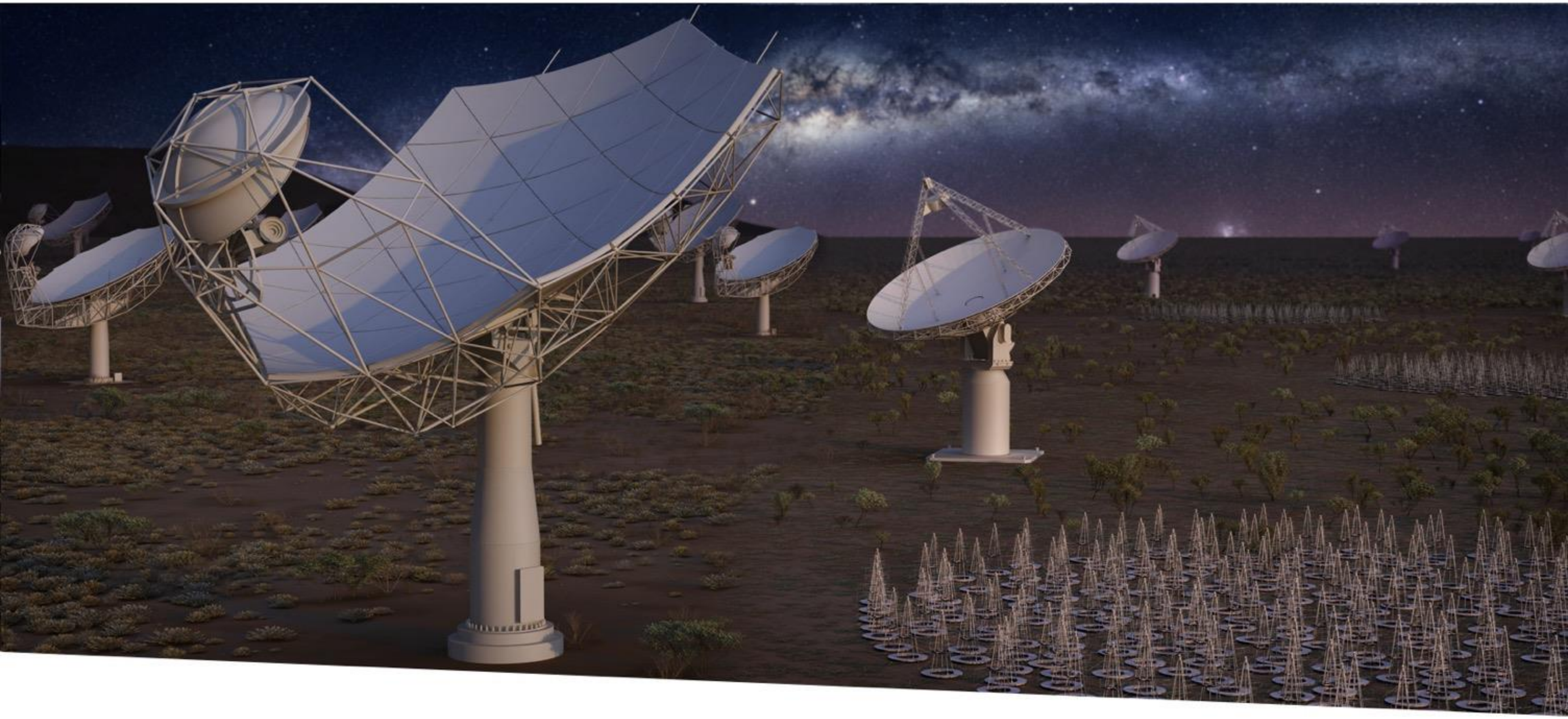
# The Scaled Agile Framework distilled

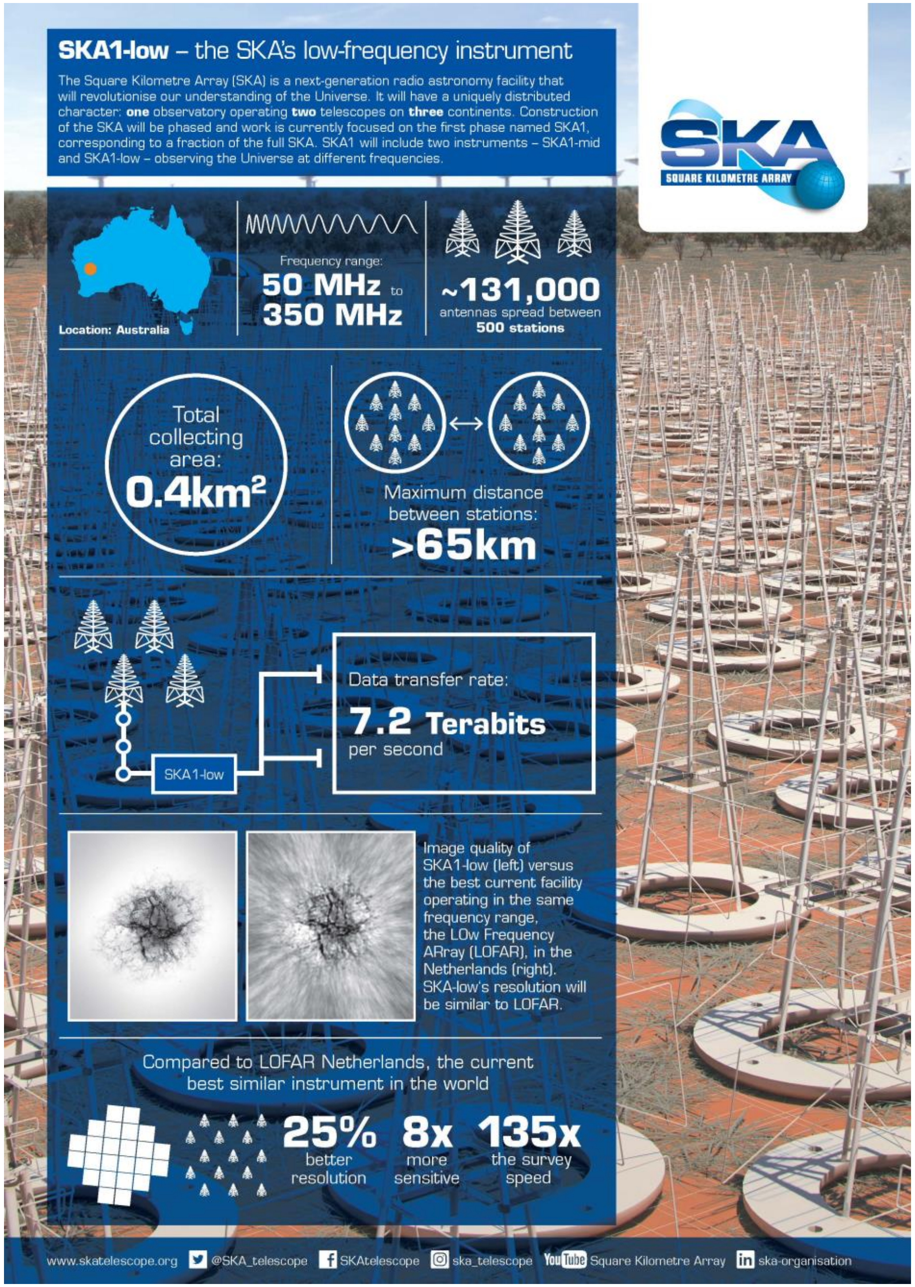
## and how it is working for SKA



SQUARE KILOMETRE ARRAY

Exploring the Universe with the world's largest radio telescope

**Valentina Alberti**
TETIS workshop
29 October 2020



## SKA1-low – the SKA's low-frequency instrument

The Square Kilometre Array (SKA) is a next-generation radio astronomy facility that will revolutionise our understanding of the Universe. It will have a uniquely distributed character: **one** observatory operating **two** telescopes on **three** continents. Construction of the SKA will be phased and work is currently focused on the first phase named SKA1, corresponding to a fraction of the full SKA. SKA1 will include two instruments – SKA1-mid and SKA1-low – observing the Universe at different frequencies.

SKA SQUARE KILOMETRE ARRAY

**Location: Australia**

Frequency range:
**50 MHz** to **350 MHz**

**~131,000**
antennas spread between
**500 stations**

Total collecting area:
**0.4km²**

Maximum distance between stations:
**>65km**

SKA1-low

Data transfer rate:
**7.2 Terabits**
per second

Image quality of SKA1-low (left) versus the best current facility operating in the same frequency range, the LOw Frequency ARray (LOFAR), in the Netherlands (right). SKA-low's resolution will be similar to LOFAR.

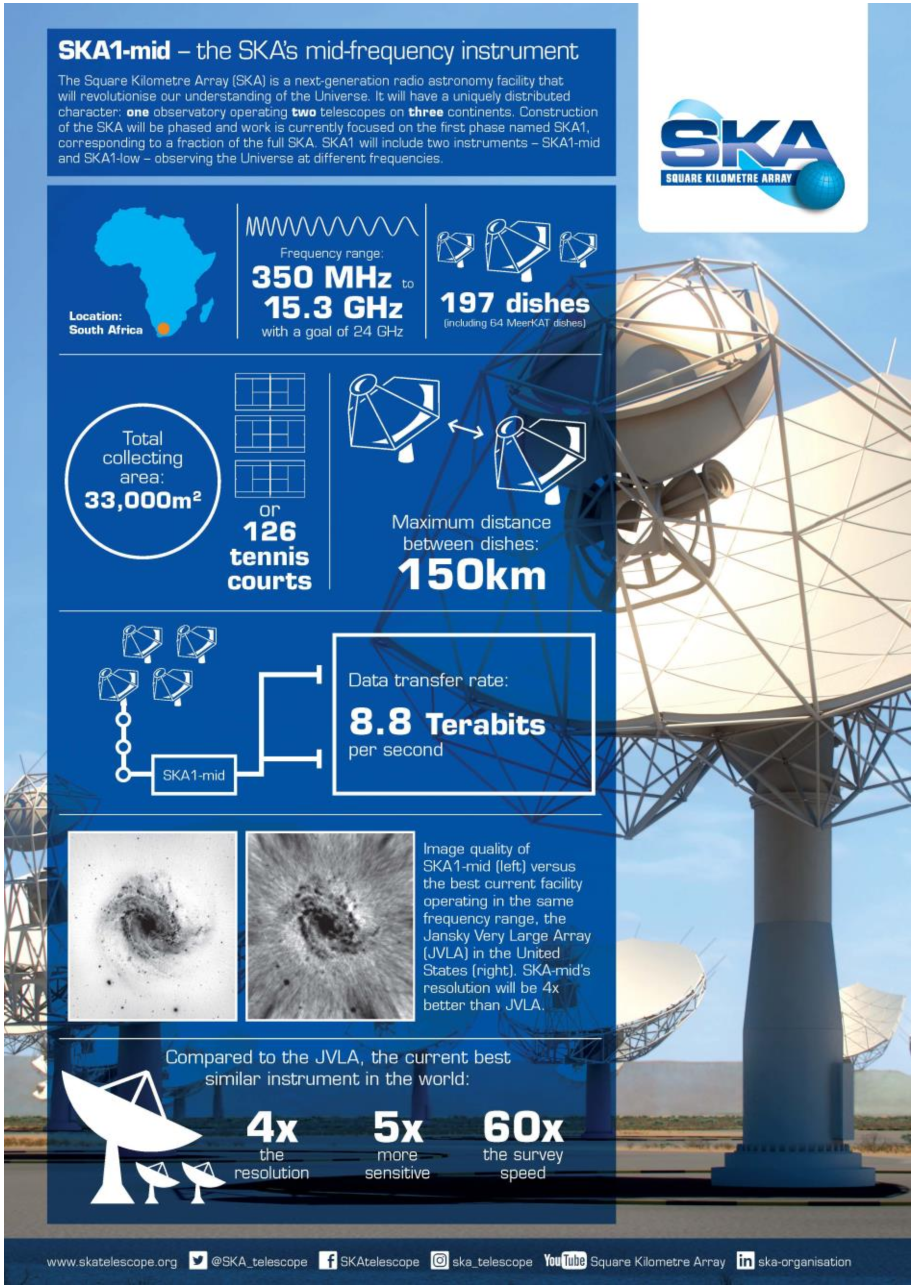
Compared to LOFAR Netherlands, the current best similar instrument in the world

**25%** better resolution

**8x** more sensitive

**135x** the survey speed

www.skatelescope.org @SKA_telescope SKAtelescope ska_telescope YouTube Square Kilometre Array ska-organisation



## SKA1-mid – the SKA's mid-frequency instrument

The Square Kilometre Array (SKA) is a next-generation radio astronomy facility that will revolutionise our understanding of the Universe. It will have a uniquely distributed character: **one** observatory operating **two** telescopes on **three** continents. Construction of the SKA will be phased and work is currently focused on the first phase named SKA1, corresponding to a fraction of the full SKA. SKA1 will include two instruments – SKA1-mid and SKA1-low – observing the Universe at different frequencies.

SKA SQUARE KILOMETRE ARRAY

**Location: South Africa**

Frequency range:
**350 MHz** to **15.3 GHz**
with a goal of 24 GHz

**197 dishes**
(including 64 MeerKAT dishes)

Total collecting area:
**33,000m²**
or
**126 tennis courts**

Maximum distance between dishes:
**150km**

SKA1-mid

Data transfer rate:
**8.8 Terabits**
per second

Image quality of SKA1-mid (left) versus the best current facility operating in the same frequency range, the Jansky Very Large Array (JVLA) in the United States (right). SKA-mid's resolution will be 4x better than JVLA.

Compared to the JVLA, the current best similar instrument in the world:

**4x** the resolution

**5x** more sensitive

**60x** the survey speed

www.skatelescope.org @SKA_telescope SKAtelescope ska_telescope YouTube Square Kilometre Array ska-organisation

https://www.skatelescope.org/

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  -
  -
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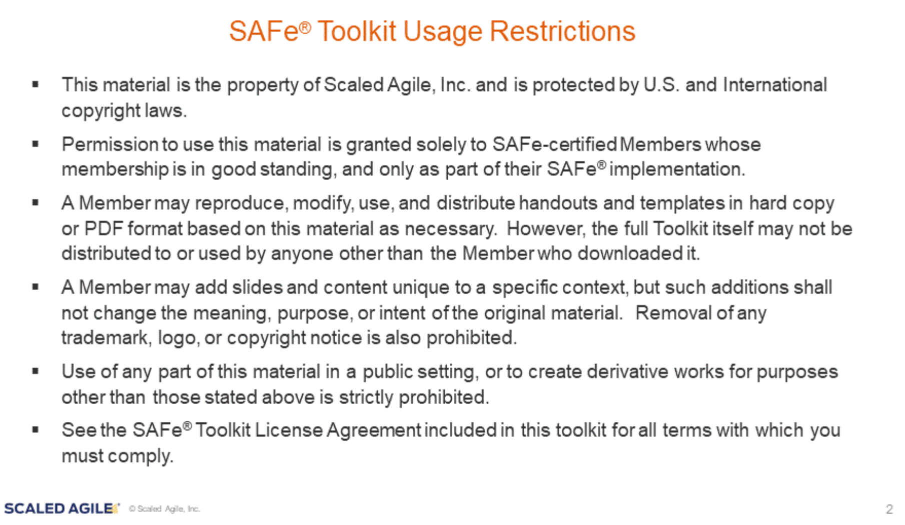
Scaled Agile Inc slides:



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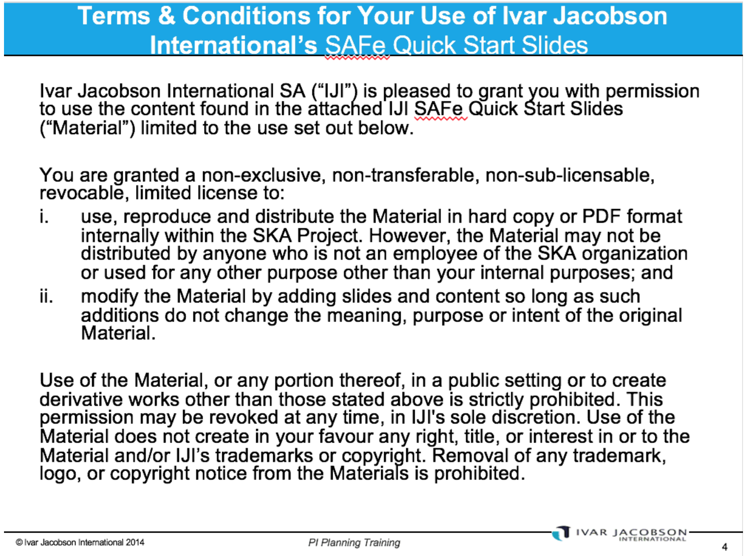

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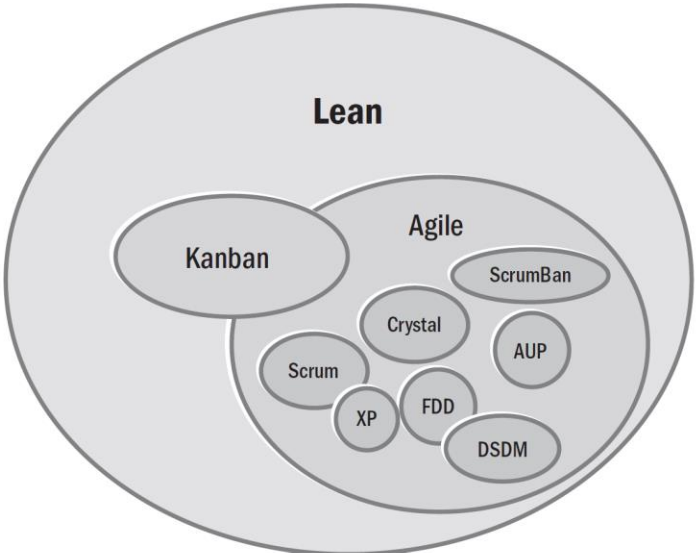
# Agenda

- Agile, Scrum and SAFe
- Some data form SKA

# PMBOK – Agile metodologies

- Guide to Project Management Body of Knowledge distinguishes between definable work to high-uncertainty work when introducing the chapter on Agile methodologies.
- High-uncertainty projects have high rates of change, complexity, and risk. These characteristics can present problems for traditional predictive approaches that aim to determine the bulk of the requirements upfront and control changes through a change request process. Instead, agile approaches were created to explore feasibility in short cycles and quickly adapt based on evaluation and feedback.
- *Agile approaches* and *agile methods* are umbrella terms that cover a variety of frameworks and methods, referring to any kind of approach, technique, framework, method, or practice that fulfills the values and principles of the Agile Manifesto.

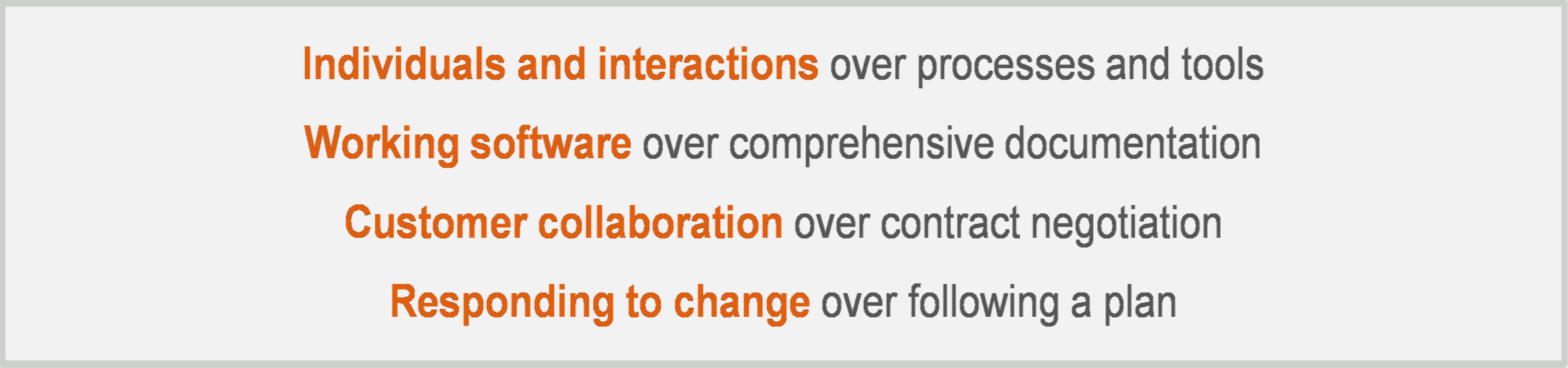


PMBOK Guide, 6th edition, 2017
ISBN: 978-1-62825-184-5

# What is Agile?

We are uncovering better ways of developing software by doing it and helping others do it.

**Through this work we have come to value:**



**Individuals and interactions** over processes and tools

**Working software** over comprehensive documentation

**Customer collaboration** over contract negotiation

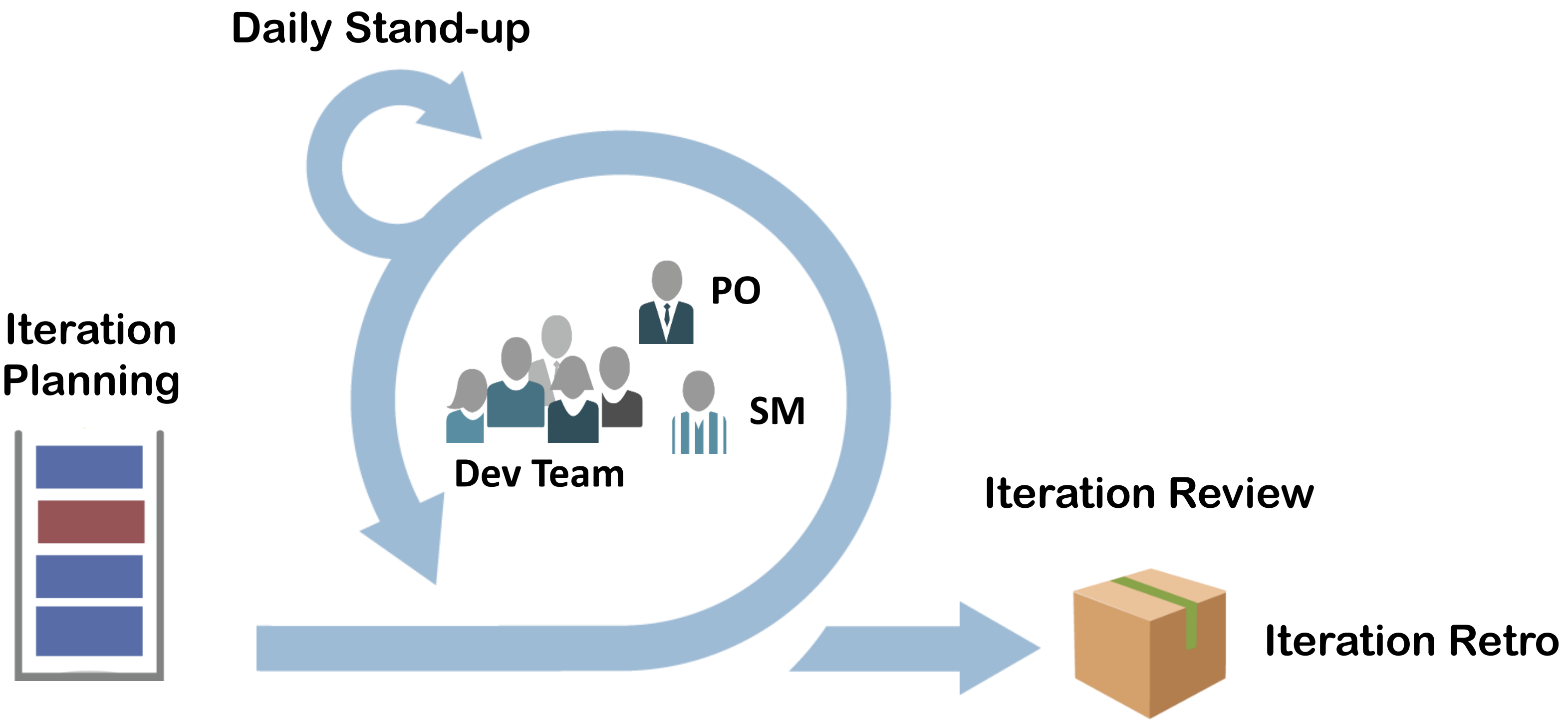
**Responding to change** over following a plan

That is, while there is value in the items on the right, we value the items on the left more.

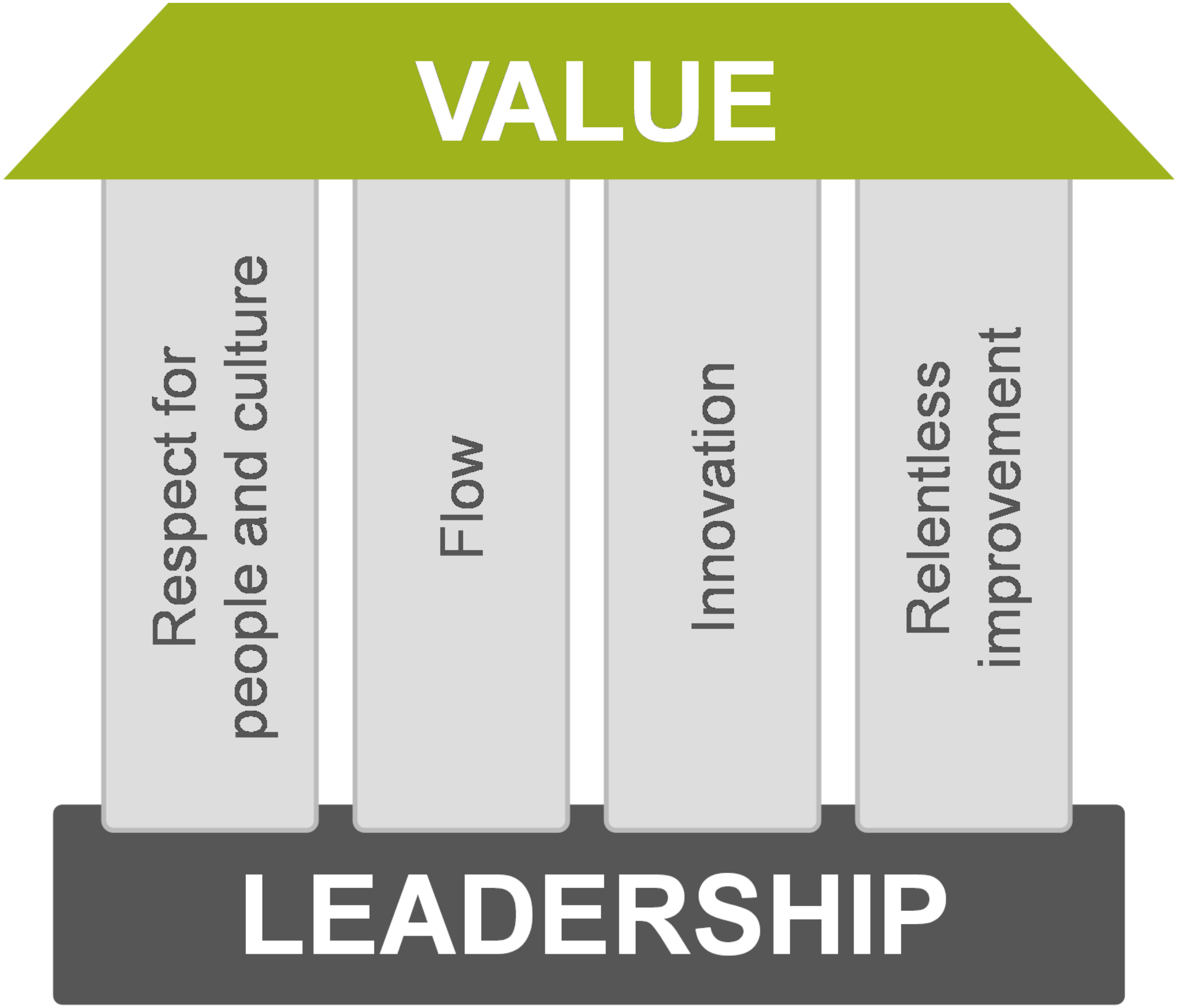
agilemanifesto.org

# Teams execute iterations with Scrum

Scrum is built on transparency, inspection, and adaptation.



# What is Lean?


VALUE

Respect for people and culture

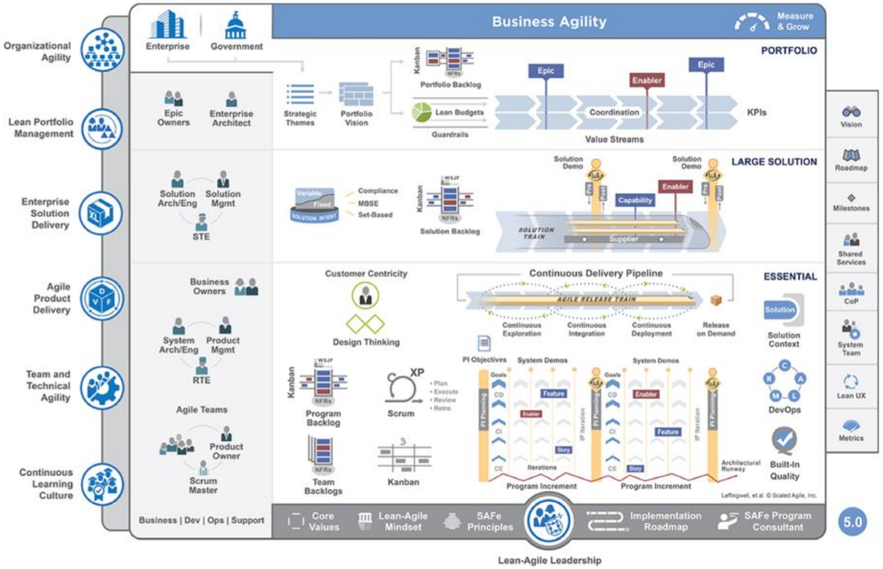
Flow

Innovation

Relentless improvement

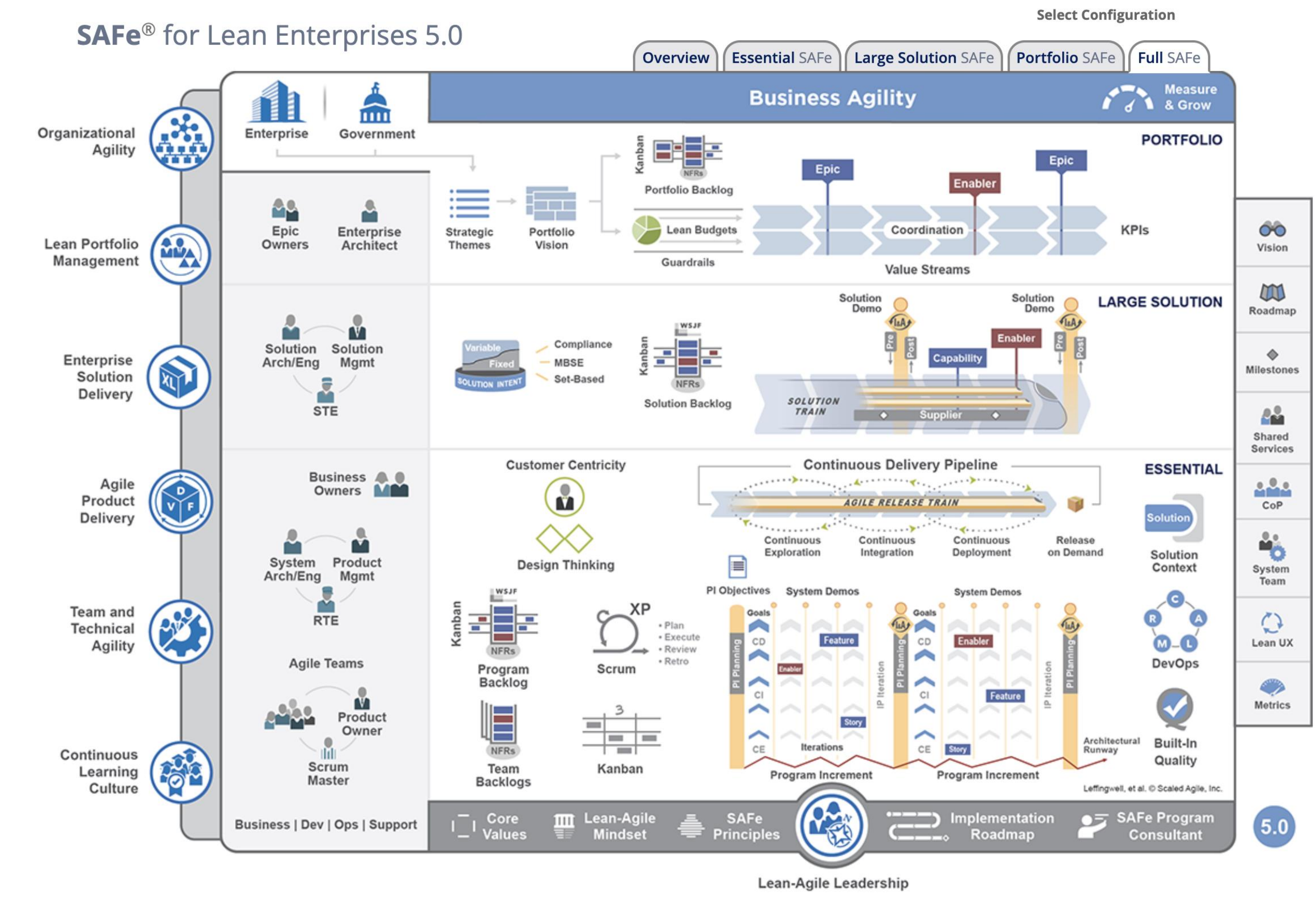
LEADERSHIP

SAFe® for Lean Enterprises is a knowledge base of proven, integrated principles, practices, and competencies for achieving Business Agility by implementing Lean, Agile, and DevOps at scale.



https://bit.ly/2IY8b01

# SAFe Big Picture



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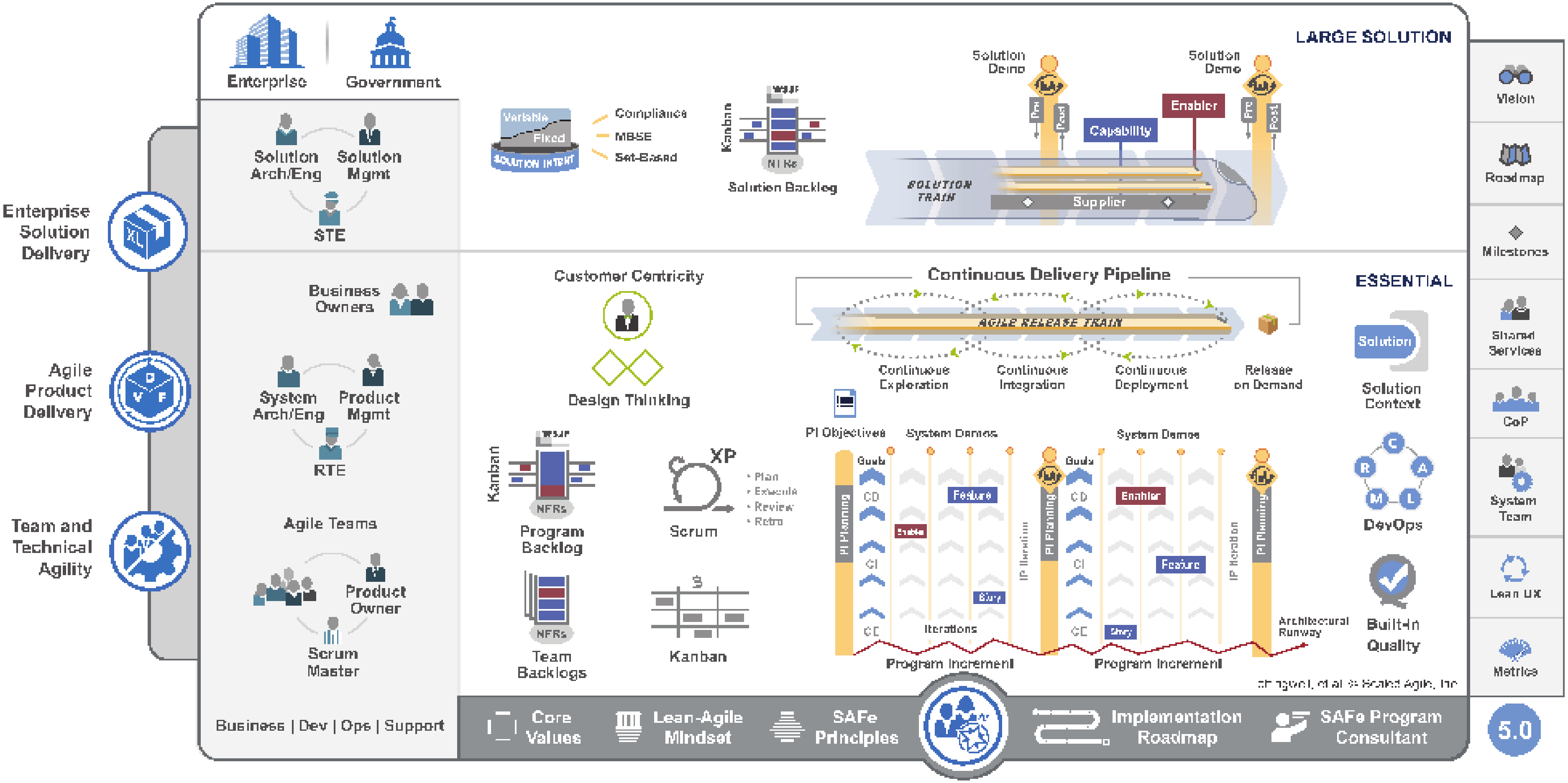
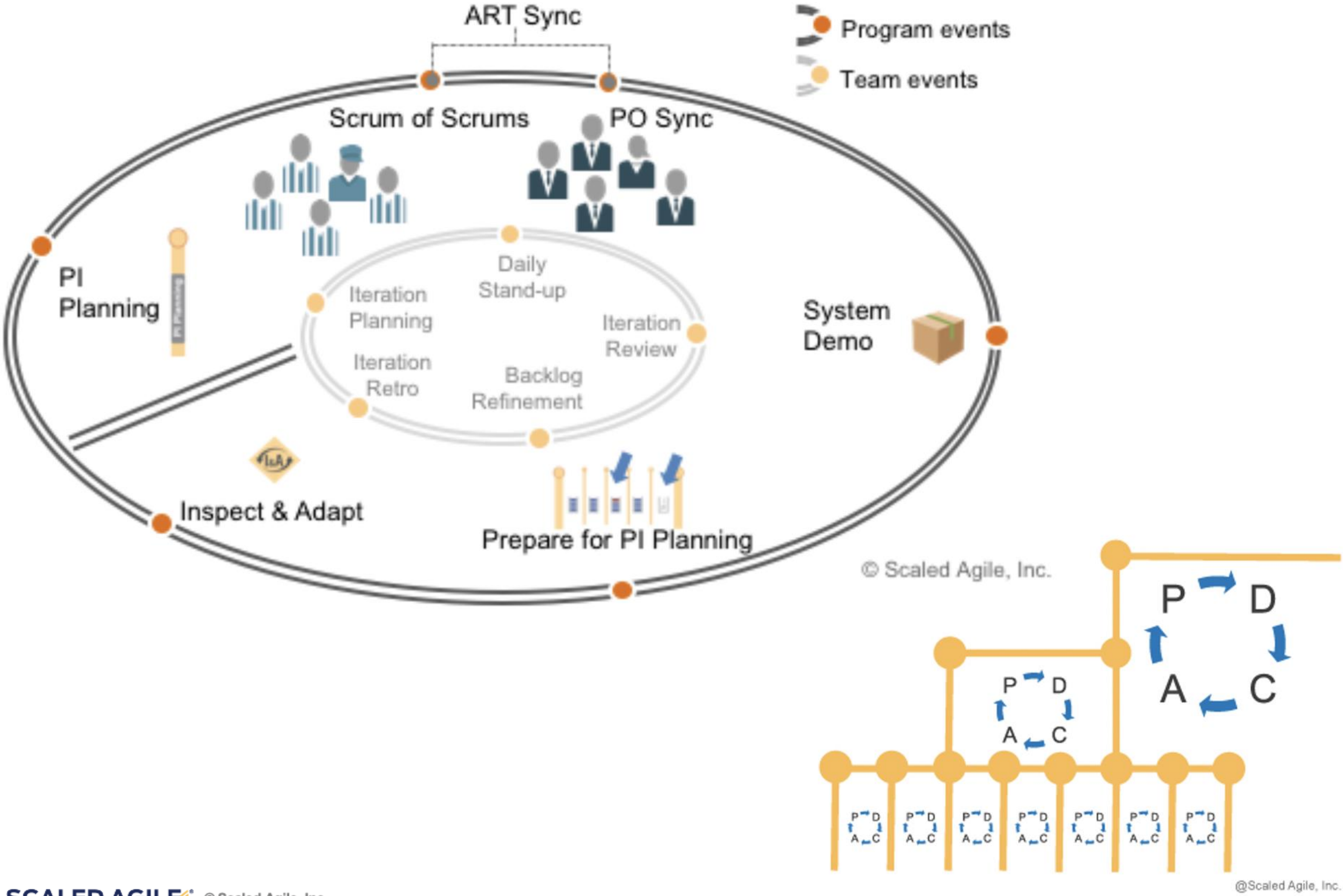
# SAFe® for Lean Enterprises



# Plan Do Check Adjust (PDCA)



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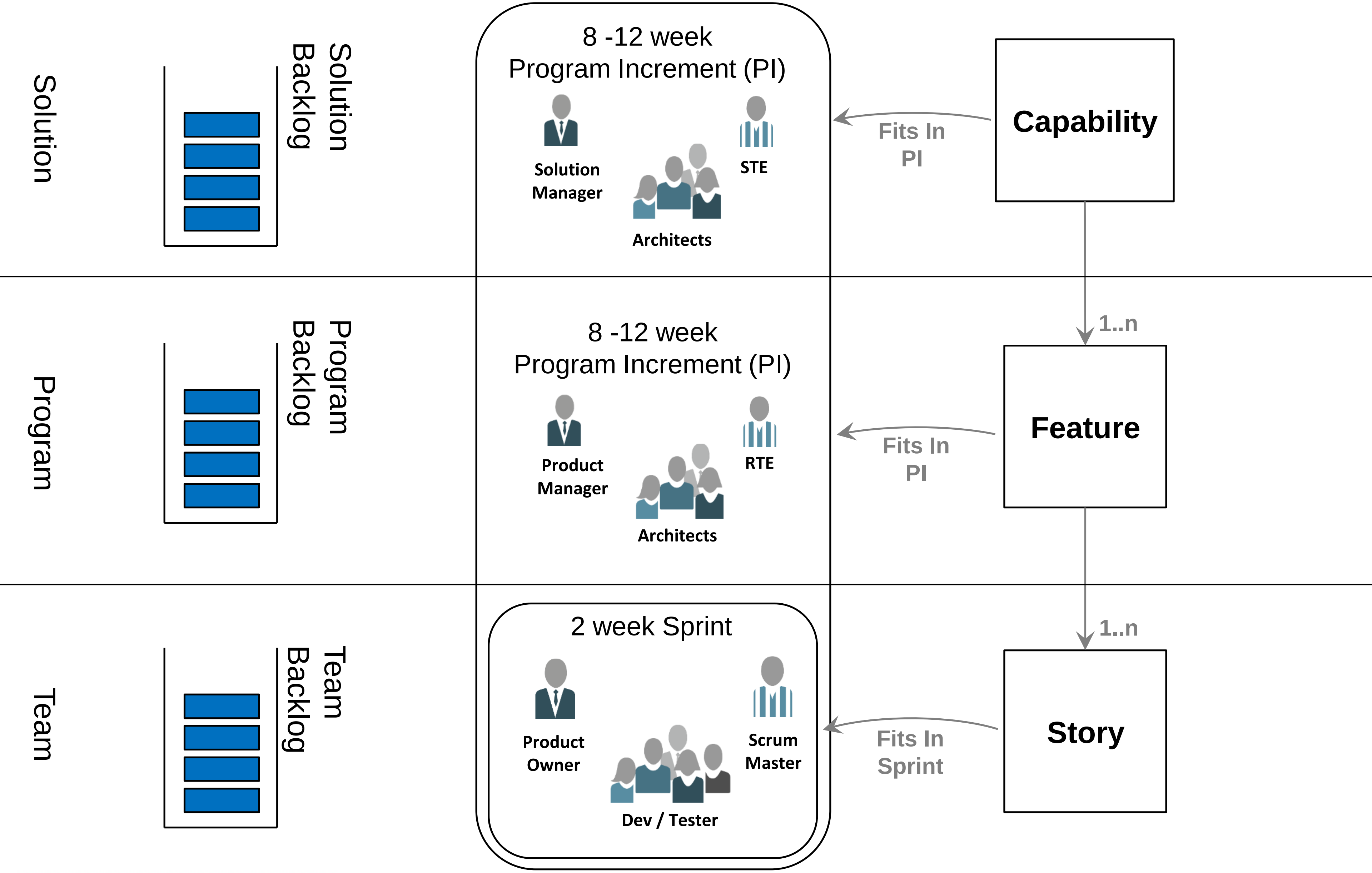
# SAFe: Another Perspective



Solution

Solution Backlog

8 -12 week
Program Increment (PI)

Solution Manager

STE

Architects

Fits In PI

Capability

1..n

Program

Program Backlog

8 -12 week
Program Increment (PI)

Product Manager

RTE

Architects

Fits In PI

Feature

1..n

Team

Team Backlog

2 week Sprint

Product Owner

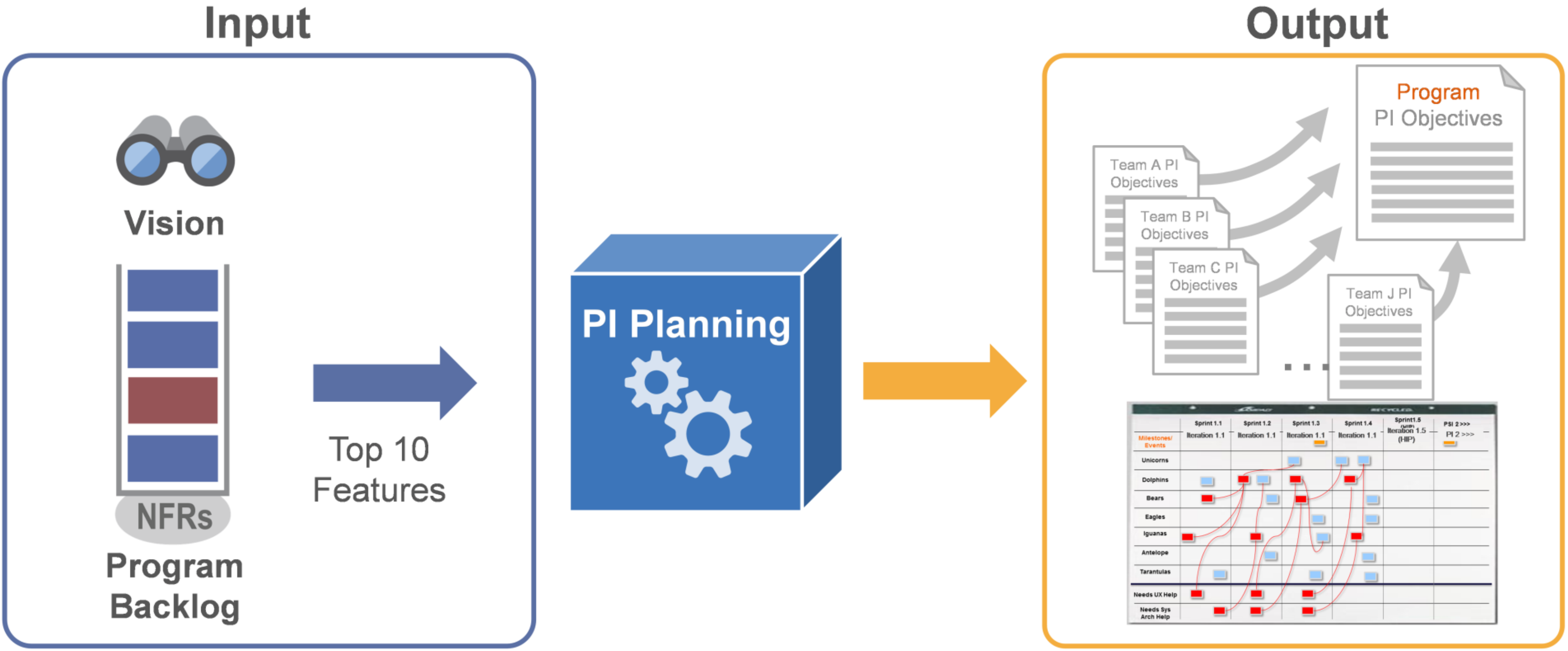
Scrum Master

Dev / Tester

Fits In Sprint

Story

# The PI Planning process



Input

Vision

NFRs

Program Backlog

Top 10 Features

PI Planning

Output

Program PI Objectives

Team A PI Objectives

Team B PI Objectives

Team C PI Objectives

Team J PI Objectives

Vision and top 10 Features

Team and Program PI Objectives and Program Board

# SAFe at SKA

# Why did SKA choose an Agile approach?

- Designing phase
  - partitioning the SKA system on different subsystems or elements.
  - and different consortia have developed a design for different subsystems of the telescope.
  - Very specialised domain knowledge

- System level issues
  - lack of a view of the system and inconsistencies between the interfaces between elements.
  - Document based, no prototypes.

- Need for:
  - System Approach.
  - Validation by prototyping.

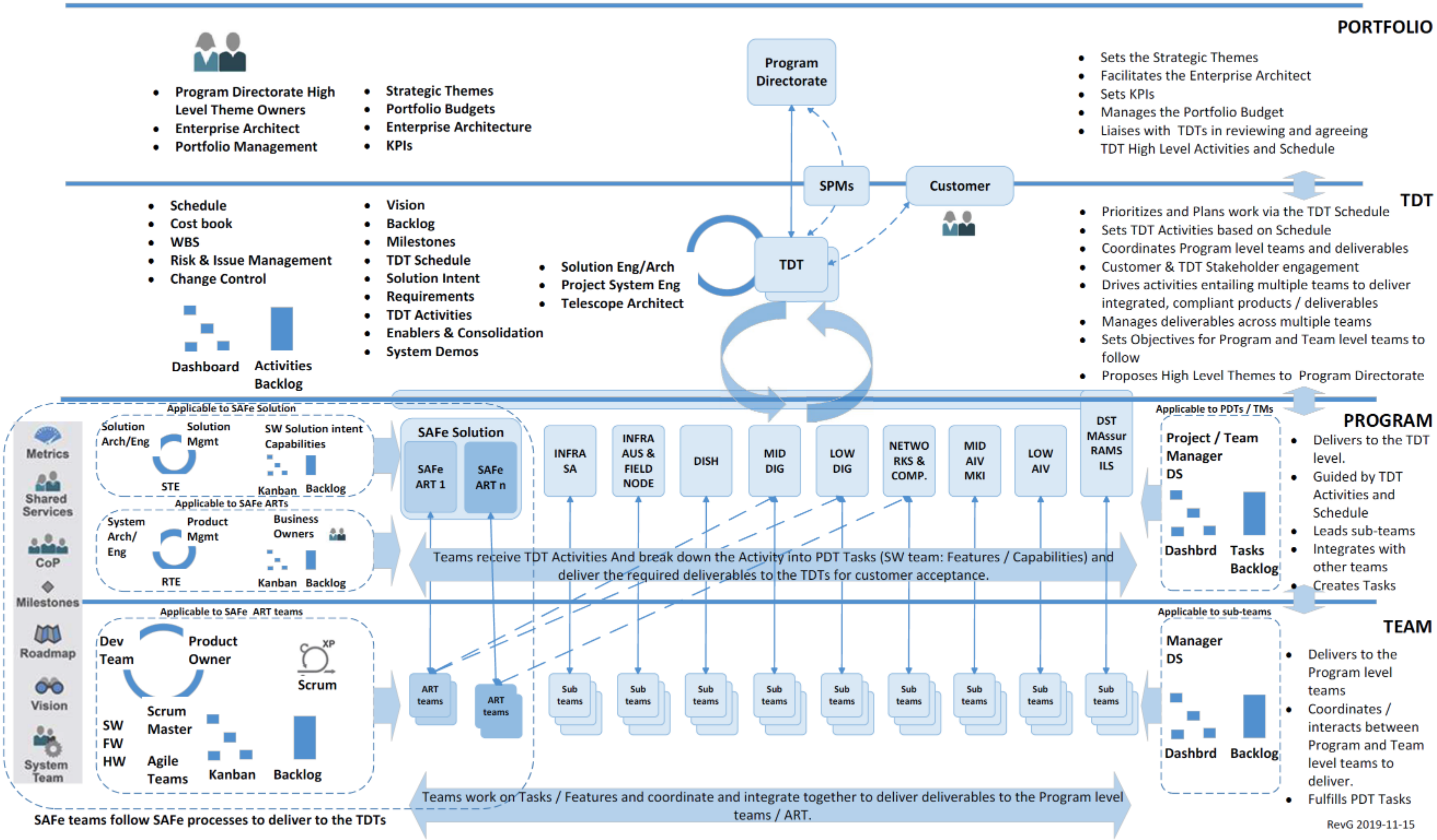
https://doi.org/10.18429/JACoW-ICALEPCS2019-WEPHA011

# Why did SKA choose an Agile approach?

- Individuals and interactions
  - are needed to take a system approach
  - More efficient than Interface Control Documents to communicate info across elements
- Working software
  - Is needed to validate our assumption
  - Foster the adoption of an integrated approach to SW development
- Customer collaboration
  - Involve the users of the telescope from the beginning
  - Develop software iteratively and gather feedback
- Responding to change
  - Essential for a complex system with many unknowns like SKA
  - Evolving system

https://doi.org/10.18429/JACoW-ICALEPCS2019-WEPHA011

# Where does SAFe fit in?



PORTFOLIO

- Program Directorate High Level Theme Owners
- Enterprise Architect
- Portfolio Management

- Strategic Themes
- Portfolio Budgets
- Enterprise Architecture
- KPIs

- Sets the Strategic Themes
- Facilitates the Enterprise Architect
- Sets KPIs
- Manages the Portfolio Budget
- Liaises with TDTs in reviewing and agreeing TDT High Level Activities and Schedule

TDT

- Schedule
- Cost book
- WBS
- Risk & Issue Management
- Change Control

- Vision
- Backlog
- Milestones
- TDT Schedule
- Solution Intent
- Requirements
- TDT Activities
- Enablers & Consolidation
- System Demos

- Solution Eng/Arch
- Project System Eng
- Telescope Architect

- Prioritizes and Plans work via the TDT Schedule
- Sets TDT Activities based on Schedule
- Coordinates Program level teams and deliverables
- Customer & TDT Stakeholder engagement
- Drives activities entailing multiple teams to deliver integrated, compliant products / deliverables
- Manages deliverables across multiple teams
- Sets Objectives for Program and Team level teams to follow
- Proposes High Level Themes to Program Directorate

PROGRAM

- Delivers to the TDT level.
- Guided by TDT Activities and Schedule
- Leads sub-teams
- Integrates with other teams
- Creates Tasks

TEAM

- Delivers to the Program level teams
- Coordinates / interacts between Program and Team level teams to deliver.
- Fulfills PDT Tasks

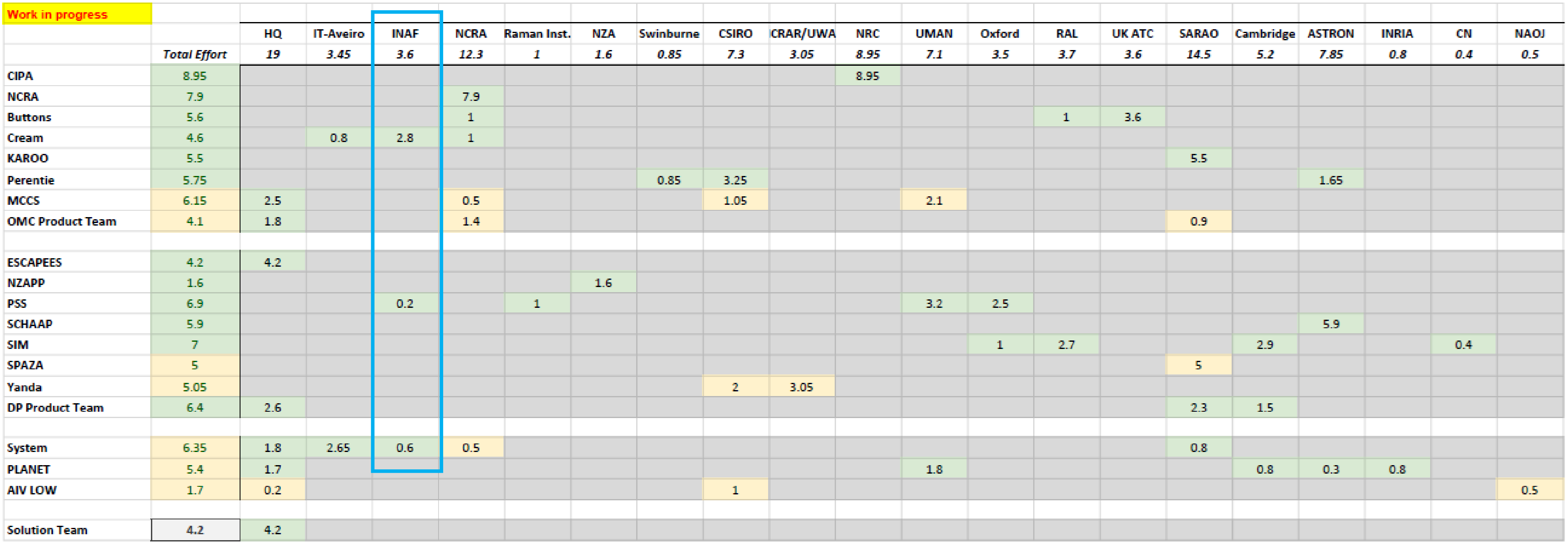
Teams receive TDT Activities And break down the Activity into PDT Tasks (SW team: Features / Capabilities) and deliver the required deliverables to the TDTs for customer acceptance.

Teams work on Tasks / Features and coordinate and integrate together to deliver deliverables to the Program level teams / ART.

SAFe teams follow SAFe processes to deliver to the TDTs

RevG 2019-11-15

# PI8 Outlook



| Work in progress | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | HQ | IT-Aveiro | INAF | NCRA | Raman Inst. | NZA | Swinburne | CSIRO | CRAR/UWA | NRC | UMAN | Oxford | RAL | UK ATC | SARAO | Cambridge | ASTRON | INRIA | CN | NAOJ |
| | *Total Effort* | *19* | *3.45* | *3.6* | *12.3* | *1* | *1.6* | *0.85* | *7.3* | *3.05* | *8.95* | *7.1* | *3.5* | *3.7* | *3.6* | *14.5* | *5.2* | *7.85* | *0.8* | *0.4* | *0.5* |
| CIPA | 8.95 | | | | | | | | | | 8.95 | | | | | | | | | | |
| NCRA | 7.9 | | | | 7.9 | | | | | | | | | | | | | | | | |
| Buttons | 5.6 | | | | 1 | | | | | | | | | 1 | 3.6 | | | | | | |
| Cream | 4.6 | | 0.8 | 2.8 | 1 | | | | | | | | | | | | | | | | |
| KAROO | 5.5 | | | | | | | | | | | | | | | 5.5 | | | | | |
| Perentie | 5.75 | | | | | | | 0.85 | 3.25 | | | | | | | | | 1.65 | | | |
| MCCS | 6.15 | 2.5 | | | 0.5 | | | | 1.05 | | | 2.1 | | | | | | | | | |
| OMC Product Team | 4.1 | 1.8 | | | 1.4 | | | | | | | | | | | 0.9 | | | | | |
| ESCAPEES | 4.2 | 4.2 | | | | | | | | | | | | | | | | | | | |
| NZAPP | 1.6 | | | | | | 1.6 | | | | | | | | | | | | | | |
| PSS | 6.9 | | | 0.2 | | 1 | | | | | | 3.2 | 2.5 | | | | | | | | |
| SCHAAP | 5.9 | | | | | | | | | | | | | | | | | 5.9 | | | |
| SIM | 7 | | | | | | | | | | | | 1 | 2.7 | | | 2.9 | | | 0.4 | |
| SPAZA | 5 | | | | | | | | | | | | | | | 5 | | | | | |
| Yanda | 5.05 | | | | | | | | 2 | 3.05 | | | | | | | | | | | |
| DP Product Team | 6.4 | 2.6 | | | | | | | | | | | | | | 2.3 | 1.5 | | | | |
| System | 6.35 | 1.8 | 2.65 | 0.6 | 0.5 | | | | | | | | | | | 0.8 | | | | | |
| PLANET | 5.4 | 1.7 | | | | | | | | | | 1.8 | | | | | 0.8 | 0.3 | 0.8 | | |
| AIV LOW | 1.7 | 0.2 | | | | | | | 1 | | | | | | | | | | | | 0.5 |
| Solution Team | 4.2 | 4.2 | | | | | | | | | | | | | | | | | | | |

In PI8 we see a further increase in the number of teams (18 now)

2 ARTs: Observation Management and Control (OMC) and Data Processing (DP)

~170 individuals ~5 FTE per team

16 Consultants

# Tools we are using

Confluence Content Collaboration

Agile Release Trains and Teams
Program Increments
Vision and Roadmaps
System and PI Demos
Training Events

JIRA Issue Tracking

Solution Backlog
Program Backlog
Team Backlogs

Exchange Calendar

Slack

Trello Trello

MIRO Visual Collaboration

DP ART Program Board
OMC ART Program Board

SKA Developer Portal

Developer Portal

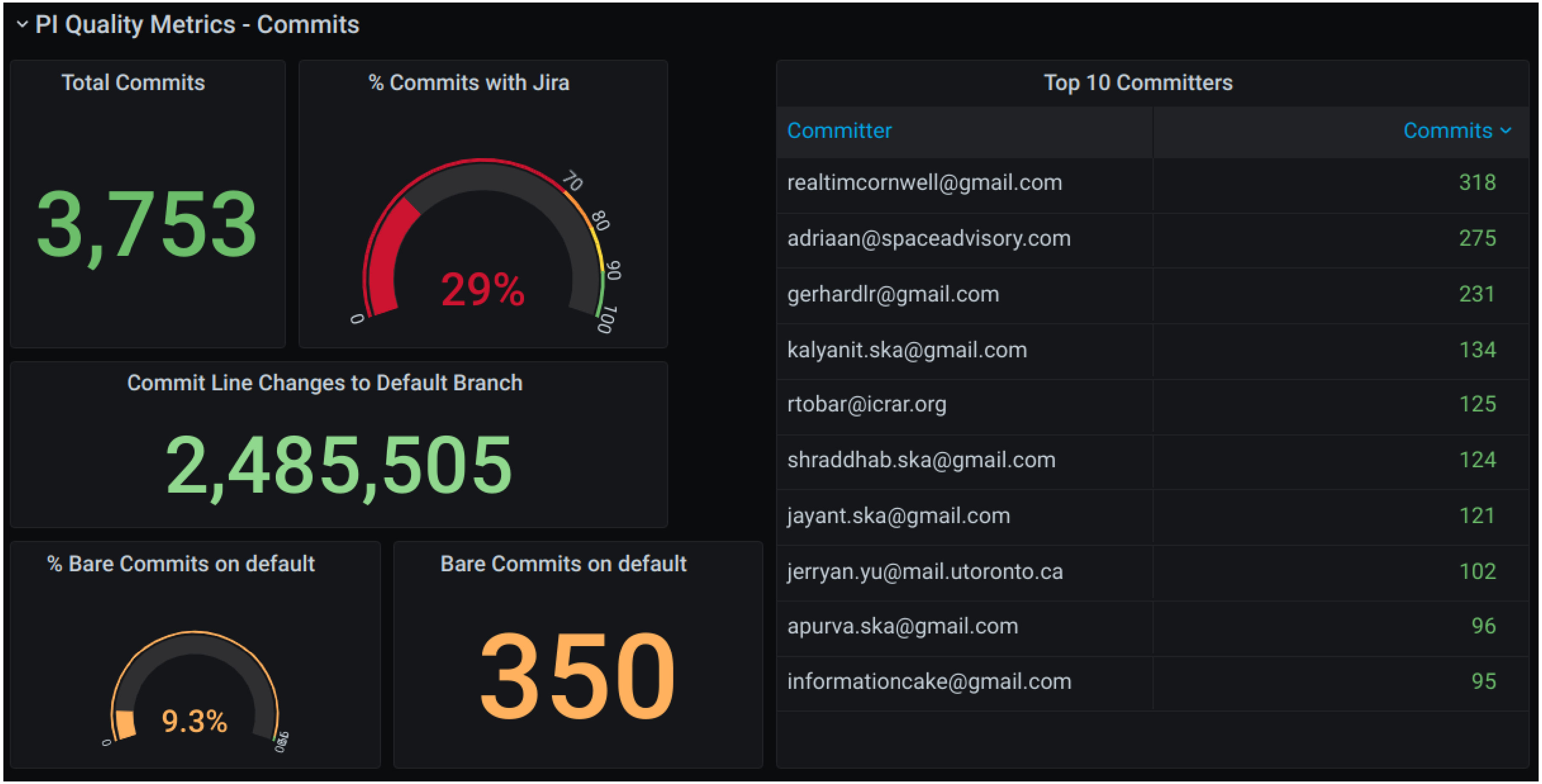
GitLab Source Code Repository

SKA-Telescope Repository

WWW World Wide Web

Scaled Agile Framework
SAFe Community Platform

# Quality Metrics: Commits



PI Quality Metrics - Commits

Total Commits

3,753

% Commits with Jira

29%

Commit Line Changes to Default Branch

2,485,505

% Bare Commits on default

9.3%

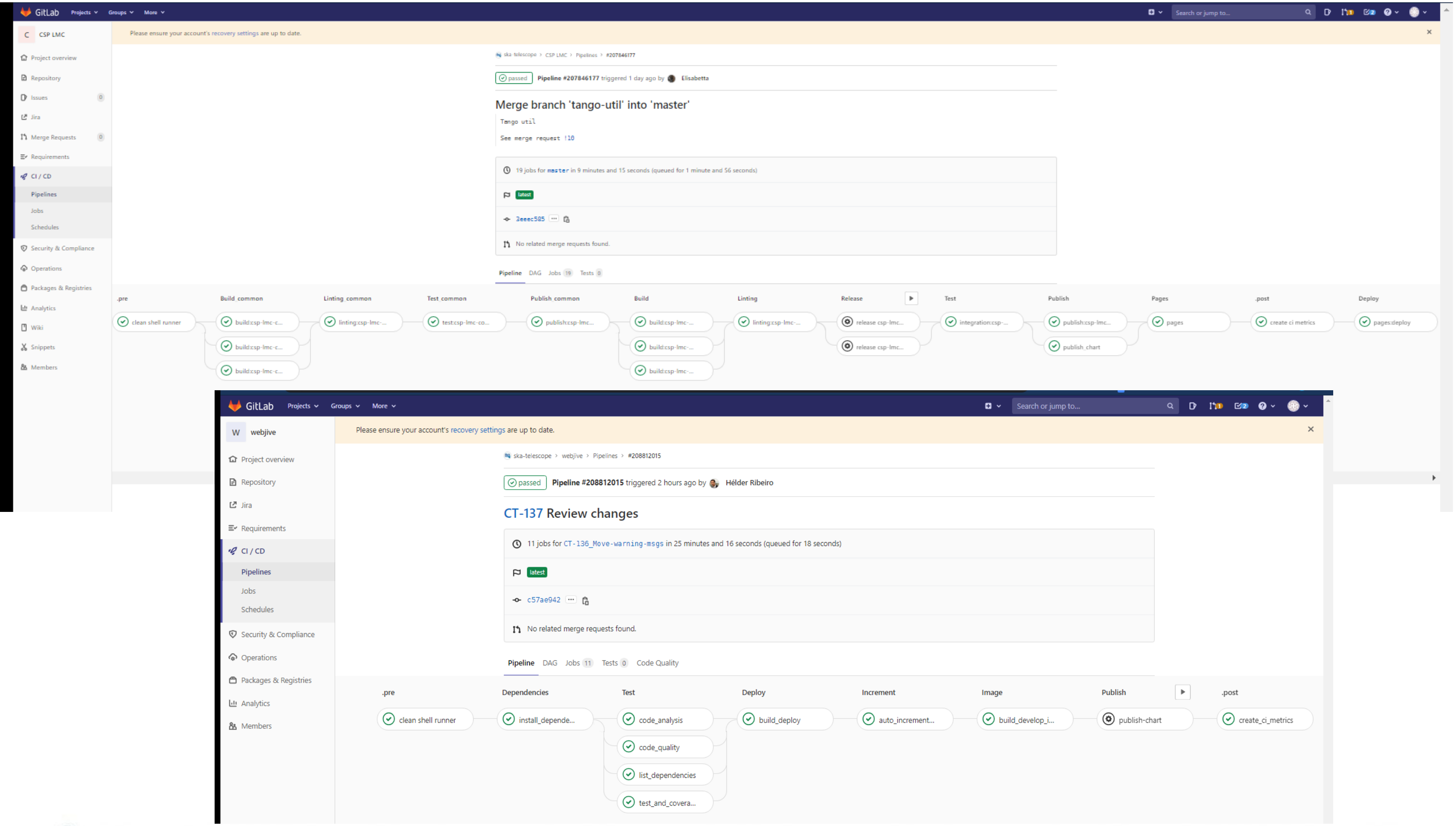
Bare Commits on default

350

Top 10 Committers

| Committer | Commits |
|---|---|
| realtimcornwell@gmail.com | 318 |
| adriaan@spaceadvisory.com | 275 |
| gerhardlr@gmail.com | 231 |
| kalyanit.ska@gmail.com | 134 |
| rtobar@icrar.org | 125 |
| shraddhab.ska@gmail.com | 124 |
| jayant.ska@gmail.com | 121 |
| jerryan.yu@mail.utoronto.ca | 102 |
| apurva.ska@gmail.com | 96 |
| informationcake@gmail.com | 95 |

# GitLab pipeline



Please ensure your account's recovery settings are up to date.

ska telescope > CSP LMC > Pipelines > #207846177

passed Pipeline #207846177 triggered 1 day ago by Elisabetta

Merge branch 'tango-util' into 'master'

```
Tango util

See merge request !10
```

19 jobs for master in 9 minutes and 15 seconds (queued for 1 minute and 56 seconds)

latest

3eeec585

No related merge requests found.

Please ensure your account's recovery settings are up to date.

ska-telescope > webjive > Pipelines > #208812015

passed Pipeline #208812015 triggered 2 hours ago by Hélder Ribeiro

CT-137 Review changes

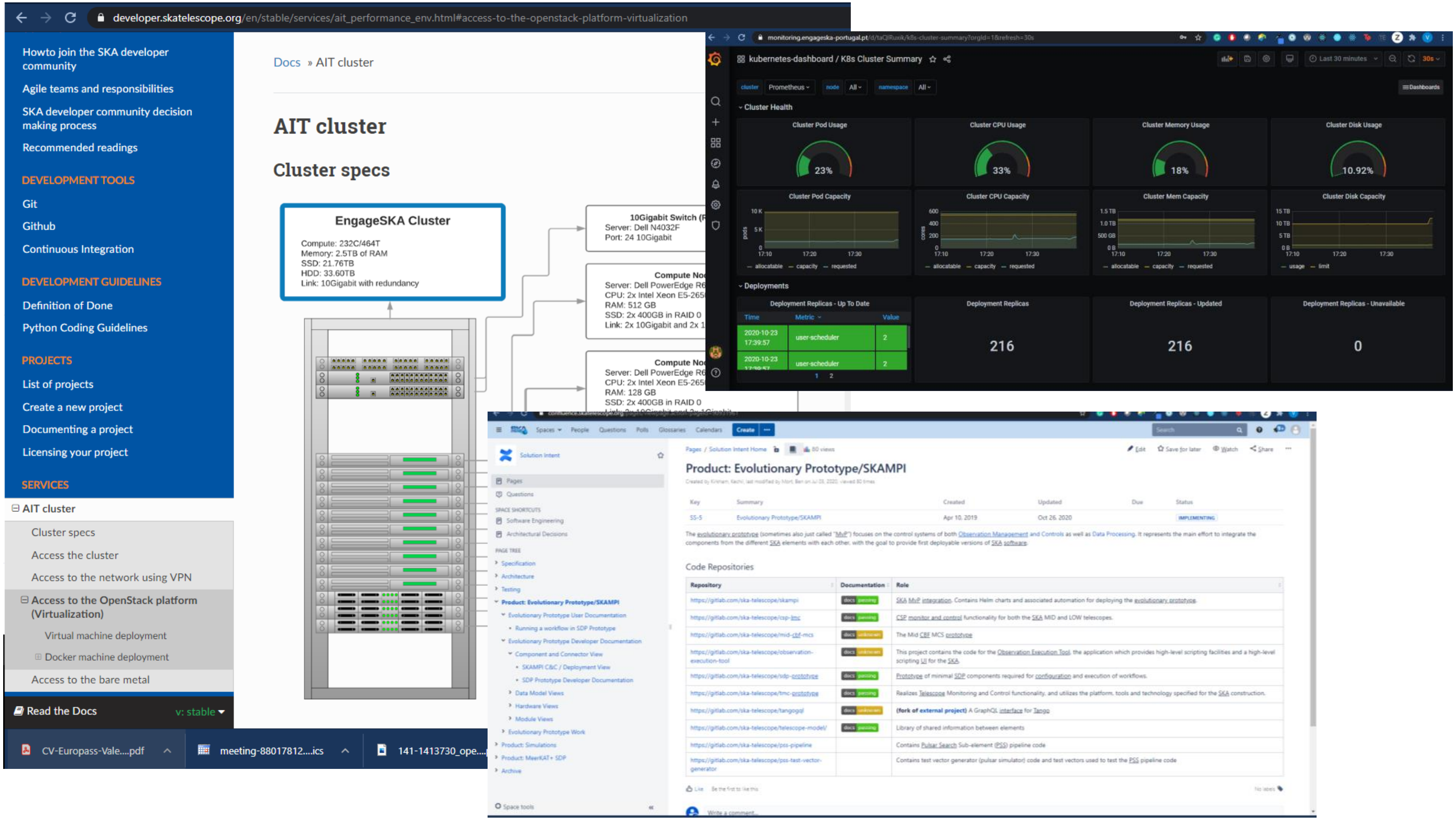
11 jobs for CT-136_Move-warning-msgs in 25 minutes and 16 seconds (queued for 18 seconds)

latest

c57ae942

No related merge requests found.

# SKAMPI - SKA Minimum Viable Product



developer.skatelescope.org/en/stable/services/ait_performance_env.html#access-to-the-openstack-platform-virtualization

- Howto join the SKA developer community
- Agile teams and responsibilities
- SKA developer community decision making process
- Recommended readings

DEVELOPMENT TOOLS

- Git
- Github
- Continuous Integration

DEVELOPMENT GUIDELINES

- Definition of Done
- Python Coding Guidelines

PROJECTS

- List of projects
- Create a new project
- Documenting a project
- Licensing your project

SERVICES

- ⊟ AIT cluster
  - Cluster specs
  - Access the cluster
  - Access to the network using VPN
  - ⊟ Access to the OpenStack platform (Virtualization)
    - Virtual machine deployment
    - ⊞ Docker machine deployment
  - Access to the bare metal

Read the Docs v: stable

Docs » AIT cluster

AIT cluster

Cluster specs

EngageSKA Cluster
Compute: 232C/464T
Memory: 2.5TB of RAM
SSD: 21.76TB
HDD: 33.60TB
Link: 10Gigabit with redundancy

10Gigabit Switch (F
Server: Dell N4032F
Port: 24 10Gigabit

Compute Noc
Server: Dell PowerEdge R6
CPU: 2x Intel Xeon E5-265
RAM: 512 GB
SSD: 2x 400GB in RAID 0
Link: 2x 10Gigabit and 2x 1

Compute Noc
Server: Dell PowerEdge R6
CPU: 2x Intel Xeon E5-265
RAM: 128 GB
SSD: 2x 400GB in RAID 0
Link: 2x 10Gigabit and 2x 1Gigabit

CV-Europass-Vale....pdf meeting-88017812....ics 141-1413730_ope....

monitoring.engageska-portugal.pt/d/taQlRuxik/k8s-cluster-summary?orgId=1&refresh=30s

kubernetes-dashboard / K8s Cluster Summary

cluster Prometheus node All namespace All Last 30 minutes 30s Dashboards

Cluster Health

| Cluster Pod Usage | Cluster CPU Usage | Cluster Memory Usage | Cluster Disk Usage |
|---|---|---|---|
| 23% | 33% | 18% | 10.92% |

Deployments

Deployment Replicas - Up To Date

| Time | Metric | Value |
|---|---|---|
| 2020-10-23 17:39:57 | user-scheduler | 2 |
| 2020-10-23 17:39:57 | user-scheduler | 2 |

1 2

| Deployment Replicas | Deployment Replicas - Updated | Deployment Replicas - Unavailable |
|---|---|---|
| 216 | 216 | 0 |

confluence.skatelescope.org

Spaces People Questions Polls Glossaries Calendars Create Search

Solution Intent

- Pages
- Questions

SPACE SHORTCUTS

- Software Engineering
- Architectural Decisions

PAGE TREE

- Specification
- Architecture
- Testing
- Product: Evolutionary Prototype/SKAMPI
  - Evolutionary Prototype User Documentation
    - Running a workflow in SDP Prototype
  - Evolutionary Prototype Developer Documentation
    - Component and Connector View
      - SKAMPI C&C / Deployment View
      - SDP Prototype Developer Documentation
    - Data Model Views
    - Hardware Views
    - Module Views
  - Evolutionary Prototype Work
- Product: Simulations
- Product: MeerKAT+ SDP
- Archive

Space tools

Pages / Solution Intent Home 80 views Edit Save for later Watch Share

Product: Evolutionary Prototype/SKAMPI

Created by Kirkham, Kechi, last modified by Mort, Ben on Jul 03, 2020, viewed 80 times

| Key | Summary | Created | Updated | Due | Status |
|---|---|---|---|---|---|
| SS-5 | Evolutionary Prototype/SKAMPI | Apr 10, 2019 | Oct 26, 2020 | | IMPLEMENTING |

The evolutionary prototype (sometimes also just called "MvP") focuses on the control systems of both Observation Management and Controls as well as Data Processing. It represents the main effort to integrate the components from the different SKA elements with each other, with the goal to provide first deployable versions of SKA software.

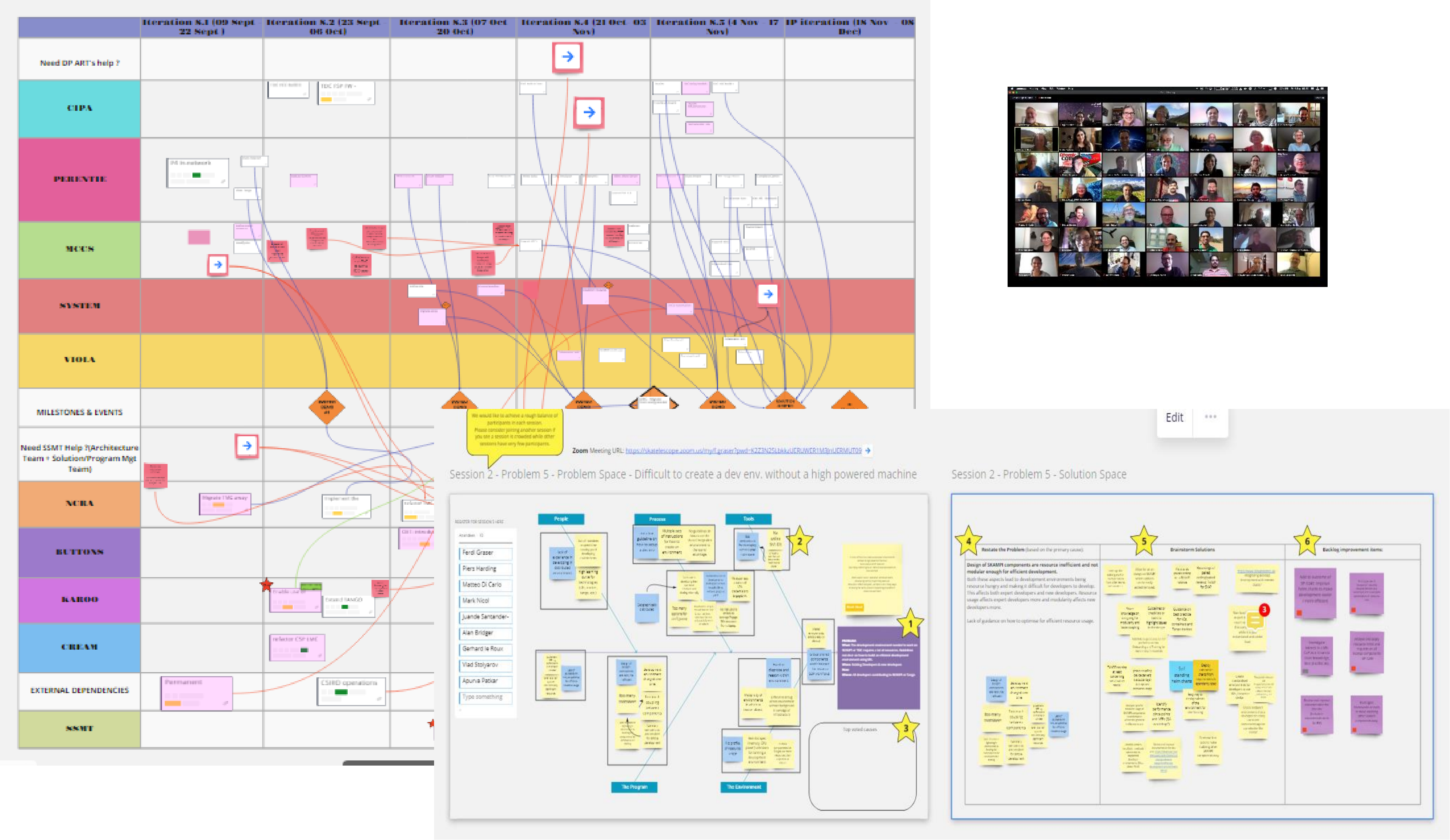
Code Repositories

| Repository | Documentation | Role |
|---|---|---|
| https://gitlab.com/ska-telescope/skampi | docs passing | SKA MvP integration. Contains Helm charts and associated automation for deploying the evolutionary prototype. |
| https://gitlab.com/ska-telescope/csp-lmc | docs passing | CSP monitor and control functionality for both the SKA MID and LOW telescopes. |
| https://gitlab.com/ska-telescope/mid-cbf-mcs | docs unknown | The Mid CBF MCS prototype |
| https://gitlab.com/ska-telescope/observation-execution-tool | docs unknown | This project contains the code for the Observation Execution Tool, the application which provides high-level scripting facilities and a high-level scripting UI for the SKA. |
| https://gitlab.com/ska-telescope/sdp-prototype | docs passing | Prototype of minimal SDP components required for configuration and execution of workflows. |
| https://gitlab.com/ska-telescope/tmc-prototype | docs passing | Realizes Telescope Monitoring and Control functionality, and utilizes the platform, tools and technology specified for the SKA construction. |
| https://gitlab.com/ska-telescope/tangogql | docs unknown | **(fork of external project)** A GraphQL interface for Tango |
| https://gitlab.com/ska-telescope/telescope-model/ | docs passing | Library of shared information between elements |
| https://gitlab.com/ska-telescope/pss-pipeline | | Contains Pulsar Search Sub-element (PSS) pipeline code |
| https://gitlab.com/ska-telescope/pss-test-vector-generator | | Contains test vector generator (pulsar simulator) code and test vectors used to test the PSS pipeline code |

Like Be the first to like this No labels

Write a comment...

# Planning and I&A artifacts



We would like to achieve a rough balance of participants in each session. Please consider joining another session if you see a session is crowded while other sessions have very few participants.

Zoom Meeting URL: https://skatelescope.zoom.us/my/f.graser?pwd=K2Z3N25LbkkzUERUWER1M3JnUERMUT09

Session 2 - Problem 5 - Problem Space - Difficult to create a dev env. without a high powered machine

REGISTER FOR SESSION 5 HERE

Attendees 10

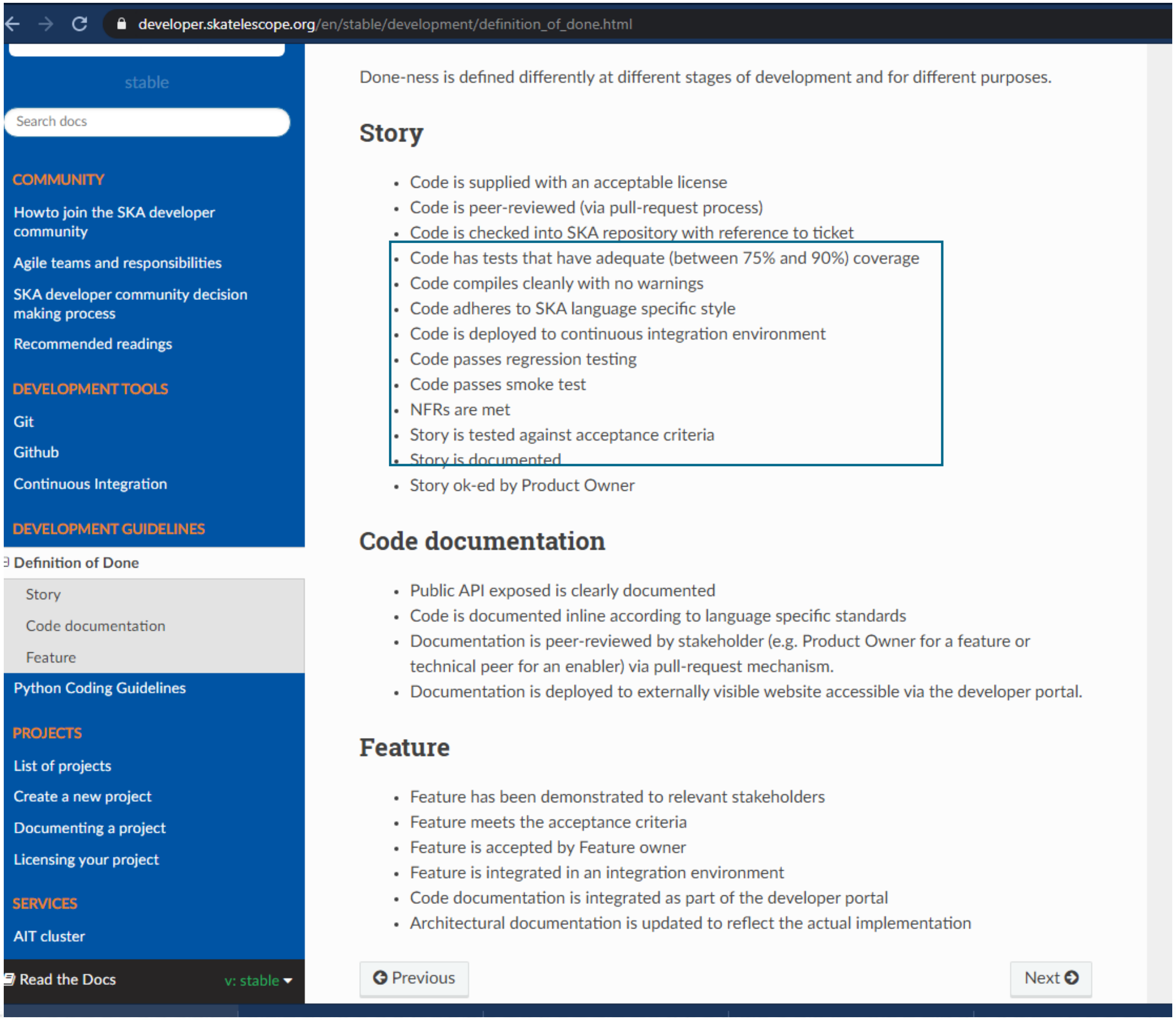
- Ferdi Graser
- Piers Harding
- Matteo Di Carlo
- Mark Nicol
- Juande Santander-
- Alan Bridger
- Gerhard le Roux
- Vlad Stolyarov
- Apurva Patkar
- Type something

Session 2 - Problem 5 - Solution Space

| Restate the Problem (based on the primary cause): | Brainstorm Solutions | Backlog improvement items: |
|---|---|---|
| **Design of SKAMPI components are resource inefficient and not modular enough for efficient development.**<br>Both these aspects lead to development environments being resource hungry and making it difficult for developers to develop. This affects both expert developers and new developers. Resource usage affects expert developers more and modularity affects new developers more.<br>Lack of guidance on how to optimise for efficient resource usage. | | |

Exploring the Universe with the world's largest radio telescope

# SKA Definition of Done



Done-ness is defined differently at different stages of development and for different purposes.

## Story

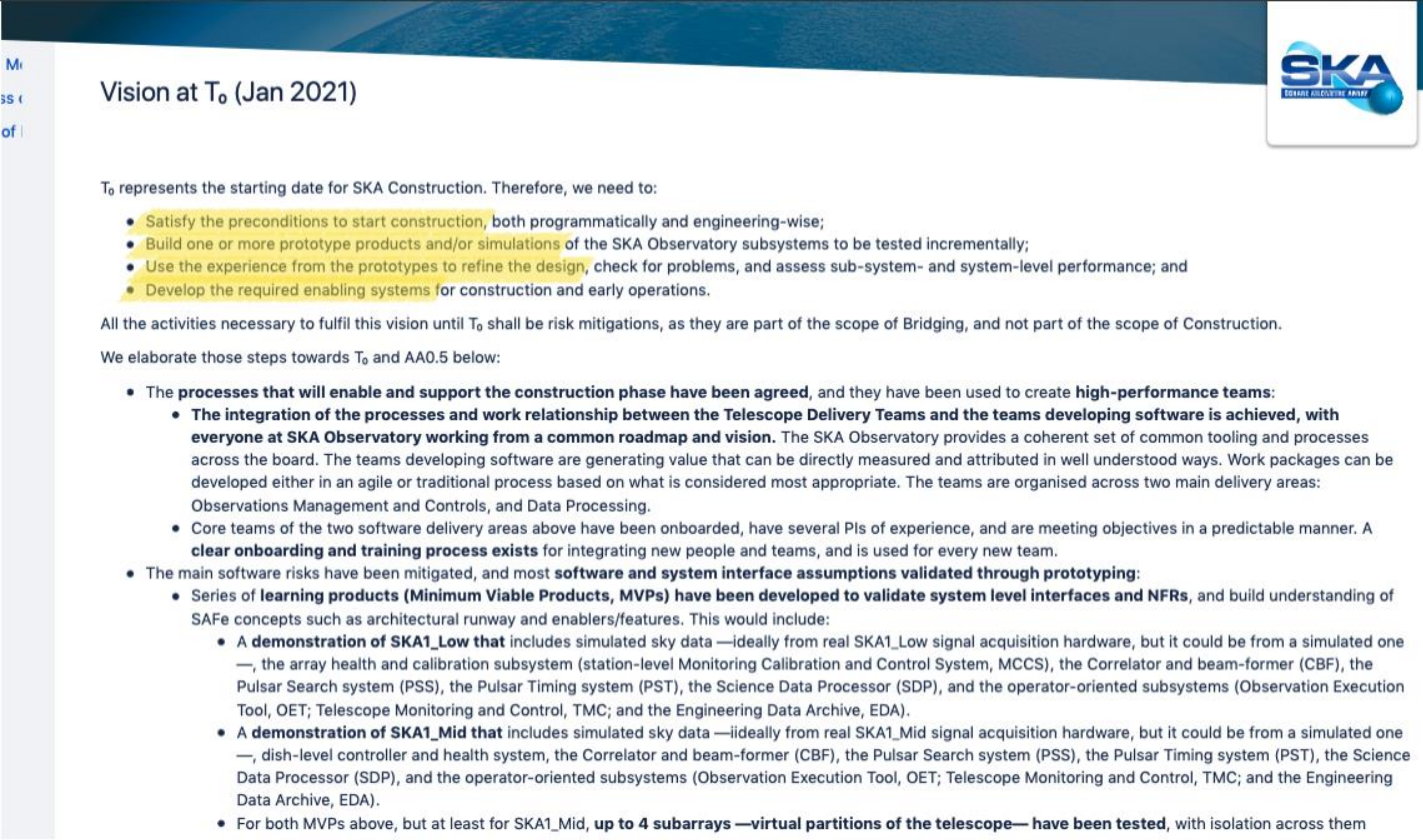
- Code is supplied with an acceptable license
- Code is peer-reviewed (via pull-request process)
- Code is checked into SKA repository with reference to ticket
- Code has tests that have adequate (between 75% and 90%) coverage
- Code compiles cleanly with no warnings
- Code adheres to SKA language specific style
- Code is deployed to continuous integration environment
- Code passes regression testing
- Code passes smoke test
- NFRs are met
- Story is tested against acceptance criteria
- Story is documented
- Story ok-ed by Product Owner

## Code documentation

- Public API exposed is clearly documented
- Code is documented inline according to language specific standards
- Documentation is peer-reviewed by stakeholder (e.g. Product Owner for a feature or technical peer for an enabler) via pull-request mechanism.
- Documentation is deployed to externally visible website accessible via the developer portal.

## Feature

- Feature has been demonstrated to relevant stakeholders
- Feature meets the acceptance criteria
- Feature is accepted by Feature owner
- Feature is integrated in an integration environment
- Code documentation is integrated as part of the developer portal
- Architectural documentation is updated to reflect the actual implementation



# Vision at $T_0$ (Jan 2021)

$T_0$ represents the starting date for SKA Construction. Therefore, we need to:

- Satisfy the preconditions to start construction, both programmatically and engineering-wise;
- Build one or more prototype products and/or simulations of the SKA Observatory subsystems to be tested incrementally;
- Use the experience from the prototypes to refine the design, check for problems, and assess sub-system- and system-level performance; and
- Develop the required enabling systems for construction and early operations.

All the activities necessary to fulfil this vision until $T_0$ shall be risk mitigations, as they are part of the scope of Bridging, and not part of the scope of Construction.

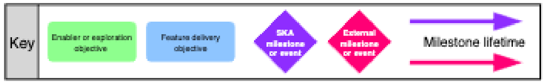
We elaborate those steps towards $T_0$ and AA0.5 below:

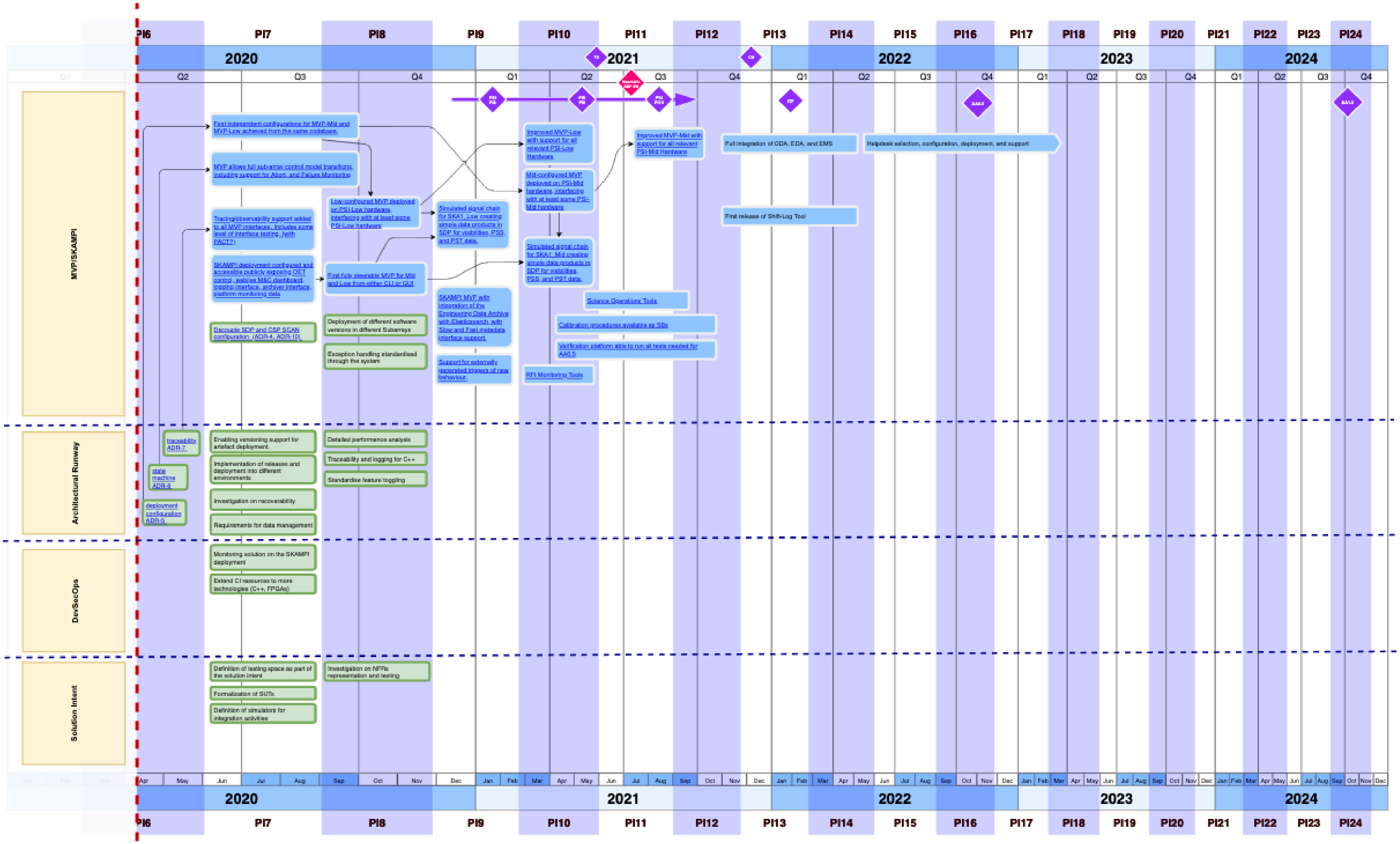
- The **processes that will enable and support the construction phase have been agreed**, and they have been used to create **high-performance teams**:
  - **The integration of the processes and work relationship between the Telescope Delivery Teams and the teams developing software is achieved, with everyone at SKA Observatory working from a common roadmap and vision.** The SKA Observatory provides a coherent set of common tooling and processes across the board. The teams developing software are generating value that can be directly measured and attributed in well understood ways. Work packages can be developed either in an agile or traditional process based on what is considered most appropriate. The teams are organised across two main delivery areas: Observations Management and Controls, and Data Processing.
  - Core teams of the two software delivery areas above have been onboarded, have several PIs of experience, and are meeting objectives in a predictable manner. A **clear onboarding and training process exists** for integrating new people and teams, and is used for every new team.
- The main software risks have been mitigated, and most **software and system interface assumptions validated through prototyping**:
  - Series of **learning products (Minimum Viable Products, MVPs) have been developed to validate system level interfaces and NFRs**, and build understanding of SAFe concepts such as architectural runway and enablers/features. This would include:
    - A **demonstration of SKA1_Low that** includes simulated sky data —ideally from real SKA1_Low signal acquisition hardware, but it could be from a simulated one —, the array health and calibration subsystem (station-level Monitoring Calibration and Control System, MCCS), the Correlator and beam-former (CBF), the Pulsar Search system (PSS), the Pulsar Timing system (PST), the Science Data Processor (SDP), and the operator-oriented subsystems (Observation Execution Tool, OET; Telescope Monitoring and Control, TMC; and the Engineering Data Archive, EDA).
    - A **demonstration of SKA1_Mid that** includes simulated sky data —iideally from real SKA1_Mid signal acquisition hardware, but it could be from a simulated one —, dish-level controller and health system, the Correlator and beam-former (CBF), the Pulsar Search system (PSS), the Pulsar Timing system (PST), the Science Data Processor (SDP), and the operator-oriented subsystems (Observation Execution Tool, OET; Telescope Monitoring and Control, TMC; and the Engineering Data Archive, EDA).
    - For both MVPs above, but at least for SKA1_Mid, **up to 4 subarrays —virtual partitions of the telescope— have been tested**, with isolation across them

https://confluence.skatelescope.org/display/SE/Bridging+Vision+and+Roadmap

Vision

# SKA SAFe Solution Roadmap


Key
Enabler or exploration objective
Feature delivery objective
SKA milestone or event
External milestone or event
Milestone lifetime



MVP/SKAMPI:

- First independent configurations for MVP-Mid and MVP-Low achieved from the same codebase.
- MVP allows full sub-array control model transitions, including support for Abort, and Failure Monitoring
- Tracing/observability support added to all MVP interfaces. Includes some level of interface testing. (with PACT?)
- SKAMPI deployment configured and accessible publicly exposing OET control, webjive M&C dashboard, logging interface, archiver interface, platform monitoring data
- Decouple SDP and CSP SCAN configuration (ADR-4, ADR-10)
- Low-configured MVP deployed on PSI-Low hardware, interfacing with at least some PSI-Low hardware
- First fully steerable MVP for Mid and Low from either CLI or GUI
- Deployment of different software versions in different Subarrays
- Exception handling standardised through the system
- Simulated signal chain for SKA1_Low creating simple data products in SDP for visibilities, PSS, and PST data.
- SKAMPI MVP with integration of the Engineering Data Archive with Elasticsearch, with Slow and Fast metadata interface support.
- Support for externally generated triggers of new behaviour
- Improved MVP-Low with support for all relevant PSI-Low Hardware
- Mid-configured MVP deployed on PSI-Mid hardware, interfacing with at least some PSI-Mid hardware
- Simulated signal chain for SKA1_Mid creating simple data products in SDP for visibilities, PSS, and PST data.
- Science Operations Tools
- Calibration procedures available as SBs
- Verification platform able to run all tests needed for AA0.5
- RFI Monitoring Tools
- Improved MVP-Mid with support for all relevant PSI-Mid Hardware
- Full integration of ODA, EDA, and EMS
- Helpdesk selection, configuration, deployment, and support
- First release of Shift-Log Tool

Architectural Runway:

- traceability ADR-7
- state machine ADR-8
- deployment configuration ADR-5
- Enabling versioning support for artefact deployment.
- Implementation of releases and deployment into different environments
- Investigation on recoverability
- Requirements for data management
- Detailed performance analysis
- Traceability and logging for C++
- Standardise feature toggling

DevSecOps:

- Monitoring solution on the SKAMPI deployment
- Extend CI resources to more technologies (C++, FPGAs)

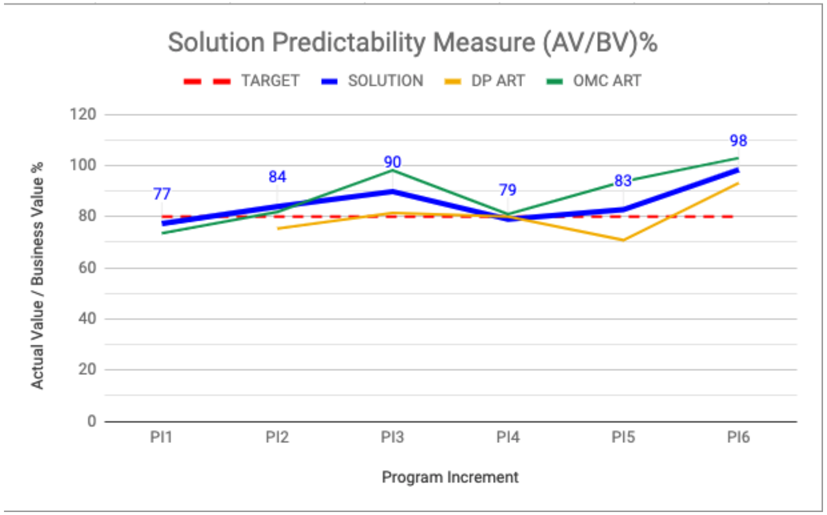
Solution Intent:

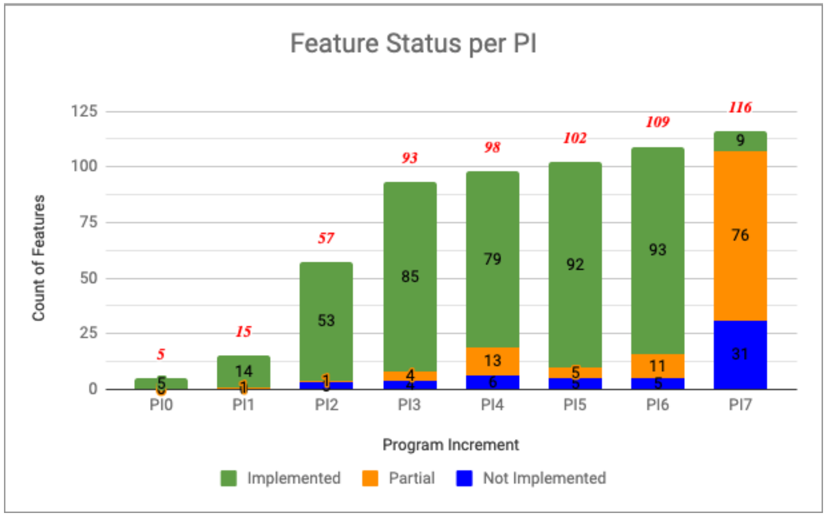
- Definition of testing space as part of the solution intent
- Formalization of SUTs
- Definition of simulators for integration activities
- Investigation on NFRs representation and testing

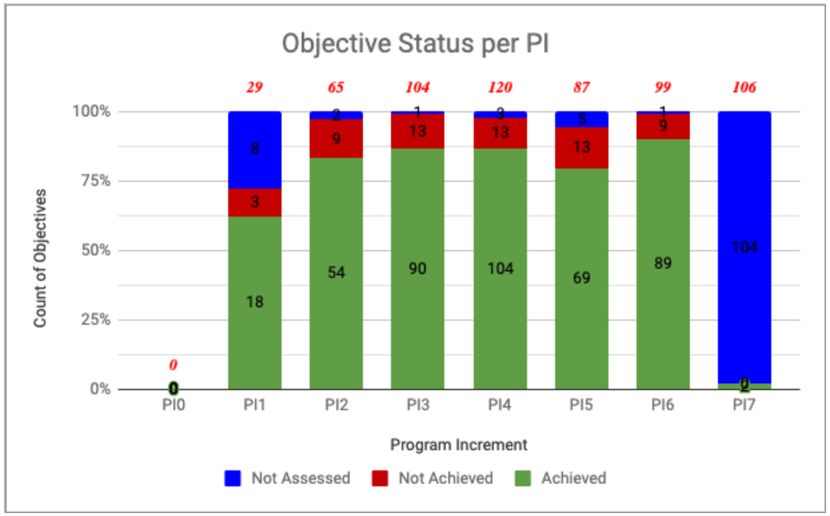
https://confluence.skatelescope.org/display/SE/Bridging+Vision+and+Roadmap

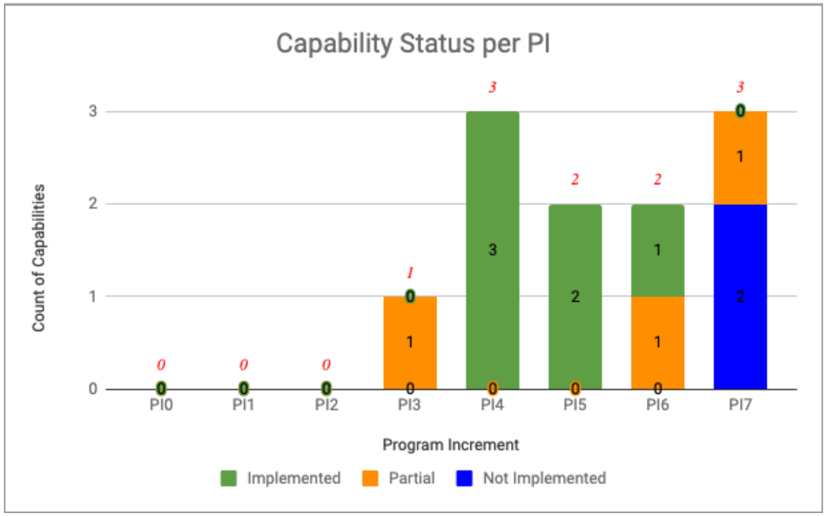
Roadmap

# How have we been doing?


Solution Predictability Measure (AV/BV)%


Feature Status per PI


Objective Status per PI


Capability Status per PI