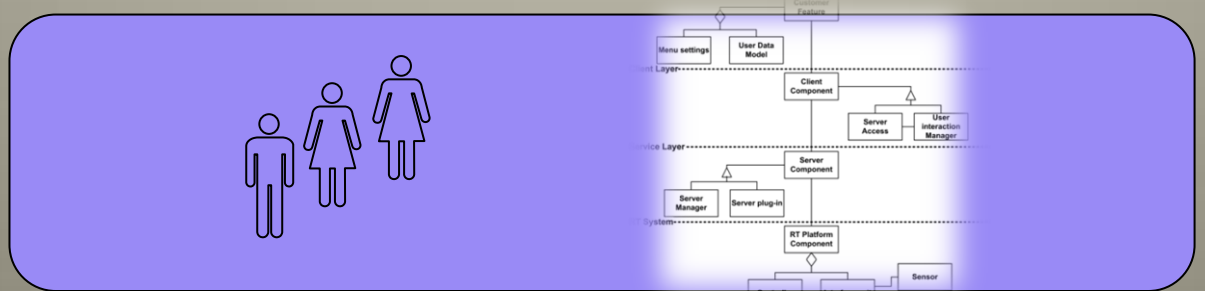
Product managers





System architects

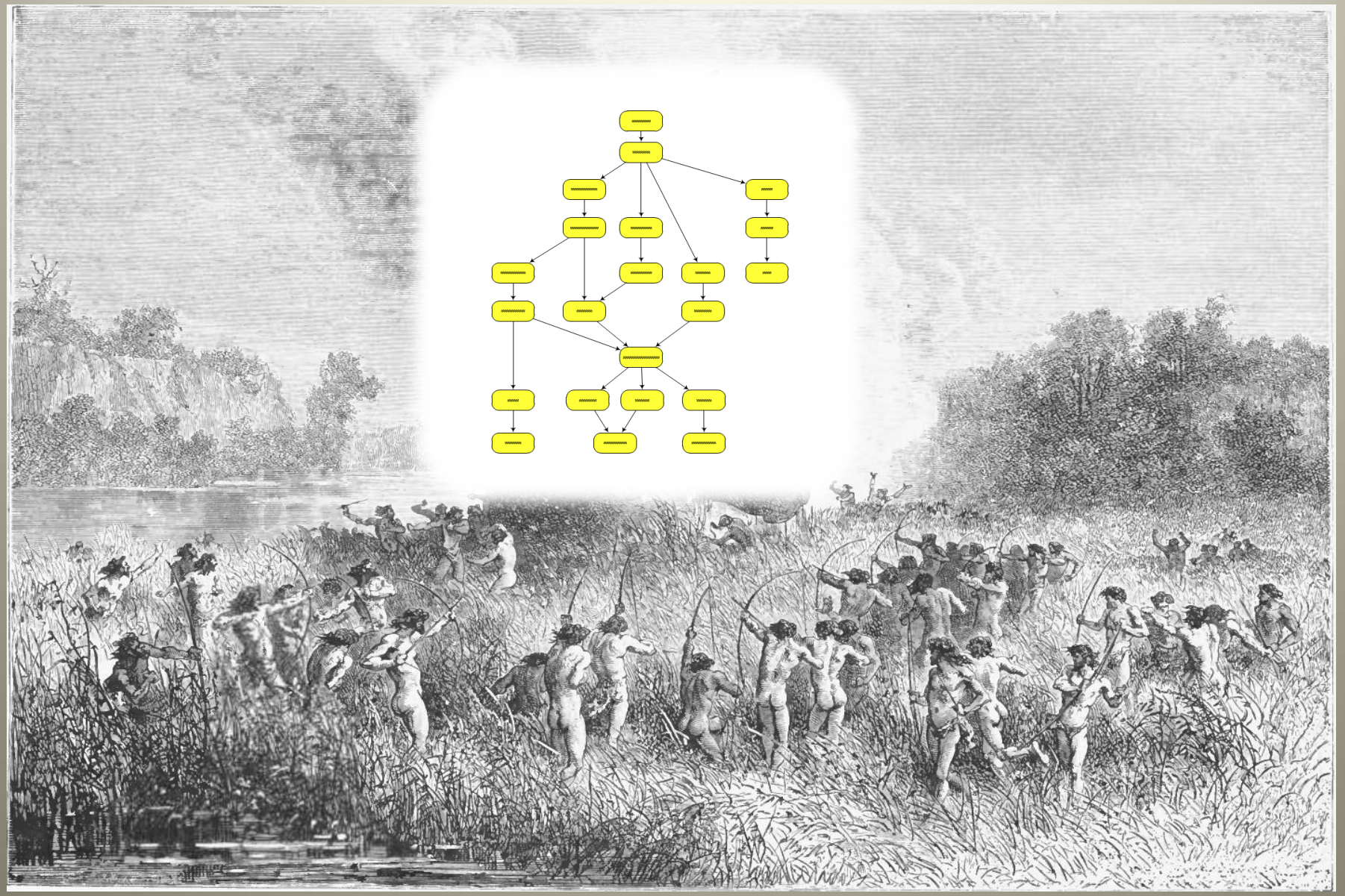




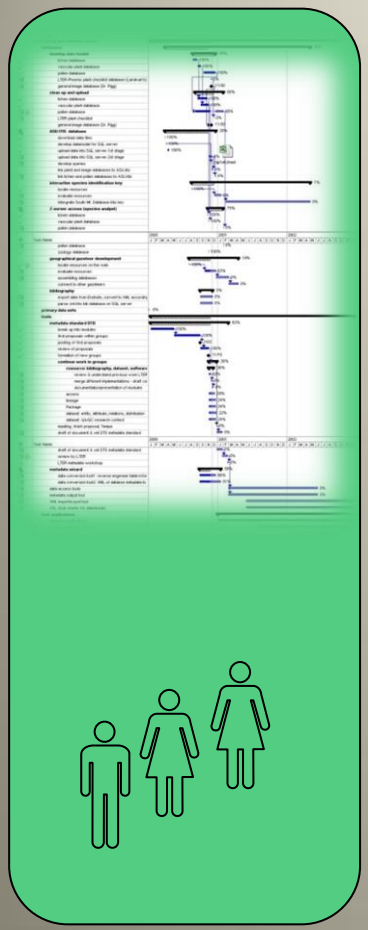
Theoretical aspects

- how to understand the significance of the System Anatomy?

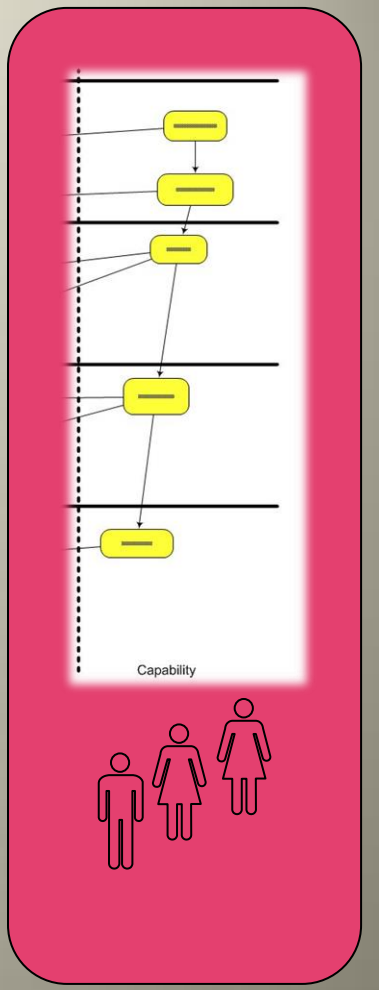
Coordination requires a shared view of the target!

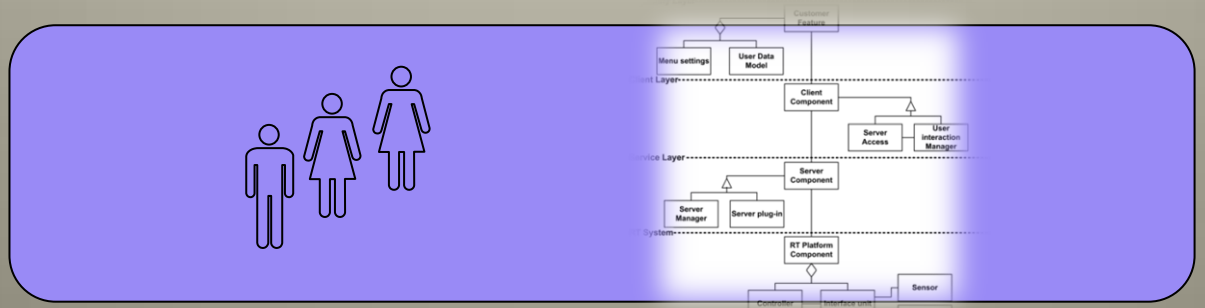


Socially organized work

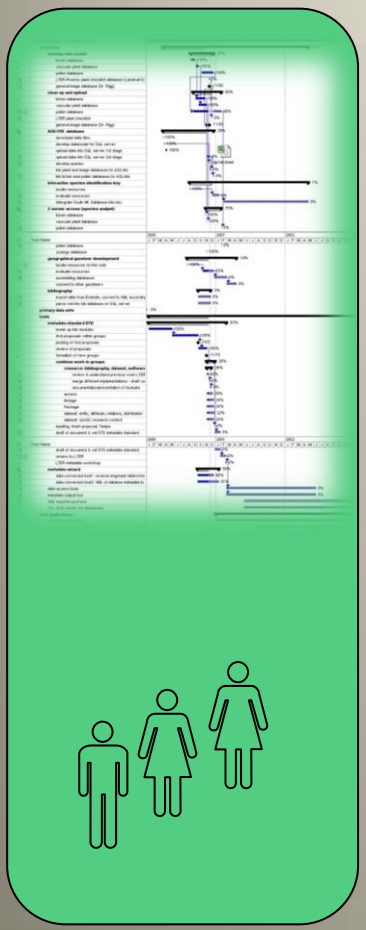


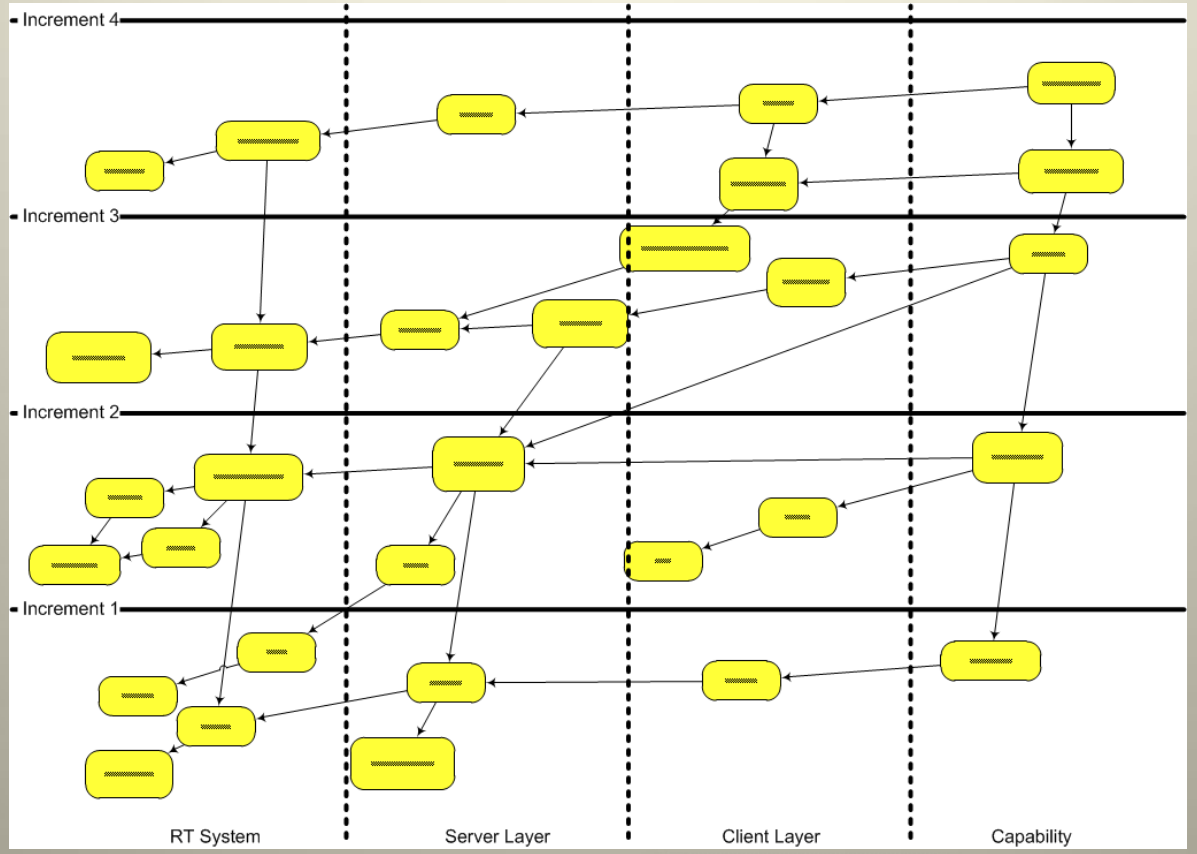
- **Different world-views**
  - What is relevant
  - Terms and concepts
  - Tools, information, processes
  - Rules, how to go about doing things
  - Shared understanding
- **Need to interact with each other**
  - Requisite interaction?
  - Global / local balancing problem

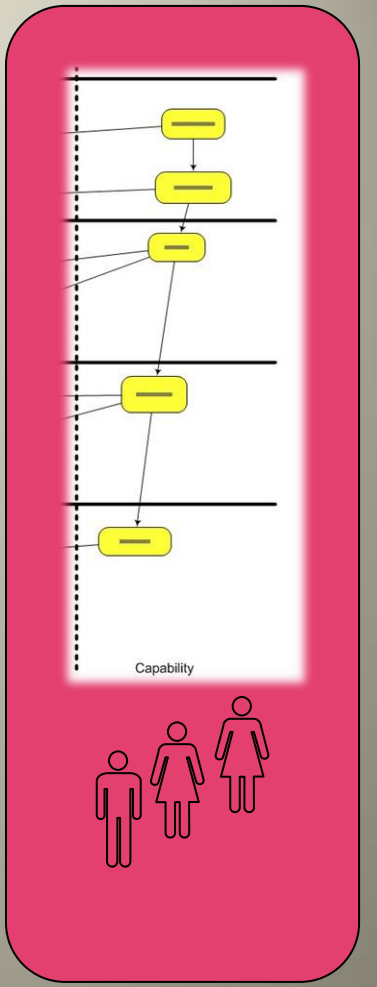


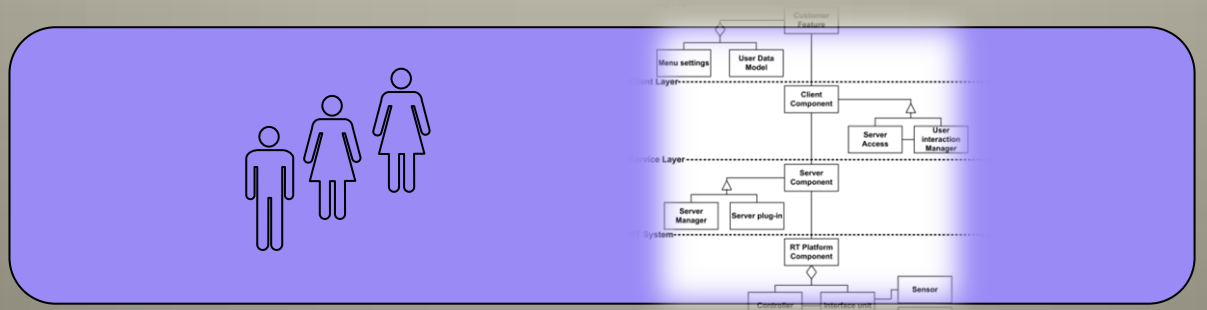


The anatomy - a “boundary object”









Collaboration proposals

- between academia - industry

Topics for collaboration

- **Investigate IDD dissemination in organizations**
  - Prerequisites for successful outcome?
  - Methods for dissemination?
- **Develop enhanced tool support for IDD**
  - Just using Visio/PowerPoint/other drawing tools not enough
  - Implementation / architectural view must be included
- **Investigate other areas for the System Anatomy**
  - IT system development (ERP, PLM)?
  - Where is it not applicable?
- **Advance theory development related to IDD**
  - Why has it been so successful?
  - Models with the same properties as the System anatomy?

Conclusion

- IDD needs to be further evolved
- Swedish software intensive industry would benefit enormously from using and evolving IDD
- Requires collaboration between academia and industry
- Use what works – the System Anatomy approach is a proven good start for these initiatives

Thank you!

Questions and Comments?