European Middleware Initiative (EMI)
An Overview

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v. 0.2

Outline

- Presentation goals
- Project objectives
- Administrative structure
- Technical Structure
- Funding models
- Open Issues and next steps

Presentation Goals

- Summarize the current status of the proposal preparation
- Make sure everybody is aware of and agrees on the current decisions
- Outline some open issues
- Provide input for the following discussions

- Most of the information provided here has been already agreed upon, some of it may still be under discussion and needs clarifications
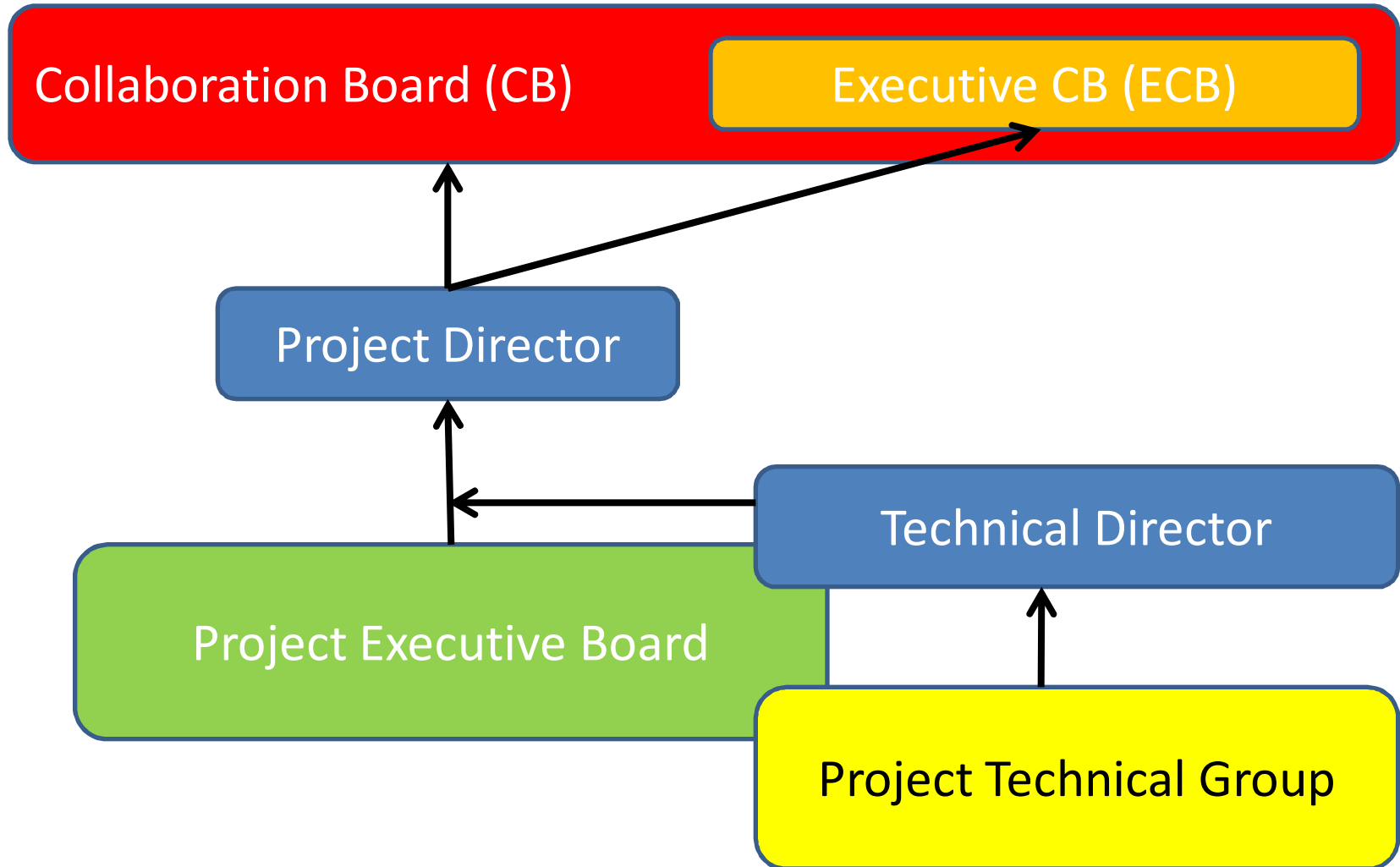
Project objectives

- **Objective 1**: Develop a harmonized middleware distribution able to meet and exceed the requirements of EGI and other distributed computing infrastructures, streamlining services and components from the different middleware consortia and other providers to be more consistent, coherent and standard-compliant

- **Objective 2**: Develop new essential middleware services/functionality as needed following the changing requirement of EGI and other infrastructures
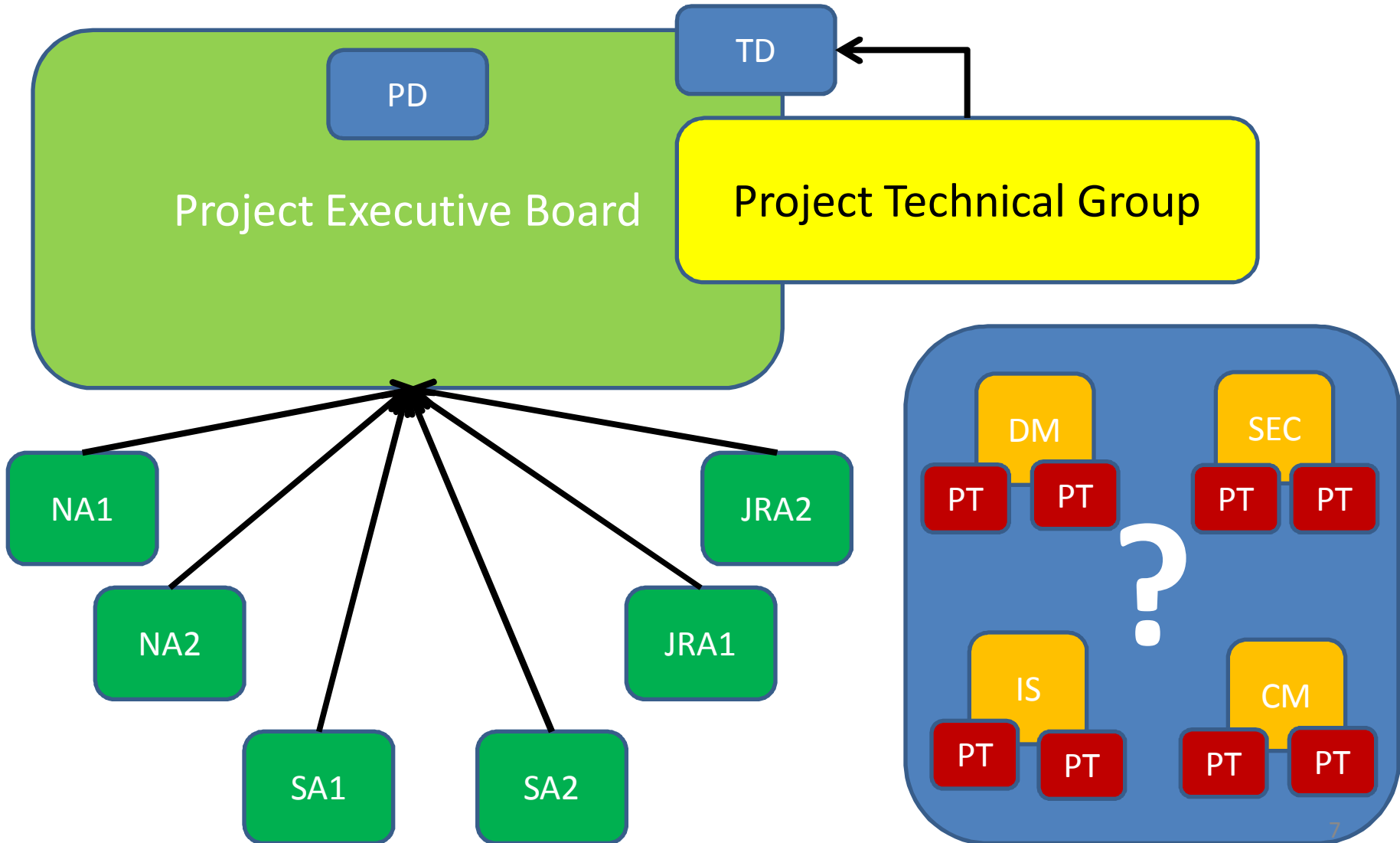
Project objectives

- **Objective 3**: Reactively and proactively maintain the middleware distribution to provide users with increasingly user-friendly, maintainable, reliable, stable, and scalable software

- **Objective 4**: Promote the EMI objectives and outcomes in the user communities at large, defining and implementing standards when needed, moving the EMI middleware and its development and support procedures towards a sustainable model

Administrative Structure (1)

Collaboration Board (CB)

Executive CB (ECB)

Project Director

Technical Director

Project Executive Board

Project Technical Group

Administrative Structure (2)

Administrative Structure (3)

- 20 Institutes considered for partnership
  - ARC (6): KU, NIIF, LU, UiO, UPJS, UU
  - gLite (9): CERN, CESNET, CSIC/CESGA, INFN, NIKHEF, SFTC-RAL, SWITCH, UH.HIP, UoM
  - UNICORE (4): CINECA FZJ, ICM, TUD
  - DESY
- First prospective partners' meeting in Munich on Sep 7th
- Up to 2 additional partners may be considered for 'non-development tasks' (QA/Diss/Train/etc) in case no existing partner is suitable or willing

Administrative Structure (4)

- The following mailing lists have been set up:
  - cb@eu-emi.eu
  - ecb@eu.emi.eu
  - peb@eu-emi.eu
  - ptg@eu-emi.eu
  - emi-authors@eu-emi.eu
  - emi-contributors@eu-emi.eu

- All relevant people have been subscribed, additional people can be invited as needed

Technical Structure (1)

- Definitions
  - **Work Packages or Activities**: the administrative entities within the project responsible to coordinate a set of tasks within a specific administrative or technical scope. Responsible for coordinating the contractual tasks across technical areas and producing project deliverables and milestones. The WP leaders have a coordination role
  - **Technical Areas**: the fixed areas where the different EMI middleware services and component fits. Each area has a coordinator responsible to work with the Technical Director to define the area objectives and outcome and with the WP Leaders to coordinate tasks execution across technical areas. The coordinator is responsible to defined the high level objectives of the individual product teams and ensure collaboration and communication among them

Technical Structure (2)

- Definitions
  - **Product Teams**: the services/components implementation teams within each area responsible to deliver software releases and all associated material. They perform the required technical tasks from design to release through implementation, testing and certification as part of one or more Work Package and according to what specified by the Project Technical Group. A Product Team has/may have a responsible person working with the Area Coordinator and the Work Package leaders to transform the project objectives into concrete software releases

Technical Structure (3)

- More on EMI Services
    - All software produced within EMI has to comply with the EMI project QA procedures and all internal and external acceptance criteria (user requirements) to become part of an EMI release
    - Software that does not comply is not included in EMI releases, although the provider can under their responsibility decide to release it independently. In this case they cannot use EMI 'brand' and funding to advertise and maintain those releases.
    - Product Teams are not fixed. The number and objectives of the PTs can change during the project lifetime depending on new development and changing requirements. Products that are obsoleted or replaced are supported until the agreed end-of-life deadlines and then dropped by EMI, but can still be supported by the providers with different funding
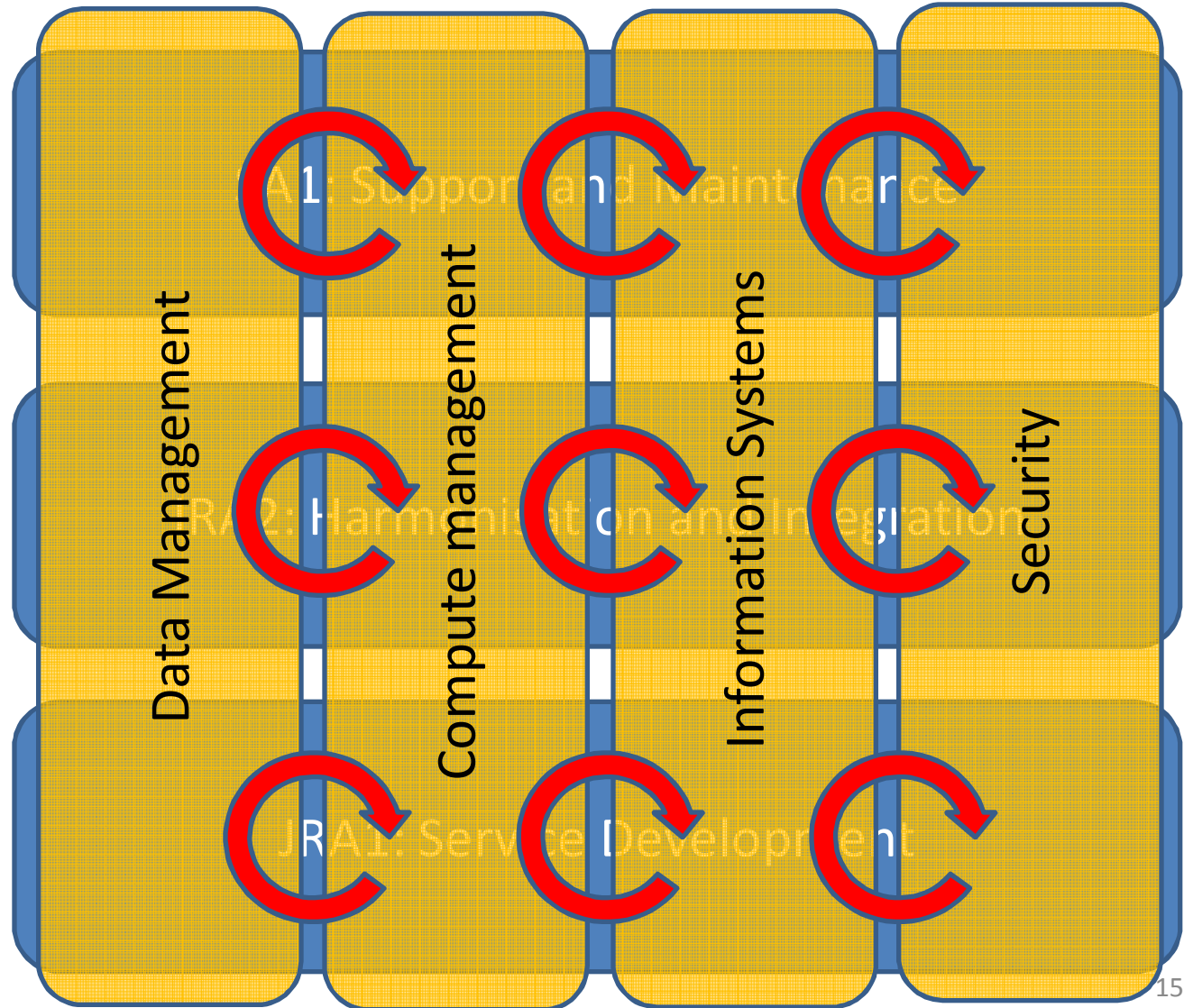
Technical Structure (4)

- General principles
  - EMI must maintain and evolve the middleware services for which it is responsible so that they meet or exceed the needs of EGI and other distributed infrastructures
  - The middleware services provided by EMI and needed by EGI and other DCIs have to be maintained as necessary. Maintenance includes bug fixing and all changes necessary to improve usability, reliability, stability and scalability of the services according to EGI and other DCIs requirements
  - Services must be evolved, harmonized, standardized, replaced, merged or discontinued as needed following a clear work plan. Not all services may need evolution or harmonization, but this doesn't exclude them from EMI if they are used by EGI and other DCIs
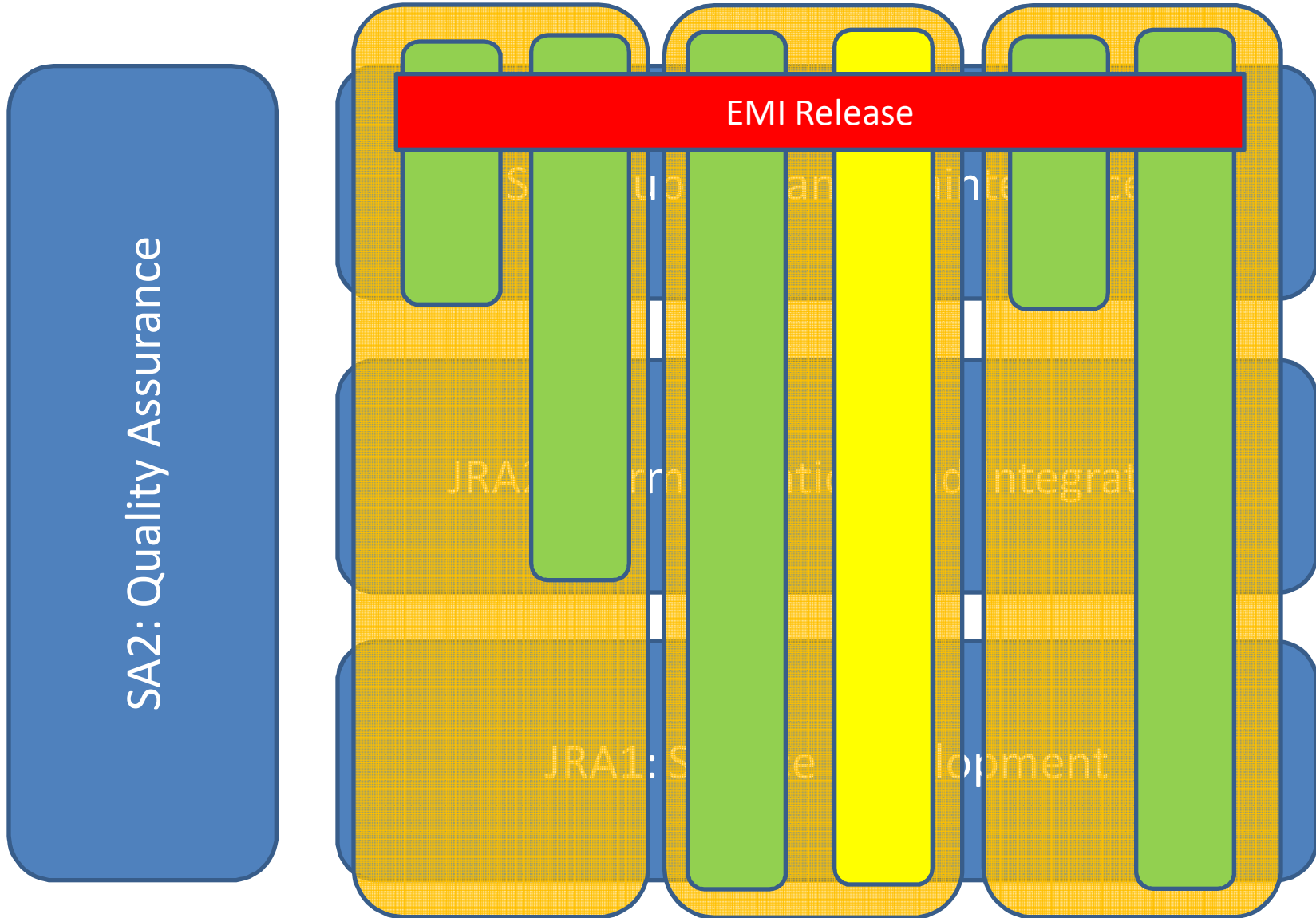
Technical Structure (4)

- General principles
  - The ratio of effort dedicated to support and maintenance on one side and harmonization and new development on the other side is estimated at the beginning of the project to be around 35% of the resources for support and reactive maintenance (bug fixes) and around 45% for harmonization and new development (including proactive maintenance required to improve reliability, scalability, usability to satisfy the needs of the growing infrastructure usage). This ratio depends on the quality and usage of the services and may vary during the project lifetime in either direction.
  - The Certification process, repositories and tools are open to providers outside EMI in order to validate their software against the EMI services or specific adopted standards

Technical Structure (5)

SA2: Quality Assurance

Data Management

Compute management

Information Systems

Security

SA1: Support and Maintenance

JRA2: Harmonisation and Integration

JRA1: Service Development

Technical Structure (6)

SA2: Quality Assurance

EMI Release

SA1: Support and Maintenance

JRA1: Harmonization and Integration

JRA1: Software Development

Technical Structure (7)

Product Team A

Defines/monitors

Executes

SA2: Quality Assurance

Maintenance/Release →

Harmonization/Integration →

Development →

Building
Unit testing
Packaging
Deployment testing
Integration testing
Regression testing
Compliance testing
Stress, scalability testing
Acceptance criteria
validation

Basic Rules

- Every PT is responsible to execute its own testing

- All testing is done publicly and transparently, the tests and the test results are stored in the EMI test repository (ETICS).

- PTs using another PT products have a fixed grace period to validate new release candidates before they are released

- If the agreed tests/criteria are not passed, the release is rejected (can happen at various stages)
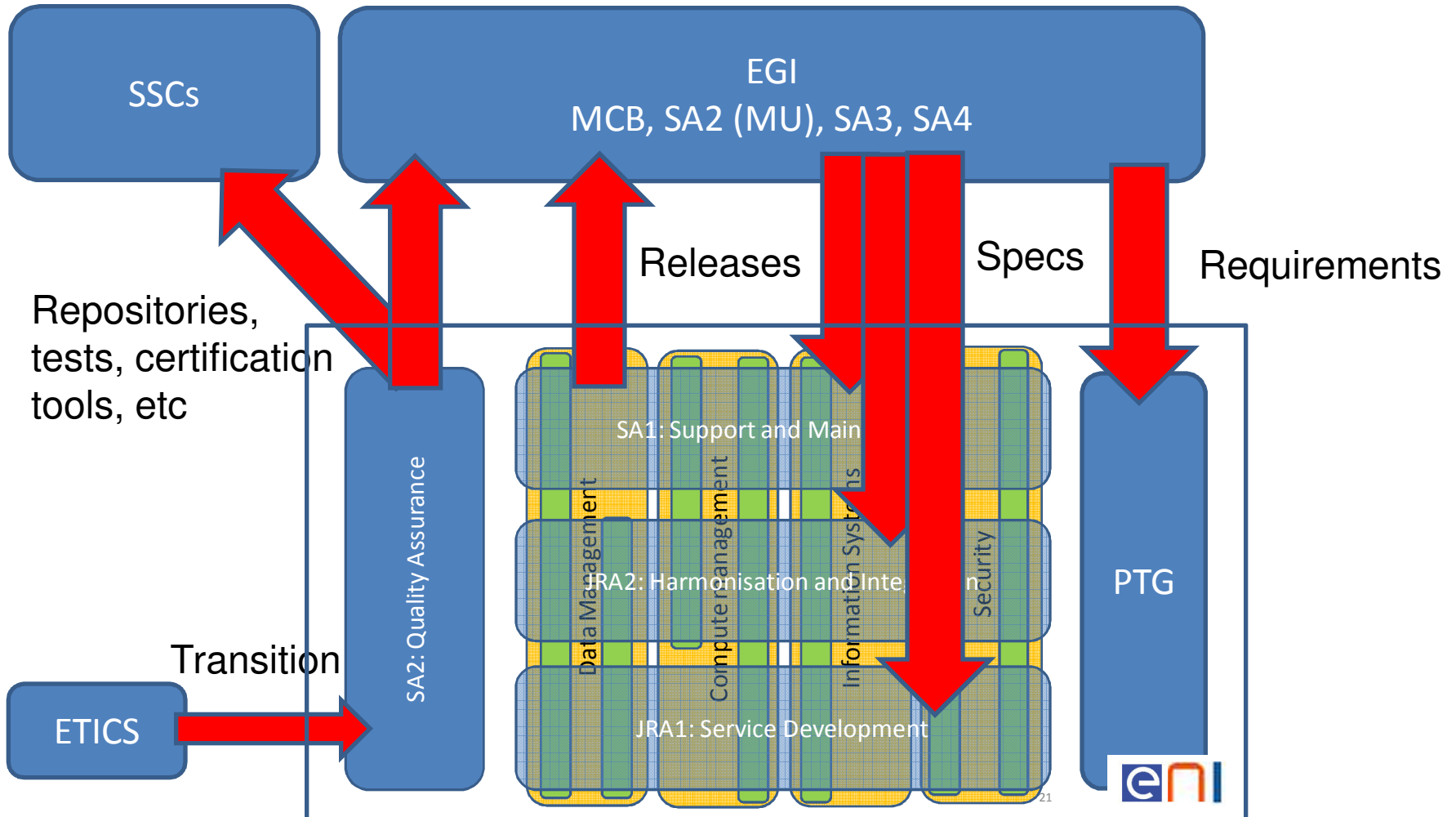
Basic Rules

- All packages have to comply with the agreed packaging formats (especially if components are to be included in mainstream OSs)

- Packages can be produced with EMI-provided tools (ETICS) or in other ways, but can be included in EMI releases only if they are compliant and pass the deployment tests

- SA2 defines the guidelines, checks compliance and assists in the implementation/execution
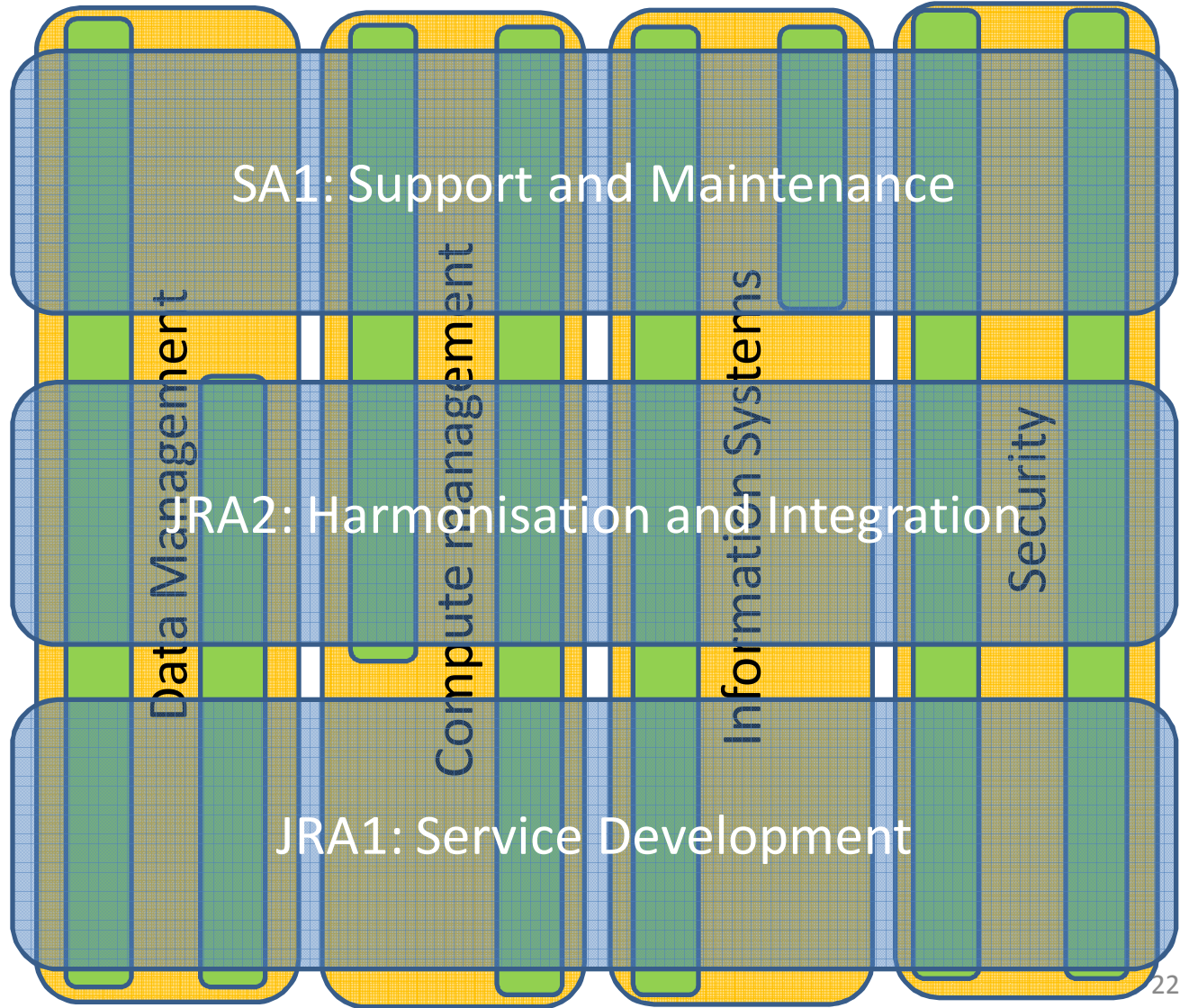
Release Policies

- **Major releases**: once or twice per year, may contain non-backward compatible changes

- **Minor releases**: a few times per year, fully backward compatible, may contain new functionality

- **Revisions**: every week or two weeks, only bug fixes

- **Emergency**: as needed, only specific bug fixes, use emergency release procedures

Relationships

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SA2: Quality Assurance

SA1: Support and Maintenance

JRA2: Harmonisation and Integration

JRA1: Service Development

Data Management

Compute management

Information Systems

Security

Open Issues and Next Steps

- Relationships between PTG, Technical Area Leaders, Product Team Leaders and respective roles/responsibilities

- Categorization of services/components in terms of their expected lifecycle (support only, harmonization, evolution, expected end-of-life, etc)

- Project duration and effort distribution

- Relationships between EMI and external entities:
    - EGI
    - SSCs
    - ETICS
    - How to establish and enforce SLAs?