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Chapter 7 and 8

Other Requirements

- Recall: in the UP requirements are categorised according to the **FURPS+**
- model:
    - **F**unctional : *features;*
    - **U**sability : *human factors, help, documentation;*
    - **R**eliability : *frequency of failure, recoverability;*
    - **P**erformance : *response times, throughput, resource usage;*
    - **S**upportability : *adaptability, maintainability, internationalisation;*
- the ‘**+**’ in FURPS+ other requirements such as:
    - hardware restrictions;
    - Packaging : physical box;
    - Legal : licensing;
    - …….

Additional Artifacts

- ***While use cases are good for the ‘F’ in FURPS+, they are not the full story…***
- Typical additional artifacts may include:
- **Supplementary Specification** (*see example p.104*)
  - captures and identifies other kinds of requirements (**URPS+**)
  - **F**unctionality common across many use case e.g. user authentication
- **Glossary** (*see example p.115*)
  - captures terms and definitions
  - Only start one if there is a clear need for it.
- **Vision** (*see example p.109*)
  - summarizes the "vision" of the project; an executive summary. It serves to communicate the big ideas.
- **Business Rules** (*see example p.116*)
  - capture long-living and spanning rules or policies, such as tax laws, that transcend one particular application.

Requirements and UP phases

- Remember that all the requirements (use cases as well) are not fully analysed and written near the start of the project: they are allowed to evolve after feedback.

- **During inception** one goal is to decide whether the project is worth of further investment: so most use cases will not be detailed, the supplementary specification could be only lightly developed (only trying to identify risk areas for example). The same applies to the vision document.

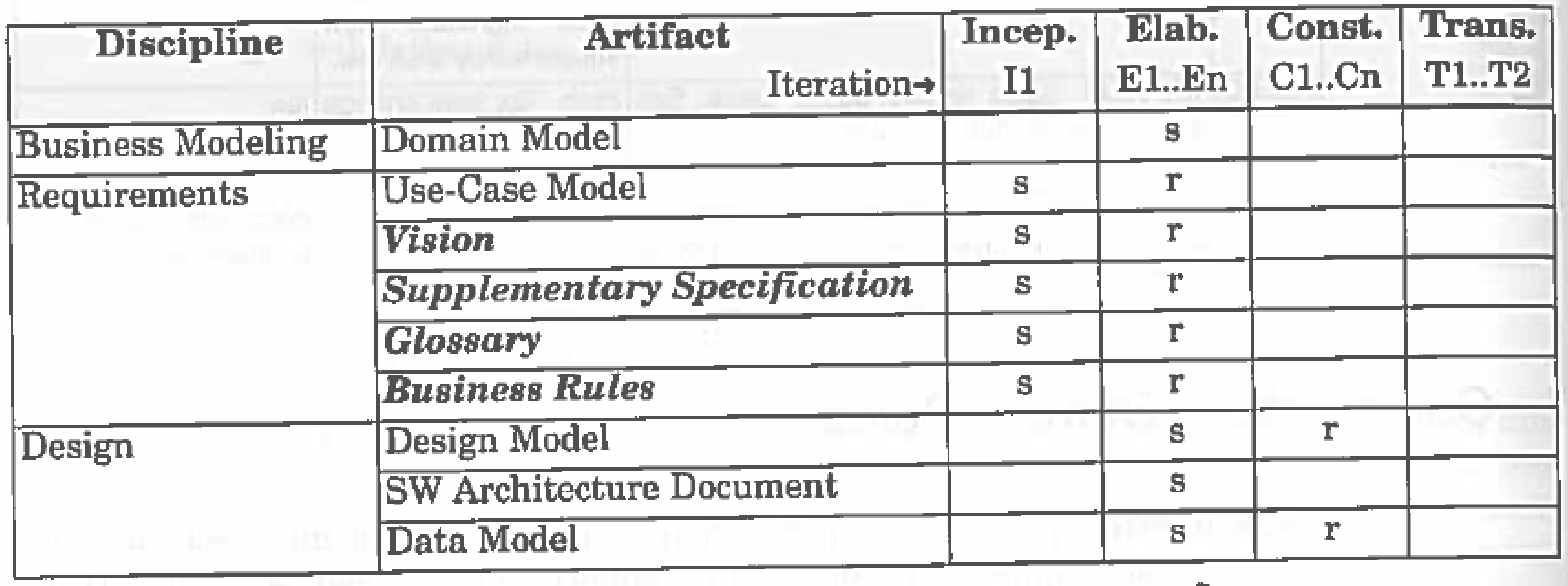
- **During Elaboration** the vision can be refined, use cases can be detailed, and the supplementary specification completed.

- **During construction**, only minor changes should be entertained in all the requirements documents.

Requirements and UP phases

- **Discovering, documenting and refining requirements is mostly**
- **a people activity: all stakeholders must be involved in their elicitation.**
  - Communication techniques, workshops, brainstorming are all parts of this process.

UP artifacts

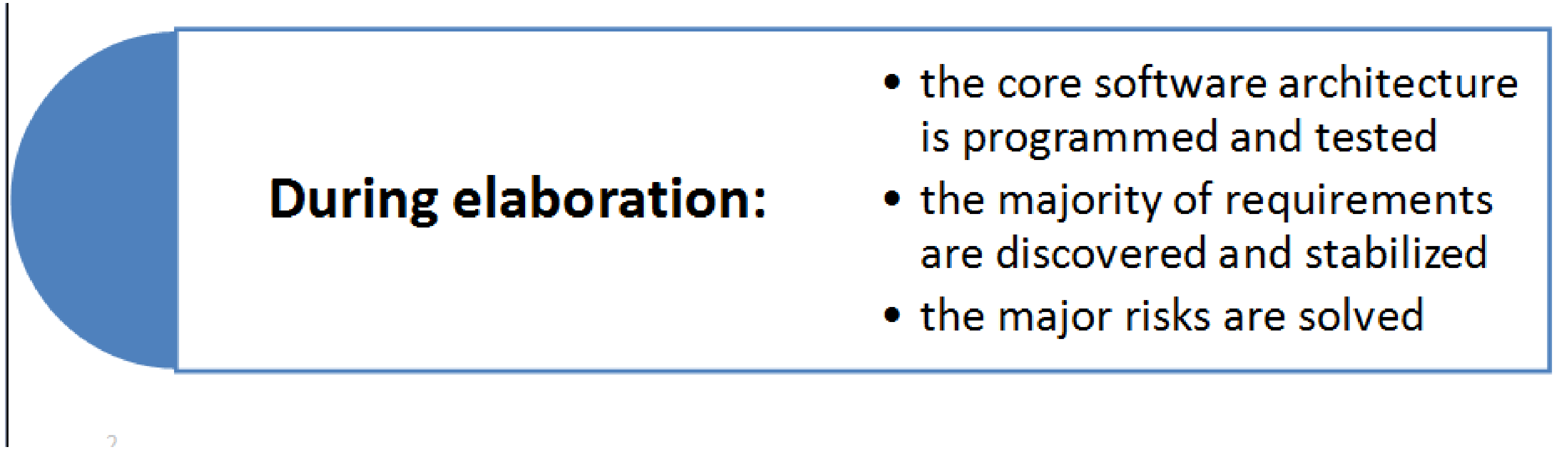


Discipline	Artifact	Incep.	Elab.	Const.	Trans.
	Iteration→	I1	E1..En	C1..Cn	T1..T2
Business Modeling	Domain Model		s		
Requirements	Use-Case Model	s	r		
	Vision	s	r		
	Supplementary Specification	s	r		
	Glossary	s	r		
	Business Rules	s	r		
Design	Design Model		s	r	
	SW Architecture Document		s		
	Data Model		s	r	

Table 7.1 Sample UP artifacts and timing. s - start; r - refine

From Inception to Elaboration

- The inception phase may only last 1 week (maybe more).
  - Determines basic feasibility, risk, and scope, to decide if the project is worth more serious investigation (Elaboration)
  - After inception, the most important requirements have been identified, some of which have been detailed.
  - Other requirements remain to be discovered
  - Most will need further analysis



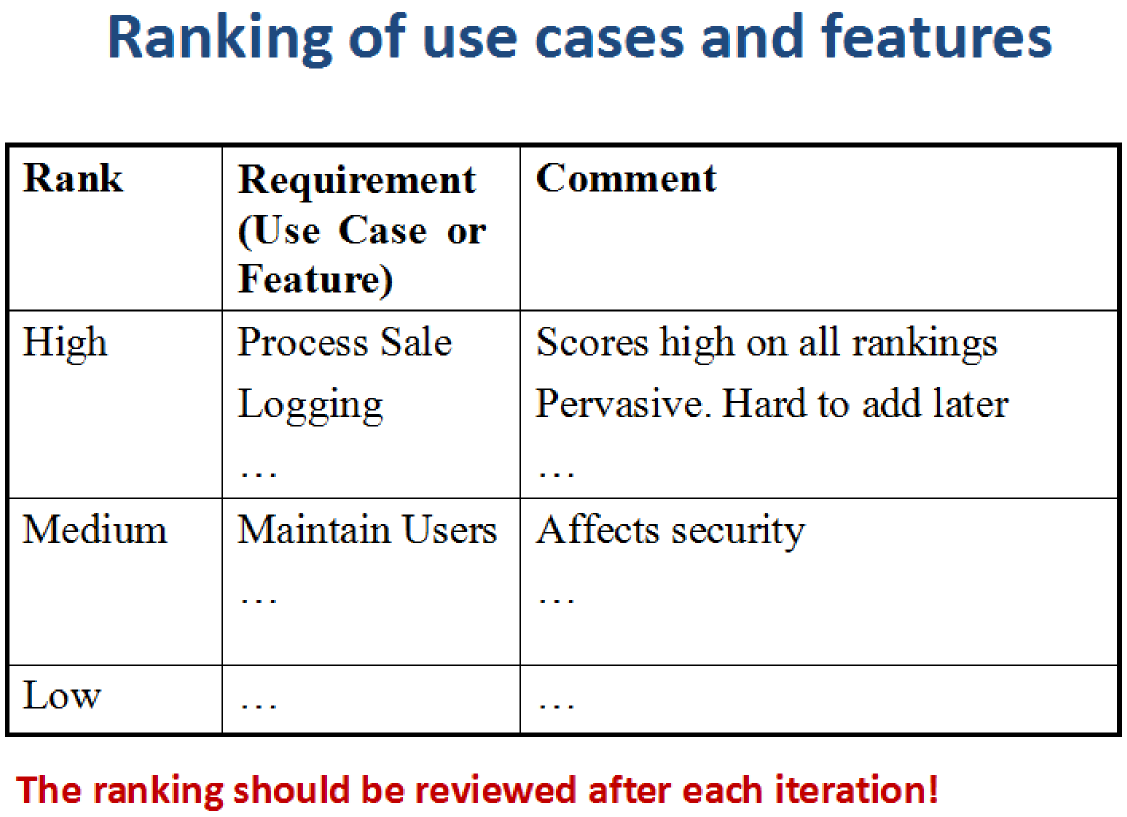
During elaboration:

- the core software architecture is programmed and tested
- the majority of requirements are discovered and stabilized
- the major risks are solved

Planning iterations

- To decide which requirements should be tackled early in the project we can use the following criteria:
  - **Risk** : includes both technical complexity and other factors, such as uncertainty of effort or usability.
  - **Coverage** : implies that all major parts of the system are at least touched on in early iterations.
  - **Criticality :** refers to functions the client considers of high business value.

Ranking of use cases and features

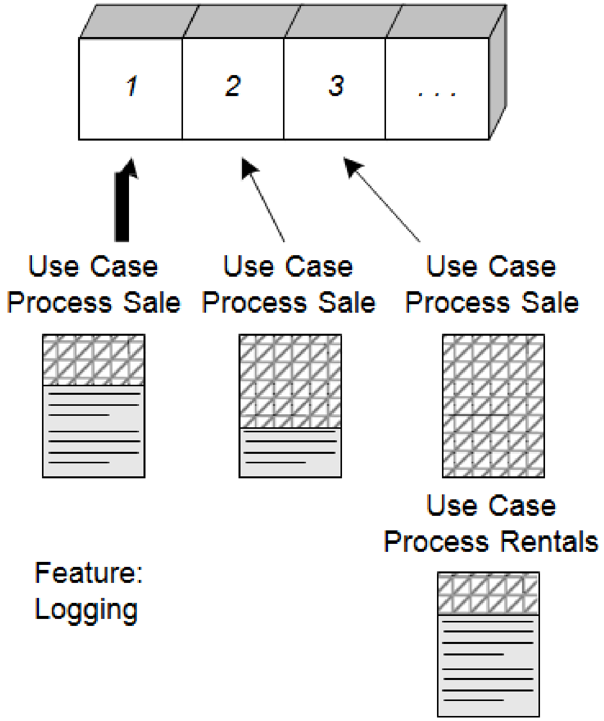


Ranking of use cases and features

Rank	Requirement (Use Case or Feature)	Comment
High	Process Sale Logging …	Scores high on all rankings Pervasive. Hard to add later …
Medium	Maintain Users …	Affects security …
Low	…	…

The ranking should be reviewed after each iteration!

Use cases and iterations



A use case or feature is often too complex to complete in one short iteration.

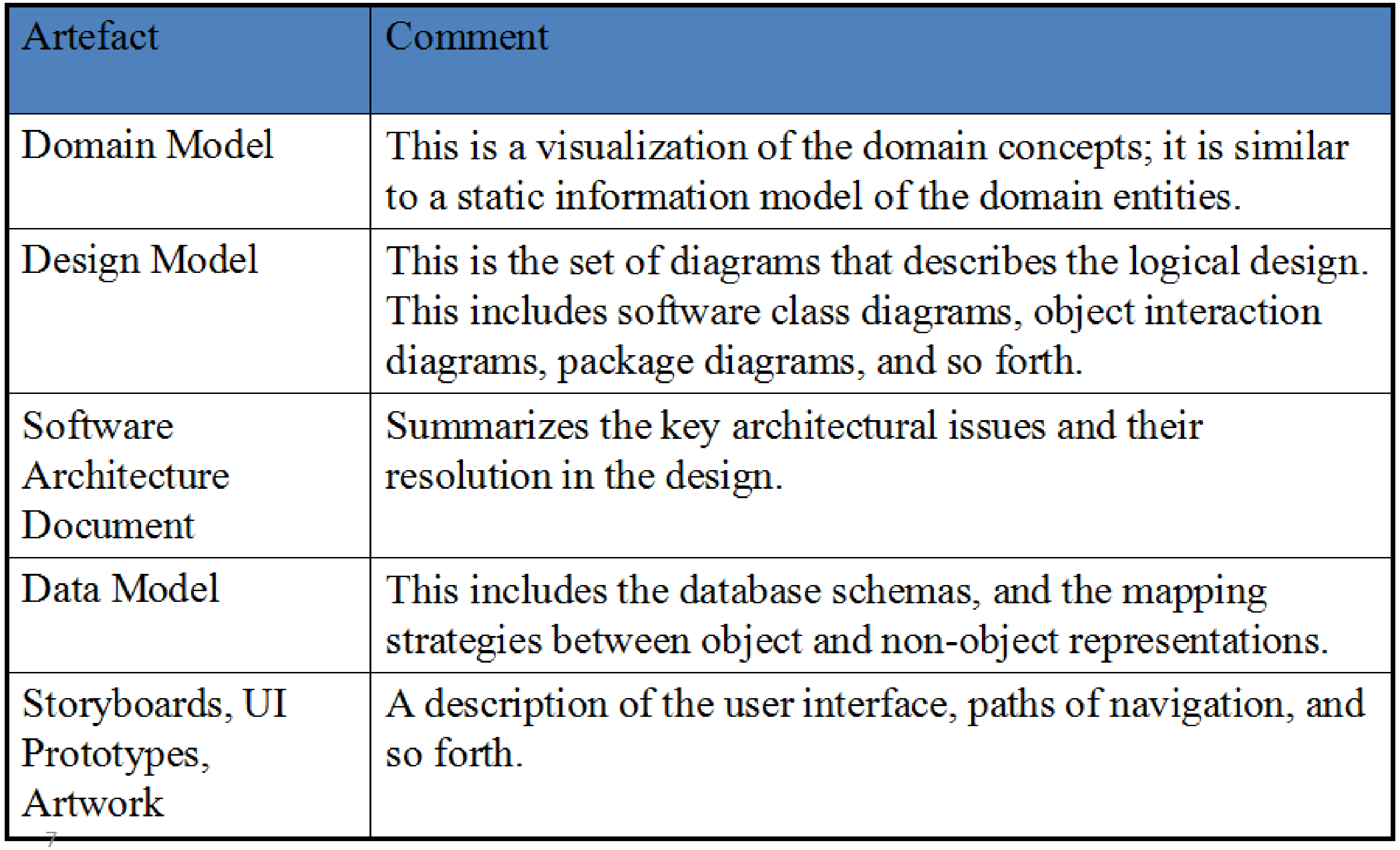
Therefore, different parts or scenarios must be allocated to different iterations.

- **Elaboration often consists of two or more iterations. (2-6 weeks).**
- **Each iteration is timeboxed**

Key ideas during elaboration

- do short timeboxed and risk-driven iterations
- start programming early
- design, implement, and test the core and risky parts of the architecture
- test early, often, realistically
- adapt based on feedback from tests, users, developers
- write most of the use cases and other requirements in detail, through a series of workshops, once per elaboration iteration

Artifacts during Elaboration



Artefact	Comment
Domain Model	This is a visualization of the domain concepts; it is similar to a static information model of the domain entities.
Design Model	This is the set of diagrams that describes the logical design. This includes software class diagrams, object interaction diagrams, package diagrams, and so forth.
Software Architecture Document	Summarizes the key architectural issues and their resolution in the design.
Data Model	This includes the database schemas, and the mapping strategies between object and non-object representations.
Storyboards, UI Prototypes, Artwork	A description of the user interface, paths of navigation, and so forth.