



# More efficient system development with Enterprise Architecture

Case study: SWECCIS SR2  
Swedish Command & Control Information System

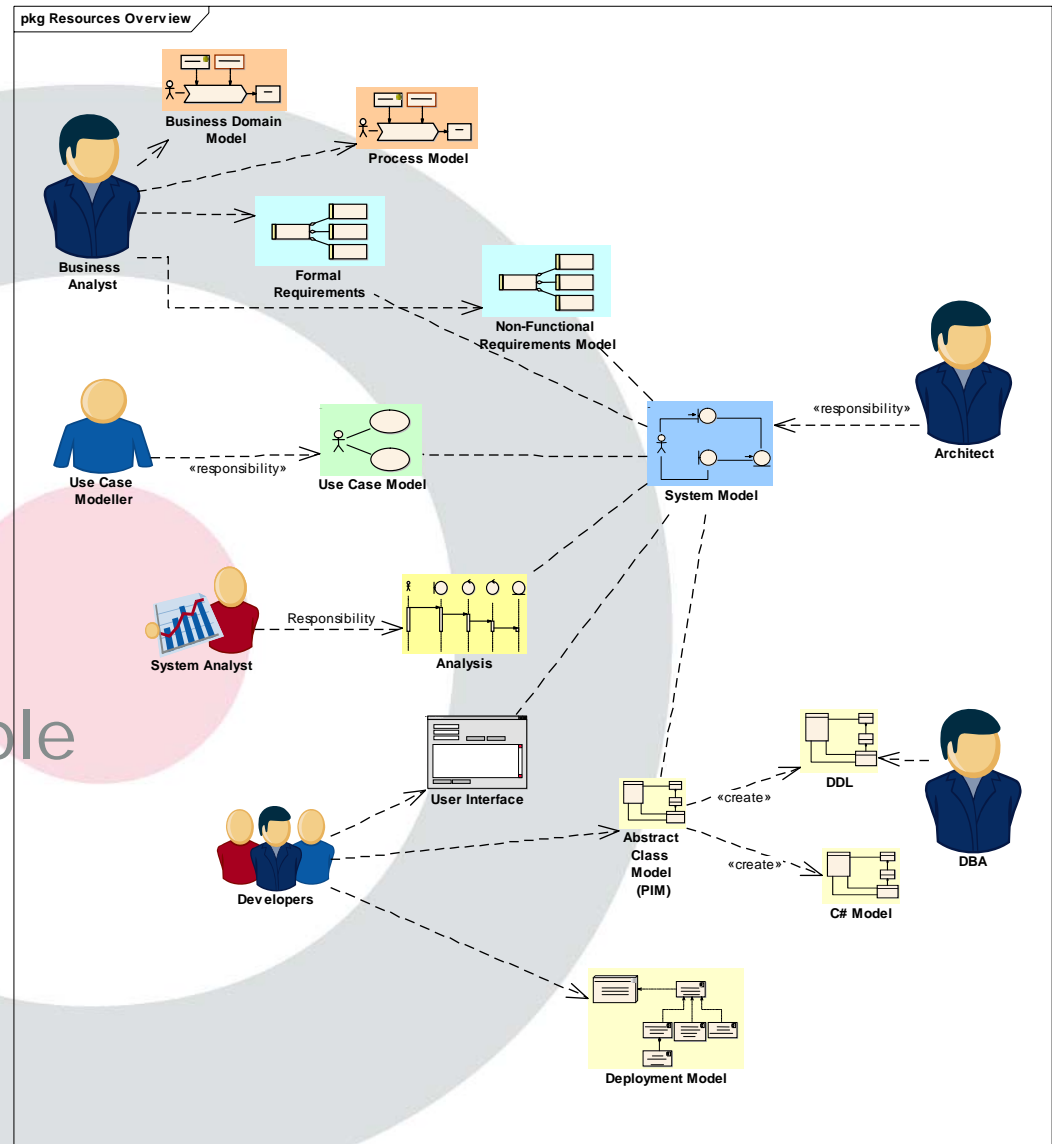
# Agenda

- 🎯 System Engineering using MODAF
  - Selected MODAF views from the SWECCIS SR2 model
- 🎯 MBSE Configuration
- 🎯 Lessons Learned

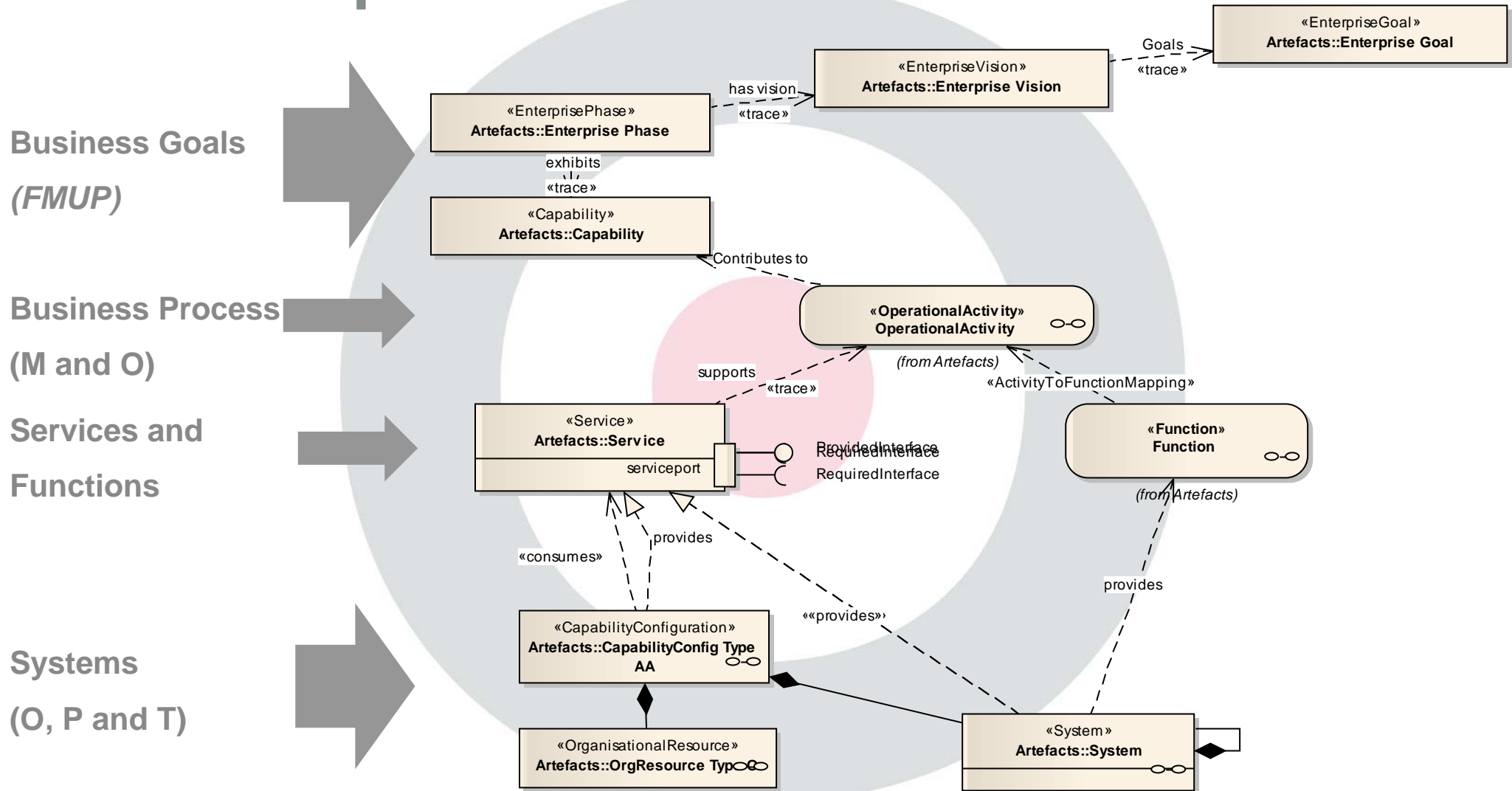
# Enterprise Architecture

Defines the relationship between:

- Business goals
- Activities
- Organisation and people
- Supporting systems



# Enterprise Architecture in Modaf

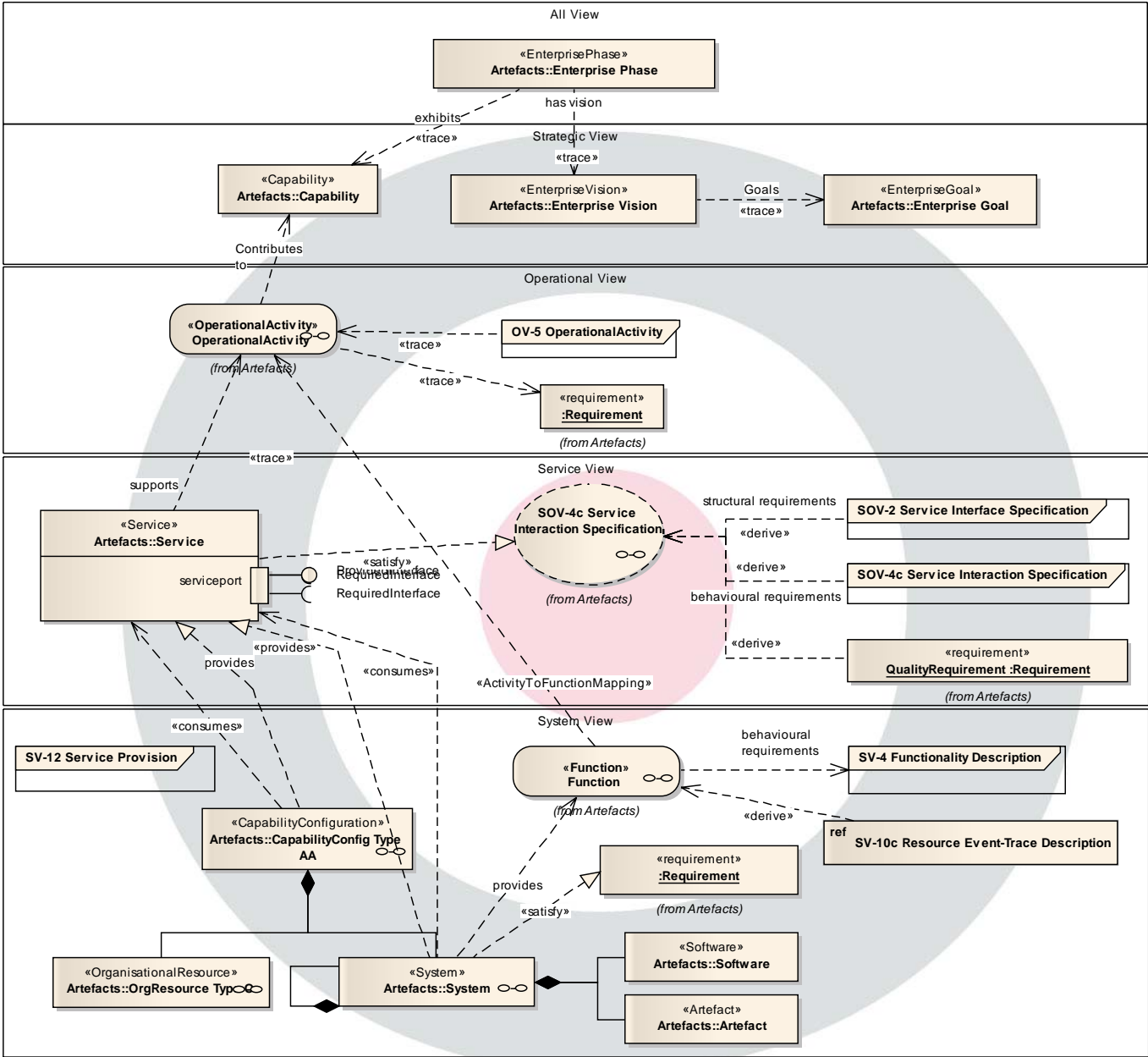


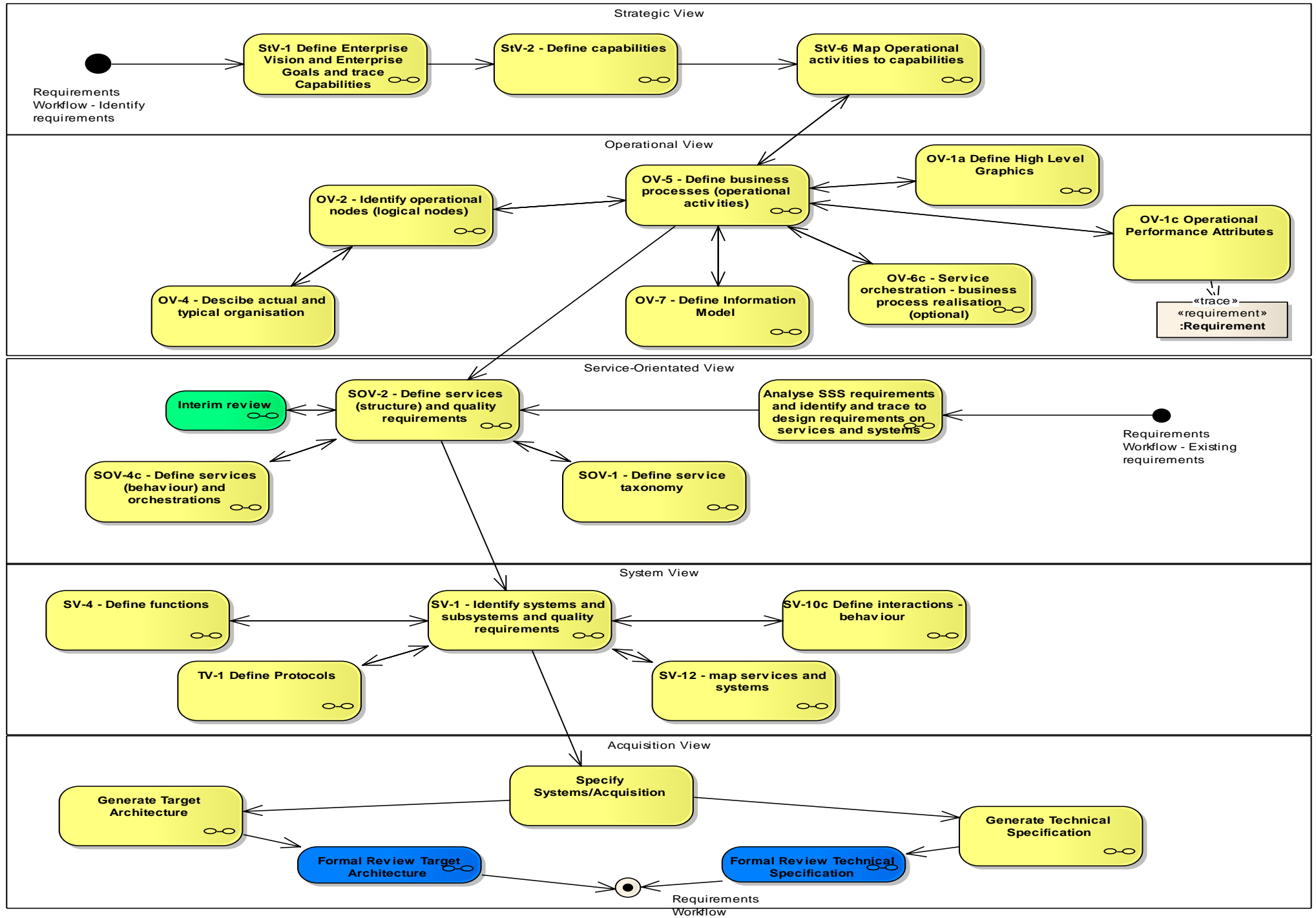
# Project deliverables

- ④ Technical Specifications
- ④ Statement of Work
- ④ Successfully accomplished by applying
  - MODAF and MBSE
  - Multiple user environment
  - Distributed environment
  - Multiple disciplines (SE, CM, Test, Security/Safety, ILS, Acquisition)

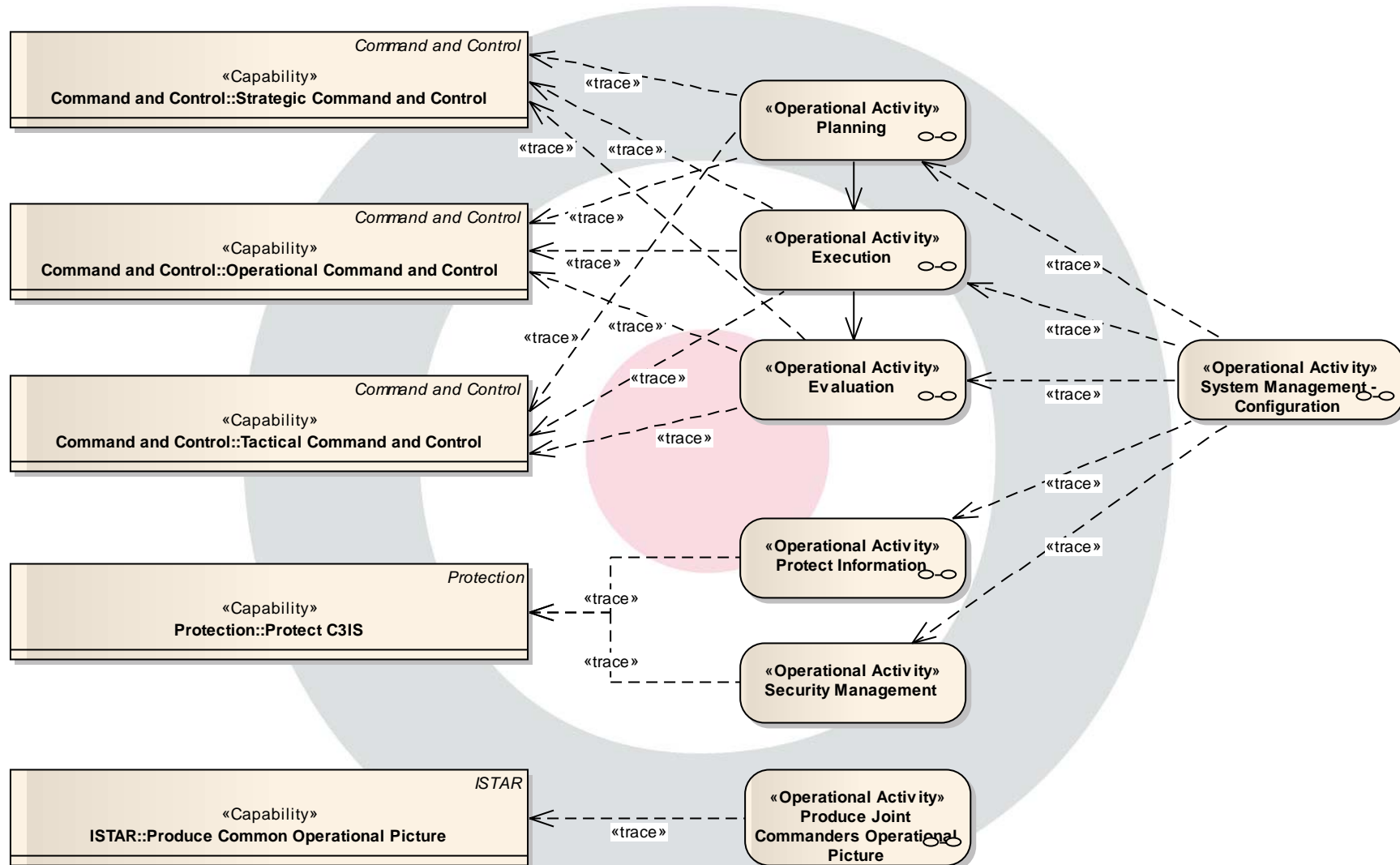


# Selected MODAF Views

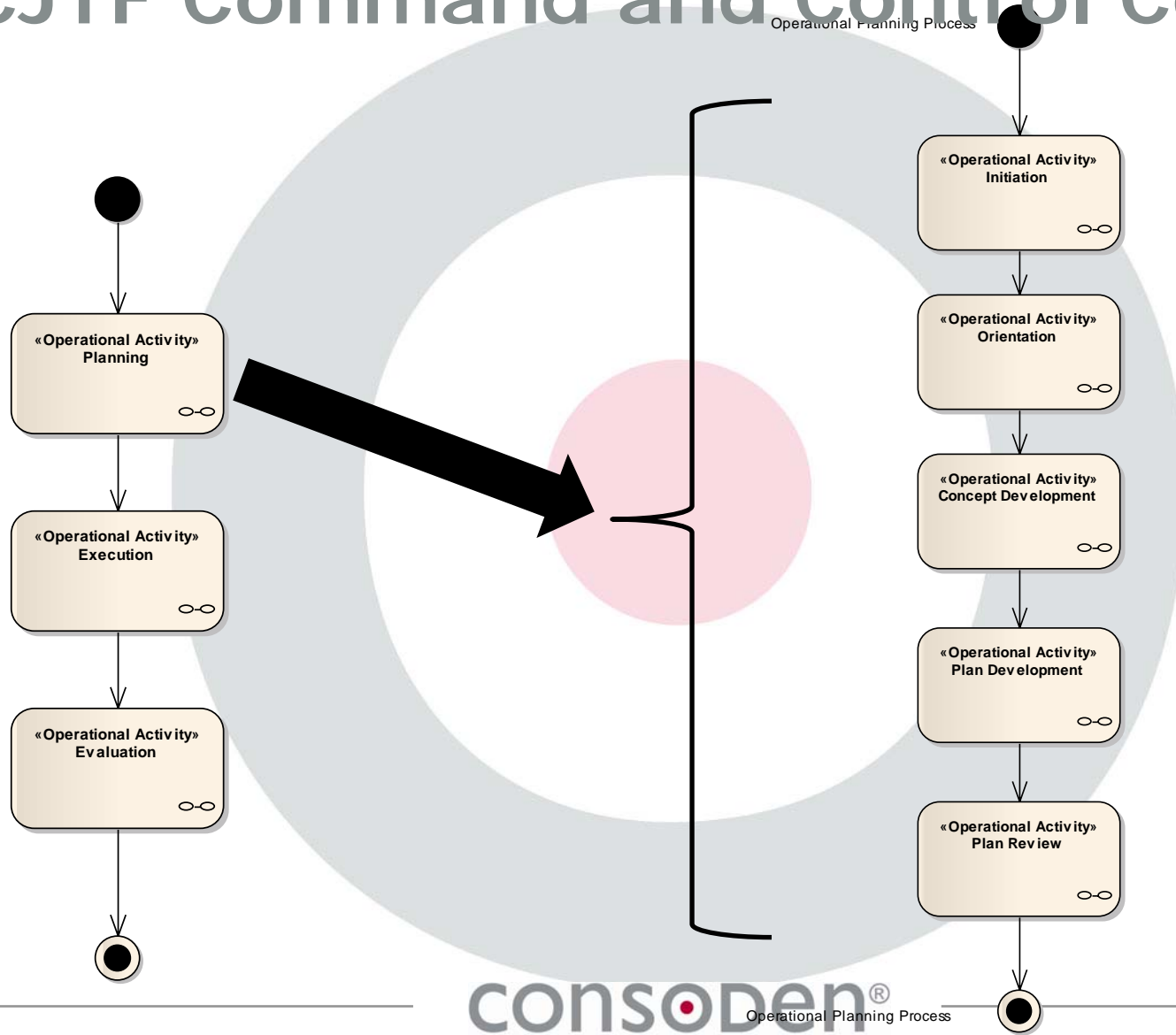


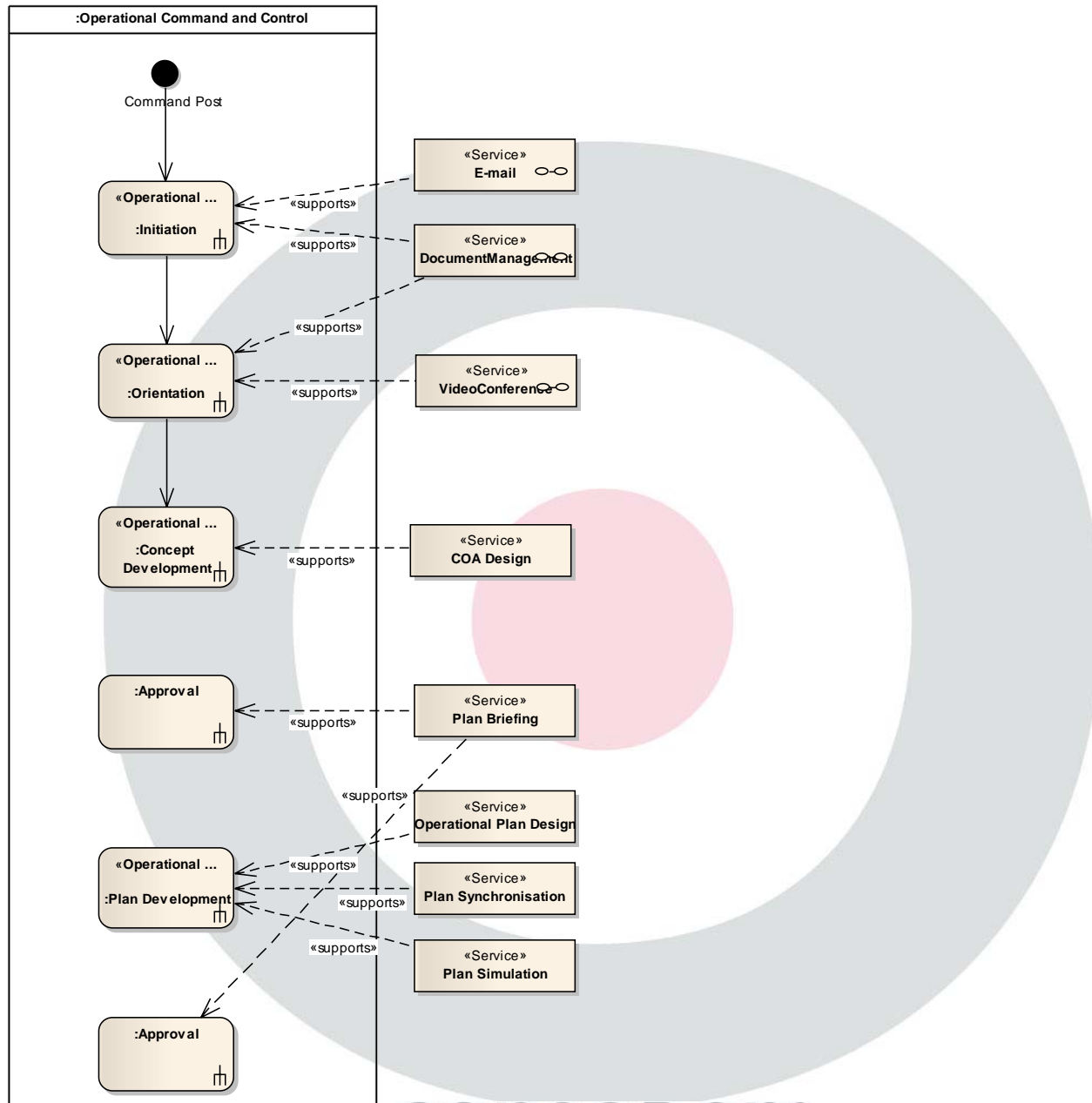






# CJTF Command and Control Concept





# The Model was used for more...

The model included more than the MODAF views

- ⊙ Based on identified systems, the SWECCIS SR2 model includes FMV requirements on the contractors:
  - Processes and activities
  - Milestones and time schedule
  - Deliverables
- ⊙ Plans such as requirement and configuration management plans
- ⊙ Project glossary
- ⊙ Project reports
- ⊙ Project process description

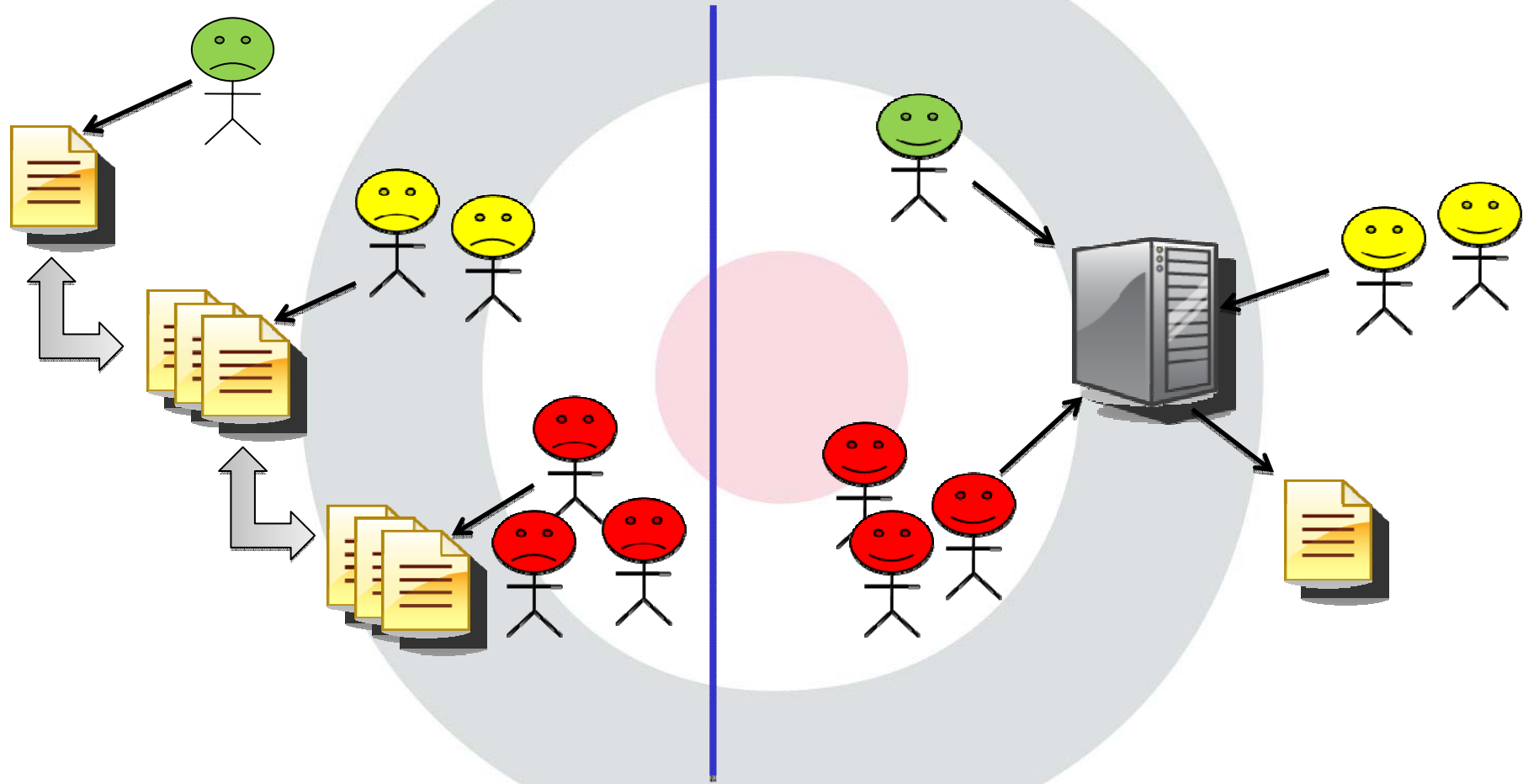
# MBSE Configuration

- ⊙ Architectural framework: MODAF 1.2
- ⊙ Process: MBSE adapted SE-process based on RUP/EUP and IEEE 15288 and described in the model
- ⊙ Language: UML 2.1 and SysML 1.0 (MODAF 1.2)
- ⊙ Integrated Development Environment:
  - Consoden Contoret:
    - Sparx Enterprise Architect
    - Database solution MySQL
    - Distributed multiple user support
    - Version management



# Lessons Learned

# Text vs model based development



# Advantages

- ⊙ Consistent information
- ⊙ Formal specification language reduces the risk for misinterpretation
- ⊙ Integrated environment for all disciplines
- ⊙ Enables traceability in one common environment
- ⊙ Information sharing
  - Distributed work environment
  - Easy to generate reports
  - Export of model (parts) via XML format



# Managing Risks

- ❶ Build a model structure corresponding to selected architectural framework.
  - Assure a operational activity/function driven approach
  - Avoid "document structured models"
- ❷ Involve a mentor
  - Speed up the initial phase, avoid mistakes
- ❸ Educate whole project, workshops
  - Make sure that the whole project/team are committed to the work

# Metrics

## ⊙ Input

- 500 text based customer agreed requirements (SSS) imported to SysML requirements in the model
- ~40 governing LedstT documents (RA, SID, DTA, UR). (Several thousands of pages)
- 4 system engineers, 6 months work

## ⊙ Output

- Overall design description
- 2 Technical Specifications (model reports)
- Requirement Management Plan (model report)
- Configuration Management Plan (model report)
- Statement of Work

## For more information:

The SWECCIS SR2 reports and this presentation can be downloaded from:

[www.consoden.se](http://www.consoden.se)

(/våra tjänster/modellbaserad utveckling/)