WP5 - ESAP

ESFRI Science Analysis Platform

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ESCAPE - The European Science Cluster of Astronomy & Particle Physics ESFRI Research Infrastructures has received funding from the European Union's Horizon 2020 research and innovation programme under the Grant Agreement n° 824064.

WP 5 - Objectives

- Implement Flexible and Expandable Science Platform
  - make EOSC a working interface
  - bring analysis to data
- Support users to:
  - identify & stage existing data collections
  - tap into software tools & packages developed by ESFRIs
  - bring own custom workflows
  - take advantage of available HTC and HPC infrastructure
- Focus on core common functions to support two communities
  - look to expand to other domains in future
  - flexibility rather than single platform for all users

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WP5 – Specific Steps

- Build prototype science analysis platform
  - Data discovery
  - Access to software & services
  - Customised processing & workflows
  - Interface with large-scale computing infrastructure
  - Adds analytics and visualisation
- Ready for future challenges
  - Increased scale of data volumes
  - Processing co-located with data

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ESCAPE
European Science Cluster of Astronomy & Particle physics ESFRI research Infrastructures

CERN

cta cherenkov telescope array

SKA SQUARE KILOMETRE ARRAY

EGO

FAIR

EST european solar telescope

cnrs dépasser les frontières

CSIC Spanish Council of Research

FAU

INAF ISTITUTO NAZIONALE DI ASTROFISICA NATIONAL INSTITUTE FOR ASTROPHYSICS

IFAE Institut de Física d'Altes Energies

KIS Kiepenheuer-Institut für Sonnenphysik

ASTRON

Nikhef

rijksuniversiteit groningen

JIVE Joint Institute for VLBI ERIC

THE UNIVERSITY of EDINBURGH

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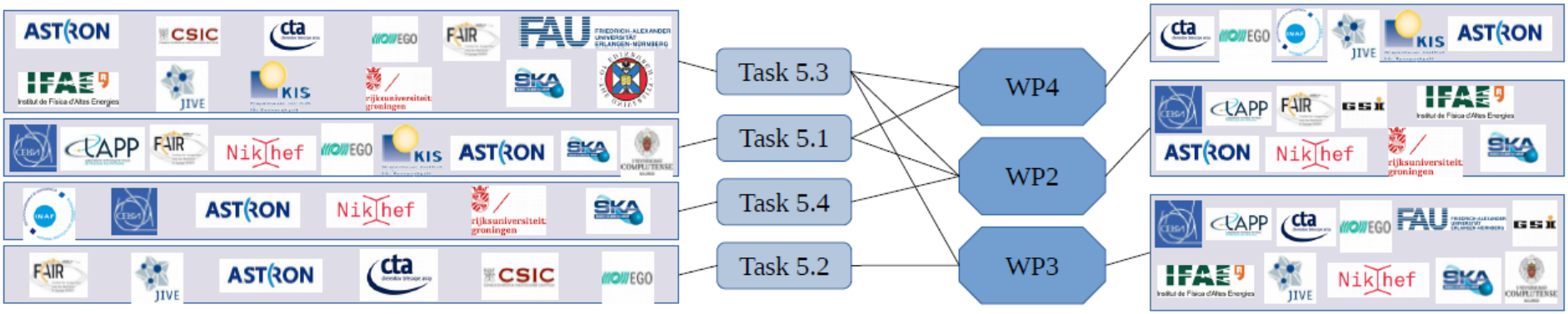
Links with other ESCAPE WPs

- WP1 - General EOSC policy for services & infrastructure access
- WP2 - Integration with Data Lake - distributed computing & storage
- WP3 - Access to software & services in ESCAPE-EOSC catalogue
- WP4 - connect science platform with existing astronomical data archives and VO-enabled data collections



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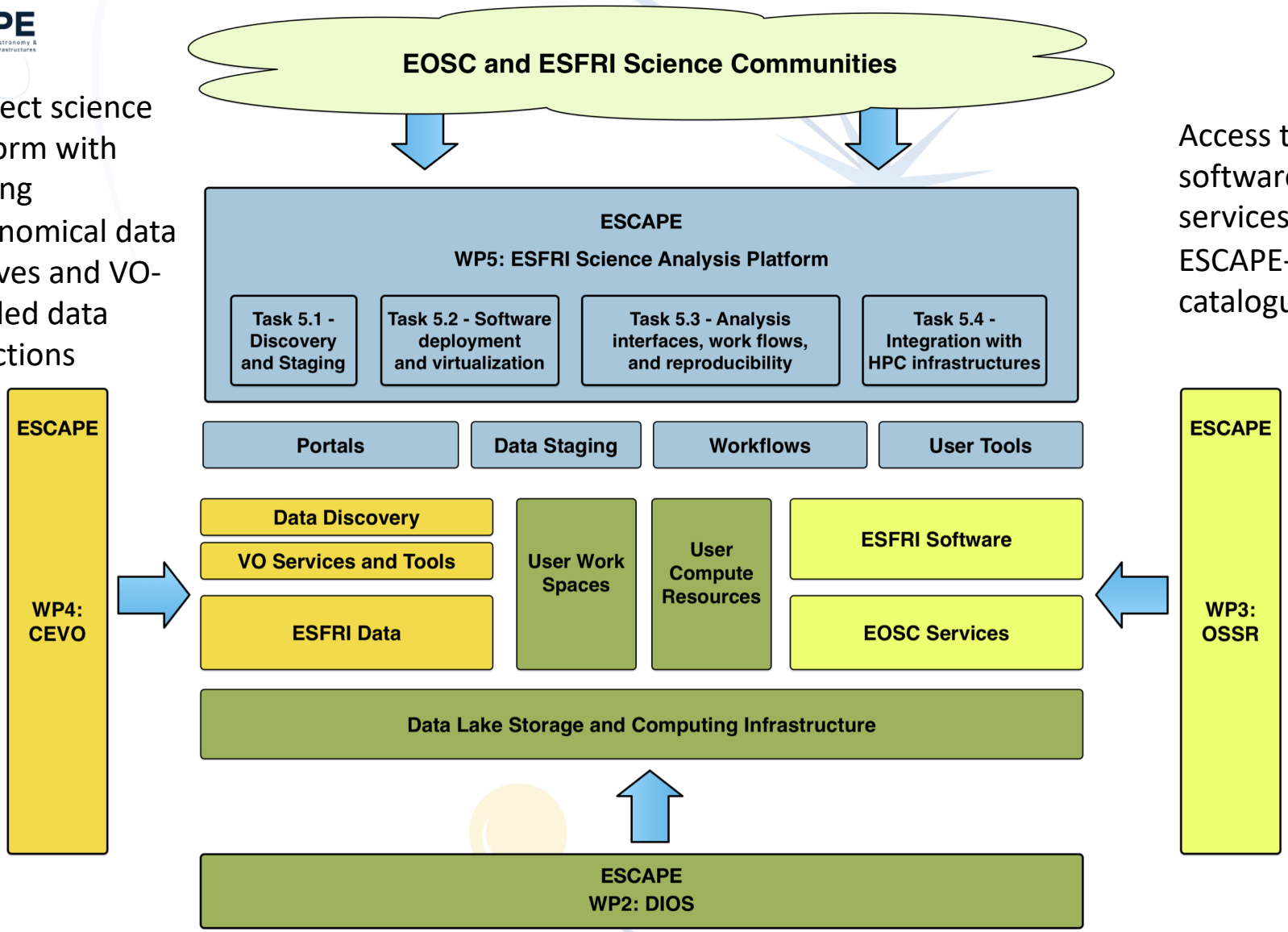
Connect science platform with existing astronomical data archives and VO-enabled data collections



Access to software & services in ESCAPE-EOSC catalogue

Integration with Data Lake - distributed computing and storage

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WP5 Deliverables

Deliverable	Description	Month
D5.1	Preliminary report on requirements for ESFRI science analysis use cases	6
D5.2	Detailed project plan for WP5	9
D5.3	Performance assessment of initial Science Platform prototype	24
D5.4	Final assessment of the performance of the Science Platform prototype and plan for deployment of production version within the EOSC.	42

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T5.1 - Data aggregation and staging

- Stage data in the Data Lake (WP2)
- Data discovery, VO (WP4) - to be expanded
- Dynamically allocate user workspace across distributed infrastructure
- Tools to estimate availability & latency
- Demonstrate for a range of data collections (CTA, ESO, EST, FAIR, JIVE, LOFAR,...)

Partner:	CERN	CNRS LAPP	EGO	FAIR GMBH	KIS	NWO-I-ASTRON	NWO-I-Nikhef	SKAO	UCM	Total
Effort (PM):	12	12	6	6	6	6	6	6	9	69

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T5.2 - Software deployment and virtualisation

- Integrate software and service repository (WP3), allow access to software components developed by ESFRIs
- Provide access to sw repository metadata
- Support containerisation of additional tools
- Demonstrate with variety of examples (ESO, FAIR, JIVE, LOFAR)

Partner:	CTAO	CSIC	EGO	FAIR GMBH	JIVE	NWO-I-ASTRON	Total
Effort (PM):	6	6	12	6	18	12	60

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T 5.3 – Analysis interface, work flows and reproducibility

- Interactive analysis interface which
  - Integrates data access & staging (T5.1);
  - Provides access to EOSC software repository (T5.2)
- Simplify porting workflows to science platform environment
  - support common deployment language (e.g. CWL)
  - deploy across EOSC infrastructure
  - promote preservation & sharing of workflows
- Start with small number of representative workflows
- Evaluate performance, monitor compliance w/ FAIR principles

Partner :	CSIC	CTAO	EGO	FAIR GMBH	FAU	IFAE	JIVE
Effort (PM):	12	12	12	6	12	13	18
Partner :	KIS	NWO-I-ASTRON	RUG	SKAO	UEDIN	Total:	
Effort (PM):	18	24	6	12	12	157	

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T5.4 - Integration with HPC and HTC infrastructures

- Deploy user-initiated workflows on HPC and HTC infrastructure
- but... maintain interactivity and responsiveness
- obviously close links with WP2 – integrate Science Platform with Data Lake
- Expand number of ESFRIs supported

Partner:	CERN	INAF	NWO-I-ASTRON	NWO-I-Nikhef	RUG	SKAO	Total
Effort (PM):	6	12	6	12	12	6	54

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