

Production assurance analyses

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Objective

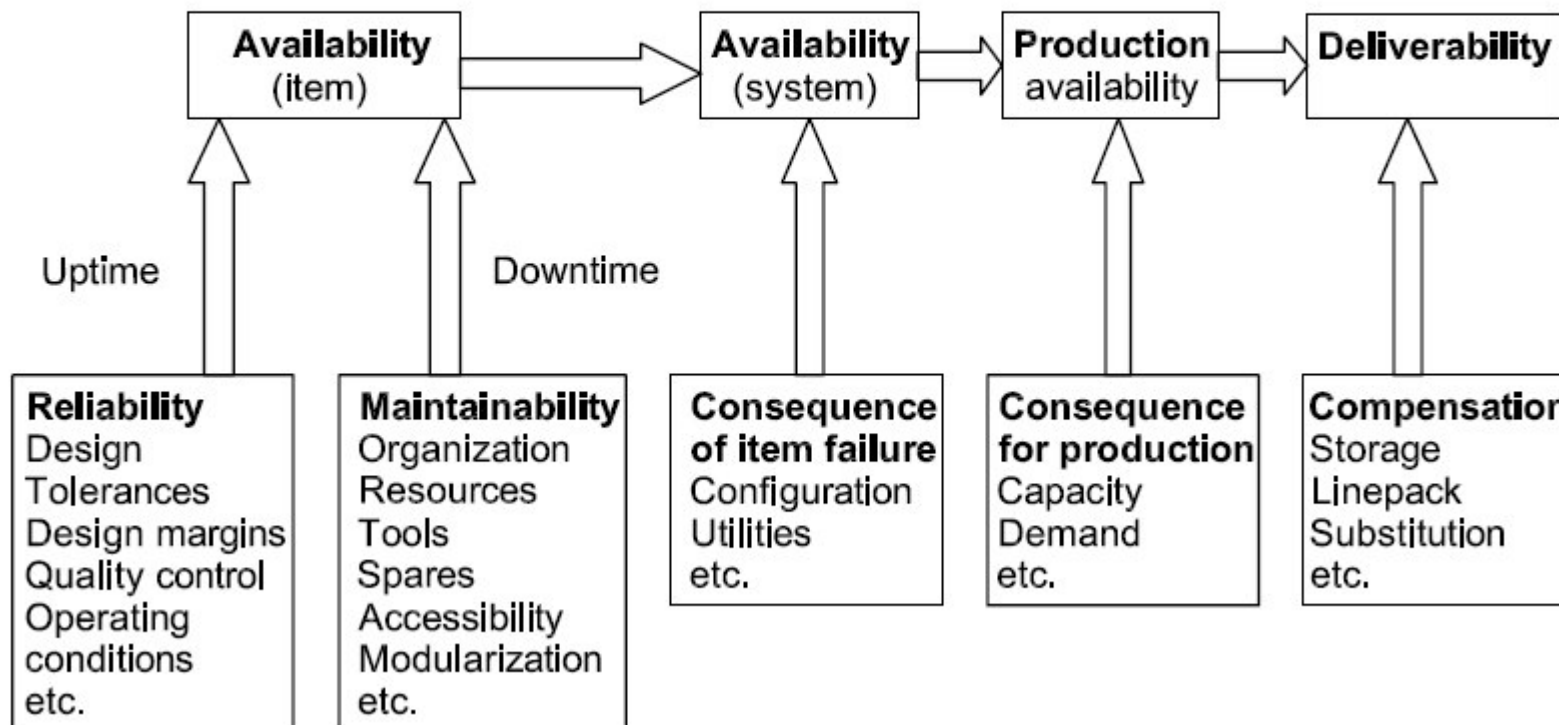
- Verify production-assurance objectives or requirements
- Identify operational conditions or equipment units critical to production assurance
- Predict production availability, deliverability, availability, reliability, etc.
- Identify technical and operational measures for performance improvement
- Compare alternatives with respect to different production-assurance aspects
- Enable selection of facilities, systems, equipment, configuration and capacities based on economic optimization assessments
- Provide input to other activities, such as risk analyses or maintenance and spare-parts planning.



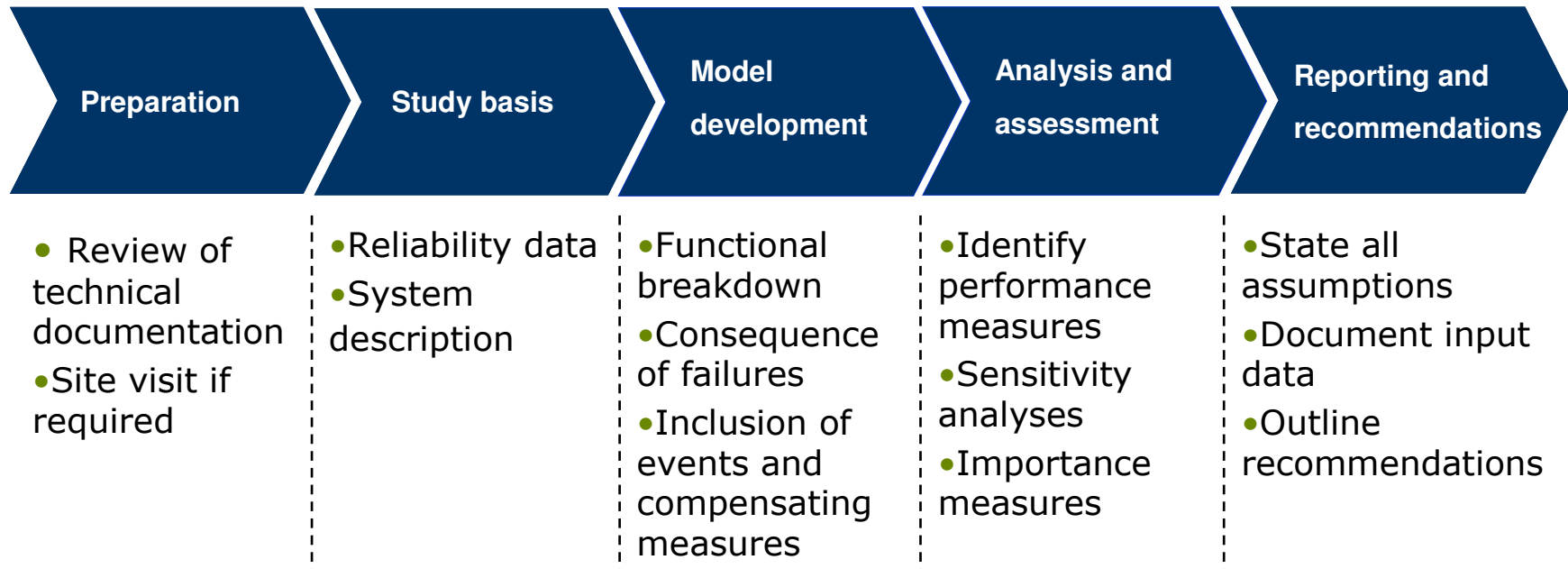
Production assurance terms



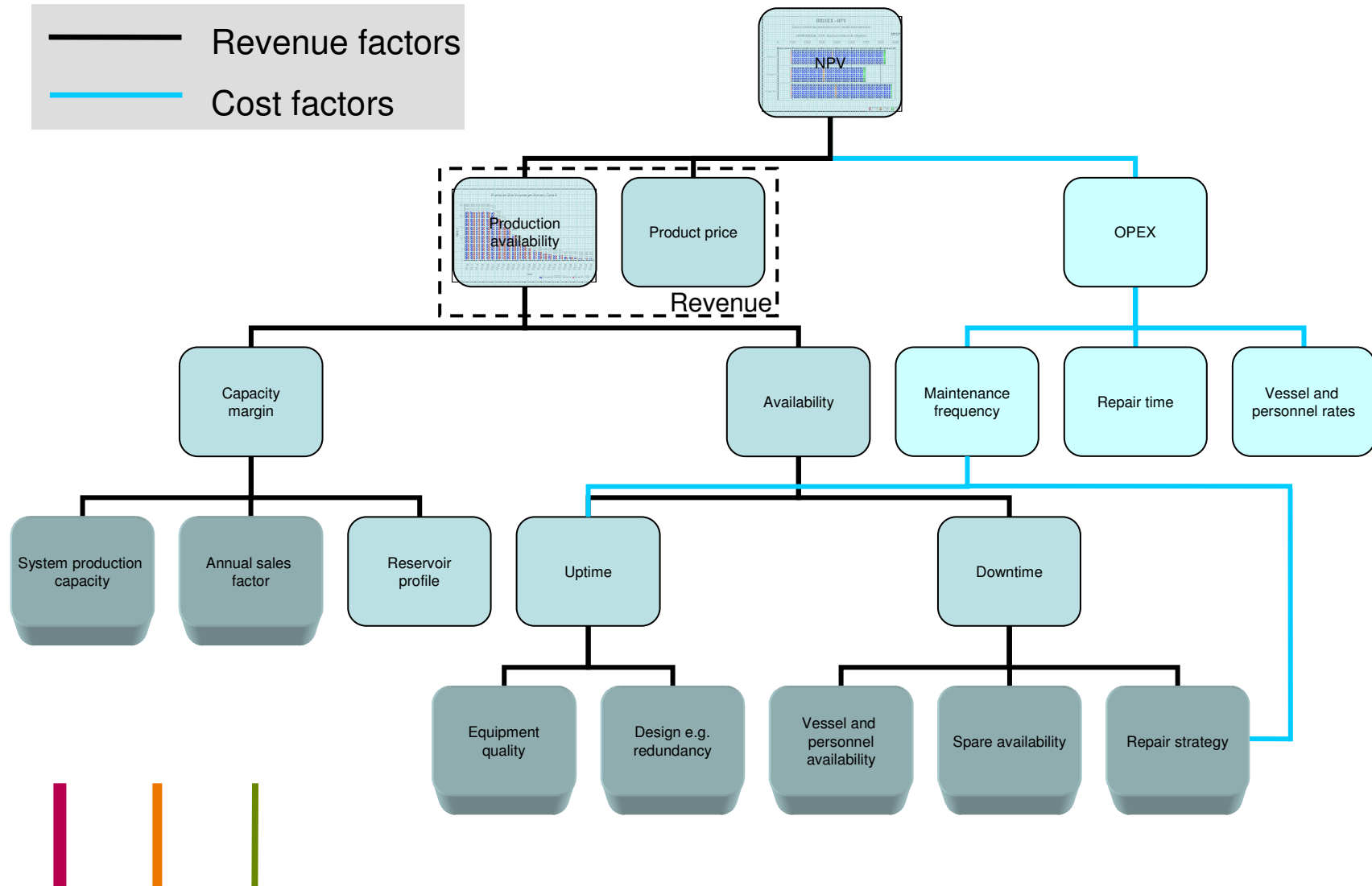
Production Assurance



Procedure



Decision criteria



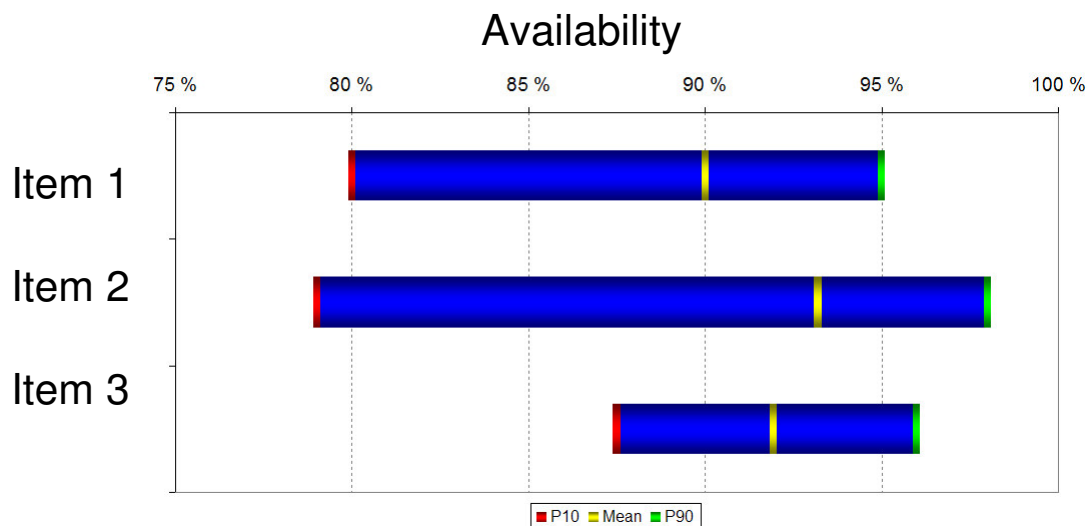
Analysis examples

- Verification – document a certain performance
- Concept selection
- Technology qualification
- Decision support during operation
- Production forecasting



Verification

- Contractors and/or subcontractors typically need to estimate the availability
- Item or system level
- Low degree of decision support

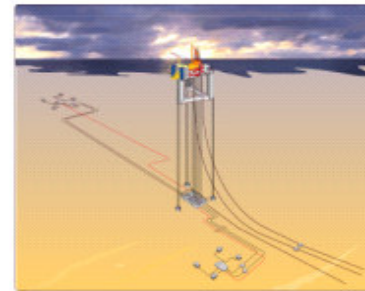


Concept selection

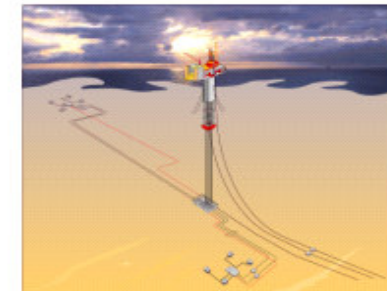


- Typically early in project phase
- Low level of detail
- Focus on differentiators between concepts
- Normally forms part of life cycle cost analysis

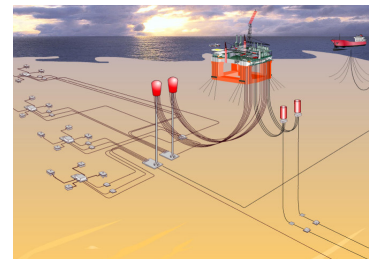
TLP



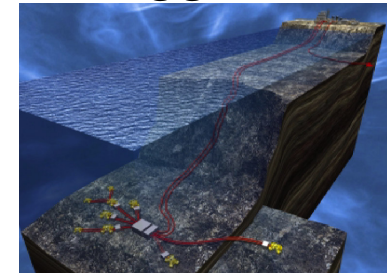
SPAR



Semi



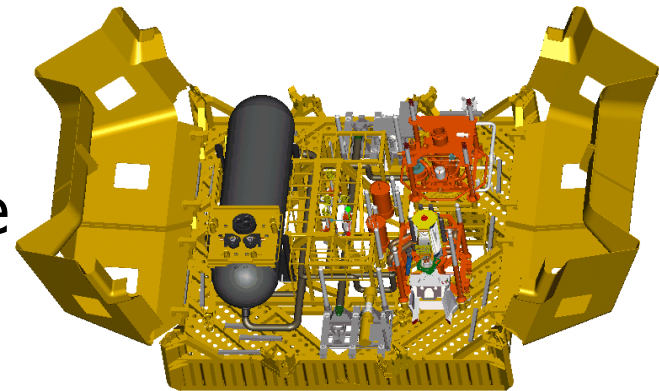
SSL



Technology qualification



- Production assurance analysis as input to the qualification process of new technology
- What issues are most critical to production assurance, where to invest resources to get the maximal yield
- Component importance relevant performance measure
- Iterative process, analysis should be updated as new information become available



Decision support during operation



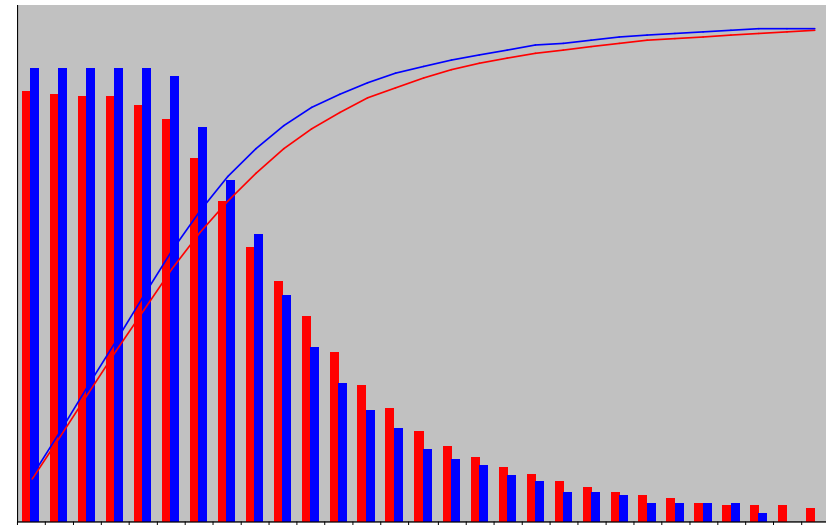
- High level of detail, design is fixed
- Typical issues to address:
 - Optimal number of spares
 - Vessel contracting strategies
 - Repair strategy
 - Revision of preventive maintenance program
- Economical parameters should be deciding



Production forecasting



- Complex studies including production profiles and capacity measures
- Input to sales contracting
- System boundary may be output from the facility (production availability) or input to customer (deliverability)
- Catch up effects may have great impact on project economy



Production Assurance Program (PAP)



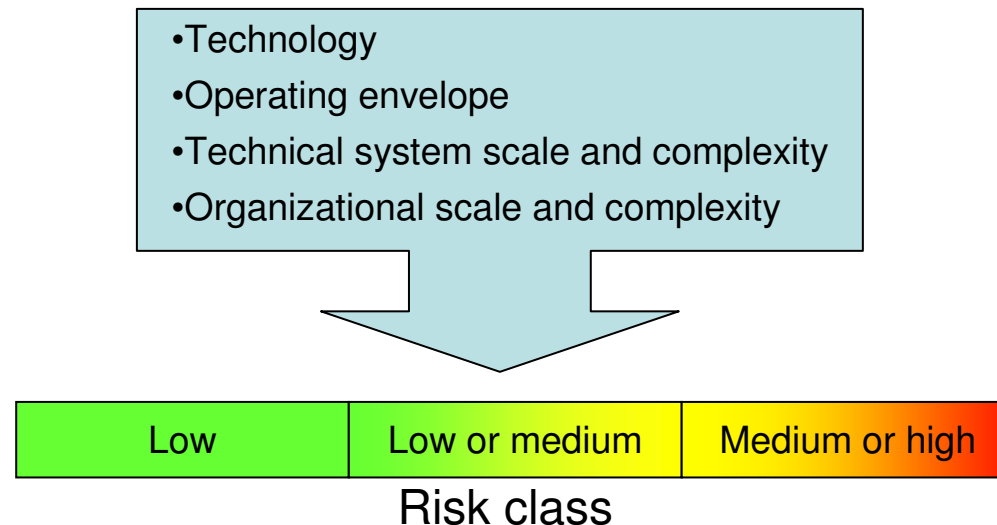
- The only mandatory delivery from the standard!
- The program should at least contain:
 - Title
 - Terms of reference, e.g. purpose and boundaries
 - Philosophy and performance objectives
 - Project risk categorisation
 - Organization and responsibilities
 - Activity schedule – suggestion in standard
 - References – documentation, company standards etc.



Level of effort in the production assurance program



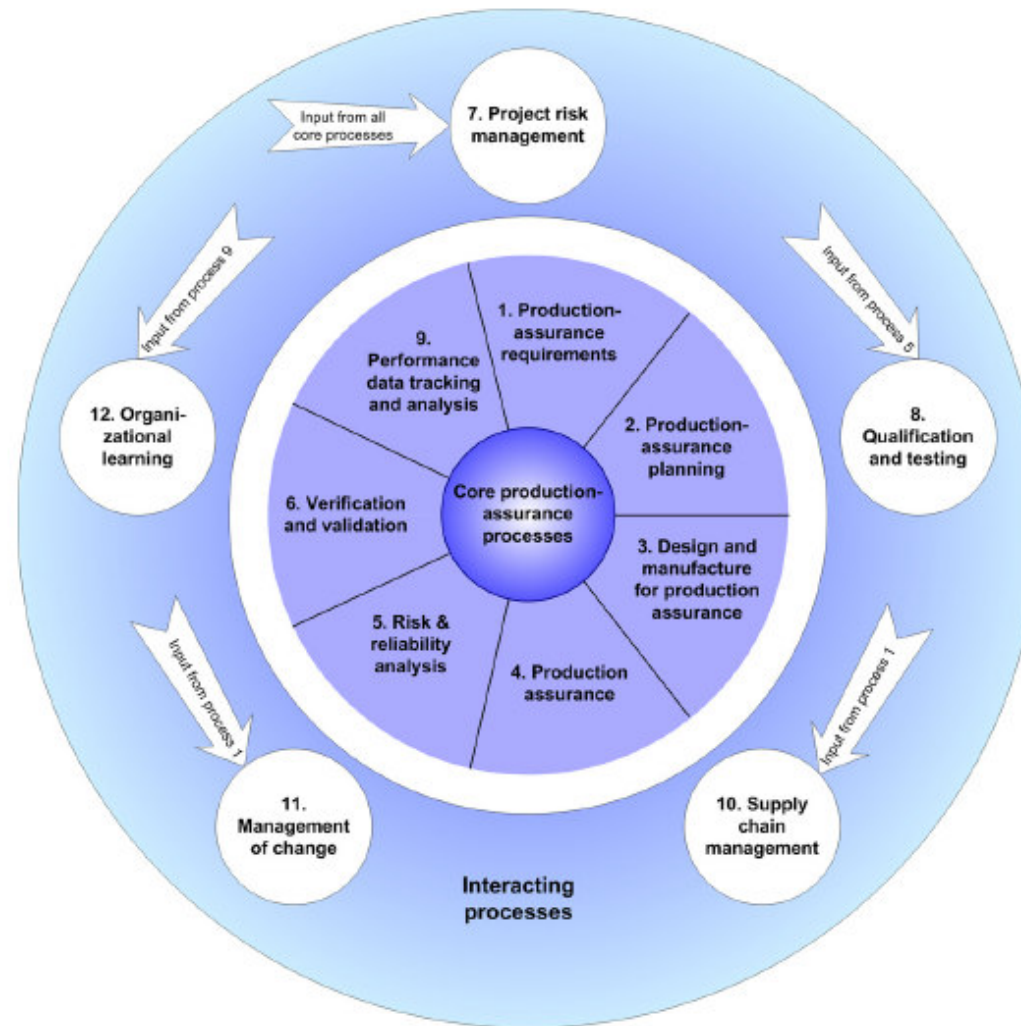
- Recommended to perform a project risk categorization



- Effort invested in production assurance should reflect risk class



Production assurance processes



Concluding remarks

- Production assurance activities should only be initiated if they are considered to add value
- Analyses should provide decision support and evaluation criteria should be economical parameters
- Effort invested in production assurance should reflect complexity of the project
- Production assurance activities are recommended to be performed in all life cycle phases

