# Purpose and context of the Signal Processing CoDR

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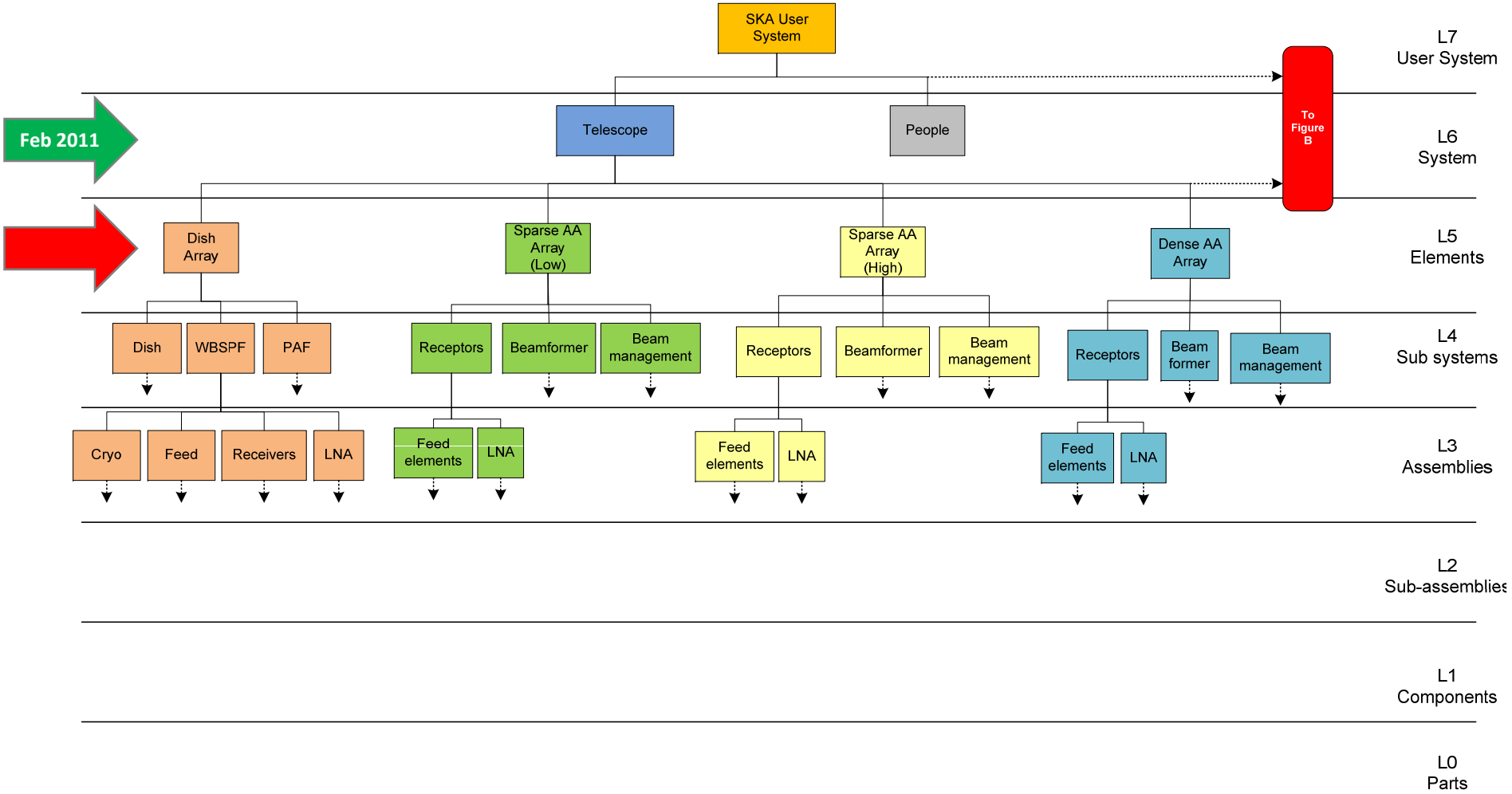
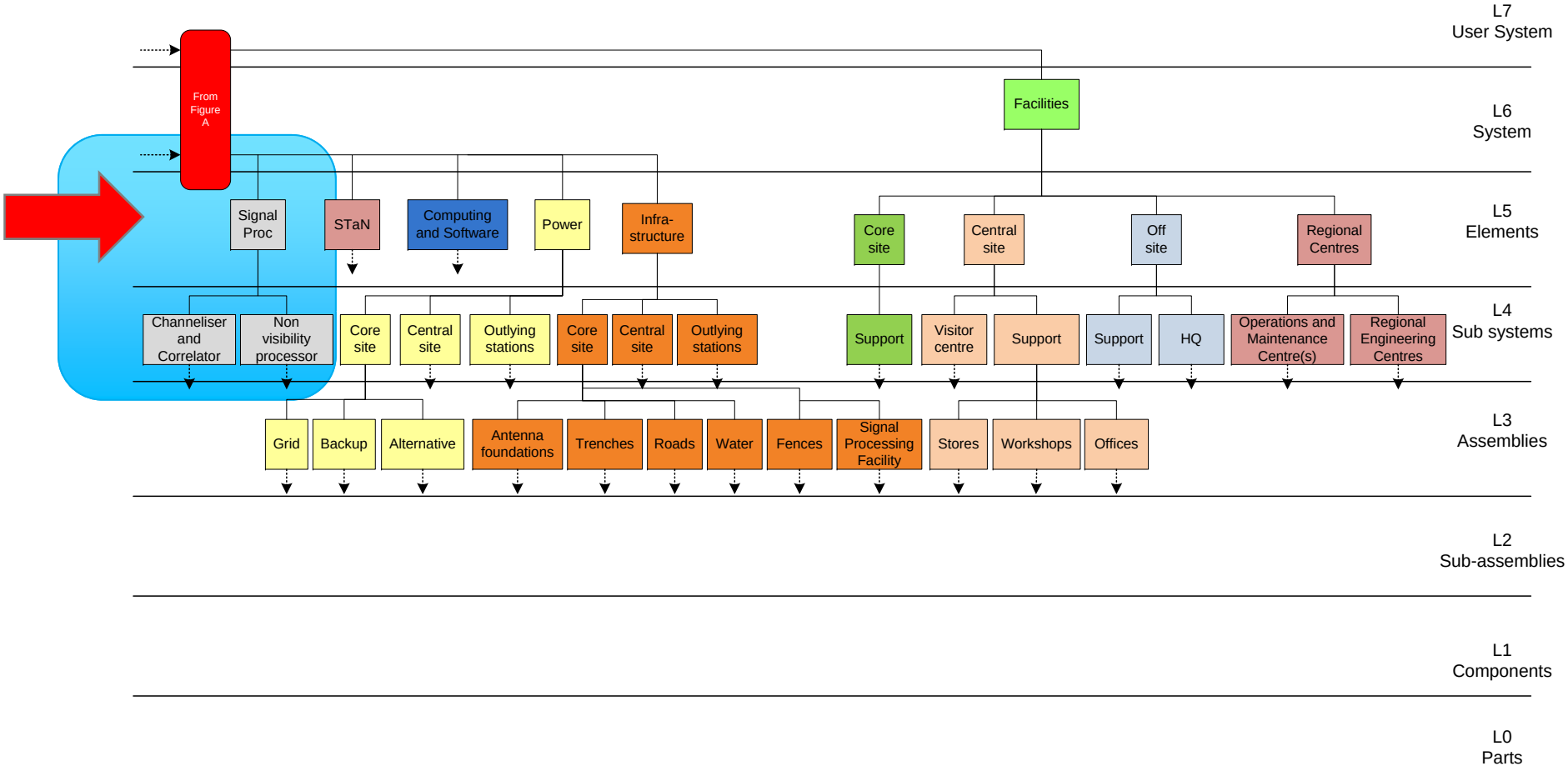
# Overview

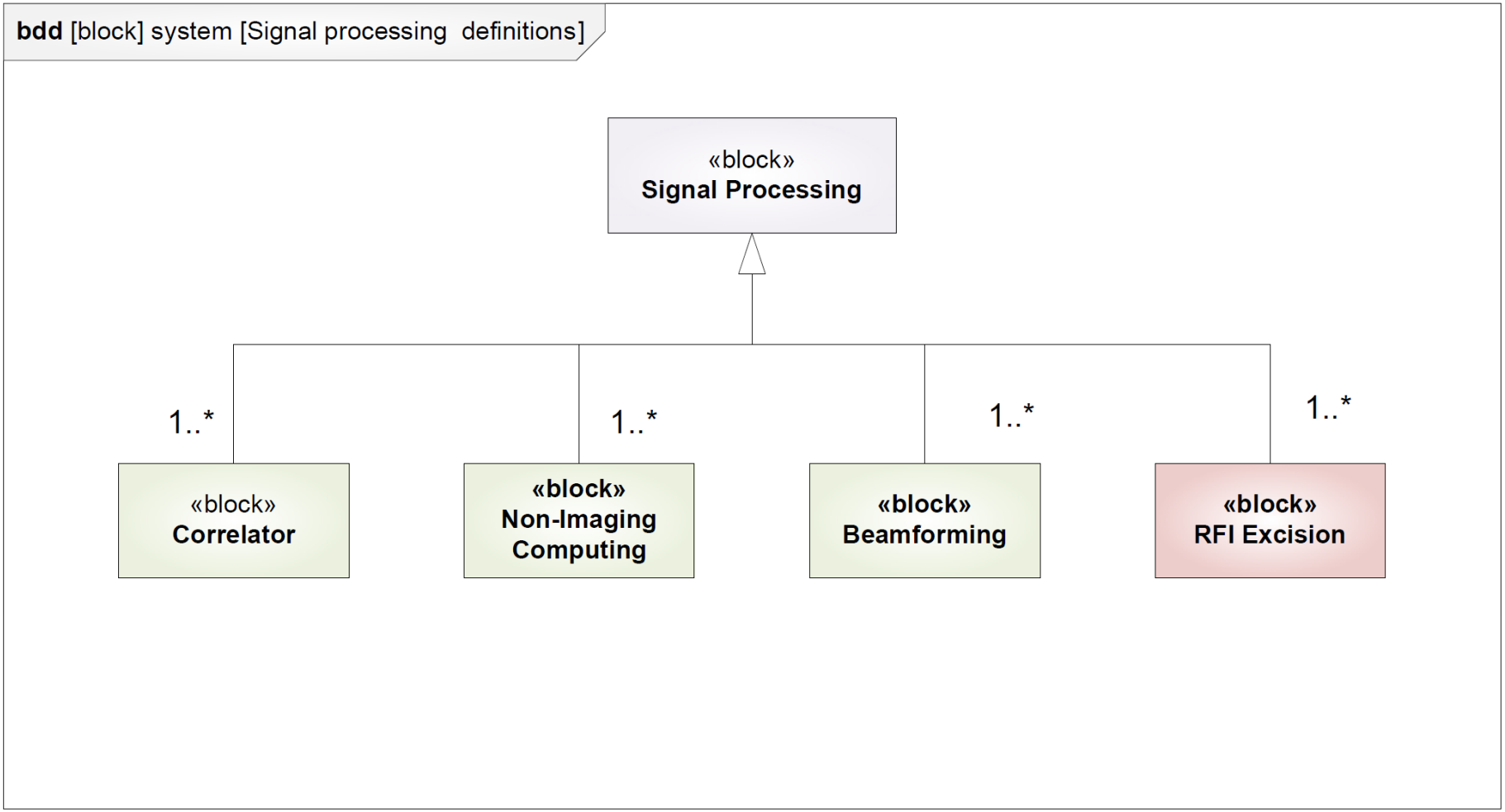
- Concept Phase and CoDR
- Purpose and Expected Outcome of the CoDR
- Questions to Panel
- Documents
- Presentations
- Flow of Review

# Hierarchy (1)


SKA User System
L7 User System
Feb 2011
Telescope
People
To Figure B
L6 System
Dish Array
Sparse AA Array (Low)
Sparse AA Array (High)
Dense AA Array
L5 Elements
Dish
WBSPF
PAF
Receptors
Beamformer
Beam management
Receptors
Beamformer
Beam management
Receptors
Beam former
Beam management
L4 Sub systems
Cryo
Feed
Receivers
LNA
Feed elements
LNA
Feed elements
LNA
Feed elements
LNA
L3 Assemblies
L2 Sub-assemblies
L1 Components
L0 Parts

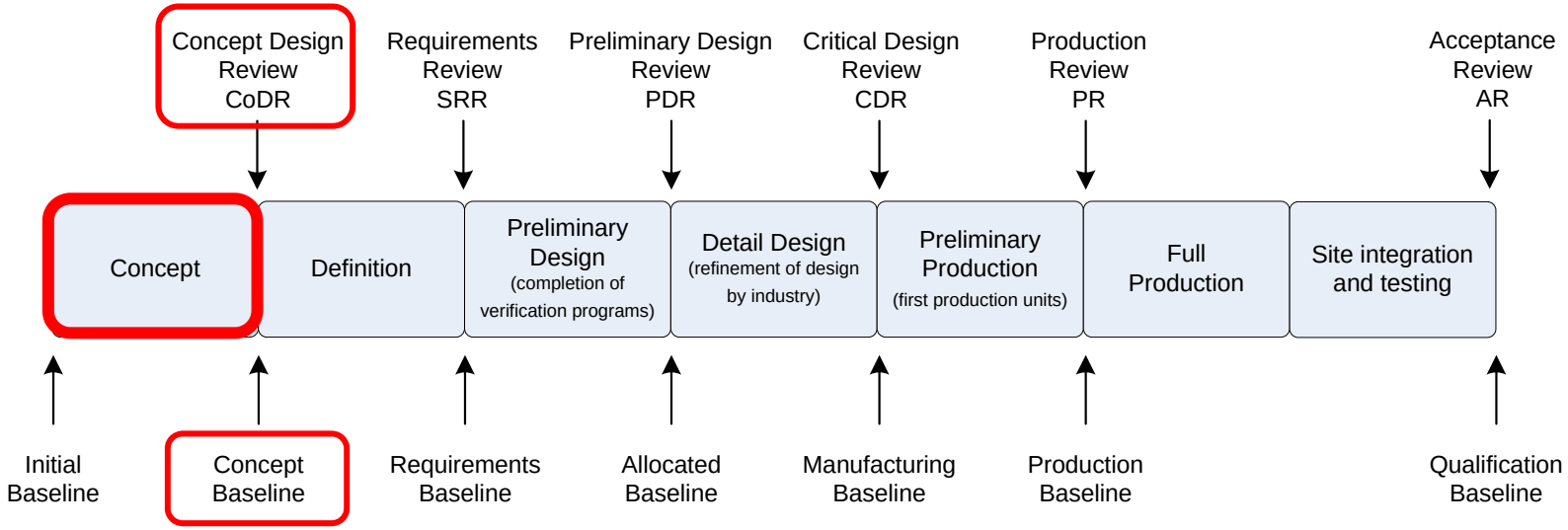
# Hierarchy (2)


From Figure A
Signal Proc
STaN
Computing and Software
Power
Infra-structure
Facilities
Core site
Central site
Off site
Regional Centres
Channeliser and Correlator
Non visibility processor
Core site
Central site
Outlying stations
Core site
Central site
Outlying stations
Support
Visitor centre
Support
Support
HQ
Operations and Maintenance Centre(s)
Regional Engineering Centres
Grid
Backup
Alternative
Antenna foundations
Trenches
Roads
Water
Fences
Signal Processing Facility
Stores
Workshops
Offices
L7 User System
L6 System
L5 Elements
L4 Sub systems
L3 Assemblies
L2 Sub-assemblies
L1 Components
L0 Parts


bdd [block] system [Signal processing definitions]
«block»
Signal Processing
1..*
1..*
1..*
1..*
«block»
Correlator
«block»
Non-Imaging
Computing
«block»
Beamforming
«block»
RFI Excision

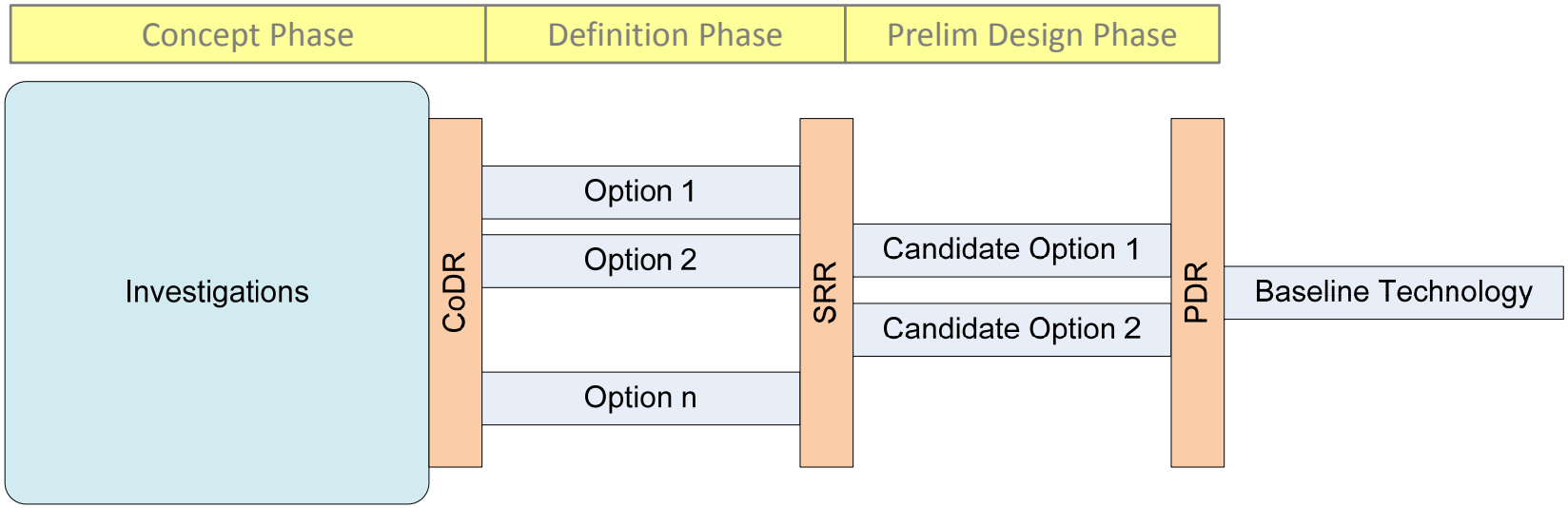
# Concept Phase and CoDR (1)

- CoDR is performed at the end of the Concept Phase



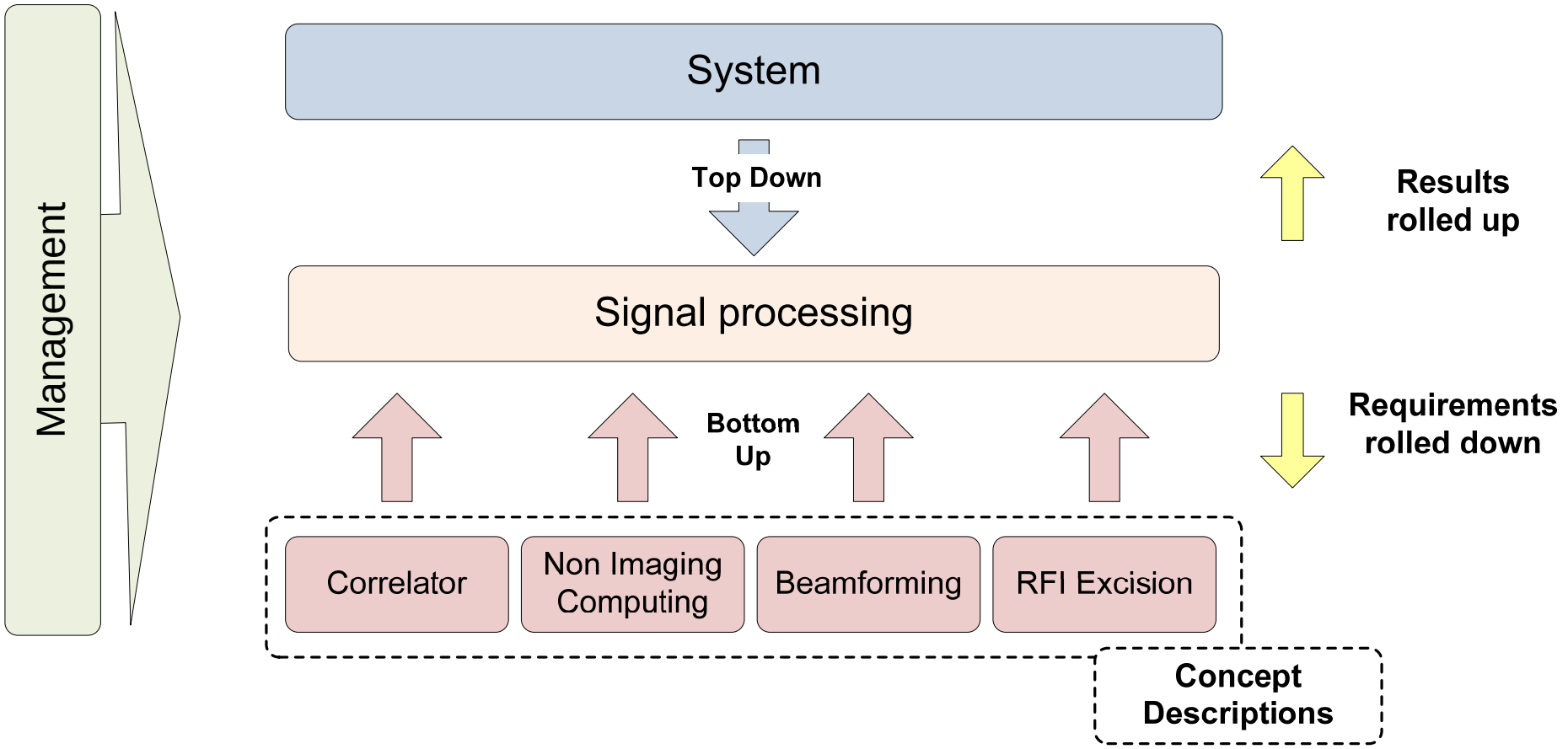

- Compared to the 'usual definition' and scope of a CoDR, the SKA CoDRs are taking place earlier in the project lifecycle
- Imply concepts have not yet been narrowed down to any single solution and that a range of options may still exist.

# Concept Phase and CoDR (2)




- Concept phase will be followed by the definition phase and then the preliminary design phase.
- As phases progress the SKA system design will evolve via a set of trade-off studies to arrive at a single solution by the time of the Preliminary Design Review.

# Approach and Documents



# Purpose and Expected Outcome

- Purpose
  - Review the results of the work conducted at element level during the Concept Phase.
- The CoDR will be conducted to evaluate:
  - The overall progress,
  - Whether the technical adequacy obtained during the concept phase is at a sufficient level of maturity to allow the Signal Processing Element to move into the next phase,
  - Whether all Signal Processing Element aspects of the project have been covered and where gaps exist, whether adequate measures have been identified to address the shortcomings.
- Expected outcome
  - The establishment of the signal processing concept baseline by conclusion of the signal processing level concept phase.

# Questions to the Panel

1. Are the requirements complete, and sufficiently defined for this stage of the project?
2. At the concept level, is the element/subsystem presented capable of meeting the requirements?
3. Have interfaces to other aspects of the system been adequately identified and defined at this stage of the program?
4. Are the options proposed to be carried forward credible and are the presented data and information in support of each option credible?
5. Have all the necessary aspects of the specific element/subsystem been considered and addressed during the review or are there gaps and/or shortcomings?
6. Does the risk profile appear reasonably detailed and assessed for this stage of the program?
7. Do the stated risk controls and proposed mitigations appear reasonable and executable?
8. Is the overall plan (including the identification of the tasks, effort, resources, costs, schedule and risk mitigation needed) to complete the subsequent project phases credible?

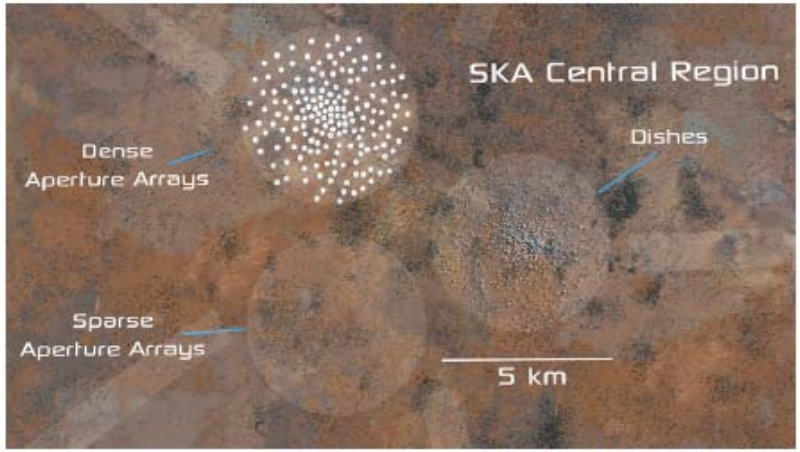
# Flow of the Review

Thursday

Friday

- Top down
  - Requirements
  - Technology Roadmap
  - High Level Description
- Bottom Up Concepts
  - Beamforming
  - Non imaging Computing
  - Acceleration Processing and other instruments
  - Correlators
- Management
  - Costs and cost strategy
  - Risks
  - Strategy to proceed to next phase

# Thank You

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