International Council on Systems Engineering
A better world through a systems approach

Information Model for an Acquisition Organization

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Today's Agenda

- Background
- Problem description
- Method
- Information model
- Benefits (the why)
- Success factors (the how)

Background

NDMA position in the defence sector

ROYAL NORWEGIAN MINISTRY OF DEFENCE

NSM

- Norwegian Armed Forces
- Norwegian Defence Materiel Agency
- Norwegian Agency for Classified Information Systems
- Norwegian Defence Research Establishment
- Norwegian Defence Estates Agency
- Norwegian Defence Museum

NDMA facts today

~0,25
BILLION USD
OPERATING BUDGET

~3
BILLION USD
INVESTMENTS

~1700
HIGHLY QUALIFIED
COLLEAGUES

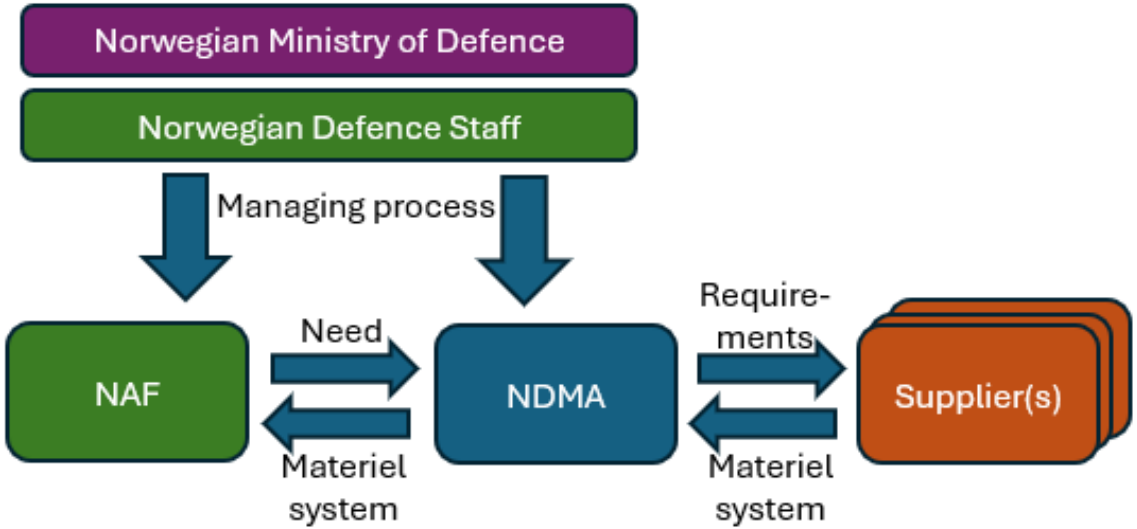
28,7%

21,7%

>200
ACQUISITION
PROJECTS

Foto: Forsvaret

NDMA do acquisitions



Problem

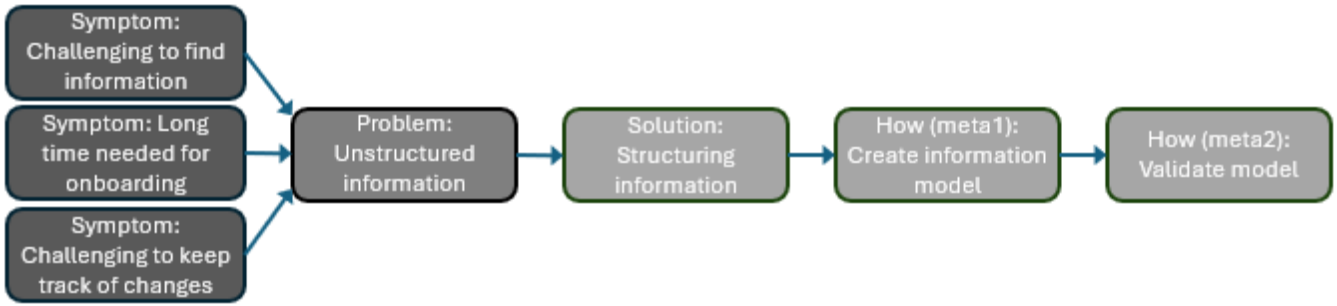
The bigger picture

- Increased volume of projects
- Increased complexity in military systems

- We need to work more efficient

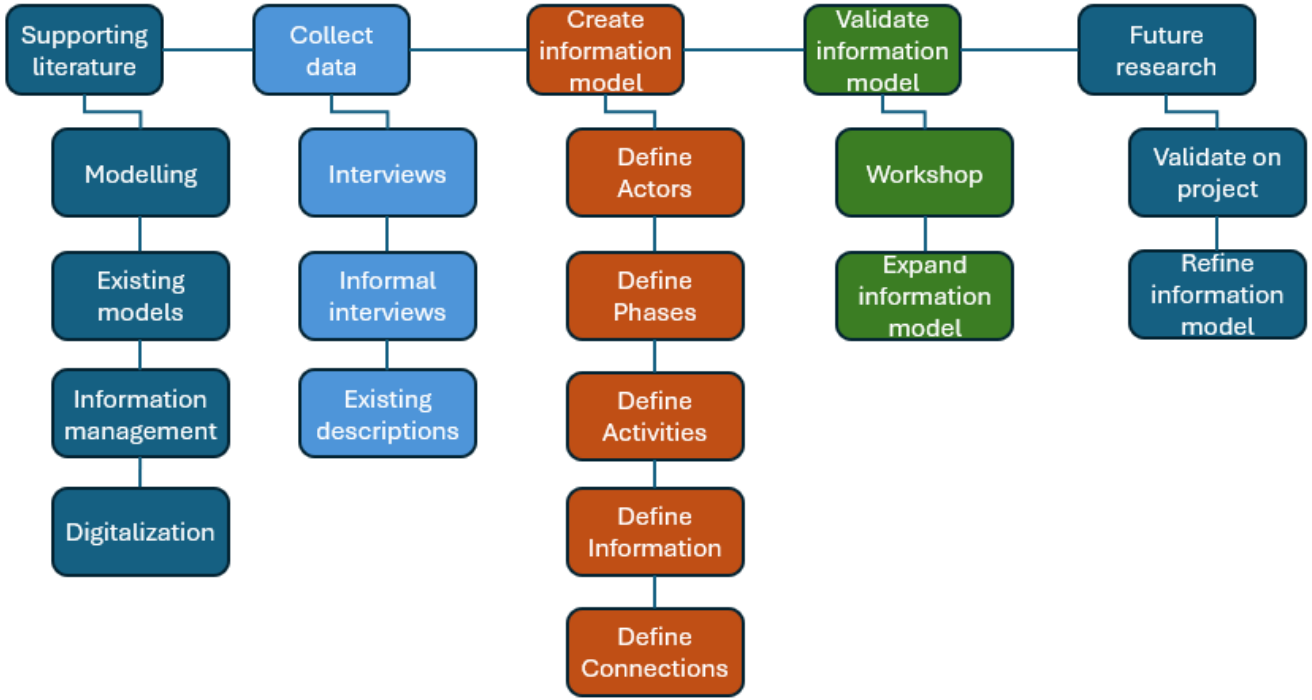
Problem description

- Challenging to find current/updated information.
- Long time needed for onboarding new project members.
- Challenging to keep track of information and changes to information.



Method

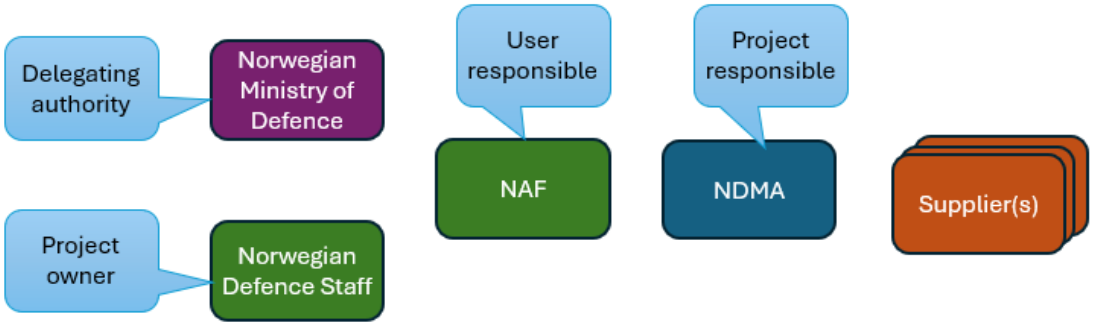
Method


Supporting literature
Collect data
Create information model
Validate information model
Future research
Modelling
Existing models
Information management
Digitalization
Interviews
Informal interviews
Existing descriptions
Define Actors
Define Phases
Define Activities
Define Information
Define Connections
Workshop
Expand information model
Validate on project
Refine information model

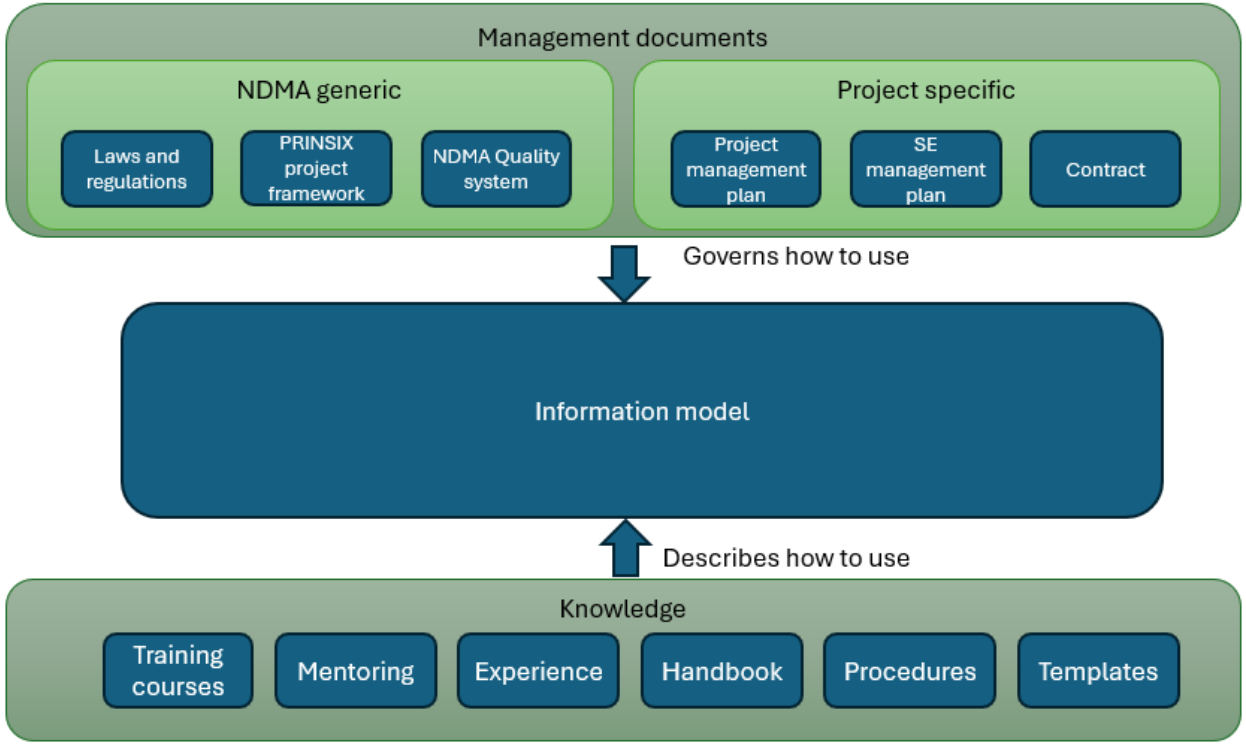
The information model

1. Actors
2. Context
3. Logical model
4. Conceptual model
5. Physical model

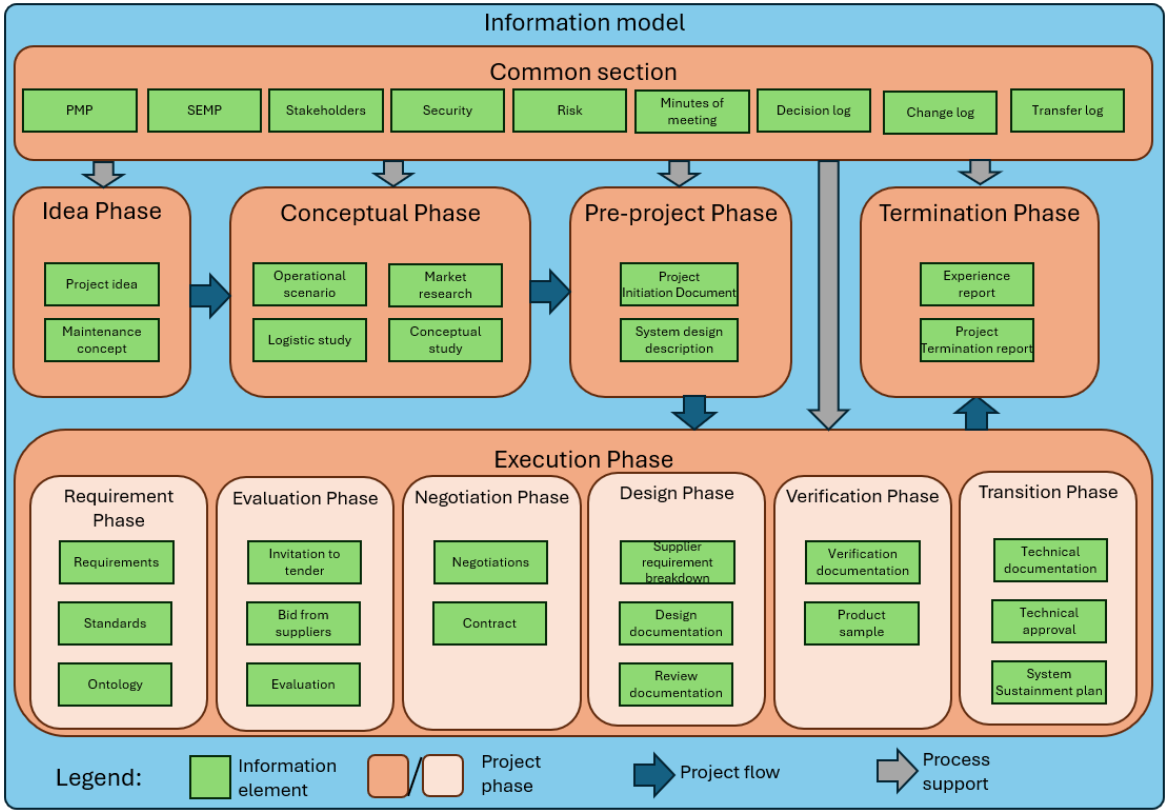
Actors


Delegating authority
Norwegian Ministry of Defence
Project owner
Norwegian Defence Staff
User responsible
NAF
Project responsible
NDMA
Supplier(s)

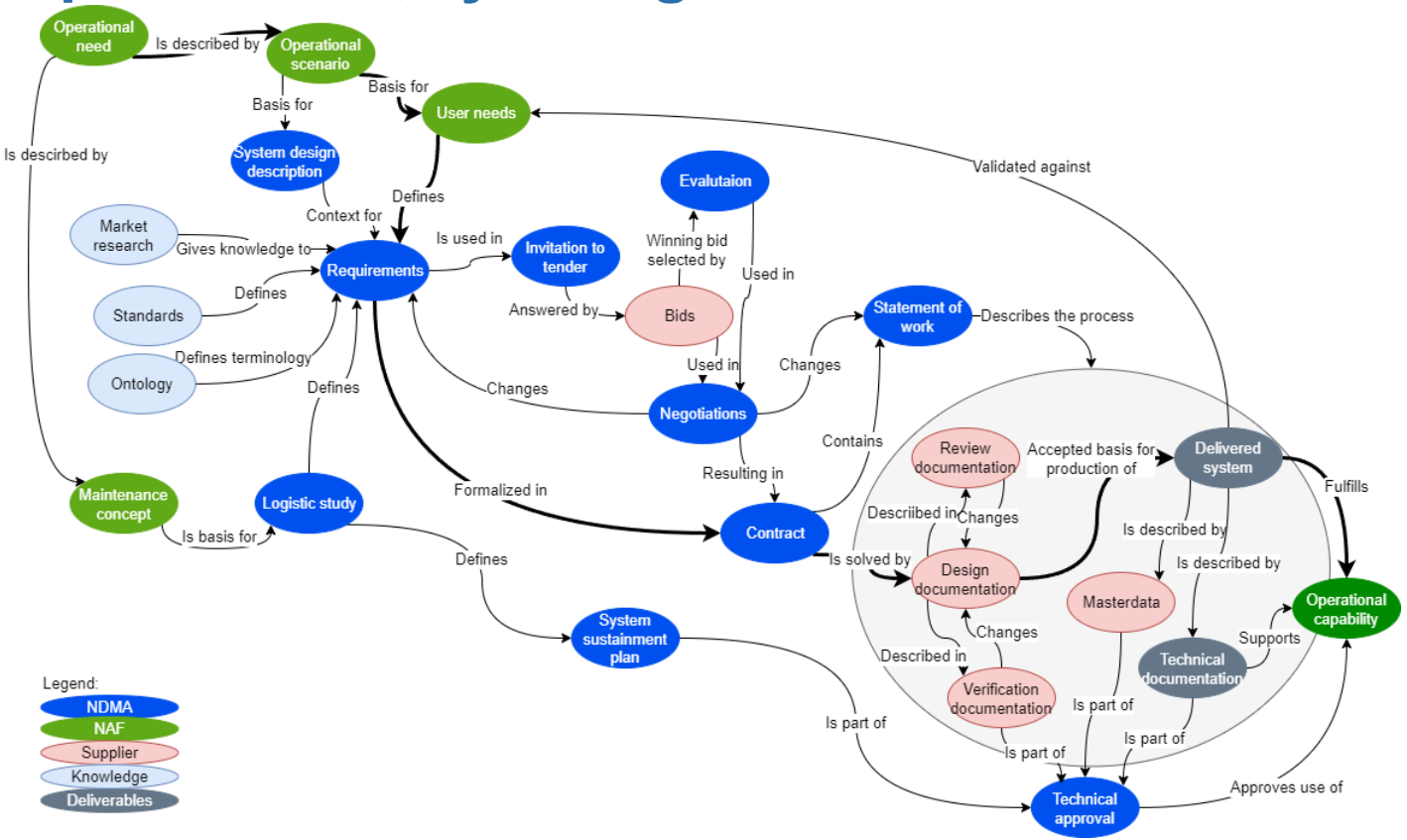
Context


Management documents
NDMA generic
Laws and regulations
PRINSIX project framework
NDMA Quality system
Project specific
Project management plan
SE management plan
Contract
Governs how to use
Information model
Describes how to use
Knowledge
Training courses
Mentoring
Experience
Handbook
Procedures
Templates

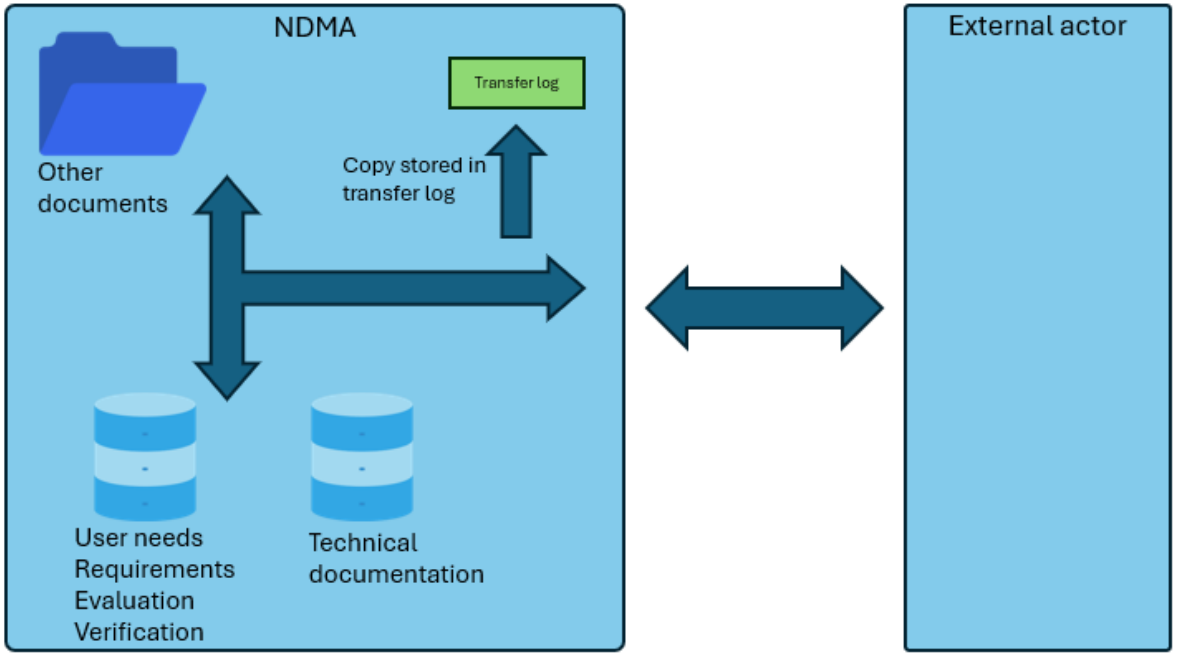
Logical model



Conceptual model, systemigram



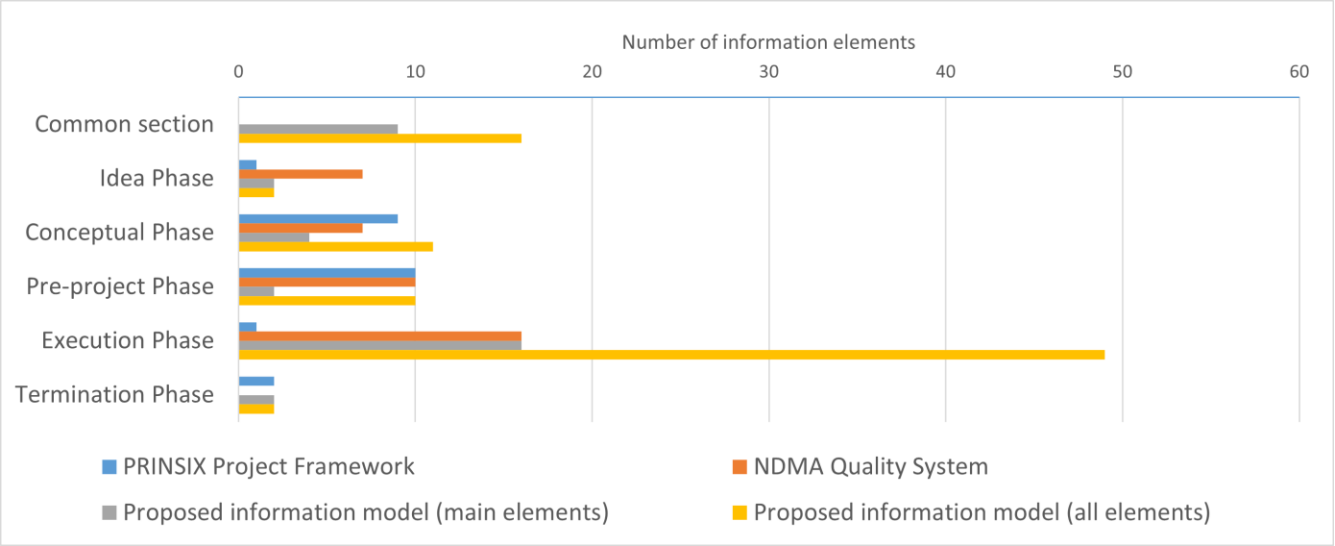
Physical model



Benefits

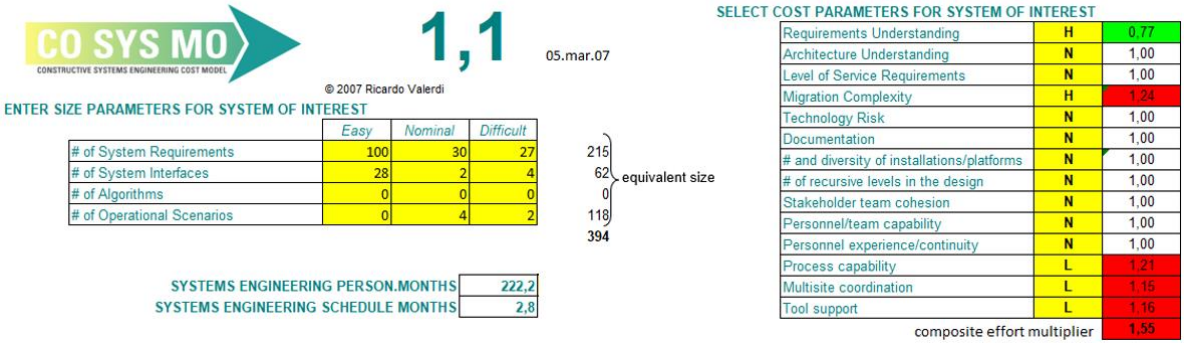
Knowledge

- Used for training, to see the complete picture
- Easier onboarding



Resources – shorter time

- COSYSMO (Constructive SE Cost Model)
- Stakeholder Team Cohesion
- Nominal -> High
- 222.2 month -> 180.5 months (19% reduction)



CO SYS MO
CONSTRUCTIVE SYSTEMS ENGINEERING COST MODEL

1,1

05.mar.07

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ENTER SIZE PARAMETERS FOR SYSTEM OF INTEREST

	Easy	Nominal	Difficult	
# of System Requirements	100	30	27	215
# of System Interfaces	28	2	4	62
# of Algorithms	0	0	0	0
# of Operational Scenarios	0	4	2	118
				394

equivalent size

SYSTEMS ENGINEERING PERSON.MONTHS	222,2
SYSTEMS ENGINEERING SCHEDULE MONTHS	2,8

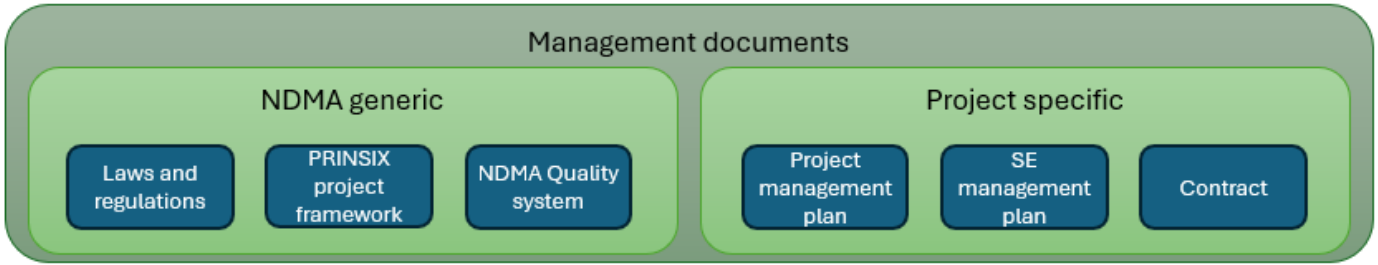
SELECT COST PARAMETERS FOR SYSTEM OF INTEREST

Requirements Understanding	H	0,77
Architecture Understanding	N	1,00
Level of Service Requirements	N	1,00
Migration Complexity	H	1,24
Technology Risk	N	1,00
Documentation	N	1,00
# and diversity of installations/platforms	N	1,00
# of recursive levels in the design	N	1,00
Stakeholder team cohesion	N	1,00
Personnel/team capability	N	1,00
Personnel experience/continuity	N	1,00
Process capability	L	1,21
Multisite coordination	L	1,15
Tool support	L	1,16
composite effort multiplier		1,55

Success factors

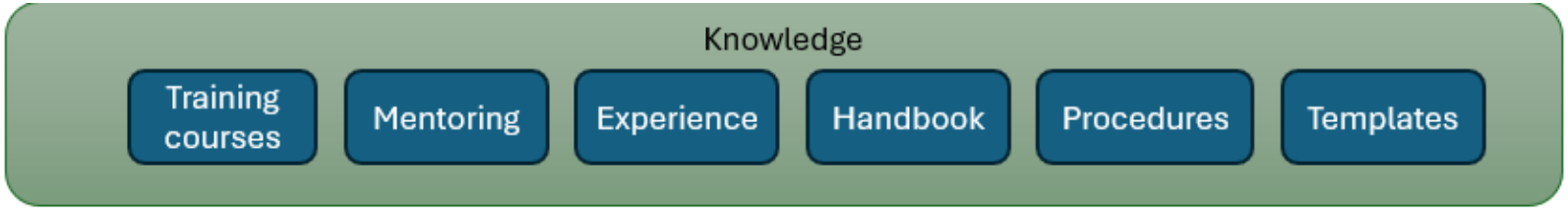
Tailoring

- The information model must be tailored
  - to the specific project
  - to the specific organization
  - COSYSMO: Documentation Nominal->High gives 29,2 months (13%) increase



Support

- The information model must be:
  - easy to use
  - supported by knowledge (training/interactive model)
  - fit for purpose
  - familiar/credible
  - supported by tools



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