



Project Control Expo

Digitalising the Project Management for New Nuclear Projects

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Speakers



Truchetti Laurent

New nuclear Project Method and Tool Manager

Laurent spent thirteen years working in EDF new nuclear engineering leading Manufacturing inspection teams at first and then HPC Responsible Designer Schedule team.

He is now working for EDF New Nuclear Change Program. He is in charge of implementing and digitising Project Management best practices & standards for new nuclear projects.



Cousson Alexandre

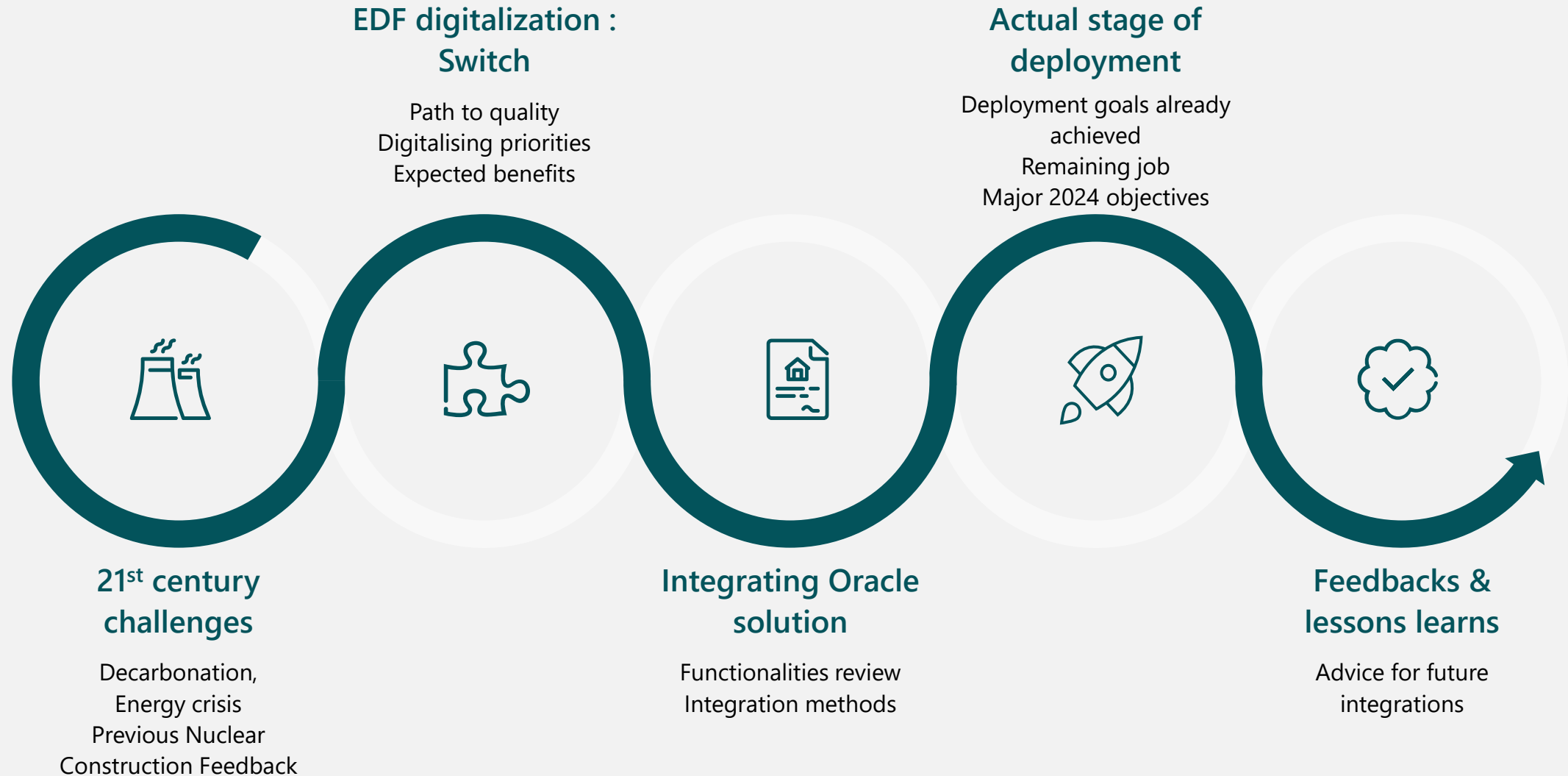
Solution integration Project Manager

Alexandre is leading the integration of the PRIMAVERA solution (UNIFIER and P6) by coordinating the specifications and development of a Cost, Contract and risk management solution intended for new nuclear projects.

He is also in charge of the support of the delivery manager to ensure the requirements of the end users and the specifications are fulfilled by the integrated solution.



Dealing with Project Management Methods & Tools for New Nuclear Programs





NEW NUCLEAR PROGRAMS TO ANSWER 21ST CENTURY CHALLENGES



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Feedbacks of the previous EPRs construction: a need to improve the project management

Due to the difficulties observed in the previous EPR constructions, especially after Flamanville project, a global feedback was ordered by French Government: Foltz's report (October 28th 2019).

Main issues in project management :

NON STANDARDISED METHODS

- The project did not have clear methodologies shared by every stakeholders
- Difficulty for the project responsible to have overall analyses
- Difficulty in decision making

→ Use of the best project management practices and standardisation throughout the different projects and EDF units.

DATA SCATTERED ON SEVERAL COMPANIES

- Numeric discontinuity between the different EDF units and the different suppliers
- Lack of data integration
- Different information especially in scheduling/costing between the different actors not allowing a clear vision of the project

→ Use of a common solution to gather all the data (data-centric project)

LACK OF SKILLS IN PROJECT MANAGEMENT

- Not enough workers in project management sector to control the well being of the project:
 - Not enough knowledge internally
 - Not good enough partnership with project management experts
- Lack of project management culture of technical experts

→ Develop a project management community inside EDF and create valuable partnerships with Project Management experts.

The energy sector: world biggest carbon emission

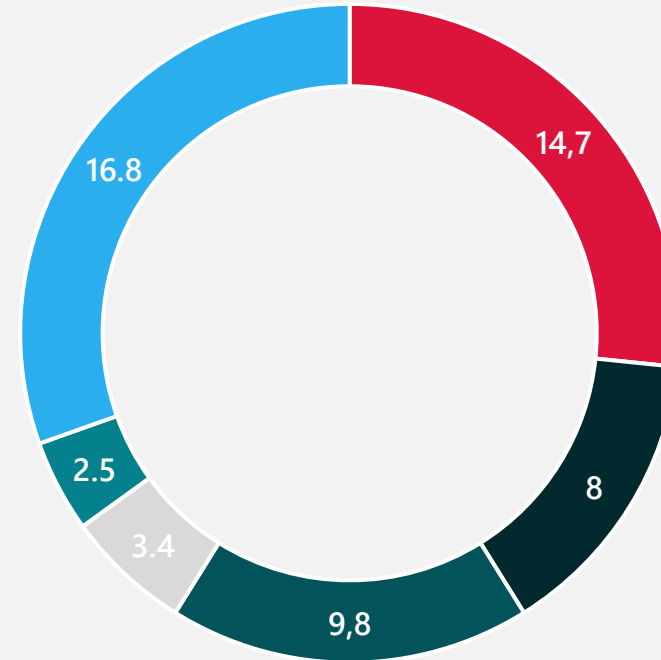
EMISSIONS

Global warming and its effects are the 21st century's most important problems. The energy sector is clearly one of the main sectors where decarbonisation is paramount, and its effects will also reduce the emissions of the other sectors.

In the program of the French government this decarbonisation will go through:

- The development of renewables,
- **The renewal of the Nuclear programs** with EPR technology and SMR as a first step.

Greenhouse gas emissions by sector, world (2022 data) in bTons (CO2 eq)



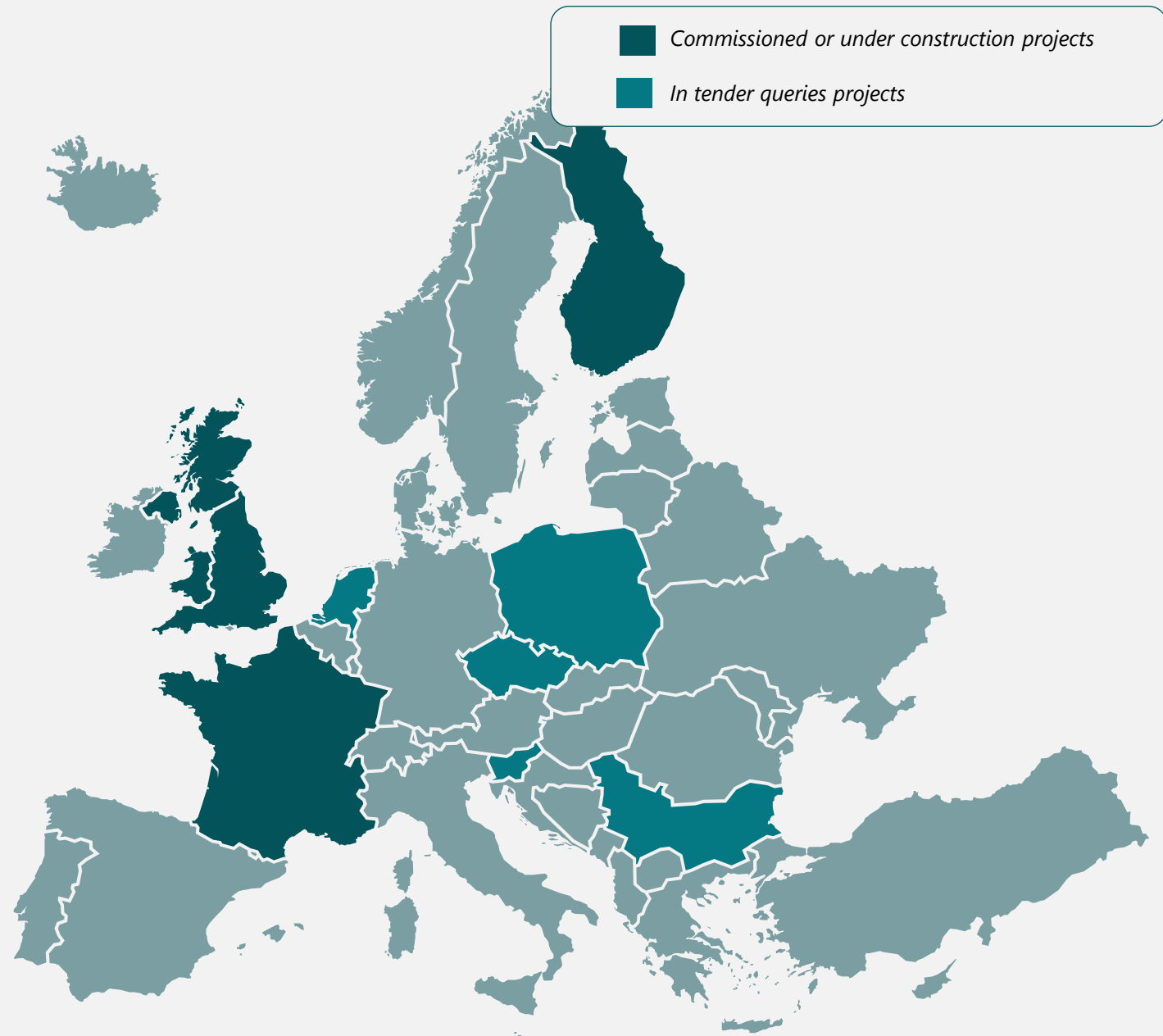
- Electricity and heat
- Transport
- Industry (combustion & processes)
- Buildings
- Fuel exploitation
- Others

EDF New Nuclear Programs

EDF NUCLEAR PROGRAMS

Since Ukraine-Russia war, the energetic future of the European continent, is a major issue and has led, combined with ecological issues, to a renewal of the Nuclear Programs :

- ❖ UK program (committed long ago) with Hinkley Point C (2 Units under construction) and Sizewell C (2 units in tender query),
- ❖ The renewal in France with 6 NPPs (+8 in option) through EPR2 program,
- ❖ Several tenders mostly around Europe :
 - 1 (3 in option) units for Dukovany, Czech Republic,
 - 6 Units for Poland,
 - Units for Netherlands, Slovenia and Bulgaria
- ❖ Outside Europe projects also with tender queries:
 - 6 Units in Jaitapur, India
 - 2 Units in Saudi Arabia,
 - 2 Units in Kazakhstan





A DEDICATED ORGANISATION FOR PRACTICES TRANSFORMATION



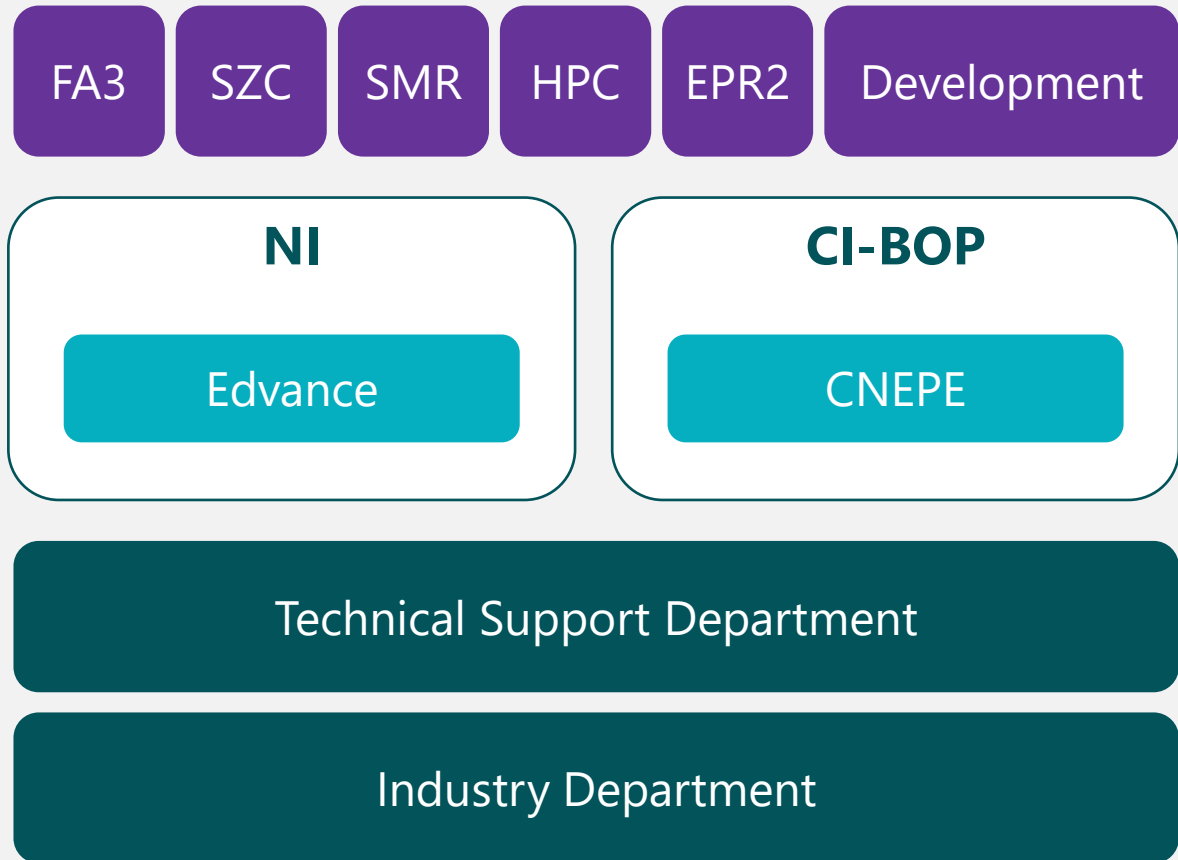
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A new transversal organisation to deal with the transformation challenges

DIPNN
PROJECT ENGINEERING DIRECTION FOR NEW NUCLEAR

- DSPTN (part of DIPNN) is a transverse entity in charge of the digital transformation of the Nuclear Engineering

DSPTN
Project Support & Digital



Integration project emerging: foreseeing the requirements

12/2018

Launching of the "Project Performance" stream

10/2019

Foltz report issuance (FA3)

03/2021

Signature of contract with an Editor-Integrator couple

03/2019

EPR2 basic design

01/2020

Invitation for tender on Cost/Contract/Risk management scopes

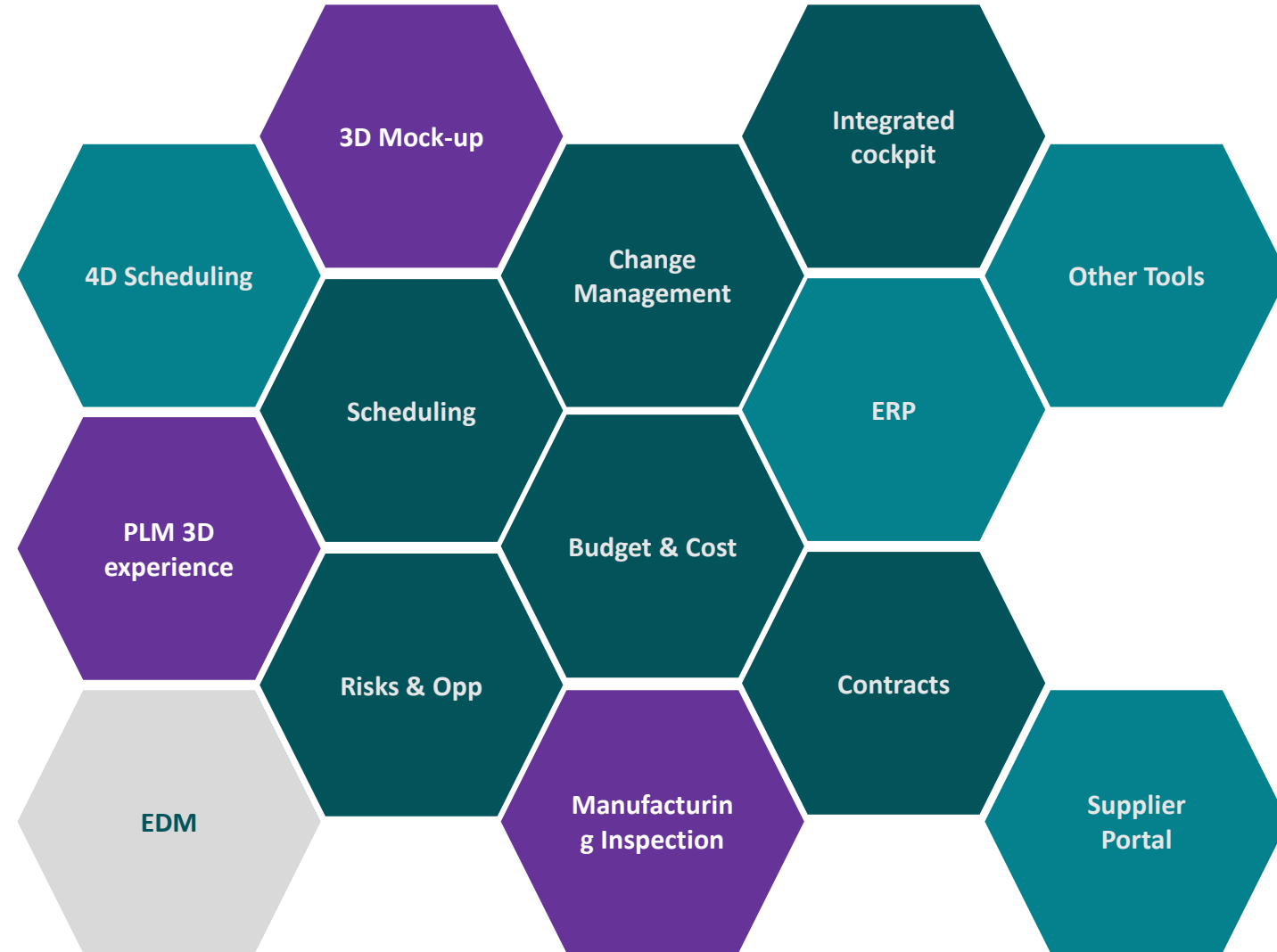
06/2021

Start of the Project Management digitalisation



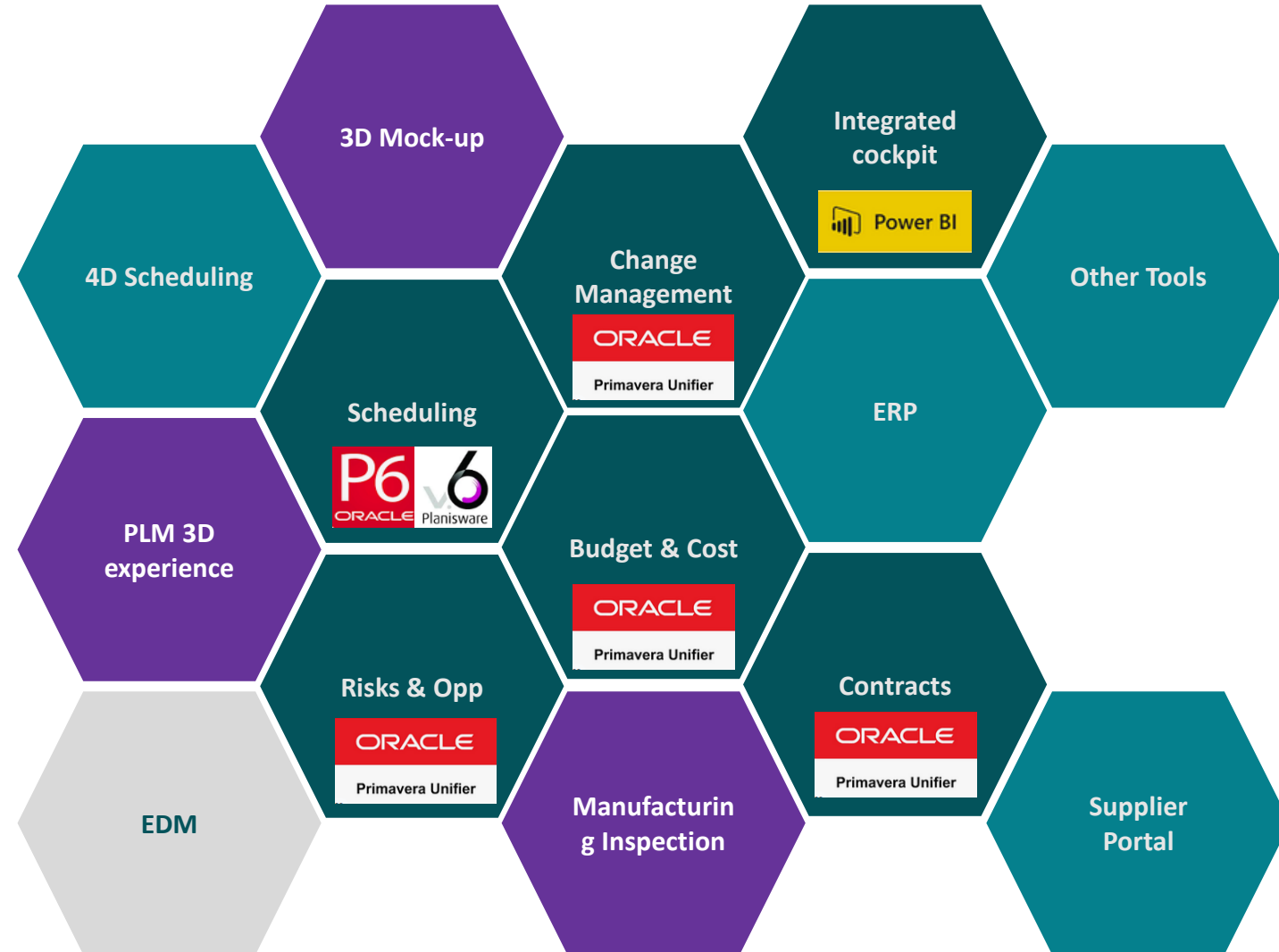
Major project management fields

- The objectives of a global integration between project management and other fields such as System Engineering:
 - ❑ Integrated end-to-end solution in a global architecture,
 - ❑ Connection between fields and thus between software,
 - ❑ Enhance the user experience.



Oracle Primavera tool to cover project management needs

- All the project management processes are covered by the Primavera tools and enhanced by power BI to obtain an integrated cockpit for steering actions
- An integrated architecture through interfaces with PLM and ERP to ensure data centricism and end-to-end solution



Benefits



- A must succeed project, the project management improvement is key to New Nuclear Programs
- A quick return on investment if the contract management is improved according to the major scale of the projects (for instance on FA3 €1billion of claims. Imagining a 10% savings is a €100 million benefit)

Productivity gains



Information sharing to improve cooperation

Interconnected processes to help decision making

Time & Money savings



Global overview built by interconnected softwares and interfaces architecture



Standardization strength



For processes and methods throughout all projects

Assets of the data centricism



Single source of truth

Validation workflow to increase the traceability level

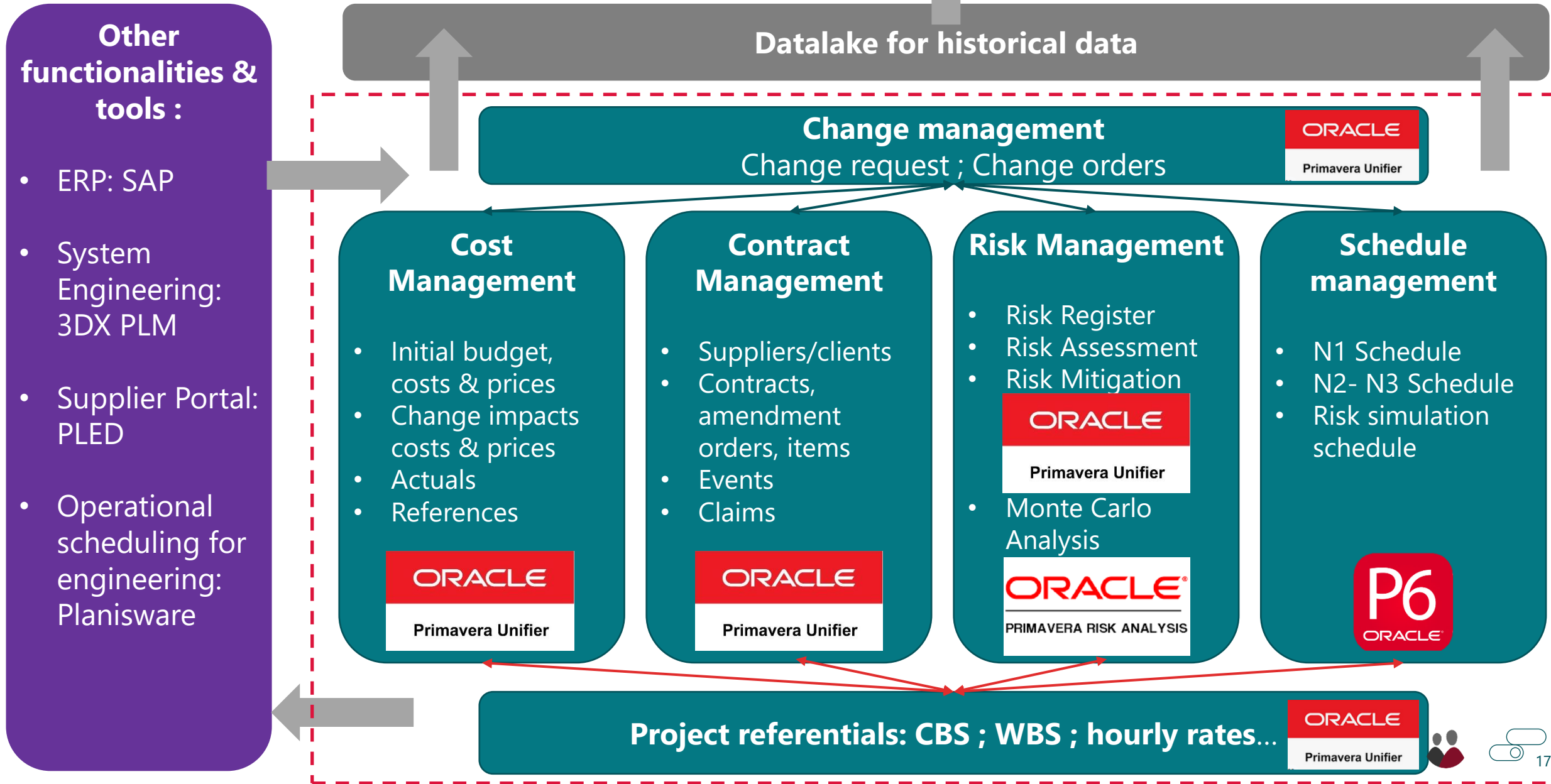


THE BASICS OF AN INTEGRATED ARCHITECTURE



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Overall architecture





A DELIVERY MODEL BASED ON USER VALUE



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Philosophy of the delivery model

1

A user-driven transformation
teaming with IT teams to ensure the digital transformation

2

A portfolio managed by WSJF methodology: **prioritise by value, alignment and adhesion** from every stakeholder

3

Consistency and transformation management in a wide and complex ecosystem

4

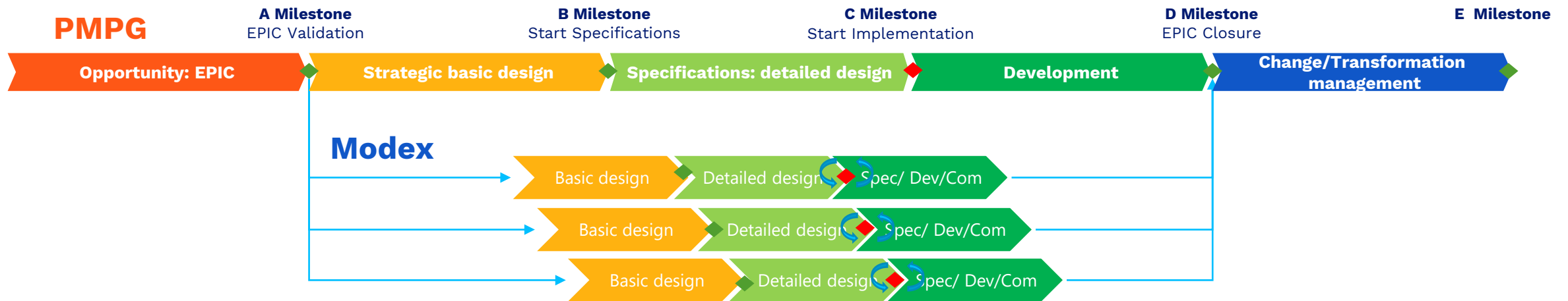
An **aligned** rhythm of products delivery **with top priority Industrial Milestones** of the DIPNN

5

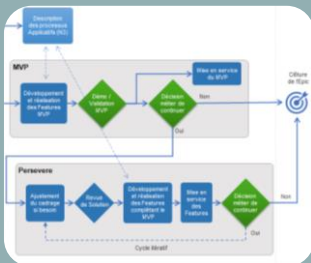
On the spot work and anchoring ensured by the engineering entities, led by the chief transformation officers and the change office

Agile Methodology throughout the project

Delivery based on the added value: MODEX



- A **basic design phase based on value detailing. MVP (Minimum Valuable Product)** definition as a prioritisation and decision-making leverage.
- **MVP (or Persevere):** based on OOTB solution (as much as possible) allowing a **quick commissioning of usable solutions**. Integration of the backlog elements prioritised with the end users, based on their complementary identified added value.
- **EPICs (digitalisation opportunities) closure when users decide that the expected added value level is reached** by the solution to enable their work.





CURRENT & FUTURE CHALLENGES



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Project integration: an iterative deployment, past steps

06/2021

Digitalising process beginning

05/2022

2nd release (MVP 1.2): solution for risk management

→ SZC+ Jaitapur (JNPP) ✓

06/2023

4th release (MVP2.3): contract management V2, cost management V2

→ EPR2 (contract management) ✓

→ SZC + JNPP + Nuward (full scope) ✓

02/2022

1st release (MVP 1.1): OOTB solution for cost management

→ Sizewell C (SZC) ✓

12/2022

3rd release (MVP 2.1): solution for contract management + risk management V2

→ EPR2 (contract management Step 1) ✓

→ SZC + JNPP (full scope) ✓

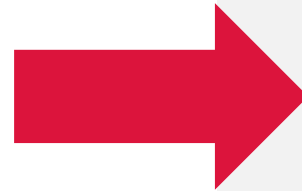
09/2023

5th release (Persevere 2.31): all scope enhancement

2024 ambitions: scaling of the project and run preparation

THE CURRENT DEPLOYMENT

- 3 integrated processes: costs, risks, contracts,
- Major interfaces with ERP & Power BI already developed,
- 4 projects with different integrated perimeters,
- ~100 users of the solution.



2024 OBJECTIVES

- Complete the initial scope of the solution integration including change management,
- Scaling of the solution to integrate all New Nuclear project management users, focus on EPR2 integration on all the scopes ~1000 users,
- Integrate the most valuable features to enhance the solution for end users,
- Ensure the preparation of the run management after the 3-year deployment,
- Upgrade the Primavera solution to benefit the latest OOTB functionalities.



FEEDBACKS & LESSONS LEARNED



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Begin with the fundamentals of project management and business cases

STANDARDISED & MATURE PROCESSES

- Before thinking about tools, keep in mind that the most important is the process convergence
- To allow global analyses of the projects, the methods must be standardised
- The processes should be mature to ensure their stability and the best practices meeting
- ➔ A fundamental rule of project management is to keep the methods stable during the project.

DEVELOPMENT OF THE PROJECT STRUCTURES

- The first good practice of project definition is the creation of the Breakdown structures:
 - ➔ PBS → OBS → WBS → CBS → CtBS → xBS
- Following the project definition, the building of the solution must begin with the development of these fundamental structures
- ➔ This allows the different processes to interface with these structures and among each other

BASE THE SOLUTION ON BUSINESS CASES

- The solution must be user-centric - the solution is designed to answer the end-user requirements
- To capture these requirements the integration manager should at least:
 - Gather business cases to ensure that they are covered in the methodology and integrated into the solution
 - Ensure the presence of experts with practical experience at the different workshops for solution construction

BASE THE DEVELOPMENT ON USERS REQUIREMENTS AND THE ADDED VALUE OF THE SOLUTION

Gradual and accompanied iterative releases

ITERATIVE RELEASES

- The agile methodology based on the release of iterative solution suits the integration projects
- ➔ Due to the importance of the project for the major issues presented before, the quick delivery of the solution was fundamental.
- Once the solution released, the capability to integrate through new MVP or Persevere users-defined enhancement:
- ➔ The enhancements are most likely to be identified when the solution is used in real conditions. Favour the quick release is thus a good practice.

GRADUAL INTEGRATION

- Integrate first the solution on pilot perimeters:
 - Necessity of high motivation of the users in the pilot to accept the potential issues of first releases,
 - Reduce the possible iterative data recovery which is time consuming for the integration teams.

CHANGE MANAGEMENT: HELP THE END USERS IN THEIR ADOPTION OF THE SOLUTION



Questions?

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THANK YOU