digital silos don’t yield value

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powerful thinking

MCEDD
DEEPWATER DEVELOPMENT

next 20 minutes

- framing the problem of digital silos
- avoiding digital silos through early engagement
- an approach for new project developments
- breaking silos through the project lifecycle
- the io digital thread and value proposition

framing the problem: digital silos

the problem

- increased computing power & technology generates masses of data
- building not breaking silos
- insights get lost in the data

solutions

- coherent data strategy with an holistic approach
- start with the end in mind
- open source data

challenges

- reluctance to change
- tactical not systemic solutions
- conventional thinking and capabilities

solving the problem: early engagement

challenges

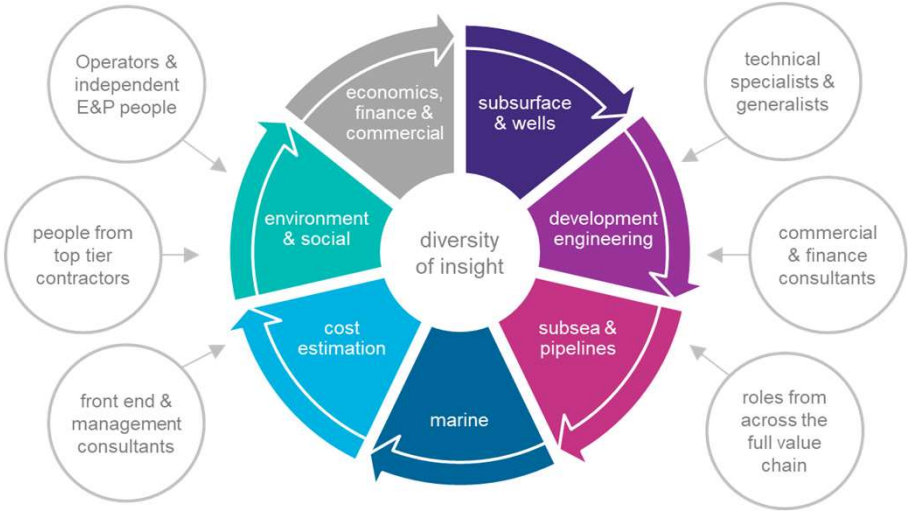
- technology is not the barrier to digital transformation
- the biggest challenge is cultural
- digital transformation will not eliminate roles but change them

solutions

- use early engagers to lead
- leverage the expertise and computing power of the workforce
- develop late adopters

io solutions are

- integrated (single or integrated platform solution)
- cloud, scalable & secure
- open, interoperable and futureproof



digital silos: new project developments

digital twin

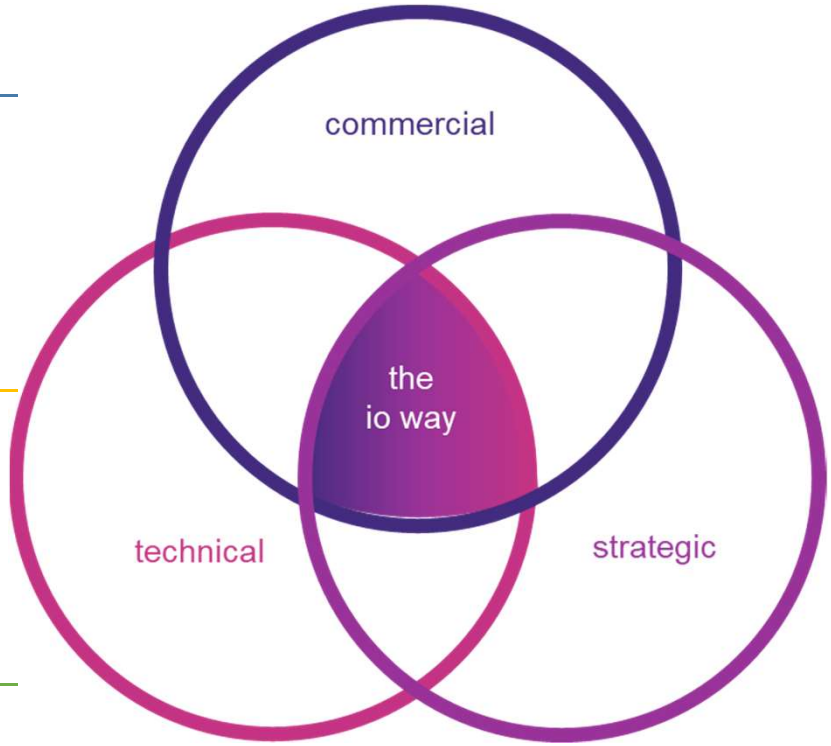
- digital representation of the full field development
- model the techno-economic interdependencies
- dynamically simulate performance and behaviour

strategy focus

- critical to establish the strategy at the earliest stage
- fundamental to full lifecycle contracting strategy
- cost benefit analysis: does the digital twin deliver value?

start early

- digitalisation at the heart of concept select
- FEL 0 / 1 Digital Twin
- evolve through lifecycle with BIM-like strategy



our approach: starting with the end in mind

end in mind

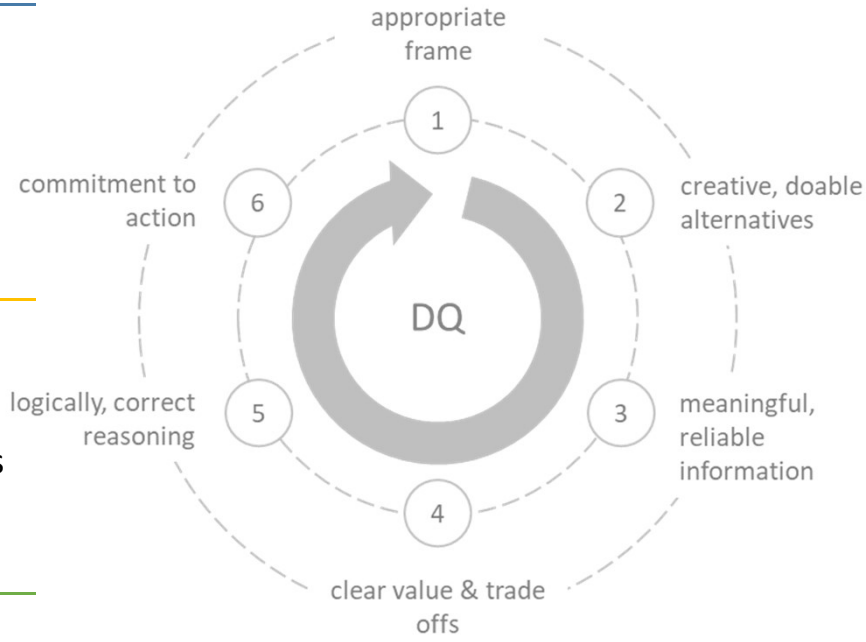
- starting with the end in mind essential to transformation
- maximise the digital dollar from the outset of a project
- move forward with digitalisation as a core principle

decisions

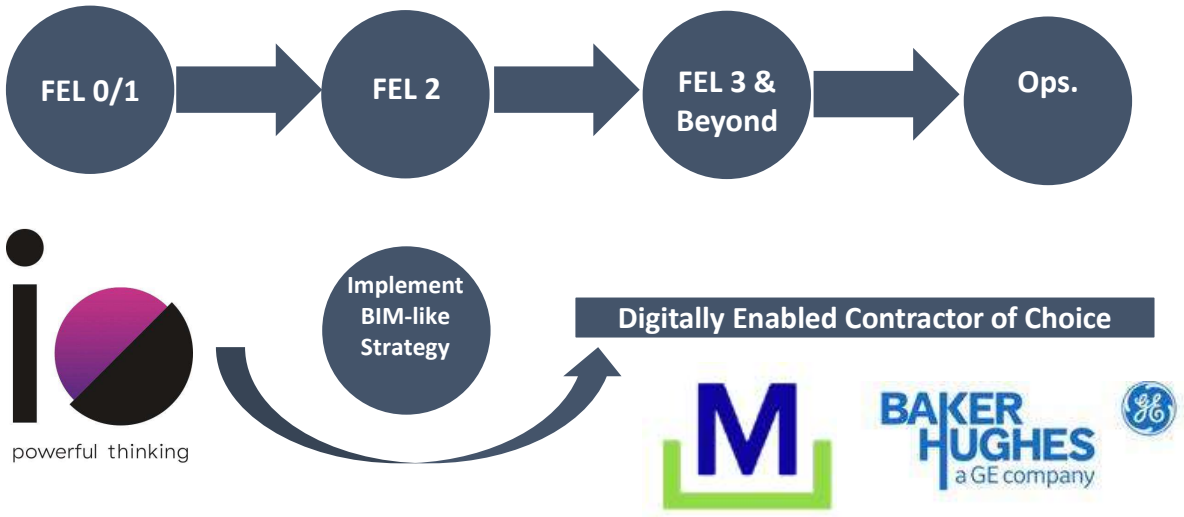
- adopt a decision quality (DQ) framework
- value drivers are established with AHP
- digital disruption through assignment of a disruptor to projects

example

- io developed a NUI concept using digitalisation
- 90% reduction of the topsides equipment;
- delivered a 98% reduction in power consumption;
- achieved a planned attendance of only once per year.



breaking silos through the lifecycle: phase appropriate approach



FEL 0 to 1: systems thinking approach

what it is

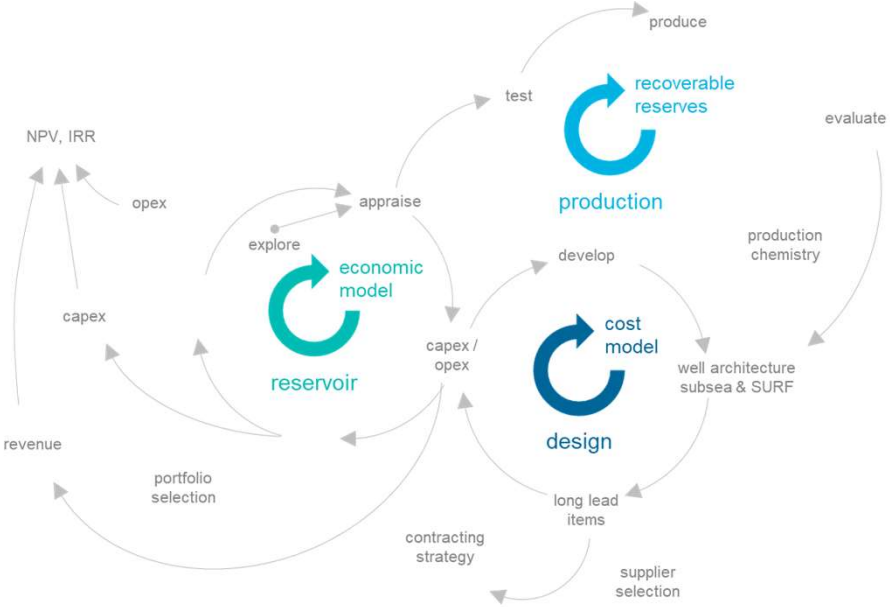
- FEL 0/1 Digital Twin
- helps decision makers to test interdependencies & interactions
- removes bias and focuses the business case around value drivers

how it works

- integration of technical & commercial disciplines
- circular feedback to “home-in” on the optimal solution
- follows the V-Model approach to managing and planning

application

- originally built for an offshore gas compression scheme decision
- each version bespoke to specific requirements
- applicable to any investment decision, brown- & green-field



FEL 2 onwards: BIM approach

what it is

- lifecycle information management that evolves through project
- collaborative working, underpinned by the digital technologies
- BIM ensures that assets operate more effectively & efficiently

how it works

- an iterative approach to the building of the digital model
- handed over as the phases of the project progress
- each discipline adding their own data to a single shared model

benefits

- cost & schedule benefits throughout the construction phase
- facilitates enhanced collaboration & reduces interfaces
- the output of is a living, virtual model of an asset – a digital twin

operations: data insight approach

data lake

- the majority of assets already have extensive sensor networks
- this data is not fully understood or analysed
- first step to digital transformation is to fully utilise this data

where to start

- what data do we have?
- what data do we need?
- how do we leverage insights?

leverage insight

- value drivers
- gap analysis
- agile projects

portfolio evaluation: open source approach

what it is

- allows a far more sensitive pattern recognition to take place
- open sourcing allows collaboration & innovation on a new scale
- operators learn from each other to raise efficiency of industry

how it works

- leverages the data set to drive innovative solutions to OE
- single & double loop learning
- adopt into future designs & challenge the status quo

challenges

- knowledge leakage: speed of innovation is more important
- security: blockchain can be applied to sensitive operating data

the io digital thread: analytics at the core

platform ready

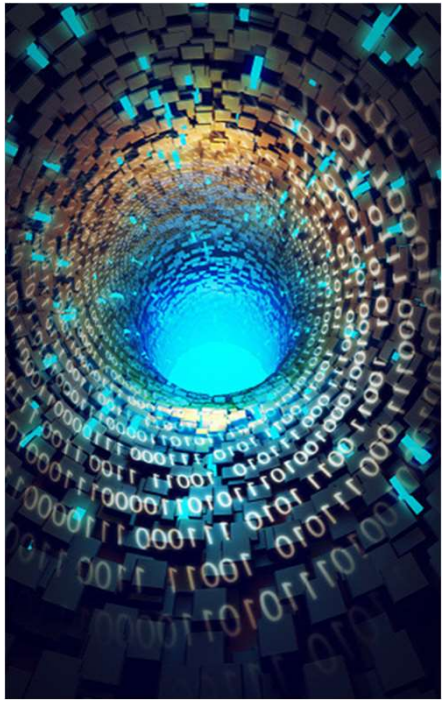
- phone applications
- cloud solutions
- computing at the edge

data for all

- simple presentation of data for everyone
- asset performance dashboards, business process KPIs
- standardised format

workflows

- O&M activity managed through mobile applications
- automation of processes (operational and business)
- use people as sensors



io's digital value proposition

Digital Twin: Life of Field Data Management

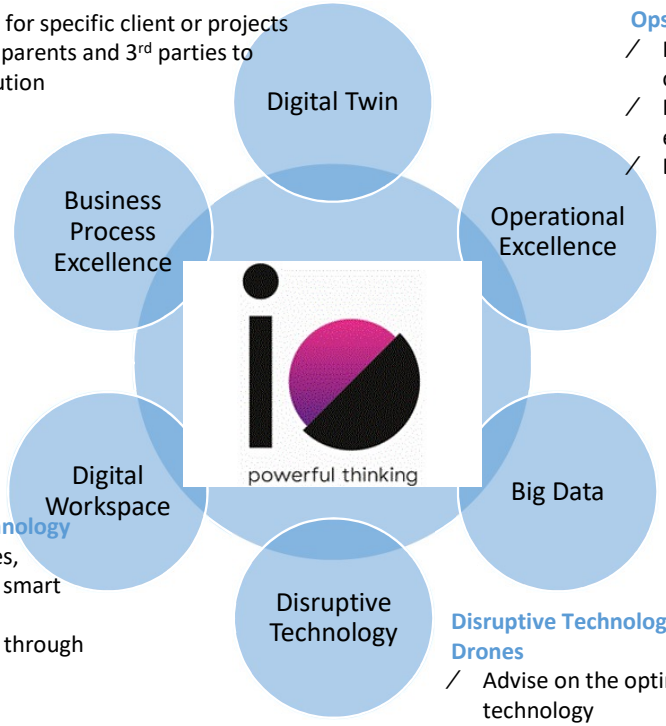
- Creation of common data model throughout project lifecycle, combine with systems thinking to create digital twin
- io can develop strategy for specific client or projects
- io can collaborate with parents and 3rd parties to provide end to end solution

Ops Excellence

- Kaizen framework to continually improve operating assets
- Knowledge management to design more efficient assets in future
- Leverage digital where appropriate

VSM & Digital Processes to deliver excellence

- Apply value stream mapping and new technology to transform client work practices and business processes



Big Data

- Advise on how to leverage insight out of existing data
- Develop a strategy for capturing and analysing data

Digital Workspace: Leveraging Technology

- Remote working, portable devices, wearable devices, virtual offices, smart assistants etc
- Establish an extended enterprise through collaborative working

Disruptive Technology: AR, MR, 3D Printing, Drones

- Advise on the optimal use of disruptive technology
- Incorporate into design: design and build the asset of the future
- Integrate with Operational Excellence