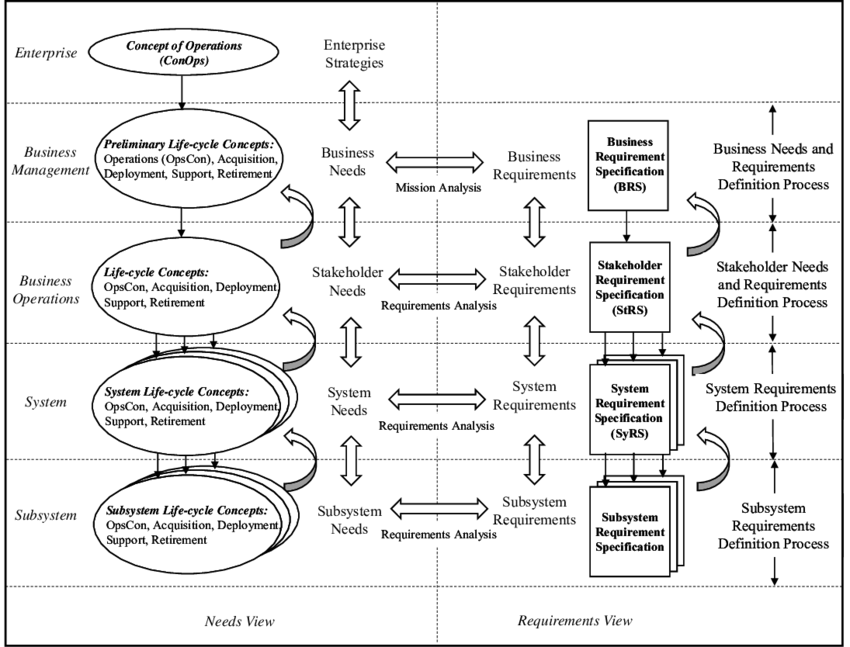
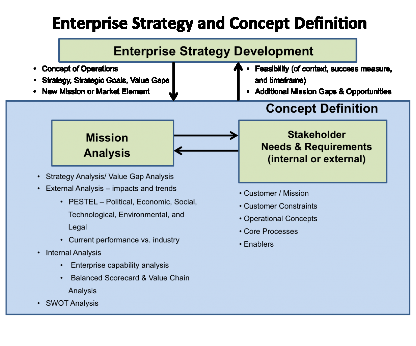
Systems Architecture and Engineering

(Transforming Enterprise Needs to Requirements)



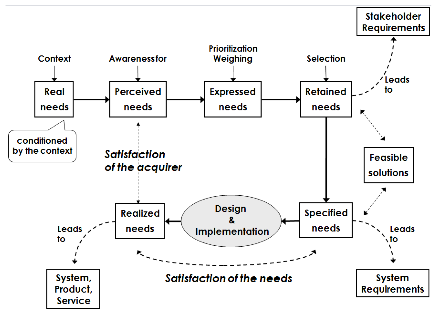


1. Methods and Modeling Techniques

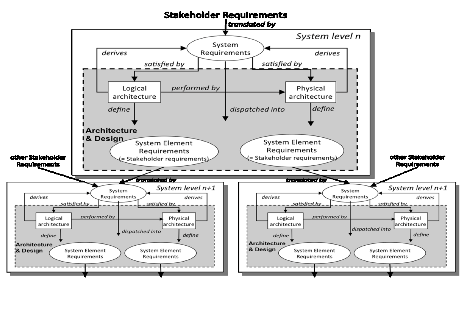
MA uses several techniques, such as

* + use case analysis;
  + operational analysis;
  + functional analysis;
  + technical documentation review;
  + trade studies;
  + modeling;
  + simulation;
  + prototyping;
  + workshops, interviews, and questionnaires;
  + market competitive assessments;
  + benchmarking; and
  + organizational analysis techniques (e.g., strengths, weaknesses, opportunities, threats (SWOT analysis), and

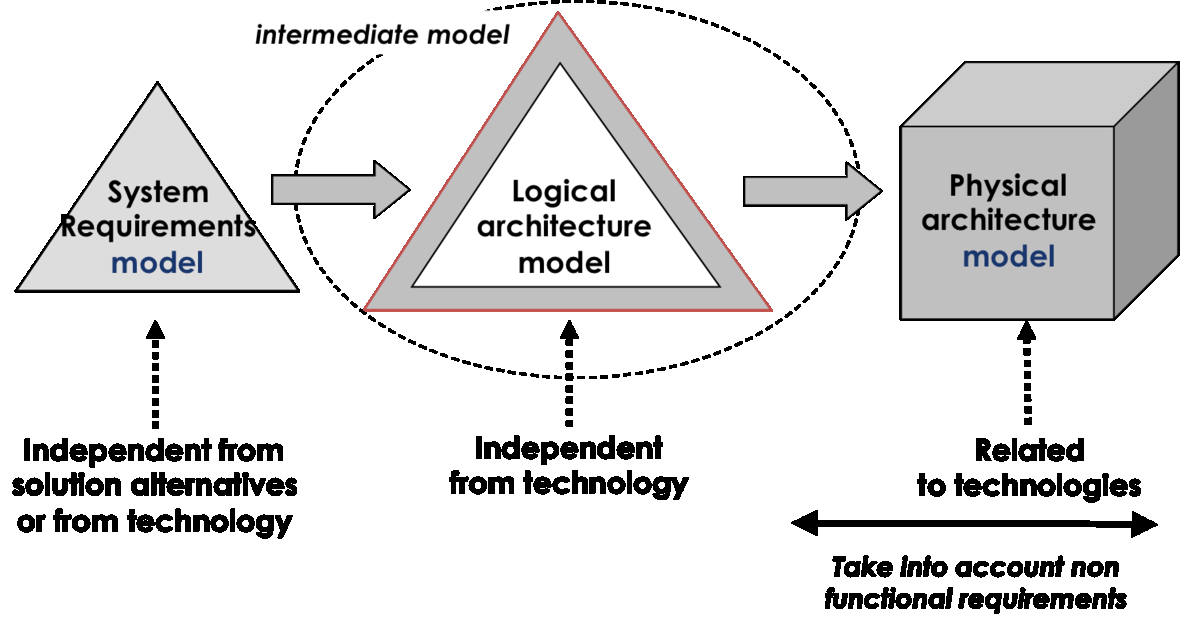
product portfolios).



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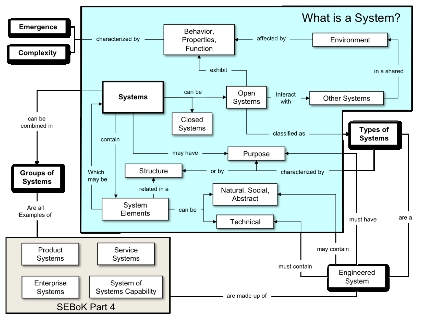
Recursive Instantiation of Definition Processes (Faisandier 2012). Permission granted by Sinergy'Com. All other rights are reserved by the copyright owner.

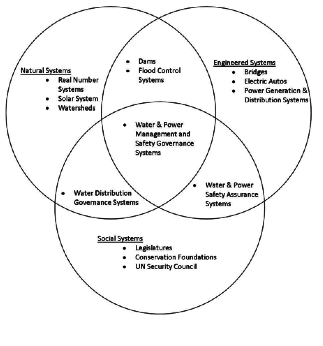


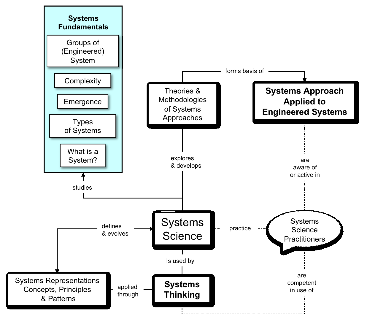
## System Specification

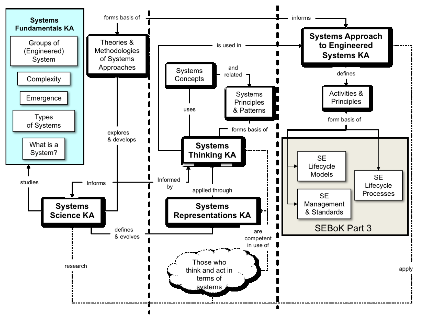
System Specification

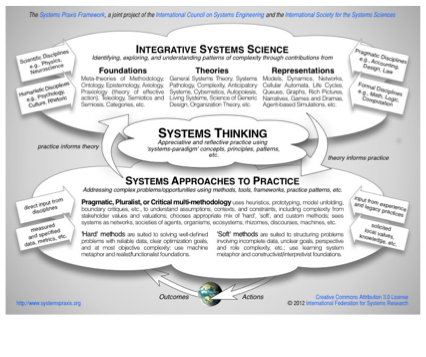
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sys spec | Capability:  Move people between Los Angeles and New York  Condition:  Cruising speed of 2500 km/hr  Constraint:  Maximum speed of 5300 km/h | Capability:  Move people between Los Angeles and New York  Condition:  Cruising speed of 200 km/hr  Constraint:  Maximum speed of 300 km/hr | Well-formed requirement:  This system should move people between Los Angeles and New York at an  optimal cruising speed of 200 km/hr with a maximum speed of 300 km/hr. |  |
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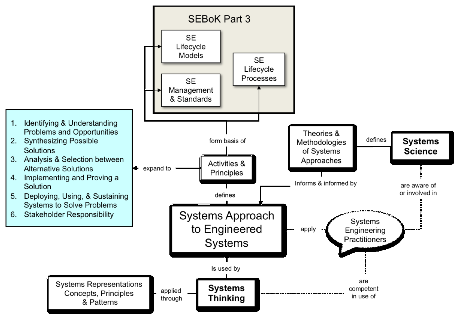


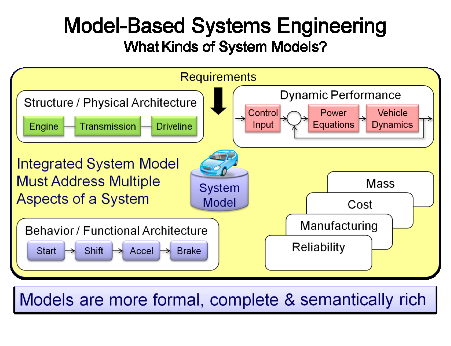


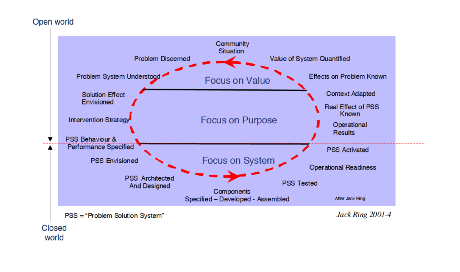


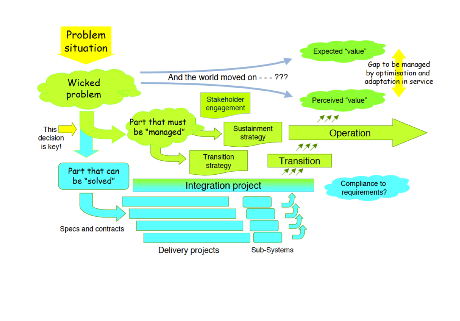


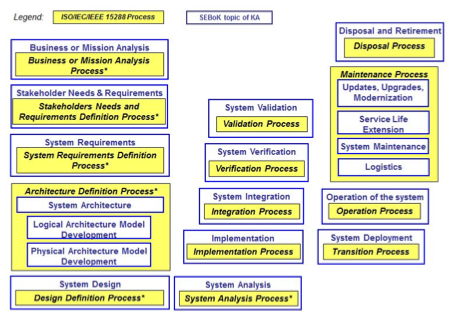
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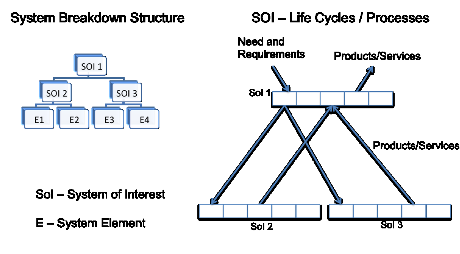


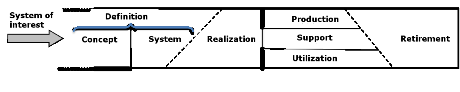


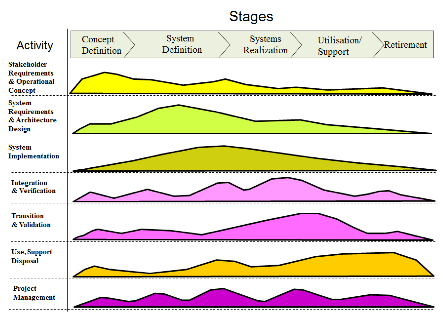




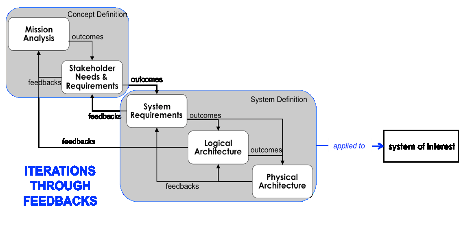


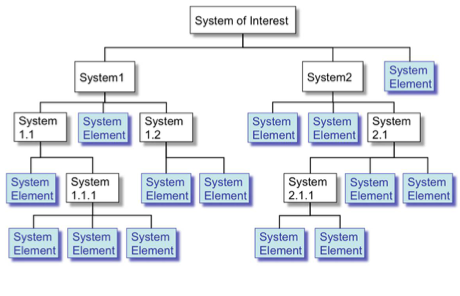




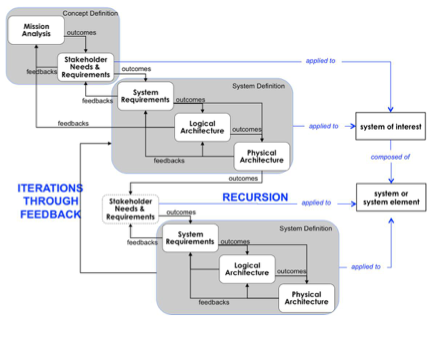


Generic Relationships between life cycle stages and processes (modified from Lawson 2010)

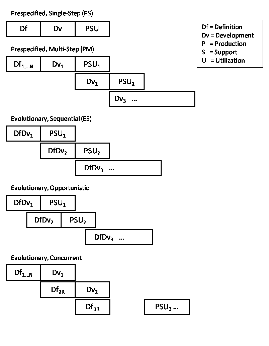




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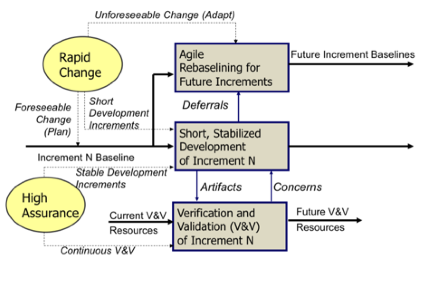


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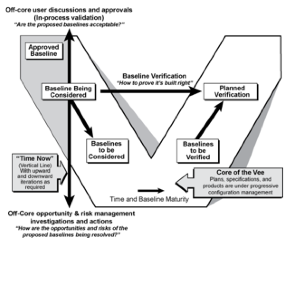


Primary Models of Incremental and Evolutionary Development.

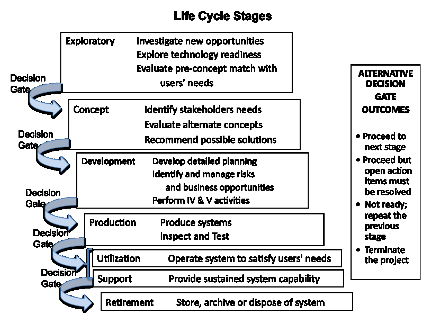
(SEBoK Original)



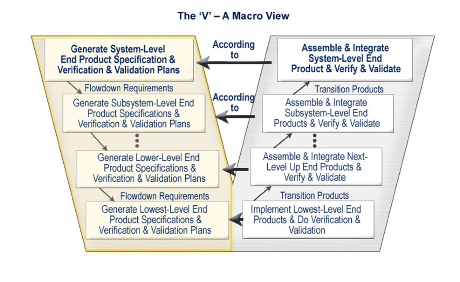
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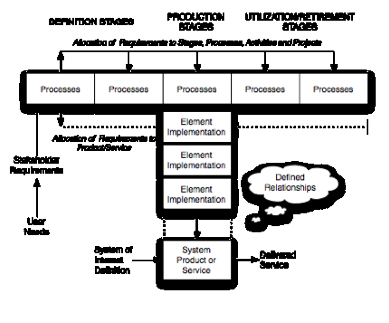


An Example of Stages, Their Purposes and Major Decision Gates. (SEBoK Original)

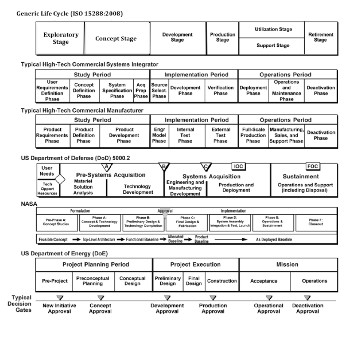


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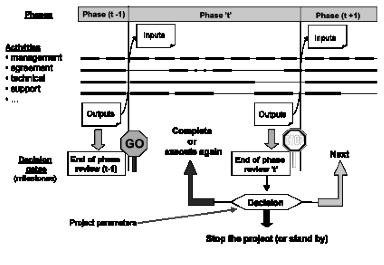
Application of the V-model



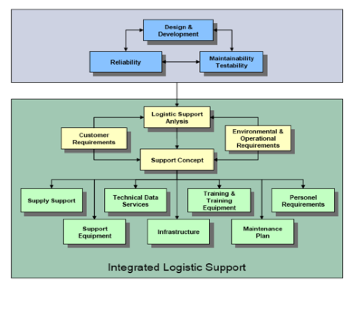
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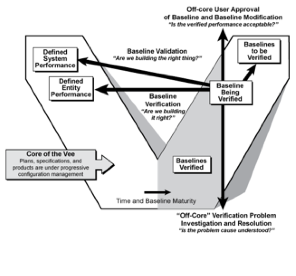
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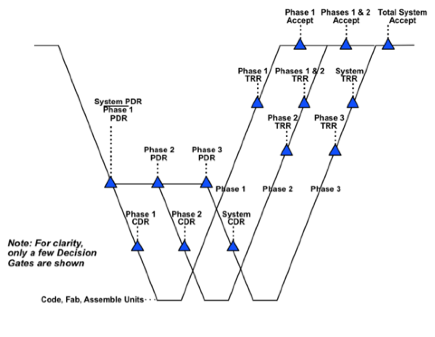
Scheduling the Development Phases. (SEBoK Original)



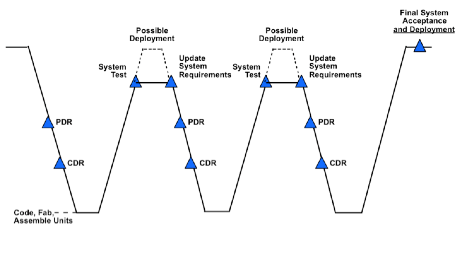
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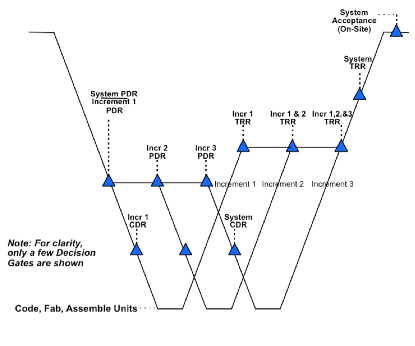
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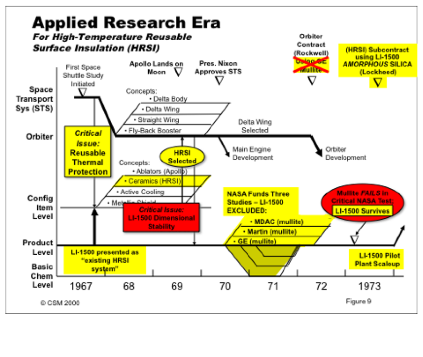
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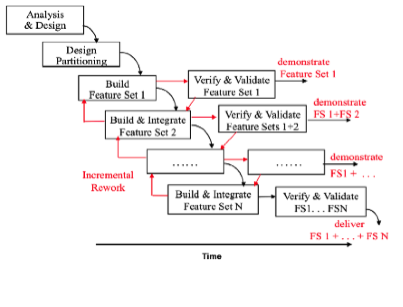
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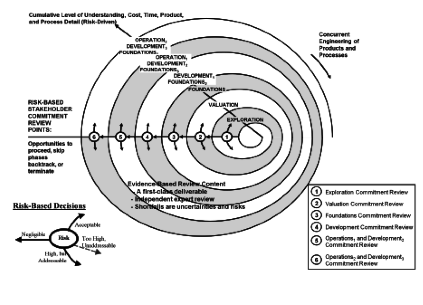
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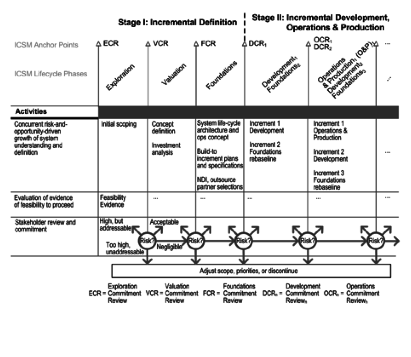
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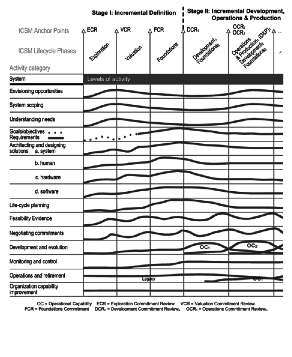
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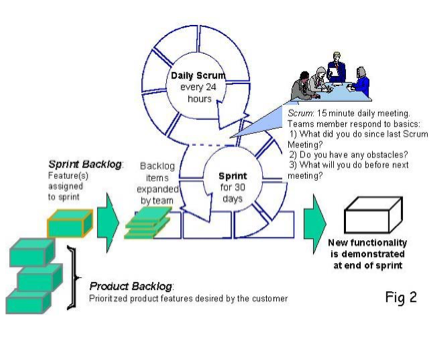


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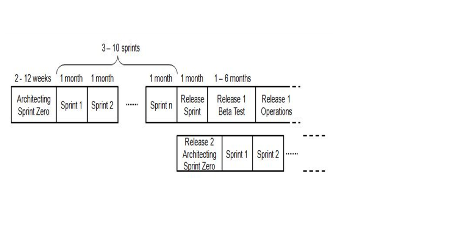


ICSM Activity Categories and Level of Effort (Pew and Mavor 2007).

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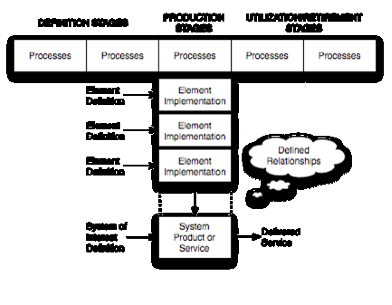
Example Agile Process Flow: Scrum (Boehm and Turner 2004). Reprinted with permission of Ken Schwaber. All other rights are reserved by the copyright owner.



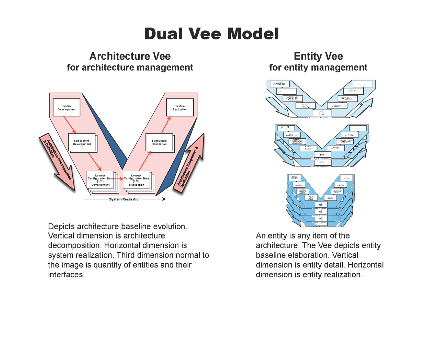
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Agile Practices and Principles

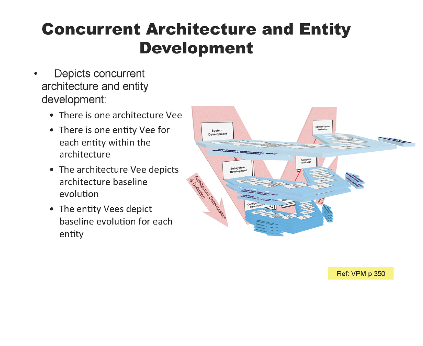
Lean Systems Engineering and Development



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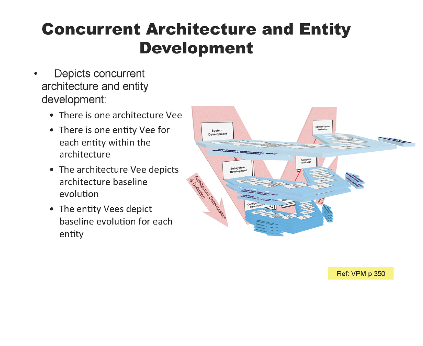
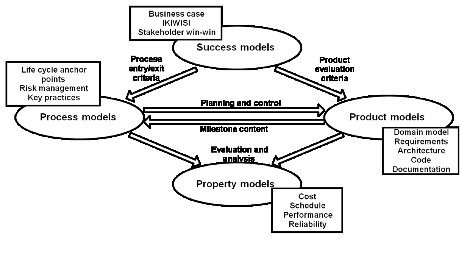
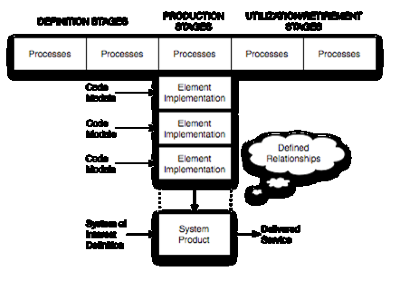


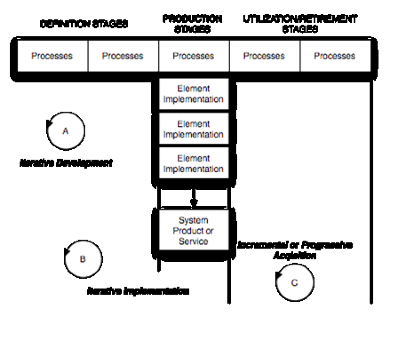
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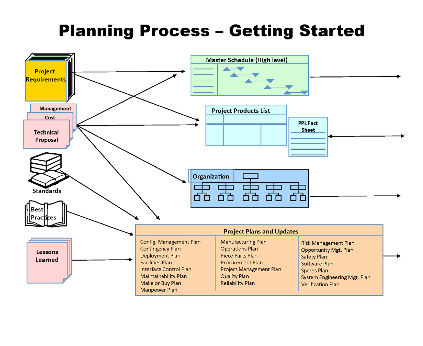
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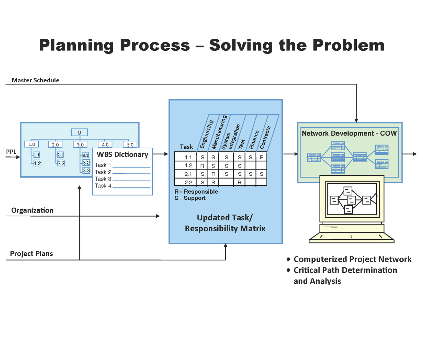
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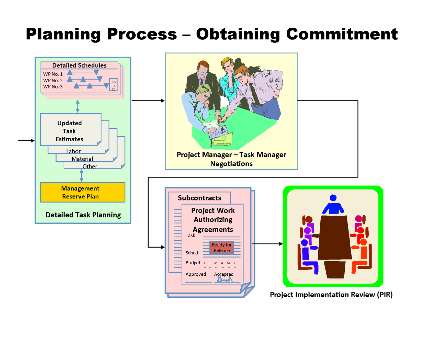
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Types of Systems

* **product system (glossary) /software or system**
* **service system (glossary) /software or system**
* **enterprise system (glossary)**
* **system of systems (SoS) capability**

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