



Future Directions

HNSciCloud M-PIL-3.4
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Deployments to continue



- **Exoscale**

- *IaaS, GPUs and Storage*

- *4000 cores/400 TB*

- *Until end of Feb. 2019*



- **T-Systems**

- *IaaS, Storage and HPCaaS*

- *Until end of Dec. 2018*





Lessons Learned from earlier projects



- Framework agreements provide structure for procurements in the scientific community*
- Call-Offs tailor offers with flexibility*
- Volume aggregation across a group of scientific organisations with similar needs*
- Commercial clouds offer strategic opportunities to rapidly scale cutting edge technology for R&D deployments*
- Vouchers/Credits are a key element to disseminate access*
- Need to repatriate data at the end of contracts*





OCRE | Open Clouds for Research Environments

A consortium formed by



Procurement of digital services for the European Open Science Cloud (EOSC)

Procurement Budget: 9.5M euro

Starting Date: 1st of January 2019

Duration: 36 Months

Coordinating Partner: GÉANT



European Commission



Two distinct service types

Commodity type commercial digital services (PART A)

Infrastructure as a Service (IaaS), Platform as a Service (PaaS)
Software as a Service (SaaS) in the areas of
file storage, online collaboration, simulation and virtualisation tools.

Earth Observation commercial services (PART B)

Data collected by the European Earth Observation programme, **Copernicus**,
is made available through a number of Data and Information Access Services (DIAS).
OCRE will enable delivery from commercial service providers who create their front-office services on top of the
DIAS, to offer their services to the research community.

OCRE aims to remove barriers that are currently hampering a large-scale adoption of these services.



Building on two delivery vehicles

Slide provided by Andres Steijaert (GÉANT)



OCRE stages

- ☛ *Gather requirements and Use Cases across the scientific community*
 - ☛ *Run a pan-European tender*
 - ☛ *Fit-for-purpose framework agreements with suitable suppliers*
 - ☛ *Technically validate suppliers through a “multi-science” test suite*
 - ☛ *Manage adoption funds and buy resources from the selected suppliers, to be used by “Adoption Waves”, targeting different user segments*
 - ☛ *Individual Researchers and Early Adopters*
 - ☛ *Small Organisations*
 - ☛ *Groups of Organisations (Buyer Groups) aggregating volume and demand*
 - ☛ *Buyers don't need to be beneficiaries of the project to run a call-off*
 - ☛ *Continue to explore different procurement and access models including pre-paid vouchers (cloud credits)*
- Stimulate access and adoption of commercial cloud services is the key focus of the project**



Examples of use cases

☛ Integration of commercial cloud capacity in production batch services



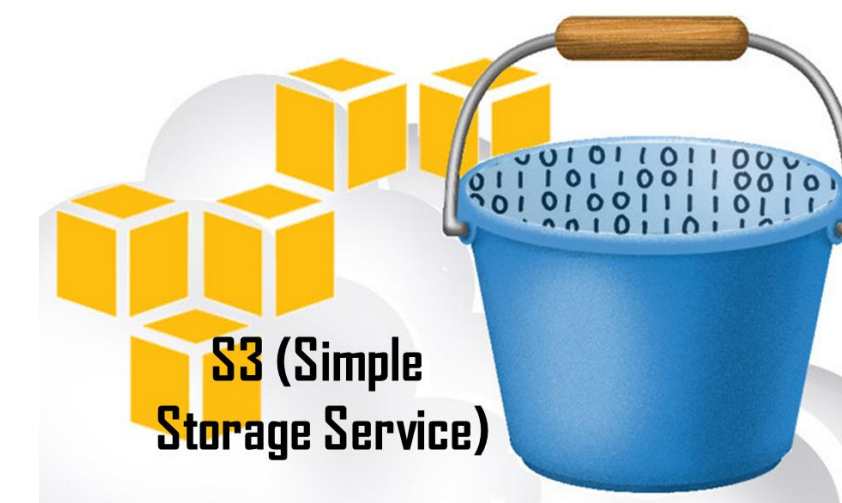
☛ On demand computing facilities generation

- ☛ Hybrid Cloud auto-scaling with Kubernetes
- ☛ Scientific Data Management integration (Rucio) with commercial clouds
- ☛ DODAS, Lightweight WLCG sites deployments
- ☛ Interactive user analysis services (TOTEM)



☛ S3 object stores

- ☛ Hybrid S3 services for data replication using Ceph
- ☛ Use S3 for AODs for preparatory analysis jobs



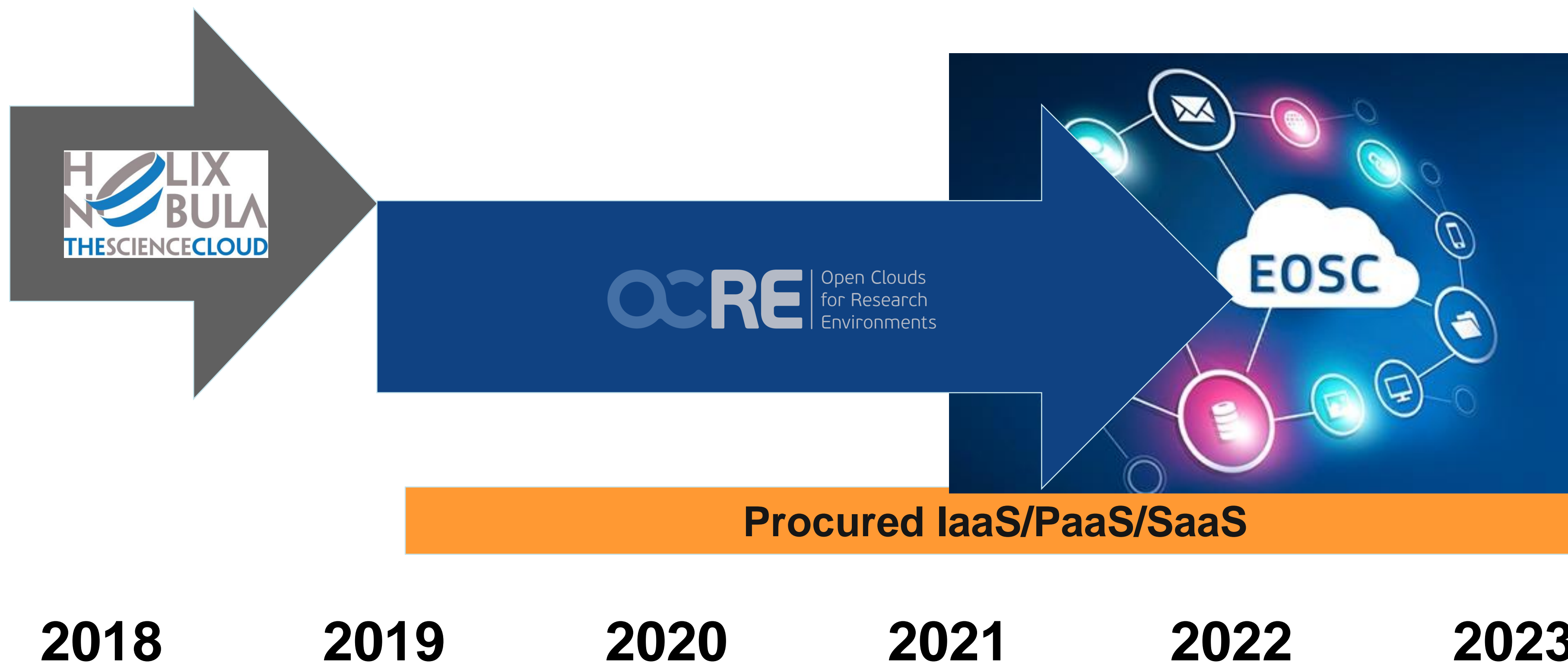
☛ Deep Learning for Simulation

- ☛ Scale out model training for Neural Network optimization
- ☛ Extend to other hardware accelerators (FPGAs) for inference
- ☛ Generalise the approach to satellite imagery analysis and medical applications





Timeline





Pre-Commercial Procurement

Focus: Archiving and Data Preservation Services in commercial clouds

Procurement Budget: 3.4M euro

Starting Date: 1st of January 2019

Duration: 36 Months

Coordinating Partner: CERN



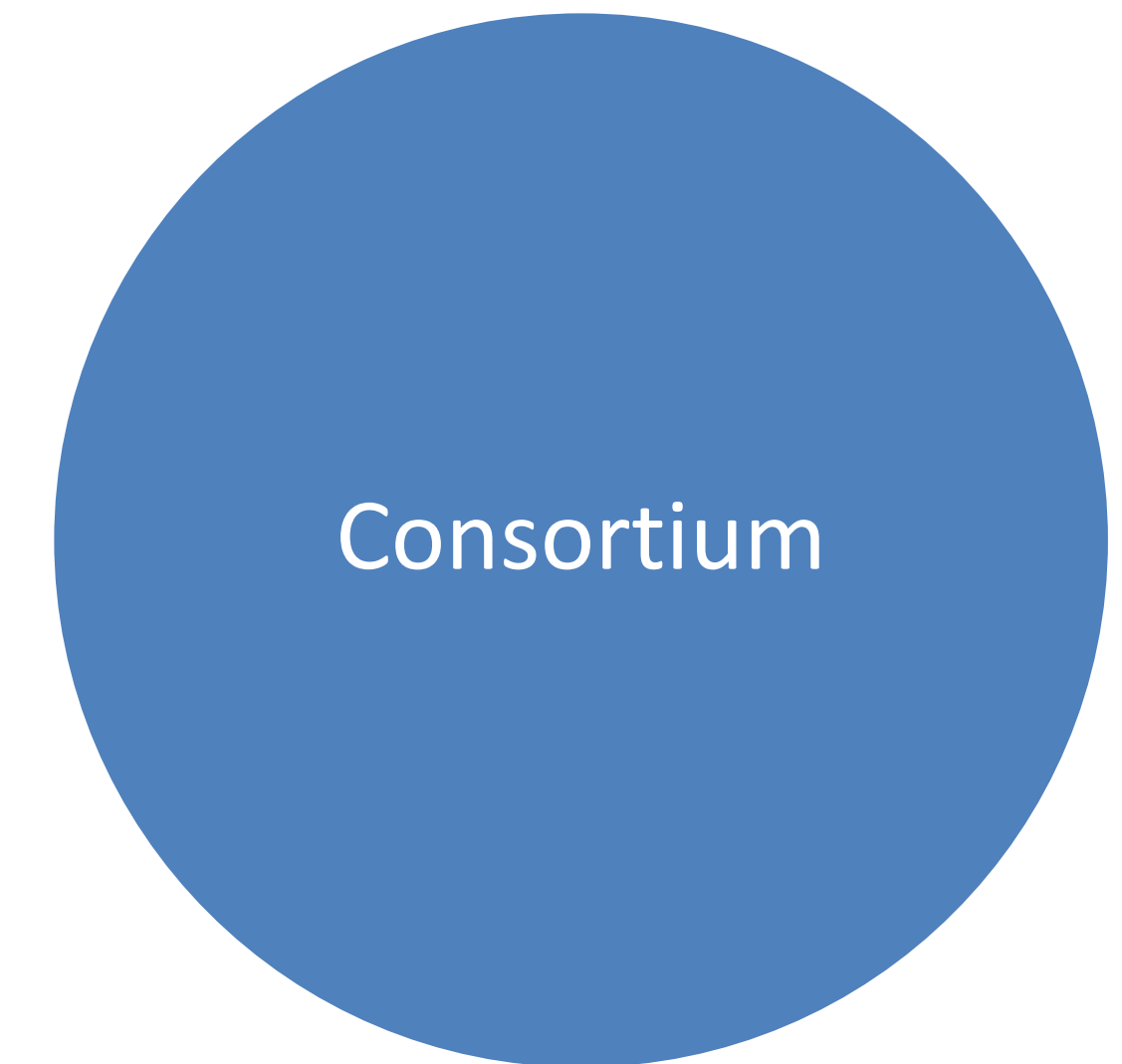
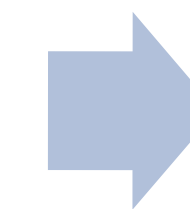
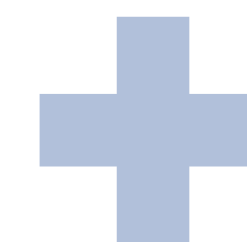
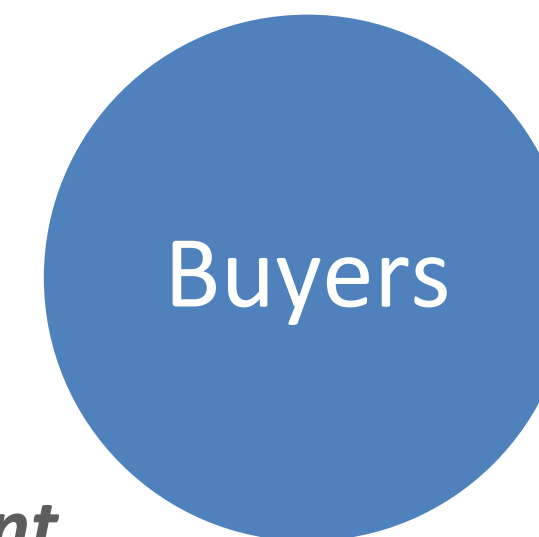
European Commission



Includes Buyers and Experts in the preparation, execution and promotion of the project



Procurers - public organisations that commit funds to contribute to a joint-procurement



Experts - partner organisations bringing expertise in the requirement assessment and promotion activities but are not part of the Buyers Group

In addition, a number of Early Adopters organisations have expressed interest

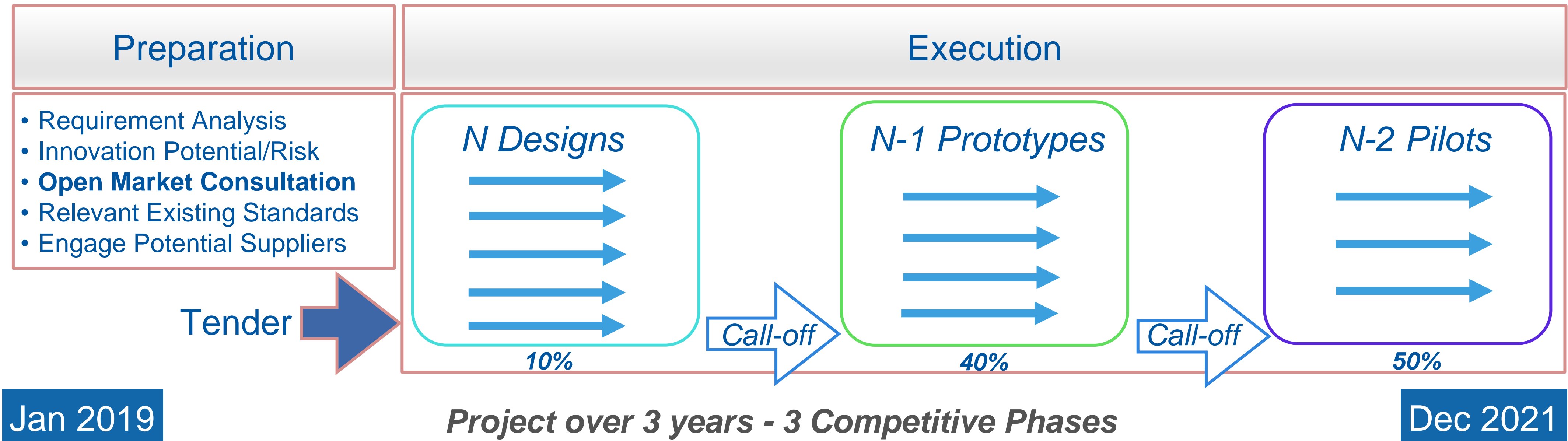


*R&D to demonstrate functionality of services for long-term preservation and archiving
(Analysis Preservation, Software capture, reuse, etc.) for scientific data in the PB range under F.A.I.R. principles*

- Generalize and expand existing solutions to several scientific domains*
- R&D on hybrid data management with access and ingestion at very high rates (1-10 Gbps/day)*
- Resulting Services under the OAIS reference model and relevant standards*
- Define Business Models for cost-effective services*



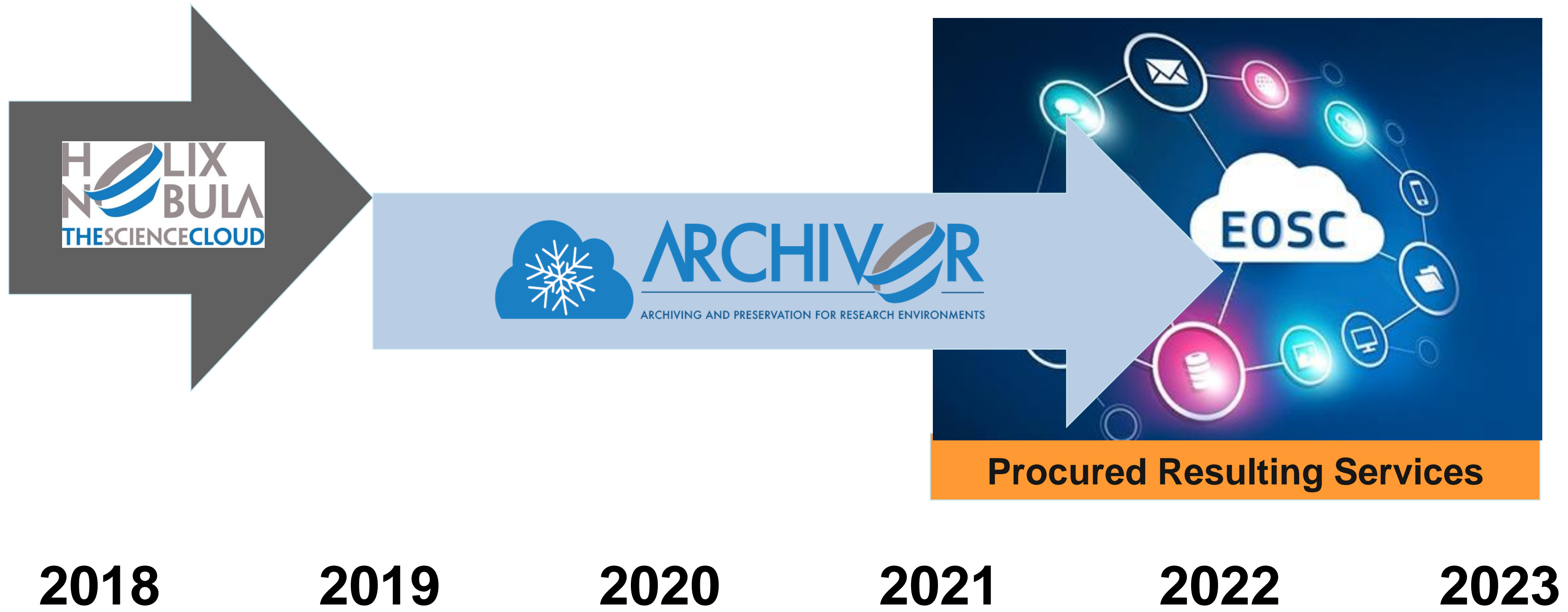
ARCHIVER stages



Suppliers to sign a framework agreement in order to participate in the call-offs



Timeline





Summary & Next Steps

- ☛ *OCRE will procure services of ALL cloud providers across the stack: IaaS/PaaS/SaaS*
- ☛ *Suppliers readiness will be technically validated through a test-suite*
- ☛ *Access to cloud services with vouchers/credits will start in 2019*



- ☛ *ARCHIVER will produce R&D to the next generation of digital archiving*
- ☛ *Open Market Consultation events to kick-off in Q2 2019*
- ☛ *Early Adopters will be able to procure the resulting services from 2021*



- ☛ *Suppliers need to sign a Framework Agreement and participate in call-offs*
- ☛ *Requirements will include GÉANT connectivity and Federated AAI*
- ☛ *Procured services to be integrated on the EOSC catalogue*

