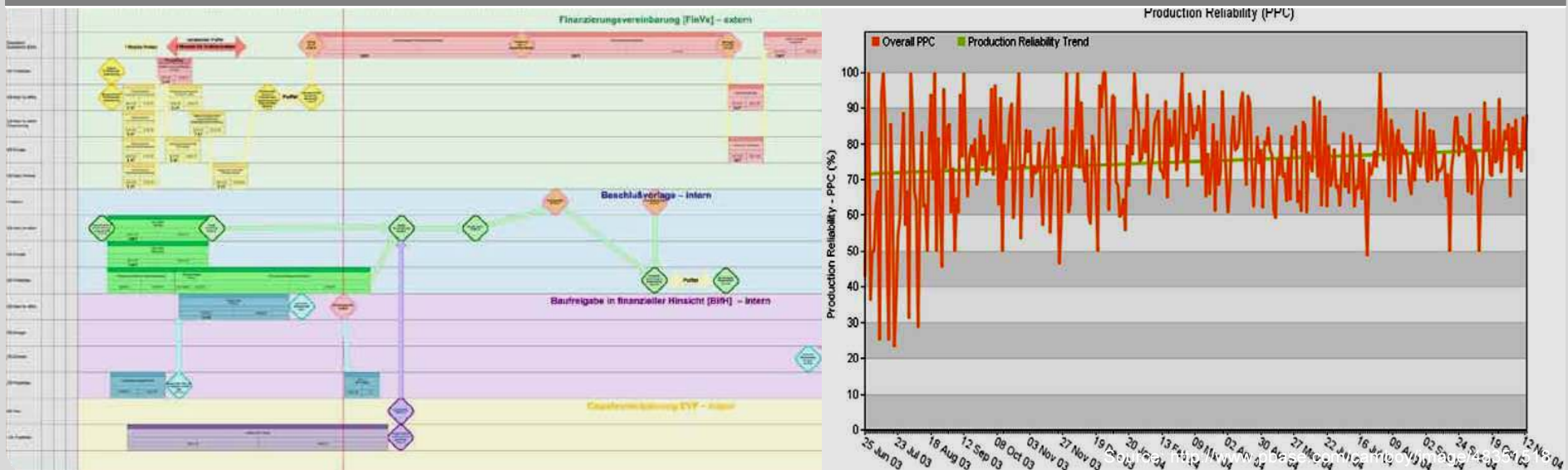


# IAEA Workshop Lean Management in Decommissioning of Nuclear Facilities

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Technology and Management for the Decommissioning of Nuclear Facilities – Prof. Dr.-Ing. Sascha Gentes



# Agenda

- Planning
- Last Planner System
  - Principles
  - Phases
- Lean Management in Decommissioning

# Planning

- What is planning?
  - Organizational process of creating a plan
  - Thought process
  - Forecasting = predicting what future will like to be
  - uncertainty

# Planning

- Defining project scope
- Duration for tasks
- Work breakdown structure (tree structure; breaks down work in manageable components in terms of duration, size, ...)
- Logical dependencies
- Create network

# Last Planner System

- Invented while Lean Management was transferred to construction
- Kind of production system for construction

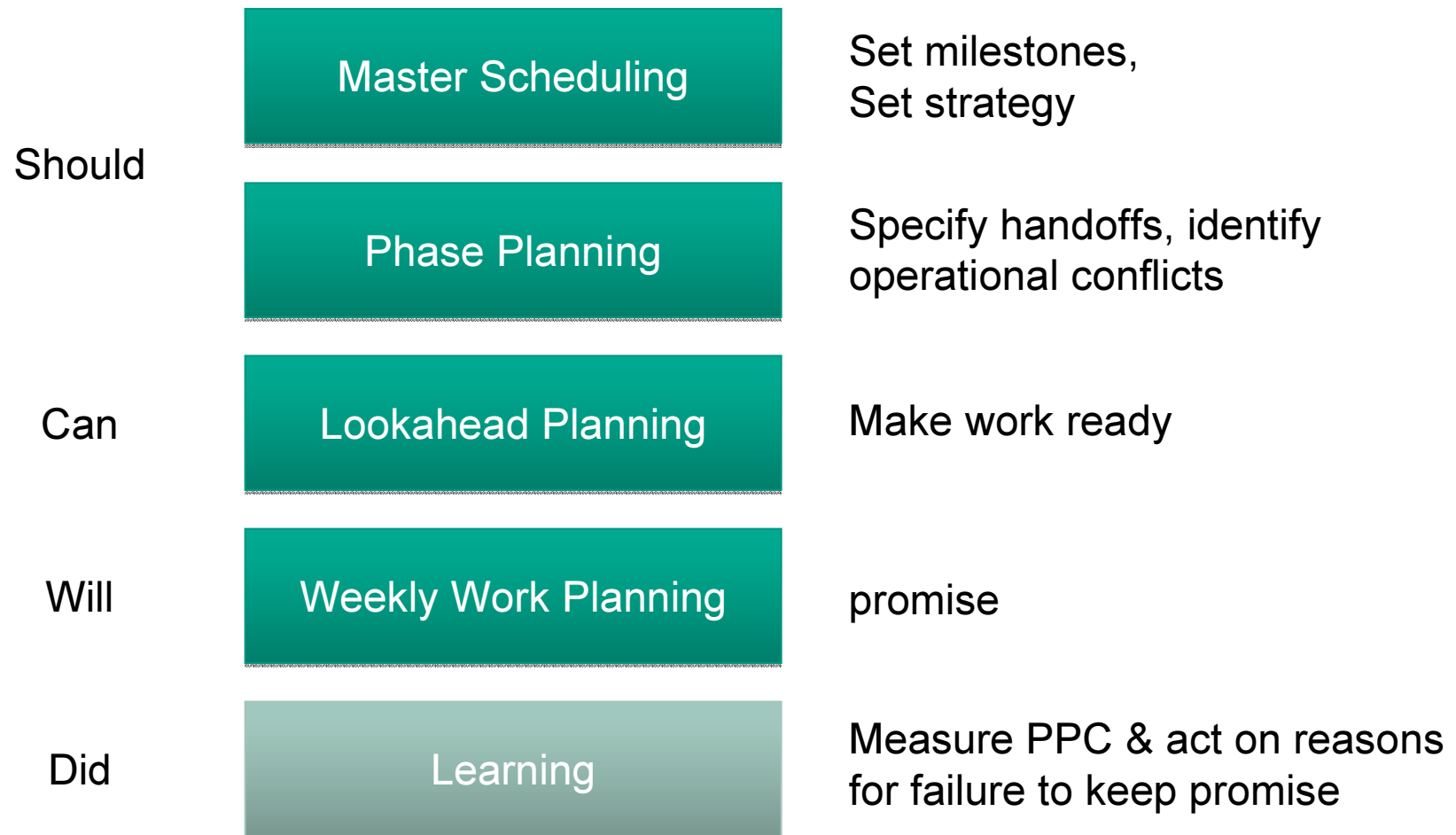
## Last Planner System – Principles

- Plan in greater detail as you get closer to doing work, because
  - All plans are forecasts and all forecasts are wrong!**
  - The longer the forecast, the more wrong it is!**
  - The more detailed the forecast, the more wrong it is!**
- Produce plans collaboratively with those who will do the work
- Reveal and remove constraints on planned tasks as a team
- Make reliable promises
- Learn from breakdown

# Last Planner System – Principles

- Conversation centered:
  - The right people
  - talk about the right thing
  - at the right level of detail
  - at the right time
  
- Planning in the sense of:
  - Learning,
  - Organizing and
  - Promising

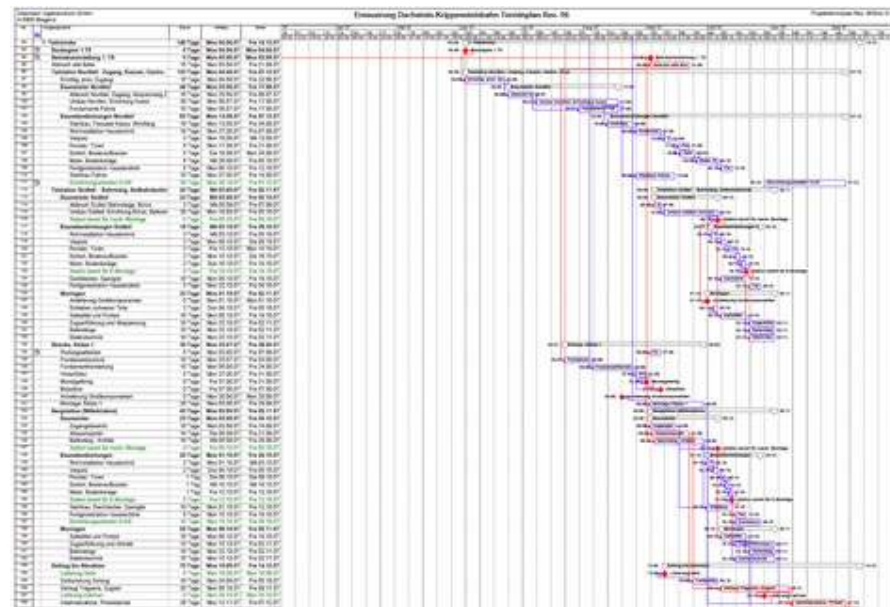
# Last Planner System – Phases





# Last Planner System – Phases

- Master Scheduling
  - Basis for further planning
  - Identifies milestones



# Last Planner System – Phases

- Phase Planning
  - Identify deliverables by phase
  - Break down project level activities into phase activities
  - Responsibility
  - Identify activity resources and information required of others
  - Perform reverse phase scheduling



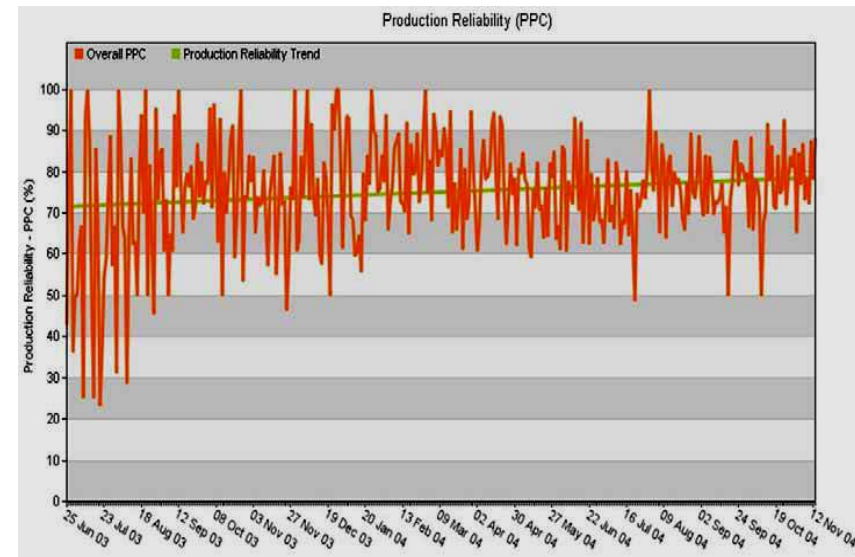
# Last Planner System – Phases

- Look ahead Planning
  - Select items
  - Identify task responsibility
  - Describe steps as necessary
  - Identify constraints to complete each task
  - Review phases schedule and identify constraints

LPS - sechs Wochen Vorschau											ab:	24-Okt-06
Bauherr		Stiftung Hambacher Schloß				fehlerlose Voraussetzungen					Bemerkung	
Projekt Name		Umbau Hambacher Schloß				Verträge / Zusatzenträge	Ingenieurleistung	Angebotausgaben	Sicherheits	Prüfung / Informator / Planung		
Projekt Ort		Hambach										
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Abstimmungs-Koordinator		Steffek				Mitarbeiter	Arbeiter	Maschinen & Geräte	sonst. Voraussetzungen	Zugang zum Bereich		
STATUS	Arbeit	Zuständig	6- Vorschau	24-Okt-06								
<b>EG und Küche</b>												
	Planlieferung Küchenplan, Klärung der Unklarheiten Kühl- und Steuerleitung	Fa. Hütte	x								Termin war: 08.10.06	
	Rohinstallation Elektro Decke EG	Schüle	x	x...							Termin 31.10.06	
	Trockenbau, Verputzen Mauerwand	Sauer	...x								bis 26.10.2006	
	Innwandinstallationen Küchenseite fertigstellen	Wirth	x						x		sobald Unklarheiten Küchenplanung beseitigt sind	
	Heizung Rohinstallation	Wirth	x								Termin 25.10.06	
	Trockenbau, Wände schließen Küchenseite	Sauer	x						x		sobald Unklarheiten Küchenplanung beseitigt sind	
	Trockenbau, Verputzen Küchenseite	Sauer	x						x		sobald Unklarheiten Küchenplanung beseitigt sind	
	Trockenbau, Wände schließen Büroseite	Sauer	x	...x							bis 04.11.06	
	Trockenbau, Verputzen Büroseite	Sauer	...x								bis 04.11.06	
	Fußbodenheizung	Wirth	x	x							26.10.06 bis 02.11.06 [5 AT]	
	Estrich	Ziegler		x							03.11.06 [1 AT]	
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# Last Planner System – Phases

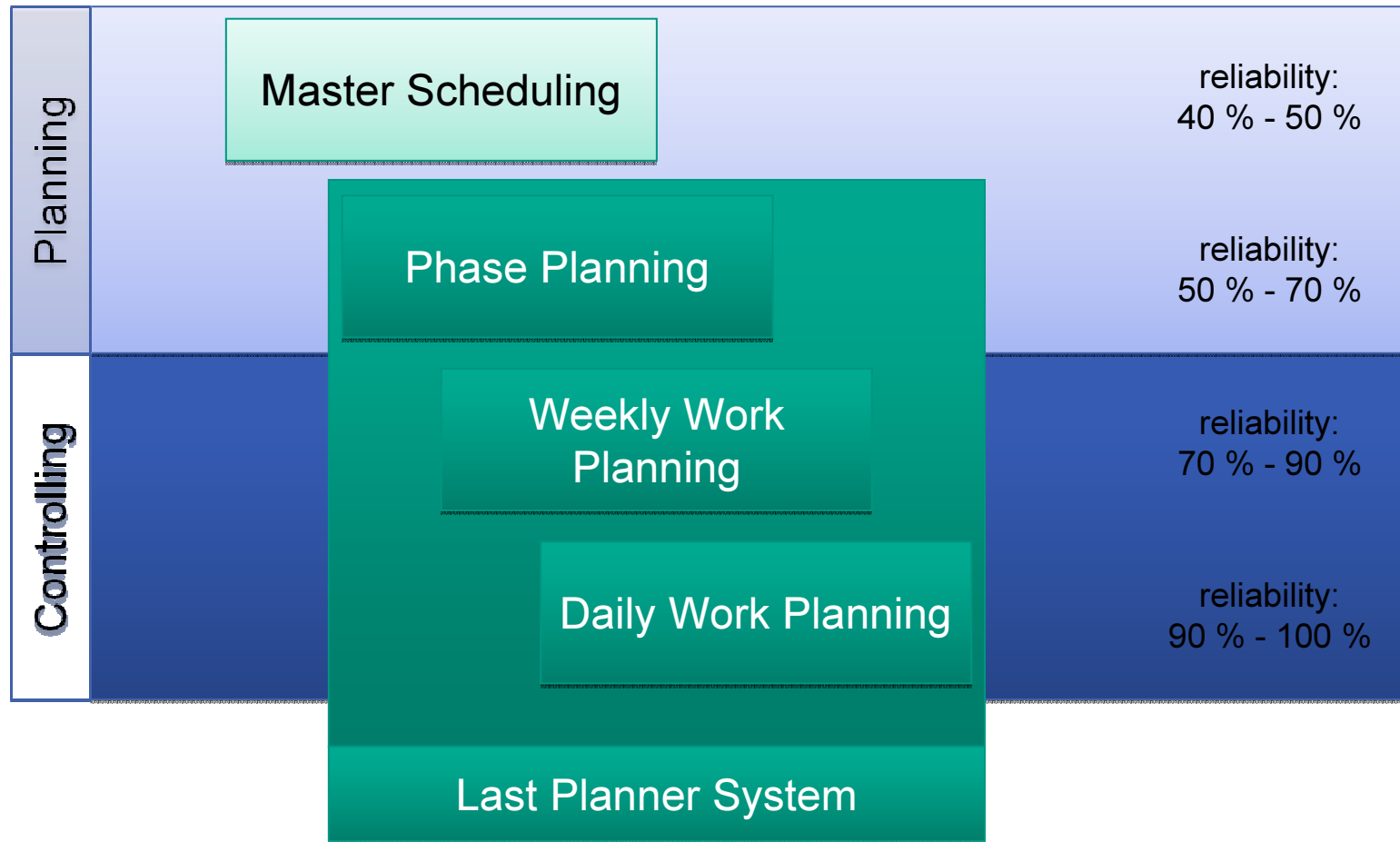
- Weekly Work Planning
  - Review previous weeks work plan
  - Review look ahead
  - Prepare next weeks weekly work plan
  - Identify workable backlog
  - Identify constraints
  - Review PPC and conduct 5 Why's



# Quality Characteristics of Weekly Work Plans

- Definition
- Soundness
- Sequence
- Size
- Learning

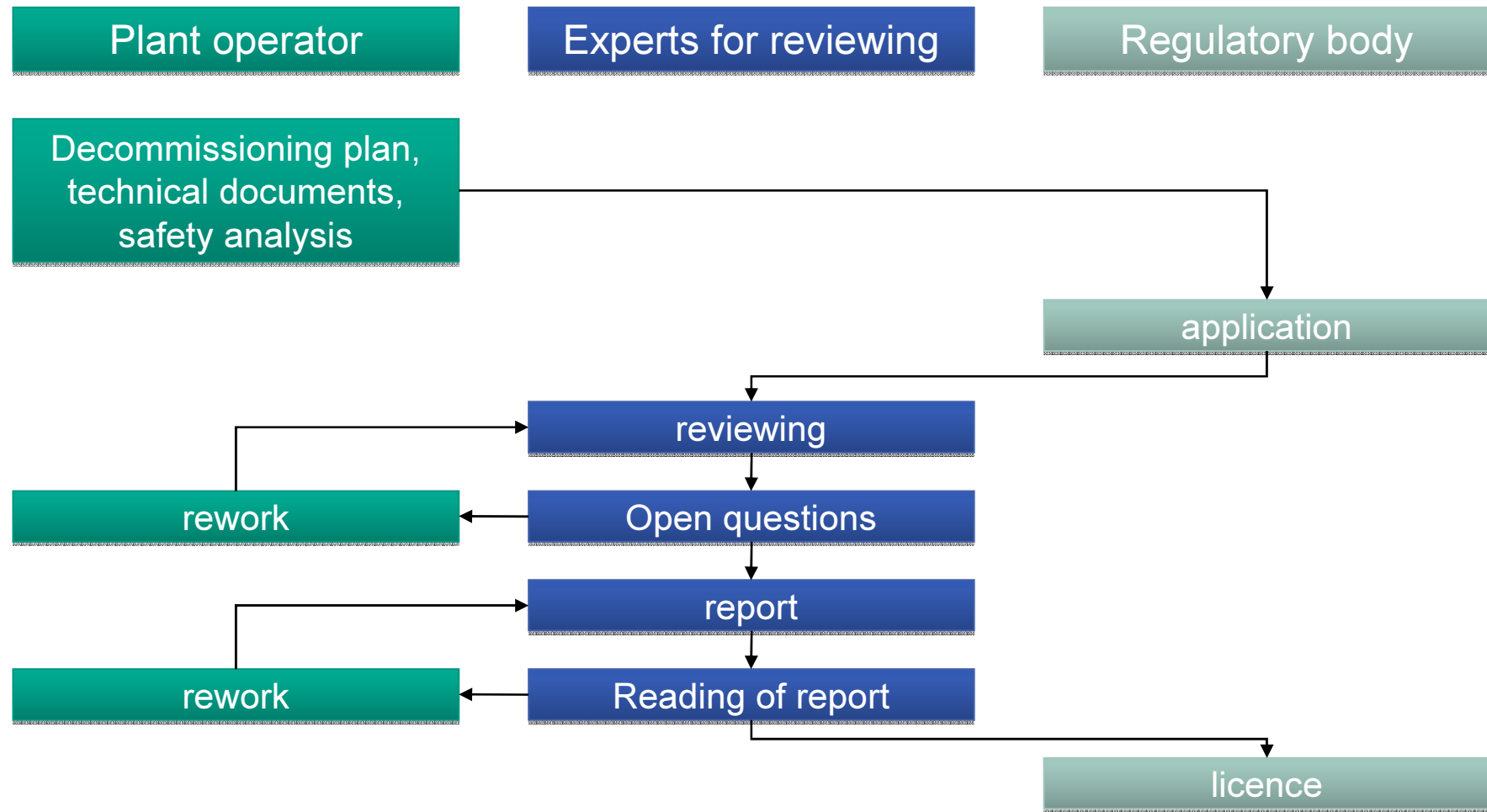
# Planning reliability



# Key Points

- Last Planner System...
  - ... creates a predictable workflow within and between workgroups
  - Allows decisions to be delayed to the last responsible moment

# Licencing process





# Why Lean Management

- Coordination of various faculties, such as
  - Radiation protection,
  - Process engineering, ...
- Several rework iteration steps
- Create knowledge transfer

# How implement Lean Management

- Periodic Last Planner Meetings including
  - Operating staff
  - Contractorto
  - create reliable promises,
  - plan collaboratively
  - decrease rework
- Earlier information of regulatory body and reviewing experts, about planning process

# Thank you, for your attention!