

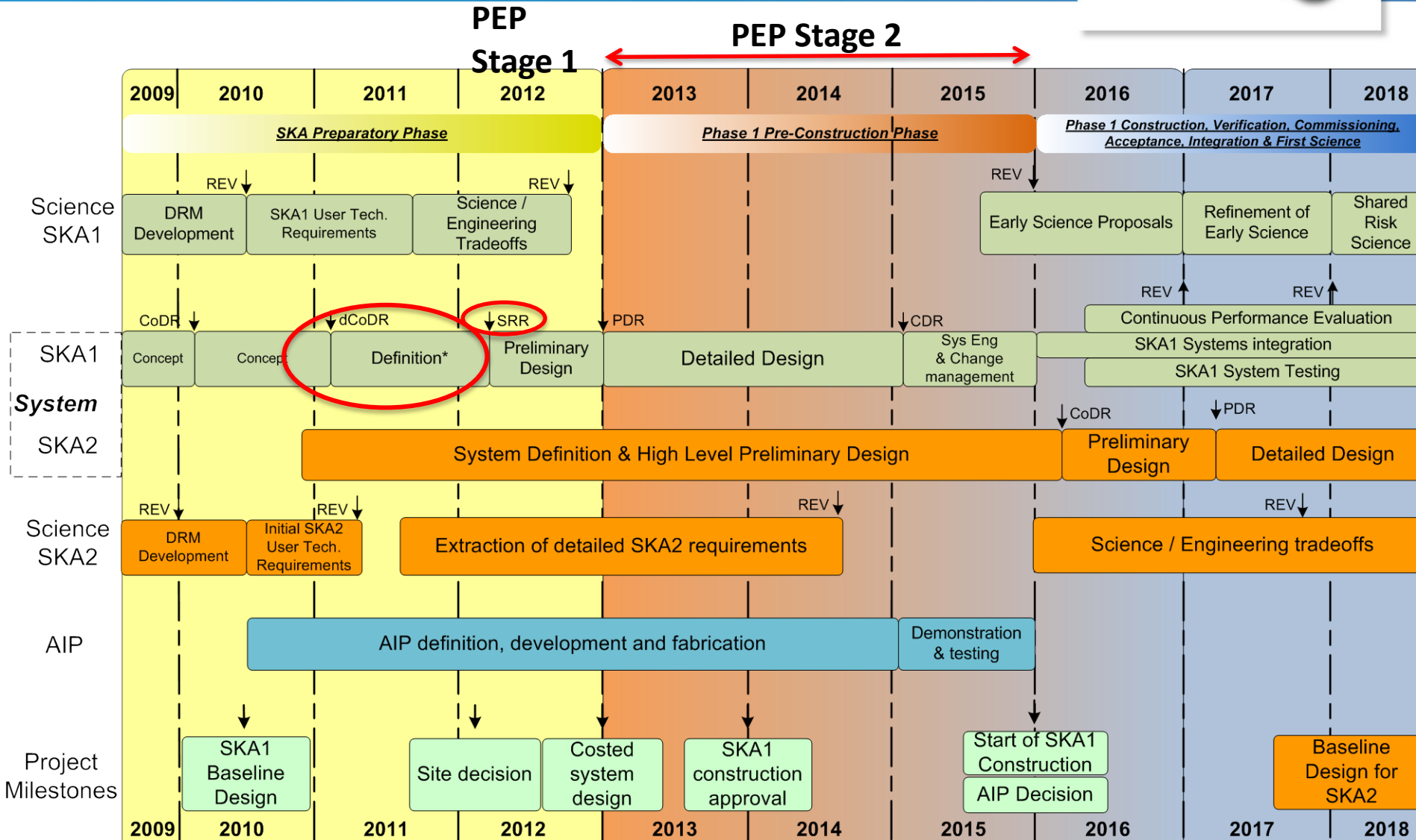


Stage 1 engineering work in the Pre- Construction Phase

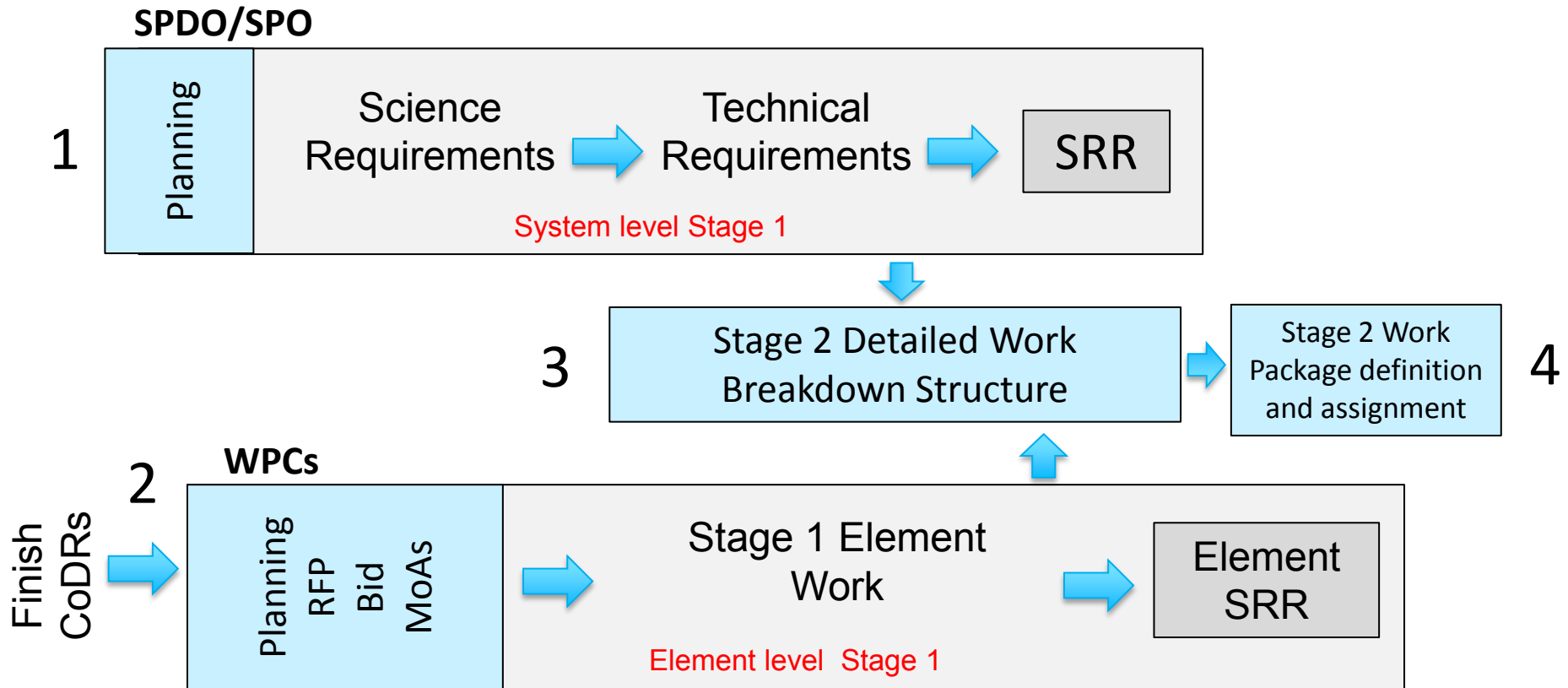
SPDO

WP2 meeting, 19 October 2011

Context for Pre-Construction Phase



Stage 1: System and Element Work in 2012-3



Conceptual Design Reviews in 2011



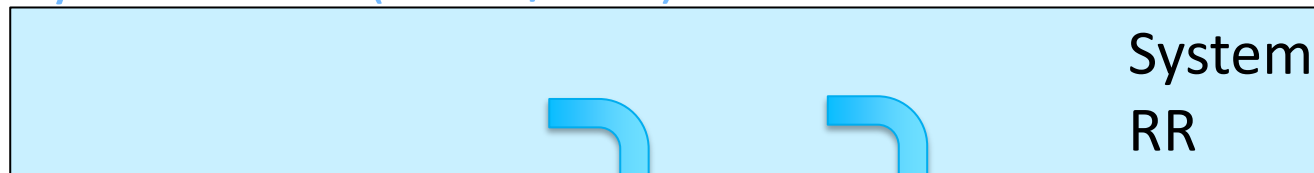
- 23-25 Feb System delta-CoDR on SKA₁ ✓
- 14-15 Apr Signal Processing ✓
- 19-20 Apr Aperture Arrays ✓
- 28-30 Jun Signal Transport & Networks ✓
- 13-15 July Dish and Dish Arrays ✓
 - 2-3 Feb CoDR Dish Verification Antenna #1
 - 5-7 Oct PDR Dish Verification Antenna #1
- 9-11 Nov Monitor & Control
- Jan 2012 Software & Computing

Allocation of Requirements from System to Element level



System Level (SPDO/SPO)

1



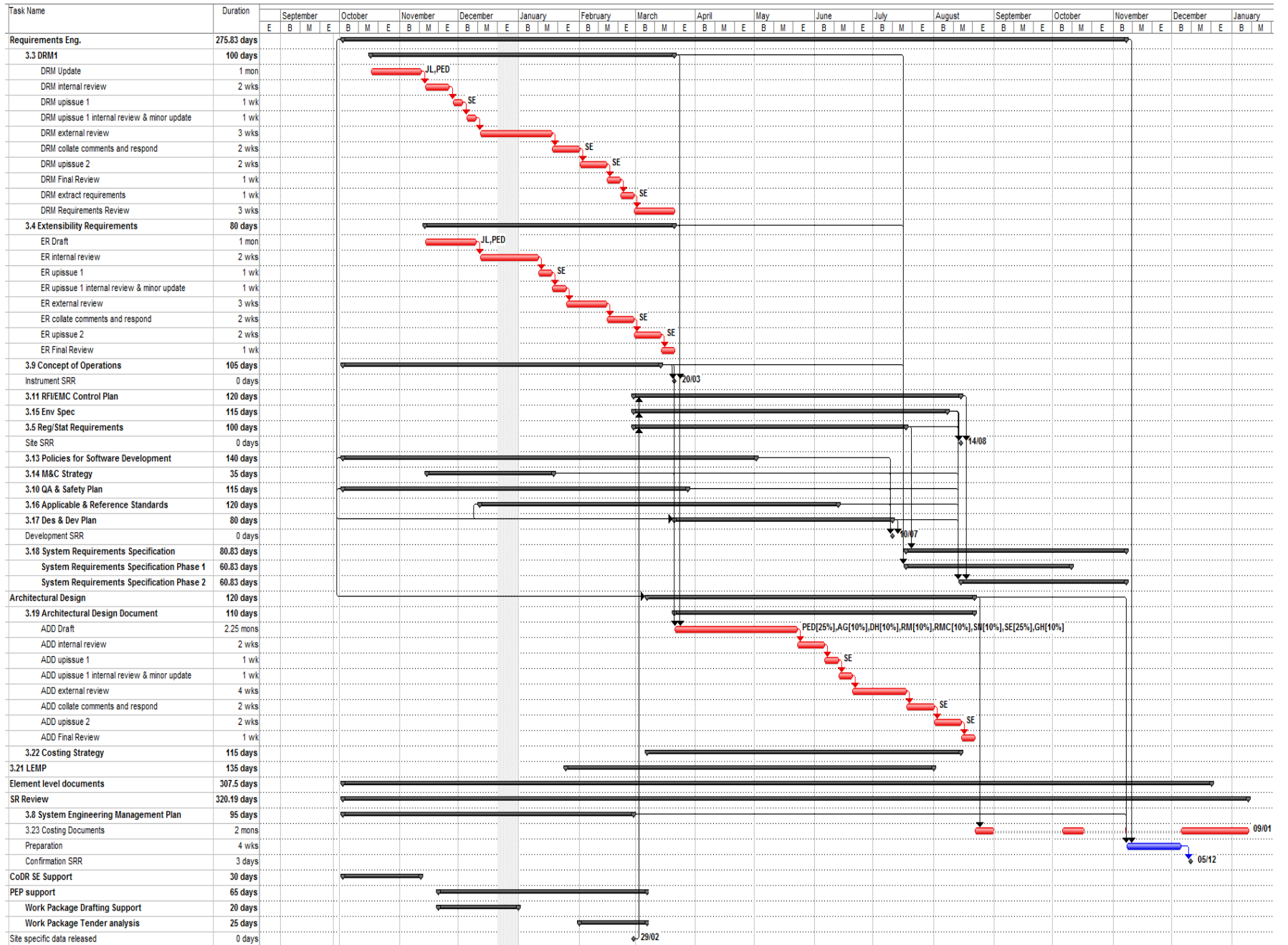
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Element Level

2



- 1st allocation is science requirements, operations requirements (Instrument Requirements Review).
- Later allocations are extensibility requirements and non-functional requirements.



WPC **Element** Work in 2012-3



Pre-Stage 1

Planning
CoDR => SRR
(See next slide)

Stage 1

Allocated
Requirements



Analysis of
CoDRs



Verification
Work

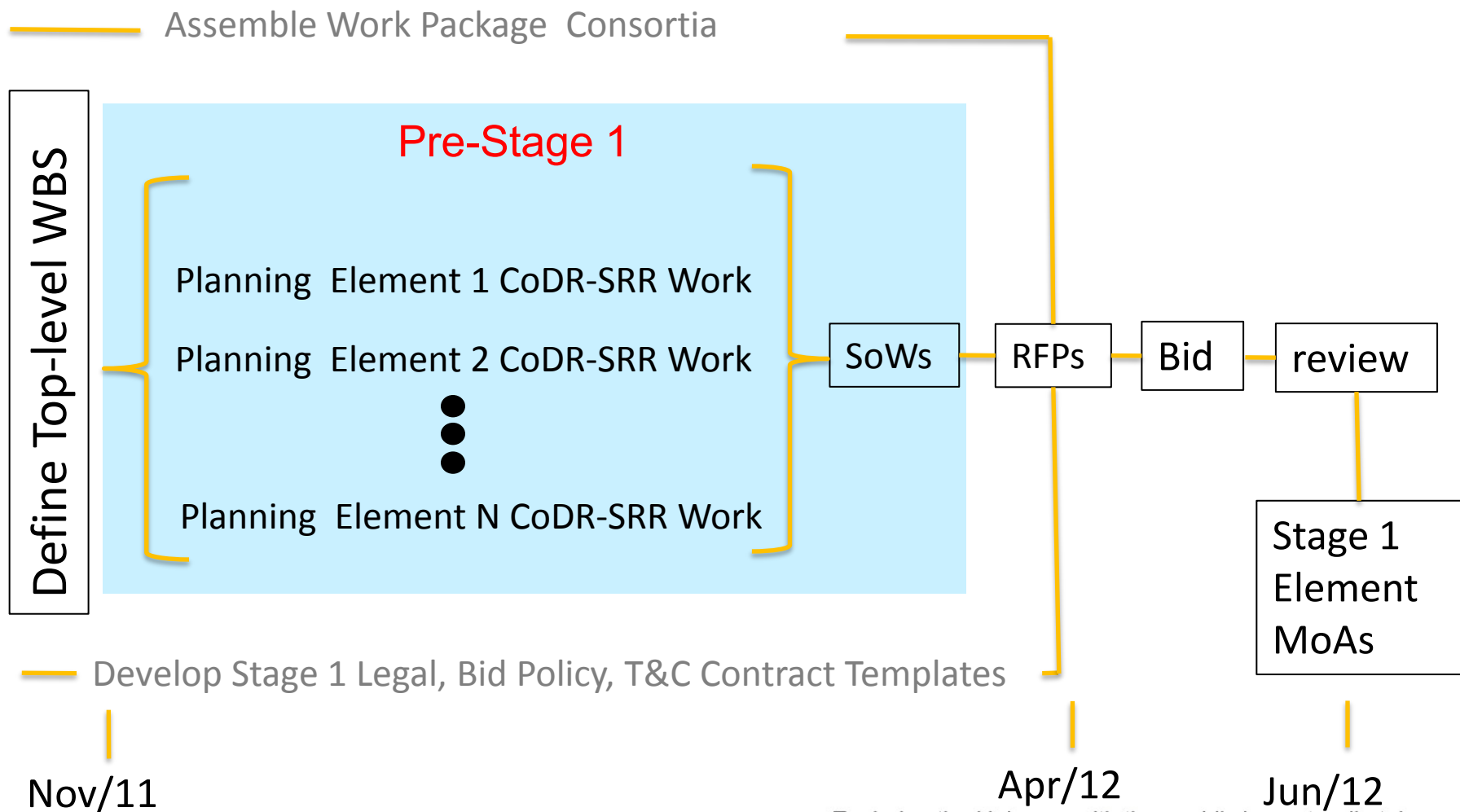


Element
Requirements;
WBS
Development;
and Design
studies



Element
SRR

Assembling Element Level RFPs for Stage 1 Work



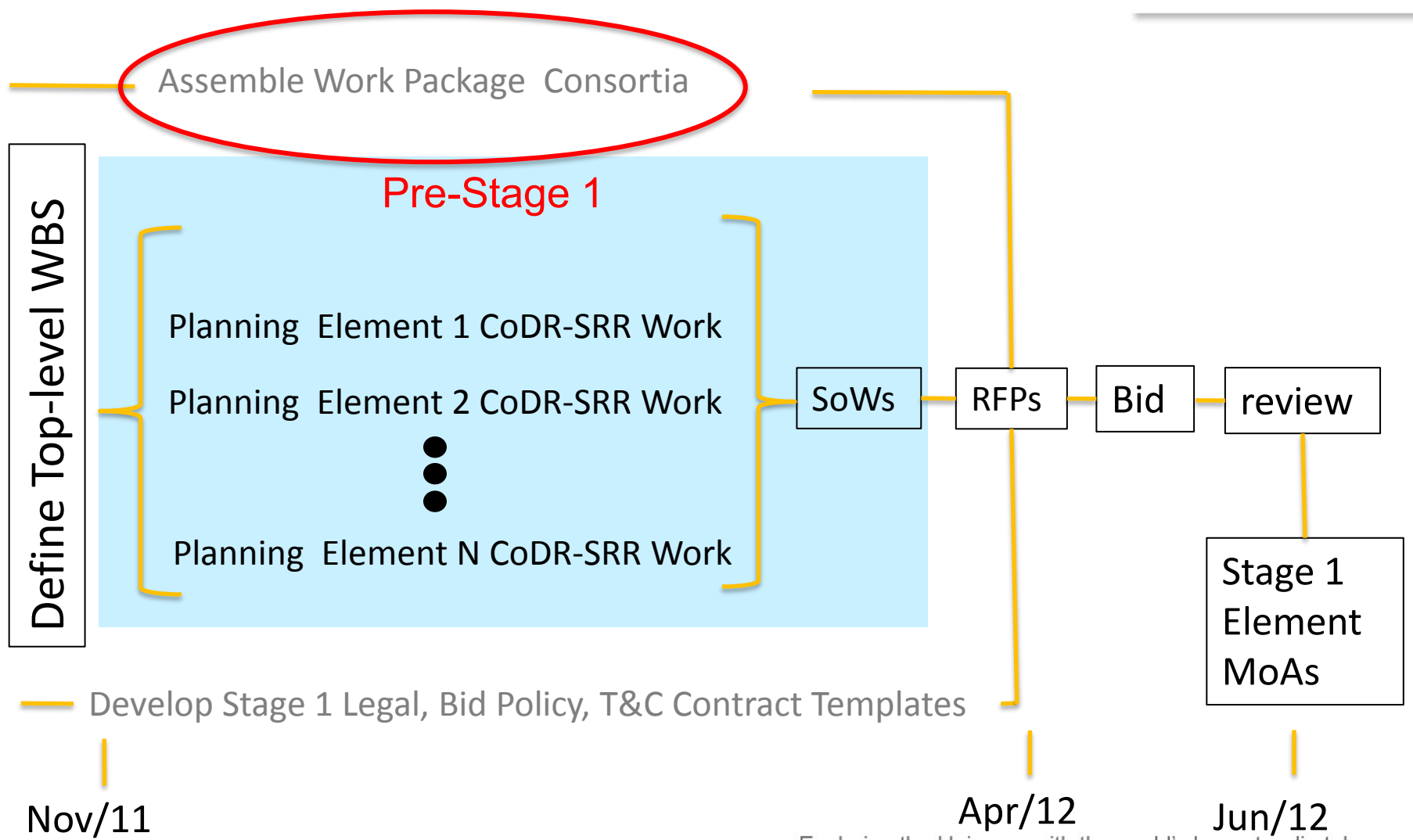
Pre-Stage 1 : Planning Element CoDR-SRR Work



- **Purpose of Work**
 - Planning next phase – to Element SRR
 - What needs to be done?
 - Which options are to be carried forward?
 - How much effort?
 - How much time?
 - What is the outcome to be presented at the SRR?
 - Preparation of Statement of Work to reach SRR.
- **Contract Phases and Milestones**
 - Familiarisation with tasks and inputs
 - Analysis of input data, identify gaps
 - 1st draft plan
 - Presentation and review
 - Decisions on how to handle gaps and missing information
 - Finalize plan
 - Final presentation, review and delivery.
- **Deliverables**
 - Reports
 - Scope of requirements analysis for the element level.
 - Consolidation and recommendation of viable technical options
 - Architecture documents for viable options.
 - Outline of work to be done on requirements, and other items identified in the SEMP for the SRR level.
 - Identification of resources and time to complete actual work to SRR.
 - Preliminary estimate of work needed to complete detailed design.
 - Review of gaps or missing information needed to proceed.
 - Prepared Statement of Work for the period up to SRR.



Assembling Element Level RFPs for Stage 1 Work



Carrying forward Options within WPC



WPC

Lead Organisation/Group

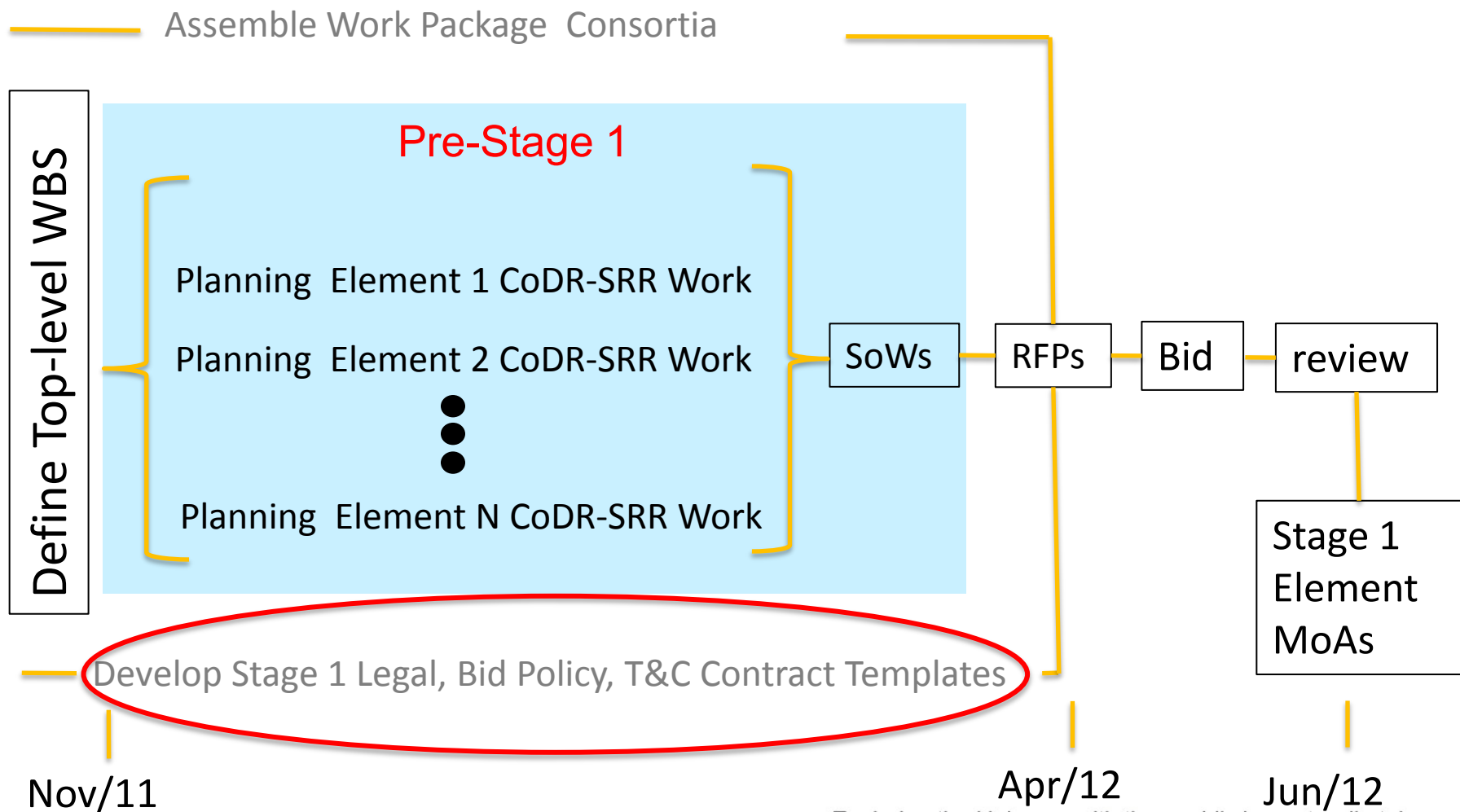
- Overall Project Management of the Element
- Overall System Engineering of the Element

Option 1
Organisation/Group 1
PM, SE, Design Engs ..

Option 2
Organisation/Group 2
PM, SE, Design Engs ..

Option n
Organisation/Group N
PM, SE, Design Engs ..

Assembling Element Level RFPs for Stage 1 Work



Pre-construction Phase

Stage 1: Schedule 2011 - 2013



Period	Activity	Deliverable	SPO resources required	WPC resources required
Nov 2011 – Mar 2012	Pre-Stage 1 Planning	Development of Statements of Work for sub-system work packages	5 SPDO/SPO staff at 30% (8 person months)	3 people per sub-system (75-120 person months)
Nov 2011 – Mar 2012	Assemble Work Package Consortia	Draft Consortium Agreements	TBD	TBD
Nov 2011 – Mar 2012	Develop Terms and Conditions for SPO Agreements and Contracts	Terms and Conditions for SPO Agreements and Contracts	TBD + legal consultancy	0
Nov 2011 – Oct 2012	System Requirements Development	Documentation for Systems Requirements Review, system level WBS	System Engineers (56 person months)	TBD assistance

Pre-construction Phase

Stage 1 Schedule 2011-2013 (2)



Period	Activity	Deliverable	SPO Res	WPC Res
Mar 2012	Prepare Request for Proposals for Work Pkg	RfP issued by Board of Directors	1 person month	0
Apr 2012	WP Consortia prepare responses to RfP	Responses to Board (Consortium Agreement, deliverables, resources, schedule, IP)	0	TBD
May 2012	SPO to evaluate responses	Report to Board of Directors	3 person months	0
June 2012	Board of Directors to assign Work Packages and approve agreements or contracts	Multi Lateral Agreements with Consortia; contracts with industry	TBD	TBD
Jul 2012 – Jun 2013	Technical requirements development for each element of the system	Documentation for Systems Requirements Reviews for each element: detailed WBS for each element	6 person years (PEP estimate)	91 person years (PEP estimate)

Stage 2 Schedule: 2013-15



Period	Activity	Deliverable	SPO res	WPC res
Jan 2013 – Jul 2013	Prepare Requests for Proposals for Stage 2 Work Packages	RfPs issued by Board of Directors	TBD	0
Feb 2013 – Aug 2013	WPC Consortia prepare responses to RfP	Responses delivered to SPO	0	TBD
Mar 2013 – Sept 2013	SPO to evaluate responses	Reports to Board of Directors	TBD	0
Apr 2013 – Oct 2013	Board of Directors to assign Work Packages and approve agreements	Multi Lateral Agreements and Contracts	TBD	TBD
Nov 2012 – Dec 2015	Prepare for system level PDR, CDR, PRR	Documentation for Preliminary Design Review, Critical Design Review, Production Readiness Review	149 person years (PEP estimate)	TBD
Jan 2013 – Dec 2015	Other Stage 2 Work Packages (PDR, CDR, PRR, TBD)	Defined in the PEP, but subject to revision as part of Stage 1 WBS development	38 person years (PEP estimate)	353 person years (PEP estimate)