



2024-12-03

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The Impact of Strategic Modernization on Attracting and Retaining a Skilled Nuclear Workforce

Session 2- Integrated Operations for Nuclear (ION)

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Institute for Energy Technology (IFE) is hosting the OECD NEA Halden Human – Technology – Organisation (HTO) Project

OPEN
#2



International collaborative research for the safe and reliable operation of Nuclear Power Plants, focusing on Human-Technology-Organisation

OECD Nuclear Energy Agency (NEA) - Division of Radiological Protection and Human Aspects of Nuclear Safety (RP-HANS)

Operating agent: IFE (Institute for Energy Technology) in Norway

3-yearly joint research program



Jointly funded by the membership

Agreement signed by 20 Parties* in 12 countries

47 organisations pre-approved Third Parties (Regulators, Utilities, Vendors, TSOs, R&D centres)

Budget for 2024-2026 is 170 MNOK (14.6 MEUR)

*US Parties: **DOE** U.S. Department of Energy, **NRC** U.S. Nuclear Regulatory Commission and **EPRI** Electric Power Research Inst.



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Nuclear – Offshore Petroleum Commonalities

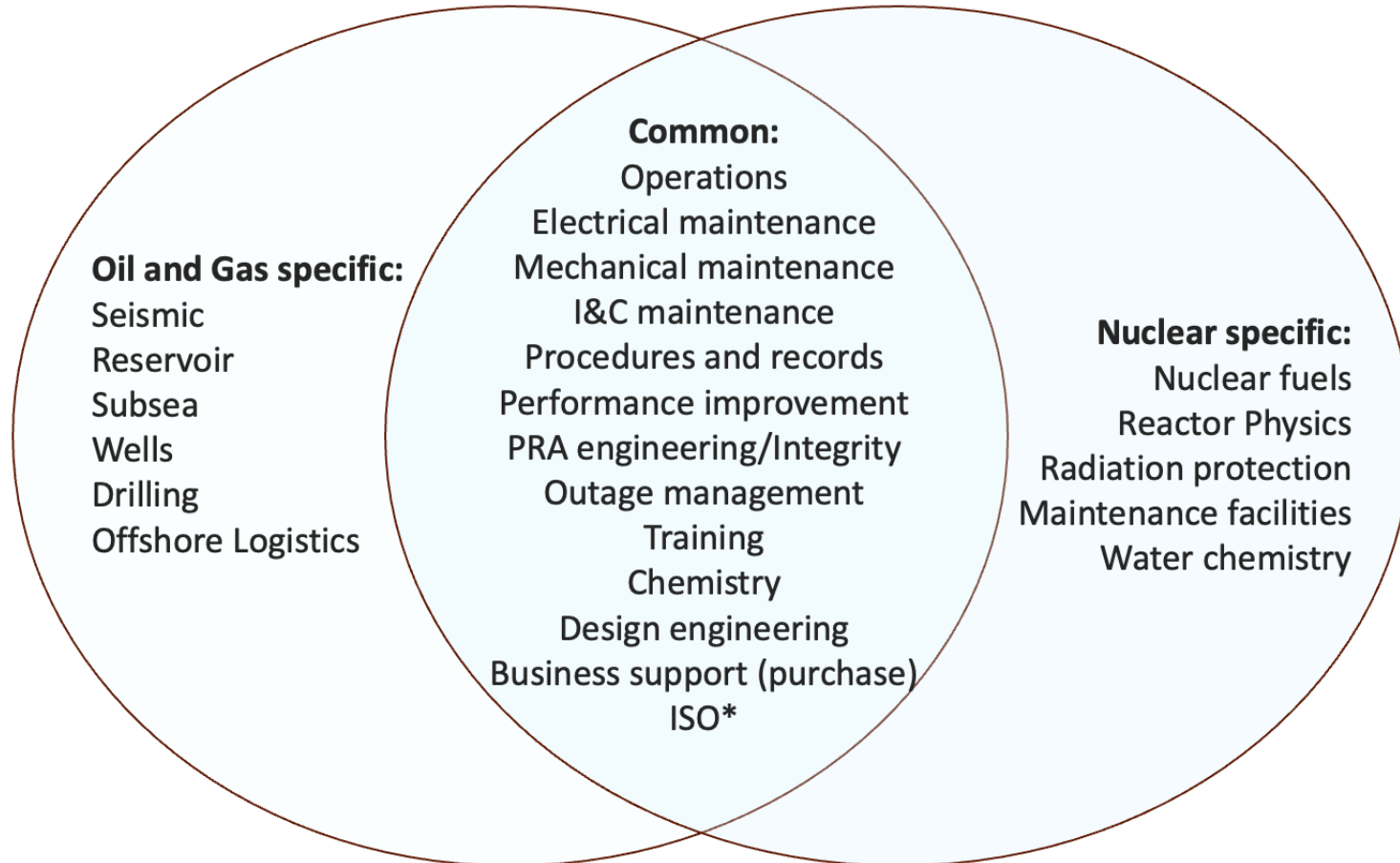
Nuclear

- High environmental consequence of failure
- High organizational complexity
- High technical complexity
- Strong regulatory regime
- Interest in license renewal > 80%

Offshore Oil & Gas

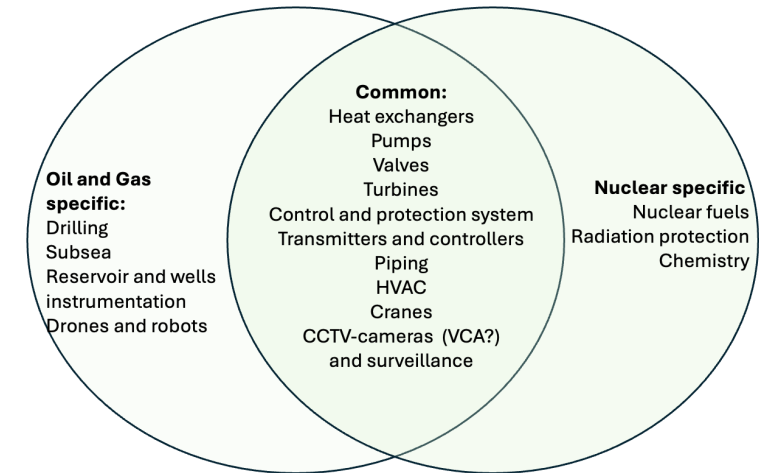
- High environmental consequence of failure
- Higher organizational complexity
- High technical complexity
- Strong regulatory regime (risk – based)
- Most fields with substantial life extension

Nuclear and Oil & Gas Functional Commonalities

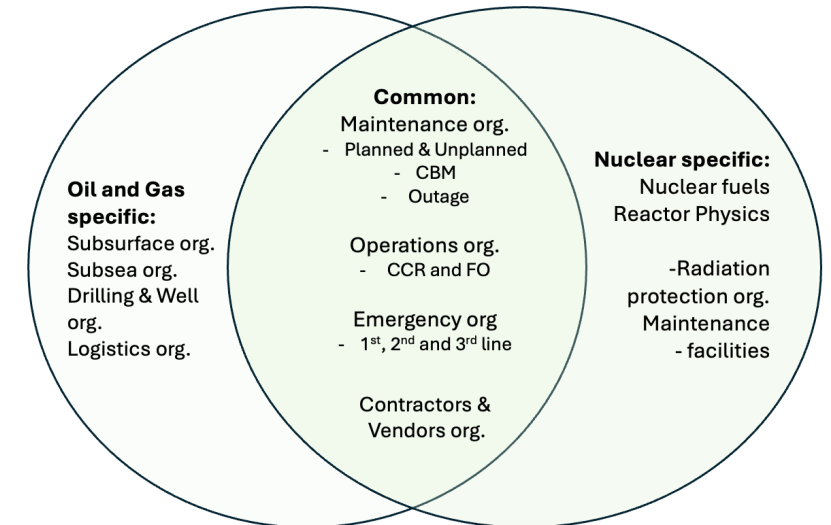


*insulation, scaffolding and surface treatment

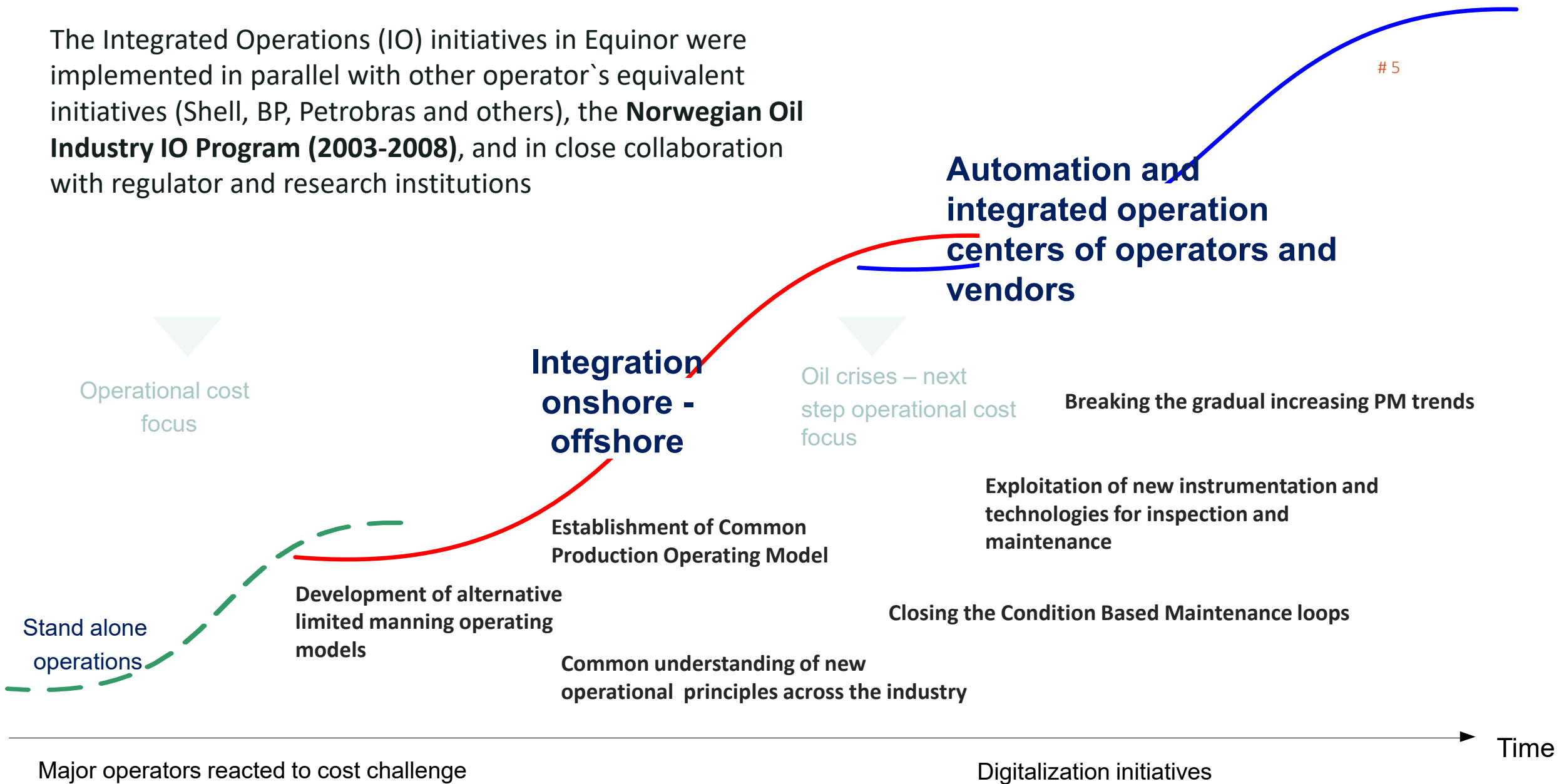
Nuclear and O&G Equipment and Technology Commonalities # 4



Nuclear and O&G Organisational Commonalities -



The Integrated Operations (IO) initiatives in Equinor were implemented in parallel with other operator's equivalent initiatives (Shell, BP, Petrobras and others), the **Norwegian Oil Industry IO Program (2003-2008)**, and in close collaboration with regulator and research institutions

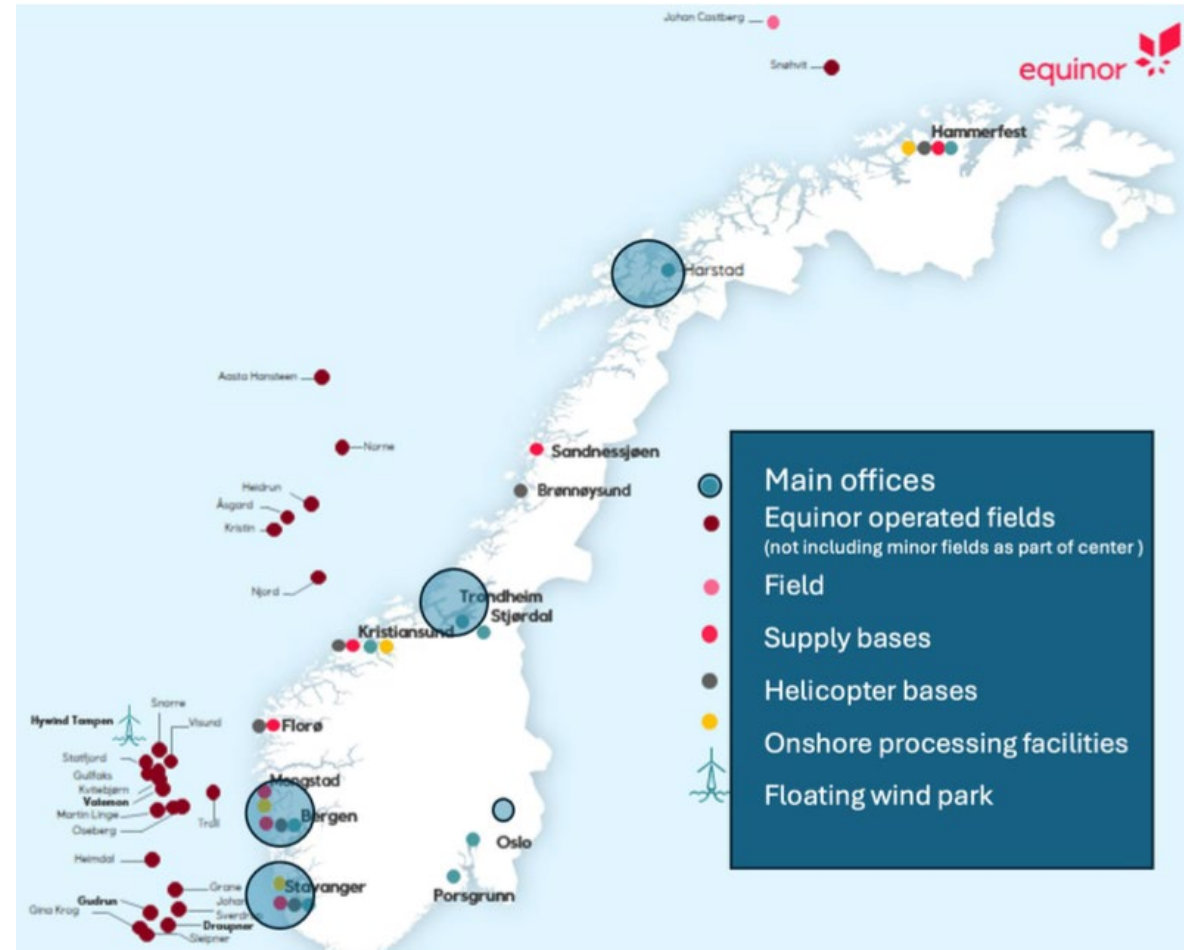


Integrated operations (IO) - principles

Integrated operations (IO) in Oil & Gas

The use of advanced technologies, real-time data sharing, and collaborative processes to optimize and enhance decision-making and operations across the value chain

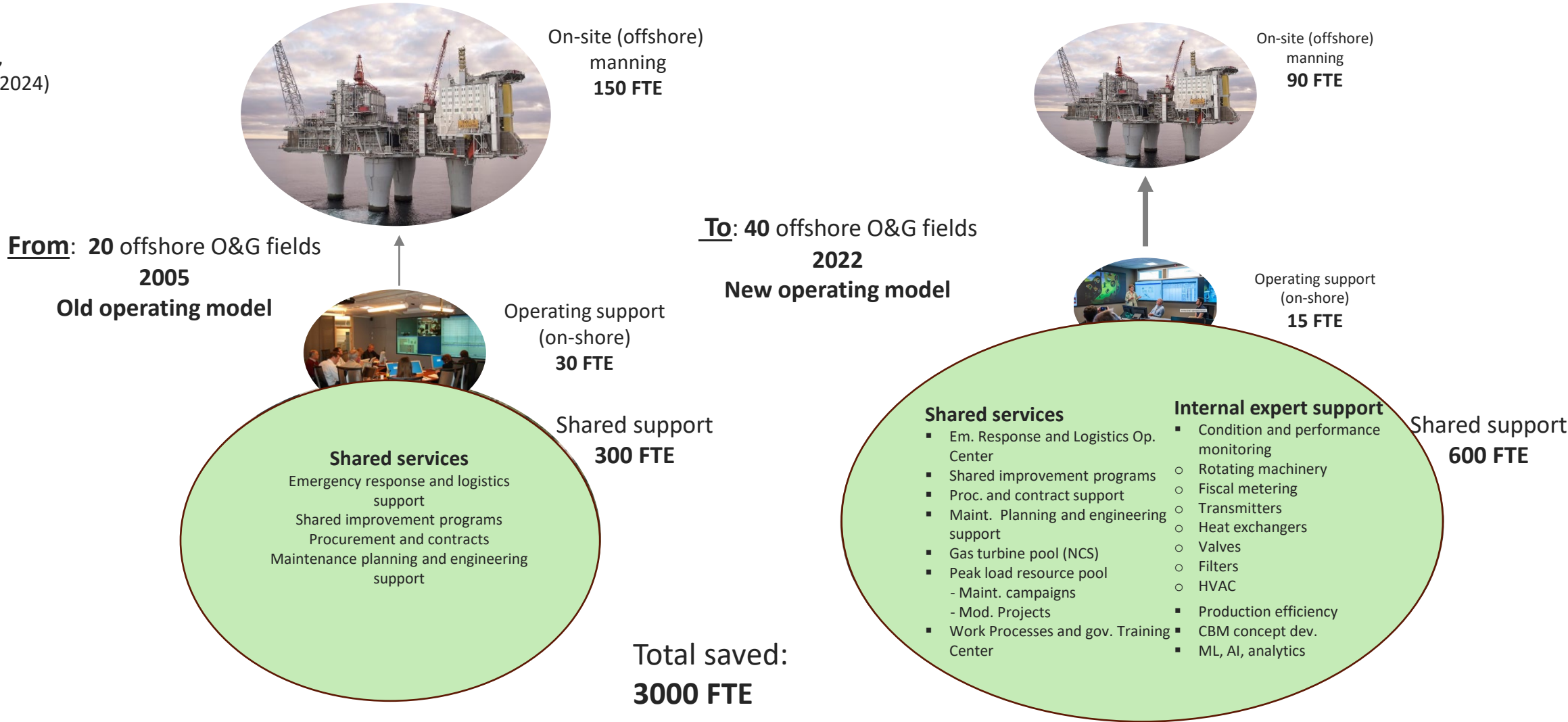
- Eliminate organizational, geographical, discipline and cross company barriers by use of sharing relevant information real time
- Better utilization of scarce resources in support and expert centers. Vendors work from their own centers
- Move from manual to data driven way of working. Share relevant real-time data and collaborate
- Move all administration/planning and other possible work tasks from the plant to the main office/vendor office



Restructuring of Equinor`s O&G production operations

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Numbers are approximate, not verified (2024)



Observations from establishing the IO way of working

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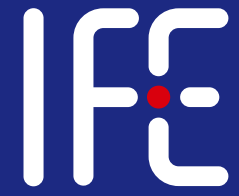
Work from central offices

- Is often more accessible to a diverse workforce, opening for a broader talent pool to be attracted.
- Opens for individuals with caregiving responsibilities or those unable to work in physically demanding environments
- The transition from shift work to daytime positions can help older employees remain in their roles longer
- Enable roles in urban centers or remote setups, broadening location options for employees.
- Requires equipping employees with new technical and analytical skills for remote systems and interpreting data - enhances the company's attractiveness to candidates who value professional development

The organizational shift aligns with the values of Millennials and Gen Z, who prioritize sustainability, innovation, and work-life integration.

Some employees may experience negative experiences

- Shift work benefits like free periods, compensatory time, and extra pay for inconvenient hours are highly valued
- Being further removed from the sharp end is not always something the executive worker finds fulfilling or enjoyable.
- Experiences from the model indicate there is a strong need for plant expertise in central roles, but remote work away from the plant does not suit everyone
- Experiences with 24/7 technical support show that in the early stages of implementation, there can be situations with work underload. The work becomes uninteresting, leading employees to leave centralized positions and return to the plant.



Thank you for your attention!

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