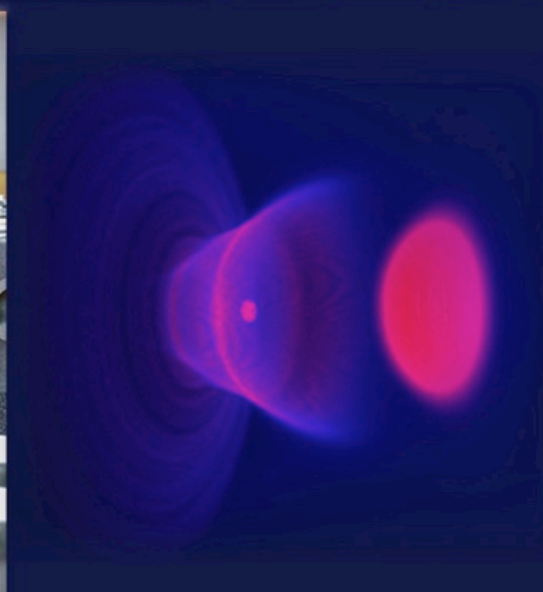
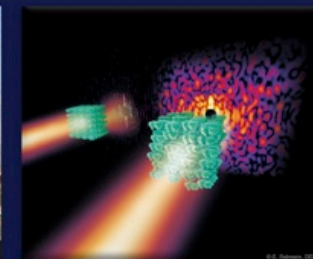


EUROPEAN PLASMA RESEARCH ACCELERATOR WITH EXCELLENCE IN APPLICATIONS

EuPRAXIA COLLABORATION BOARD

Antonio Falone

16.04.2021



- Eupraxia PWFA Pillar @ INFN-LNF, organization and project management plan
- Work Breakdown Structure
- Schedule and management methodologies

The phase 0 of the PWFA pillar is implemented through the EuPRAXIA@SPARC_LAB Project.

- Funding already secured
- Project team established
- Scientific Advisory Committee in place
- Project Management Plan for the TDR phase is about to be approved



Phase 0 PWFA Pillar (a.k.a. EuPRAXIA@SPARC_LAB) Project scope

- Design and construction of the building that will host the facility
- R&D to reach the required TRL in:
 - Plasma Beam Driven acceleration scheme (@ SPARC_LAB Facility)
 - R&D on X-Band RF technology (@TEX Facility)
- Implementation of PWFA Accelerator @ 1GeV:
 - Plasma stage
 - Full RF X-Band option

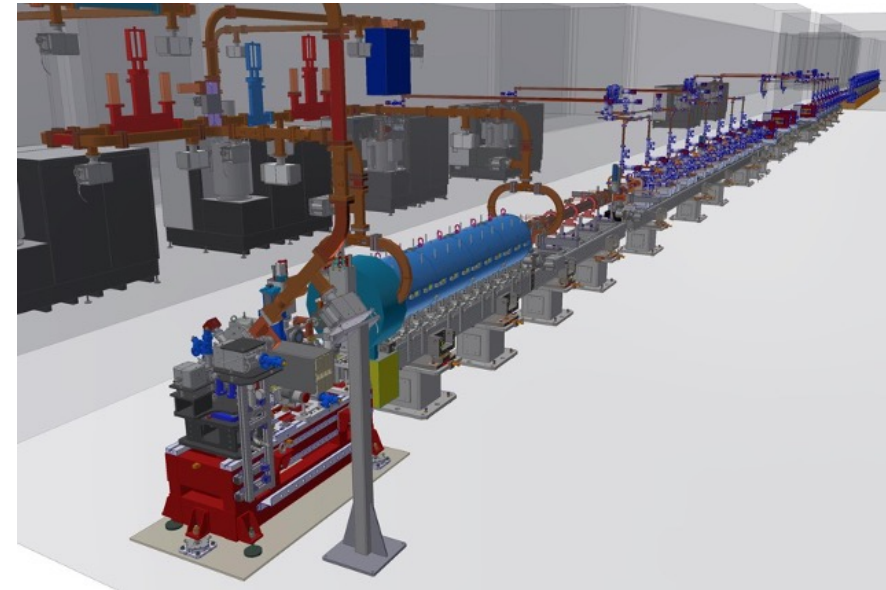
Phase 0 PWFA Pillar (a.k.a. EuPRAXIA@SPARC_LAB) Project scope



Rendering EuPRAXIA building



X-Band test stand facility - TEX



3D Layout of the machine

Phasing approach.

PWFA LINAC-FEL-BEAMLINE

DESIGN

Implementation

Pilot users

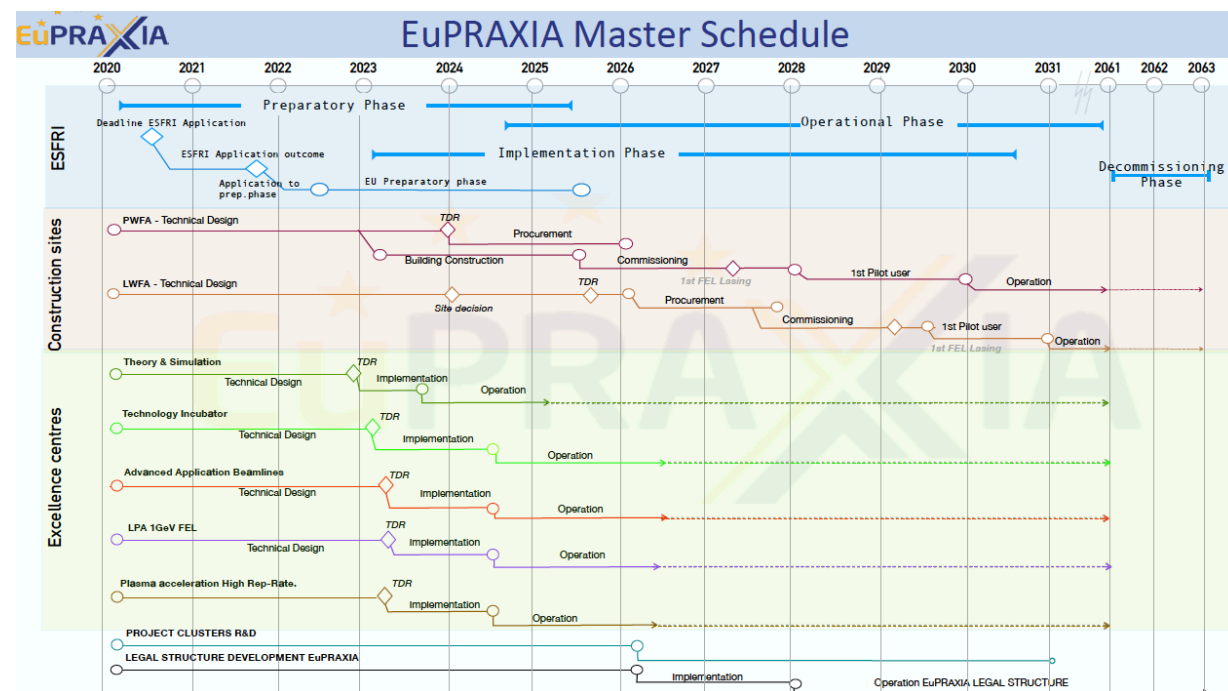
BUILDING

DESIGN

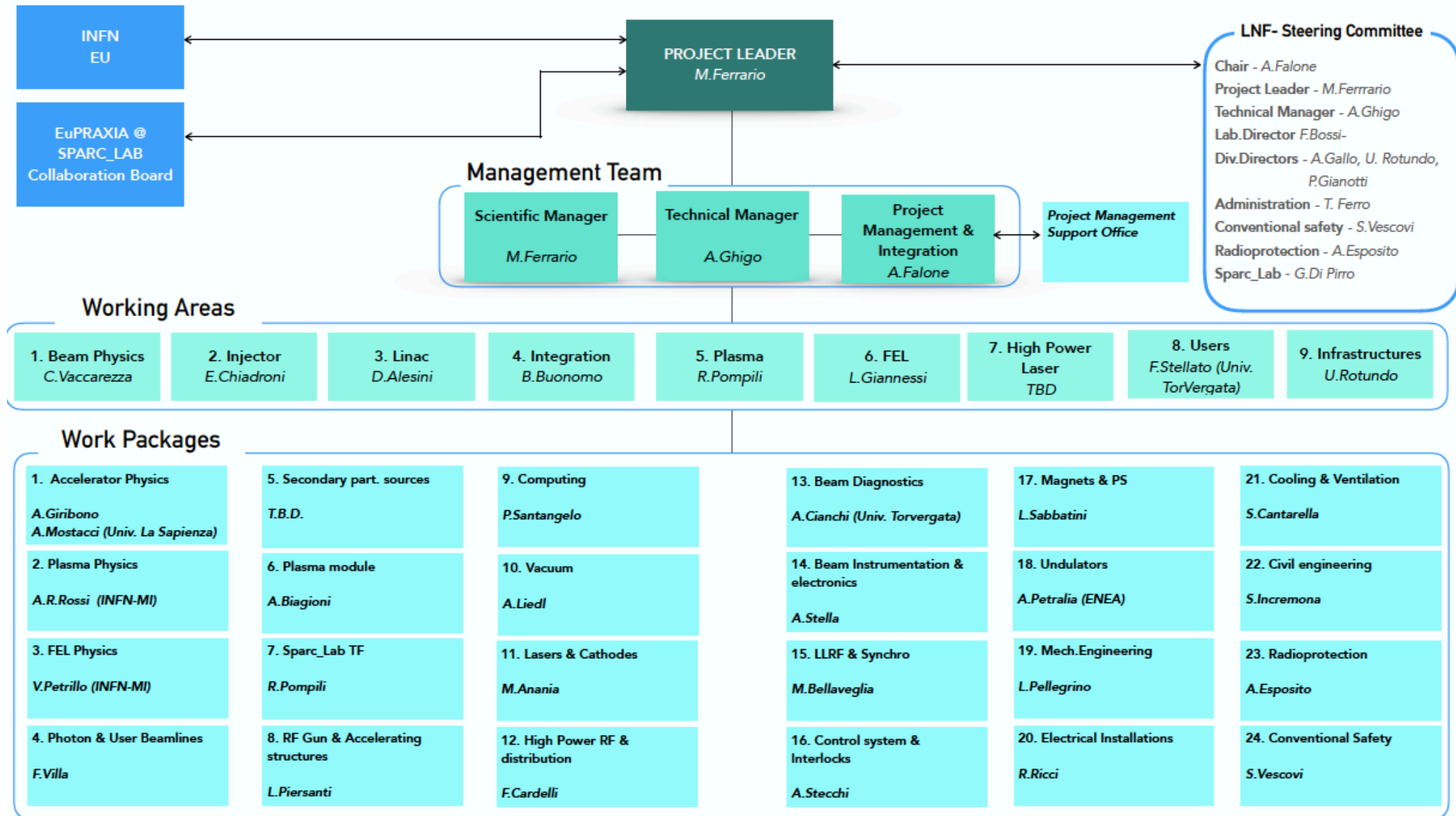
Tender

CONSTRUCTION

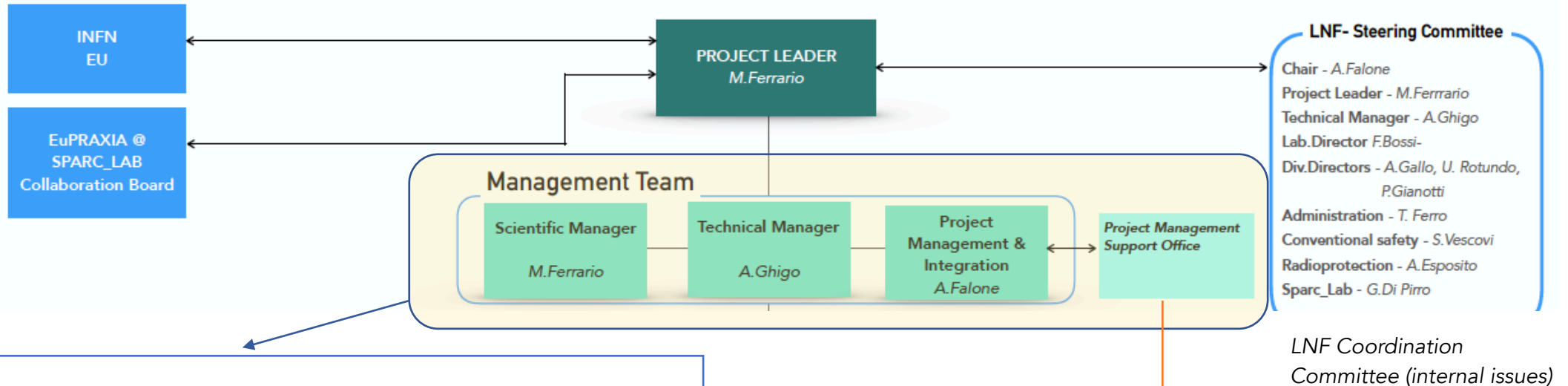
Design & implementation phases are consistent with the European initiative



Organization Breakdown Structure - OBS



Organization Breakdown Structure - OBS



Coordination of the overall activities at strategic level:

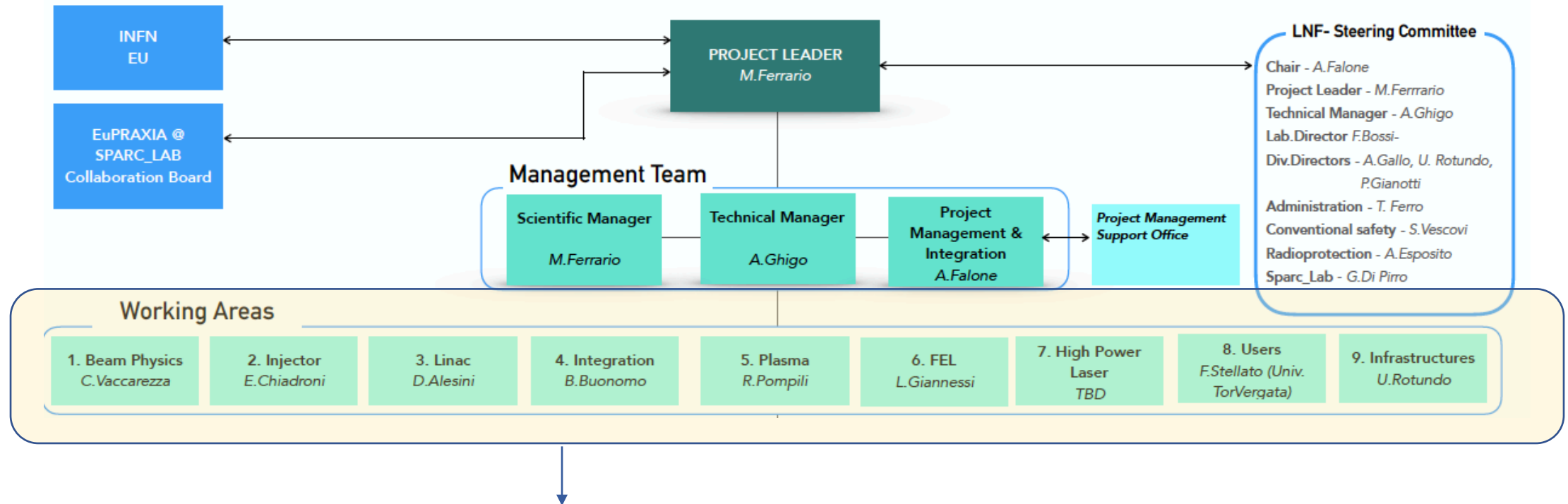
- Scientific case (M. Ferrario)
- Technical implementation (A. Ghigo)
- Project Management, monitoring&control (A. Falone)

It assures the overall development of the project, Approval of the baseline and leading of the activities

Project Management Office:

- Cost&Schedule (M. Iungo)
- Configuration manager (F. Cioeta)
- Administrative Support (G. Vinicola & AD Secretariat)

Organization Breakdown Structure - OBS



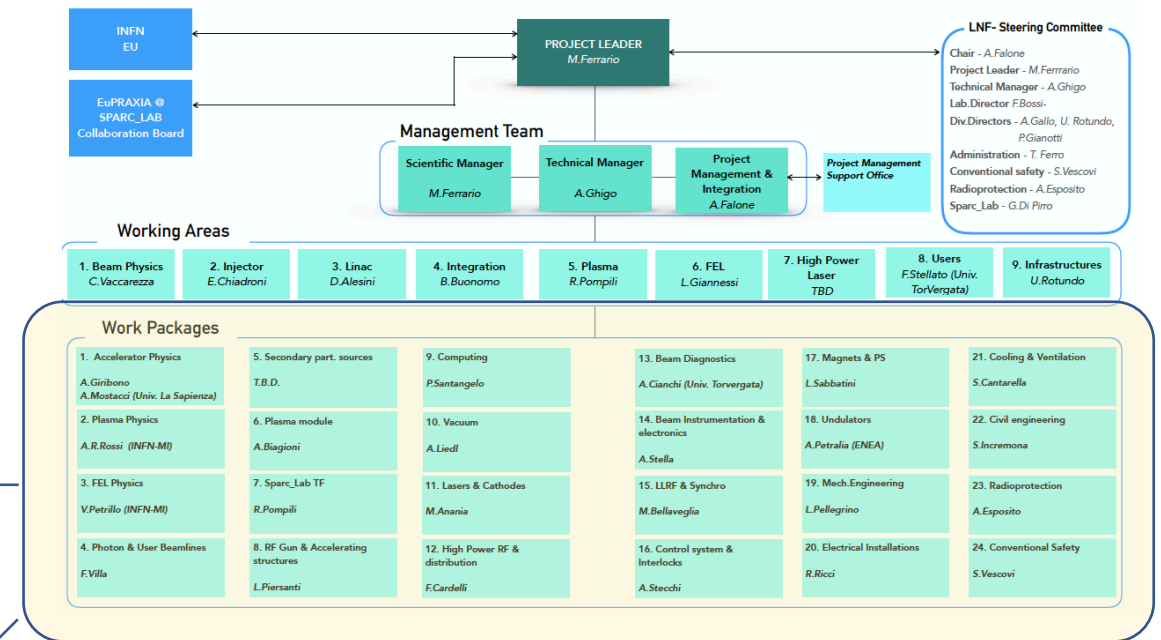
9 Working areas covering all the topic of the project.
 Act as internal steering board of the project
 Validate the technical choices (to be approved by the management team)
 Coordinate the whole activities of the corresponding work-package.
 High level of the WBS.

24 Work packages that covers detailed aspects of the project, organized as follow:

1-7: Physics & User

8-19: Machine implementation (RF, Power supply, etc...)

19-24: Infrastructure & civil engineering



Each work package has a defined set of deliverables expected and responsibilities assigned expressed in a dedicated quality management document.

The correlation between a working area and work packages is expressed in the
Responsibility Assignment Matrix - RAM

		WA 1	WA 2	WA 3	WA 4	WA 5	WA 6	WA 7	WA 8	WA 9
		Beam Physics	Injector	Linac	Integration	Plasma	FEL	High Power Laser	Users	Infrastructure
WP 1	Accelerator Physics	x	x	x		x	x	x		
WP 2	Plasma Physics	x				x		x		
WP 3	FEL Physics	x					x	x		
WP 4	Photon & User Beamlines	x					x	x	x	
WP 5	Secondary Part.Source							x	x	
WP 6	Plasma module	x				x		x		
WP 7	Sparc_lab TF					x				
WP 8	RF Gun & Acc.Structure	x	x	x						
WP 9	Computing	x								
WP 10	Vacuum		x	x	x	x		x		
WP 11	Laser & Cathodes		x					x		
WP 12	High Power RF & Distribution		x	x	x					
WP 13	Beam Diagnostics	x	x	x	x	x	x		x	
WP 14	Beam Instrumentation & Electronics		x	x	x					
WP 15	LLRF & Synchro		x	x	x					
WP 16	Control system & Interlocks	x	x	x	x	x	x	x	x	x
WP 17	Magnets & PS	x	x	x	x		x			
WP 18	Undulators						x			
WP 19	Mech.Engineering		x	x	x					x
WP 20	Electrical Installation				x					x
WP 21	Cooling & Ventilation		x	x	x					x
WP 22	Civil Engineering									x
WP 23	Radioprotection									x
WP 24	Conventional Safety									x

All the work needed to get the TDR ready has been structured and decomposed in a detailed WBS.

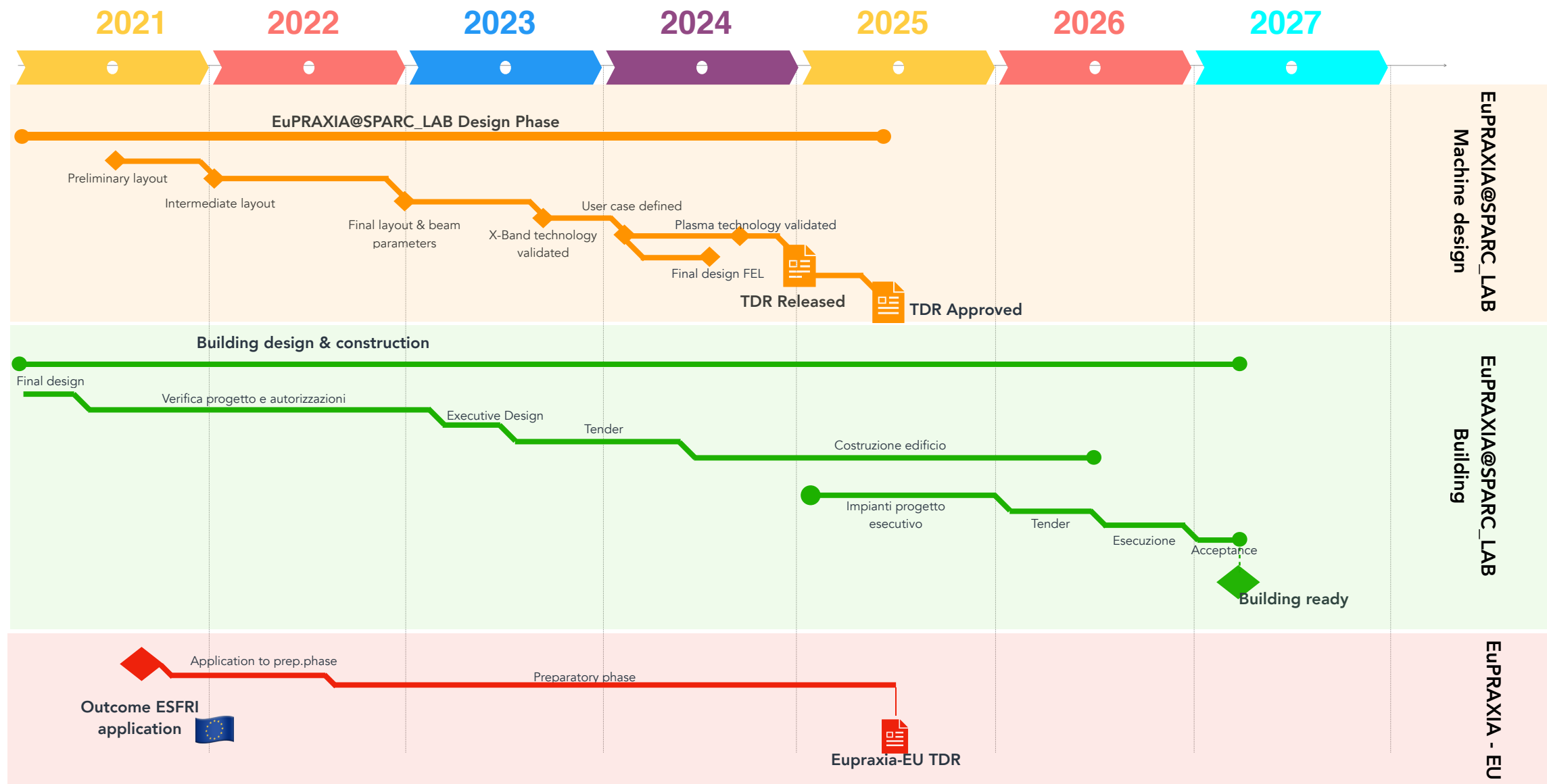
For sake of simplicity only a High Level WBS is presented here:

WA.01	Beam Physics
WA.02	Injector
WA.03	LINAC
WA.04	RF & PS Integration
WA.05	Plasma
WA.06	FEL
WA.07	High power laser
WA.08	Users
WA.09	Infrastructures

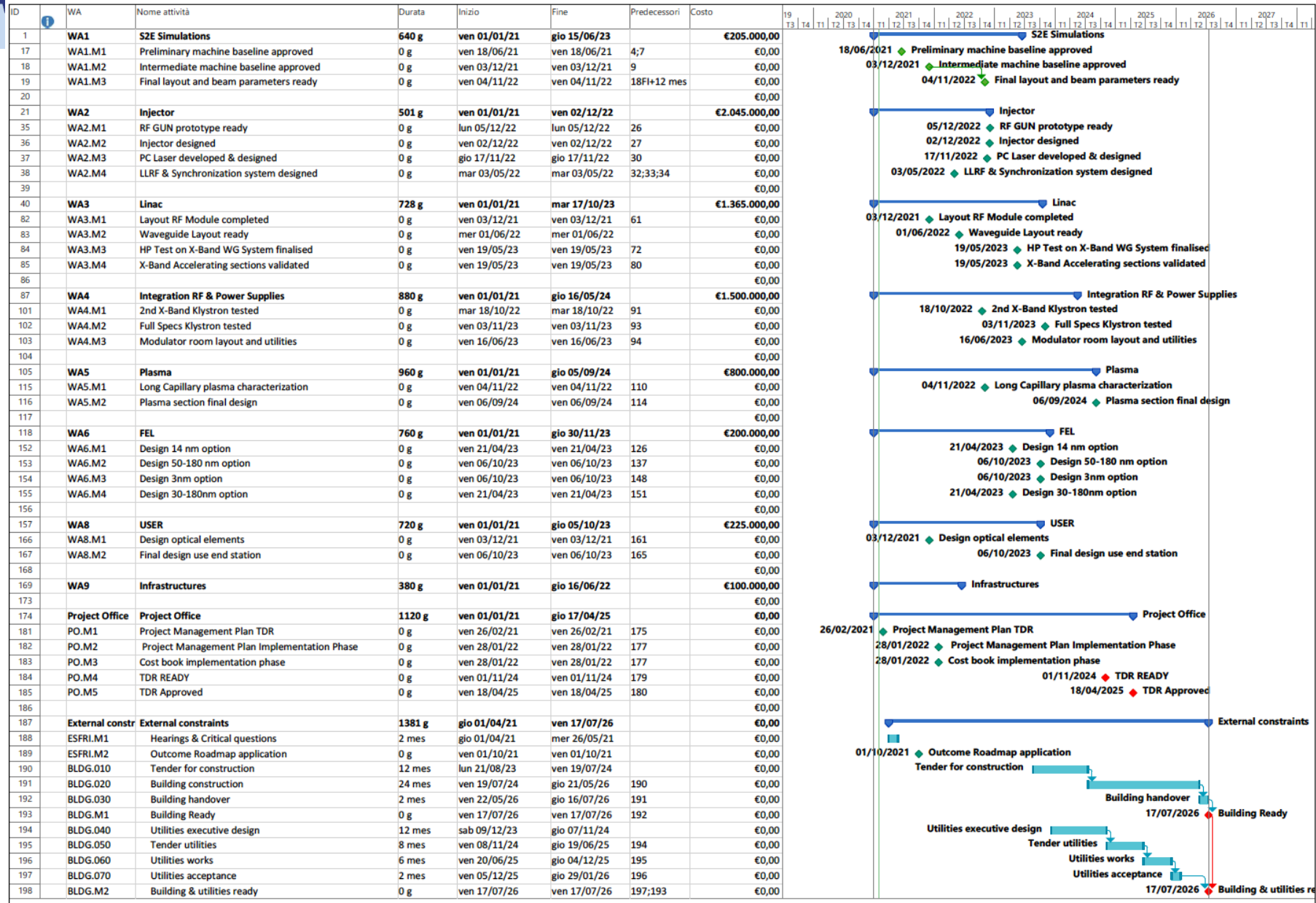
This can be used as a guideline to set-up a functional Work-Breakdown Structure for the Project Cluster of EuPRAXIA.

Maybe some modifications can be implemented.

RAM Matrix can be also implemented to highlight crosscorrelation between different project cluster.




Detailed schedule



Document to be approved soon by INFN management regarding the overall management process of the project
In particular:

- Schedule (high level and detailed)
- R&D Cost
- Cost-Baseline
- Manpower
- Risk assessment
- Project Management Monitoring&Control methodology
- Project Communication Plan



DocID	Rev.	Validità
EuPRAXIA-PO-PMP-001-0.4	0.1	Draft

Data 08/04/2021

Project Management Office

**EuPRAXIA@SPARC LAB Project
Management Plan towards TDR**

This document summarizes scope, cost & schedule for the completion of the
Technical Design Report of EuPRAXIA@SPARC LAB

Autore	Verificato da	Approvato da
<u>A.Falone</u> <u>M.Lungo</u>	<u>A.Falone</u> <u>M.Ferrario</u>	G.E. S.C.

Lista di distribuzione:

- Public

Probability and Impact guidelines have been prepared and will be used for a global risk assessment strategy

For each potential event a risk level is assigned and depending on the severity different actions can be implemented

RISK LEVEL	DESCRIPTION	ACTIONS
RISK > 15.	CRITICAL	Risk requiring immediate mitigation actions
10<RISK<15.	HIGH	Risk to be monitored and controlled. Contingencies must be allocated.
6<RISK<10.	MODERATE	Risk accepted but some contingencies might be required.
RISK<6.	LOW	NO ACTIONS ARE REQUIRED --> Risk accepted as it is.

In order to assess the real advancement with respect to the approved baseline different tools will be applied.

Two project review assessment will be done per year (6 months basis) in which the following will be evaluated:

- Number of deliverables produced vs Number of deliverable expected
- Actual cost vs estimated cost
- Number of items procured vs expected ones
- Close follow up of activities in the critical path
- Technical and scientific achievements

Project Management methodologies and tools are being applying for EuPRAXIA@SPARC_LAB.

These can be further extended, upgraded and implemented in order to cope with the EuPRAXIA Challenges.

Additional professional figures will be required (EU Grant manager, scientific secretariat, outreach, etc...)

Any feedback or suggestions from every member is more than welcome.