

Delivering the Well Cost Reduction challenge



Delivering the well cost reduction challenge

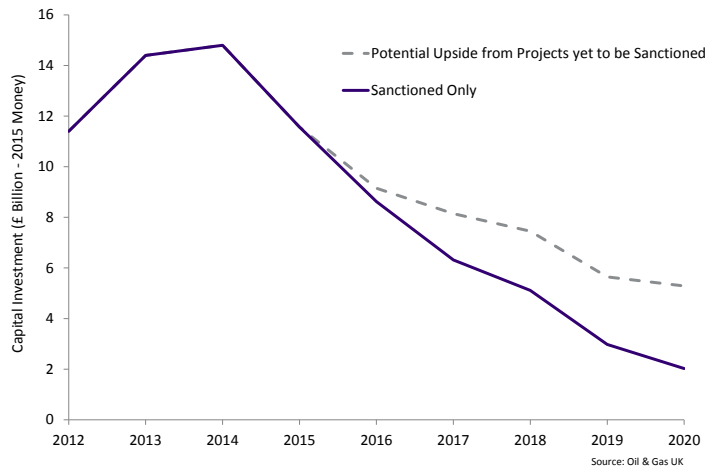
- Who are Oil & Gas UK?
- Maximising economic recovery
- Well cost reduction
 - Problem definition
 - Business case
 - Execution strategy
 - Progress so far....
 - What's next?

Oil & Gas UK is the voice of the offshore Industry...

- Trade association that speaks for the whole sector
- Aims to strengthen the long term health of the offshore oil & gas industry
 - raising the profile of the UK offshore oil and gas industry...
 - promoting open dialogue within and across all sectors of the industry....
 - developing and deliver industry-wide initiatives
 - engaging with governments and other external organisations....

Investment In UKCS Urgently Needed

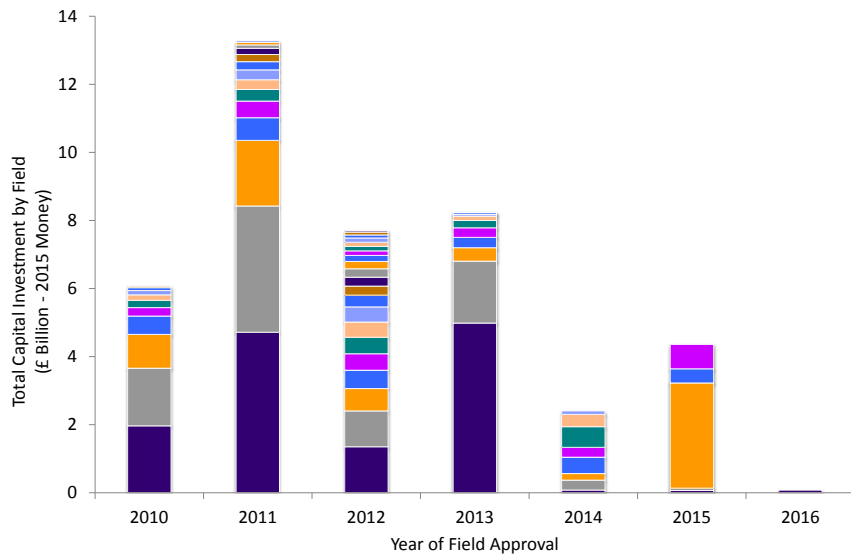
Investment levels falling



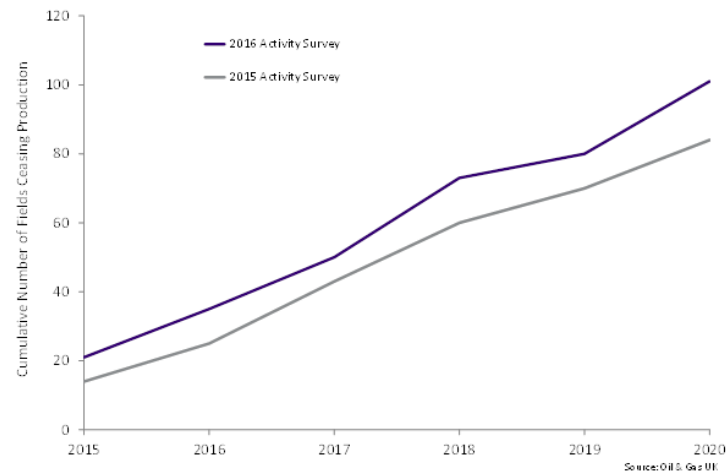
Drilling levels falling



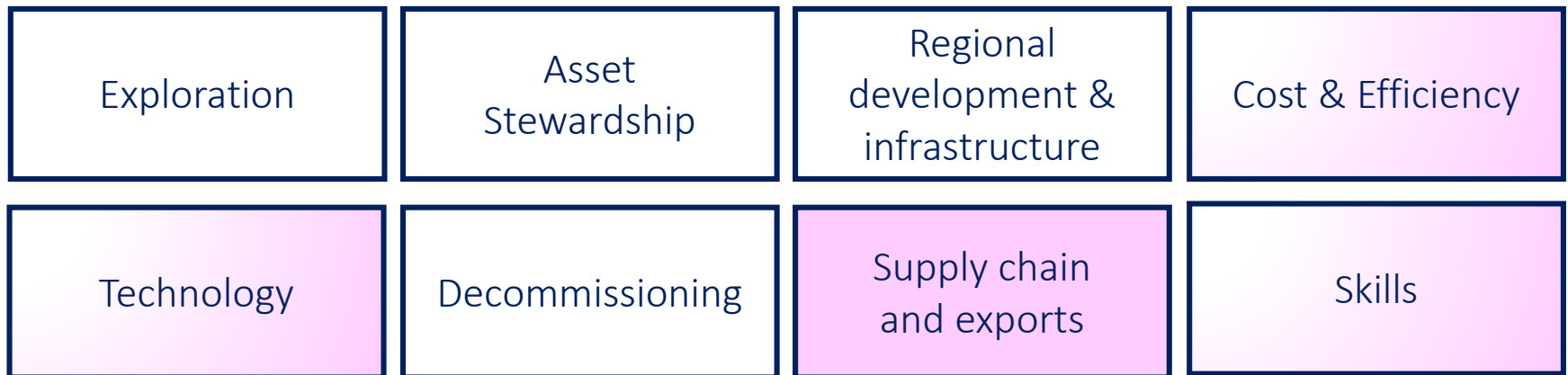
Just one small new project approval in 2016



100 fields to cease production by 2020



The MER UK Forum: bringing together government, industry and the Oil and Gas Authority (OGA) to maximise economic recovery from the UK Continental Shelf (MER UK)



 Oil & Gas Industry Council

Integration of PILOT and Oil & Gas Industry Council

Since 2004...

- Well construction costs have increased five fold
- Rig cost contribution has doubled
- Wells are taking twice as long to drill
- Consequence
 - Development drilling halved... and falling rapidly
 - Exploration drilling at an all time low
 - 13 drilling rigs stacked
 - The UK drilling industry is in a fight for survival

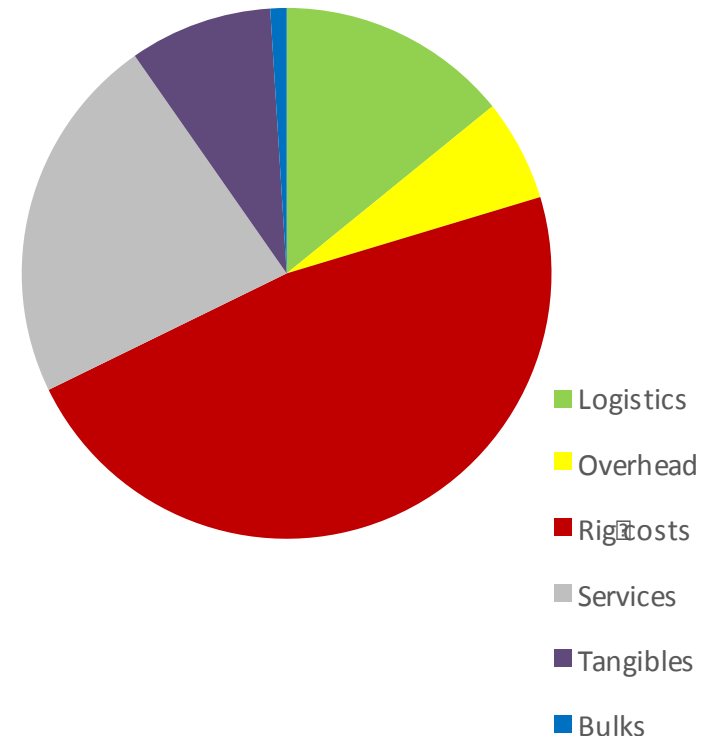
The business case is compelling

- Well Cost Reduction Initiative aims to
 - Increase well construction activity in UKCS
 - improve the development of existing discoveries
 - increase exploration drilling
 - Potential impact of cost reduction initiatives
 - A reduction in core drilling costs of 50% could unlock in excess of 5 billion boe of known reserve potential over the next decade
 - These savings could equate to more than 40 wells per year by 2020
 - Novel technology (beyond 2022) could unlock more of the Potential and Yet to Find Resources: 11.5 to 22 billion boe

Addressing the things we can influence

- Leaving rig cost and commodity price aside...
- Significant cost reductions can be achieved through
 - Working better together
 - Sharing knowledge and experience
 - Improved efficiency
 - Use rigs less
 - Broader technology uptake
 - Reducing unplanned overspend

Top 6 factors to Well Cost
(average % contribution)
7 wells, 4 operators, 2013 to 2015



The well cost reduction challenge – to halve the cost of constructing wells on the UK continental shelf

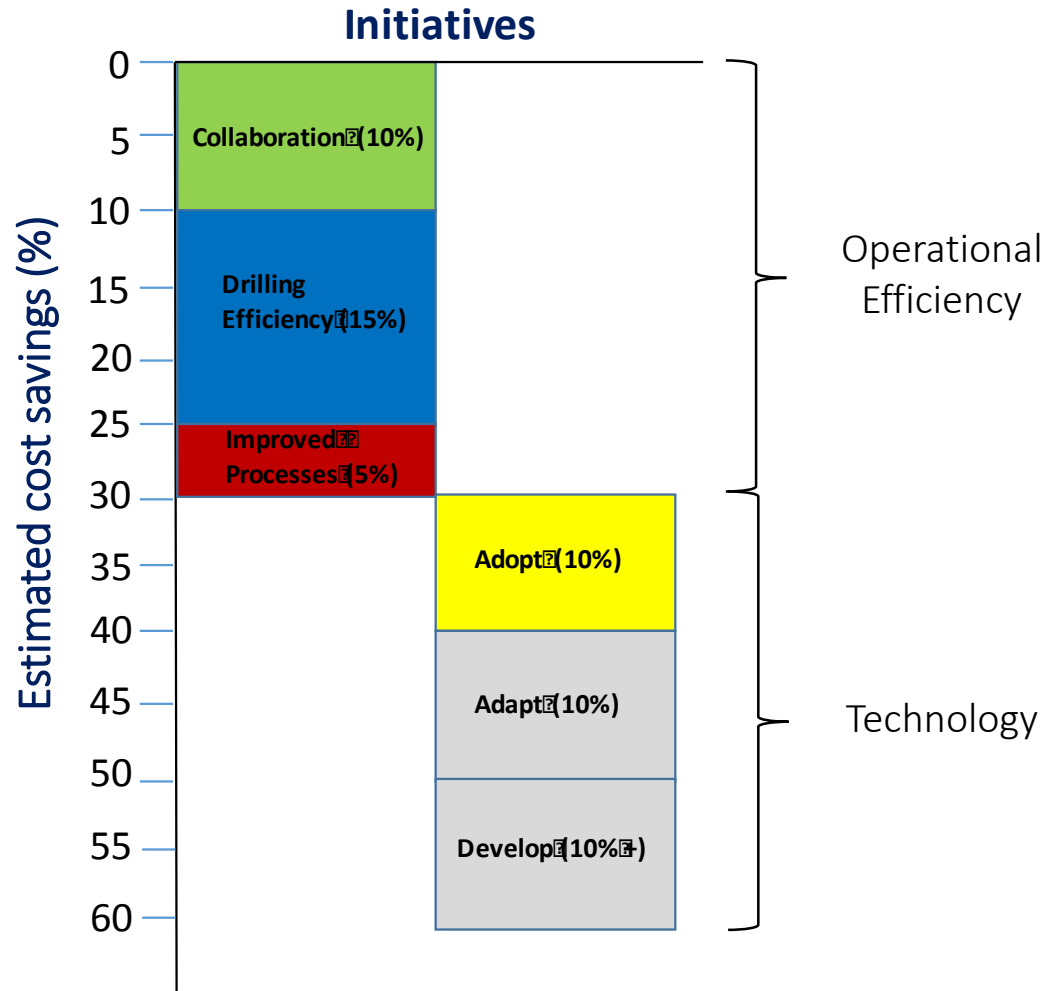
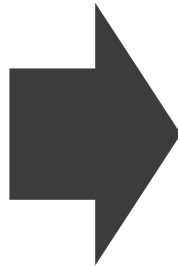
- Address the areas we can influence as an industry
 - Use rigs for less time
 - Standardised, simplified designs
 - Reduced operational uncertainty
 - Improve technology uptake
- Create a new, lower, sustainable benchmark to reduce cost and improve efficiency
- Transforming commercial approach offers further opportunity
- Find ways to lock in cost reduction practices and efficiency changes – futureproof the competitiveness of the basin

The costs will fall by a combination of operational efficiency improvements and technology initiatives

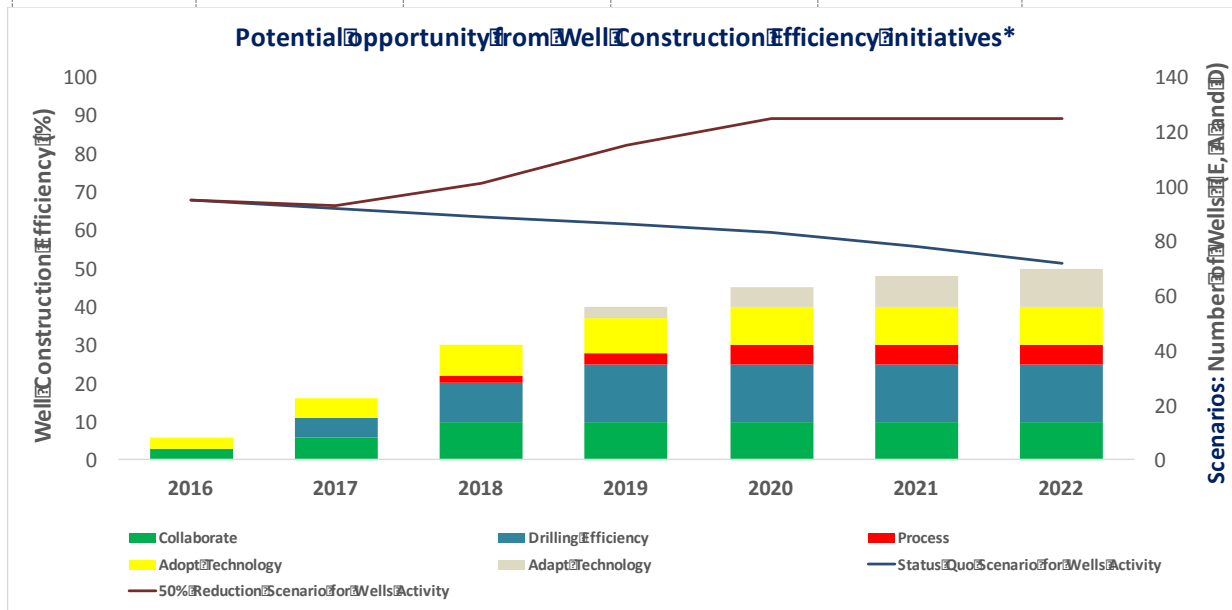
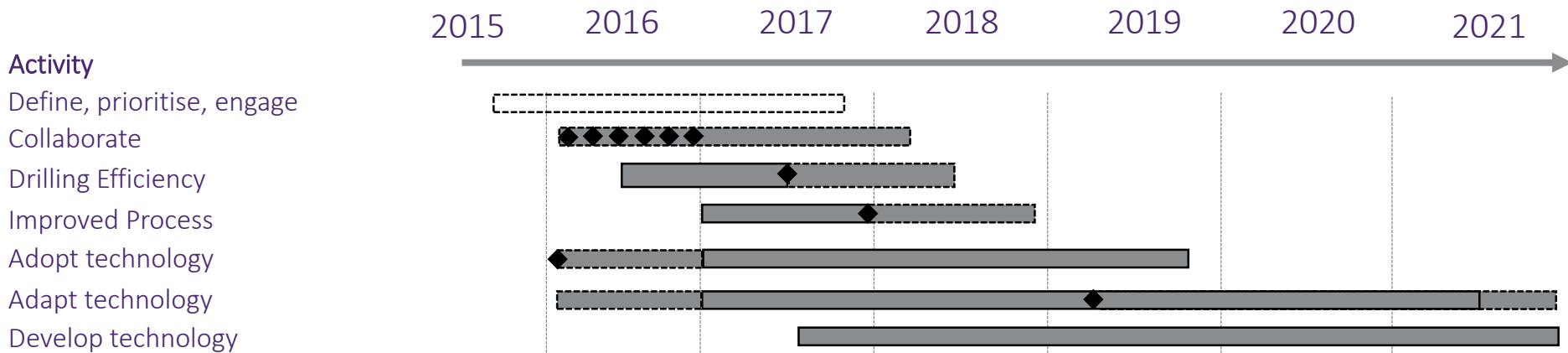
ITF Low Cost Well Technology workshop 2015

Benchmarking & Cost Analysis study

Oil & Gas UK "Day for Change" workshop 2016



Project timeline

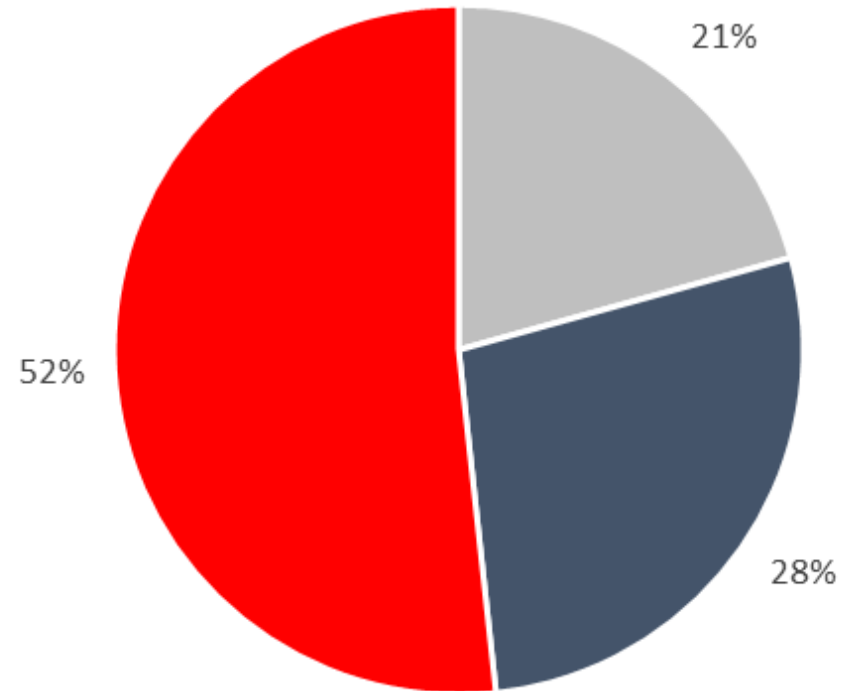


*Assuming all savings from 50% cost reduction are reinvested into well construction and a natural decline in UKCS activity

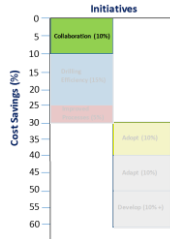
A straw poll at our Day for Change workshop highlighted some of the barriers to rapid exchange of knowledge....



- There is no incentive to learn/share
- It's too difficult to get approval
- No mechanism to share/learn outside my organisation

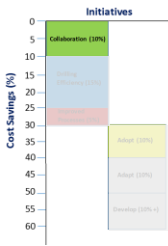



Collaboration is bringing Quick Wins



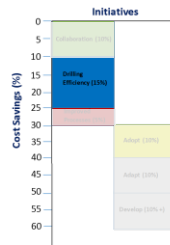
- Peer review of well and completion design
 - Improve confidence in design strategy
 - Referencing other operator experience adds weight to design, and budget, presented for approval
 - Fit for purpose design
 - Appropriate application of technology

Other examples of collaborative efforts....



- Equipment sharing 
 - Making use of Oil & Gas UK's Efficiency Task Force inventory trading platform
- Well Design Standardisation and Simplification
 - Standard, low cost Central North Sea design
- Stimulate activity – exploring the opportunity to create a package of work
- How can we improve our knowledge sharing?
 - RGU MSc study now complete

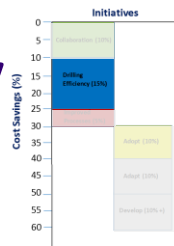
Improving the efficiency of well construction operations



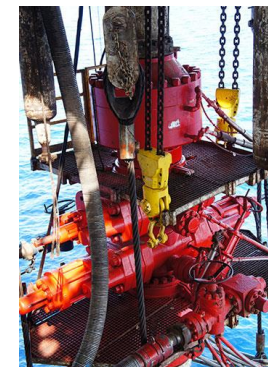
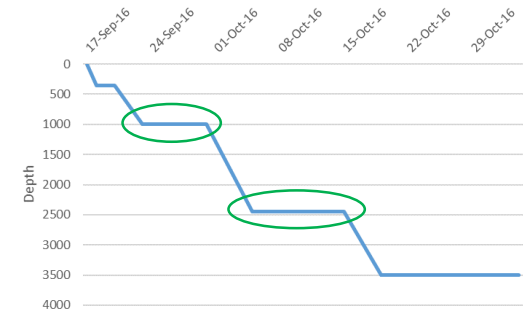
- Optimisation of weather sensitive operations
 - application of ALARP principles relative to recent updates to industry standards
- Establish where guidelines/standards may be increasing risk and/or increasing inefficiency
- Reducing non productive time



Understanding why well construction efficiency has fallen...

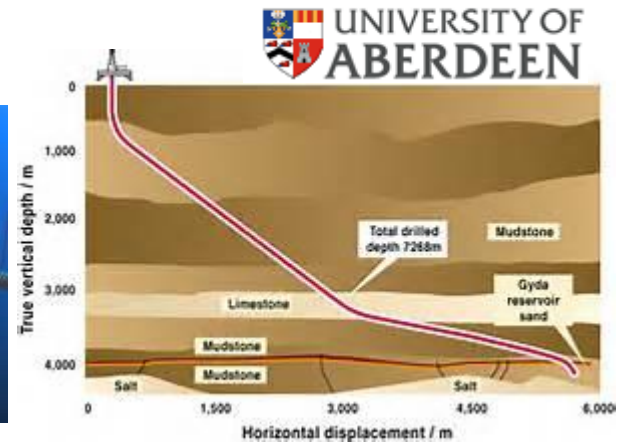
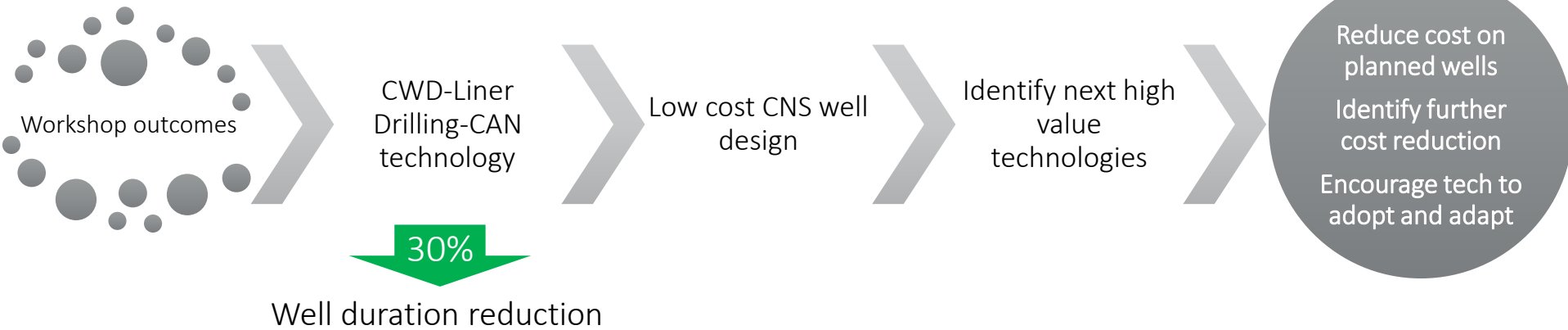
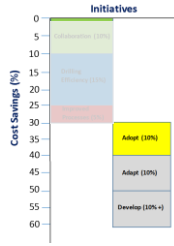


- Since 2004, efficiency of constructing development wells from mobile drilling units has halved
- Understand the underlying causes
 - Analyse time based drilling data
 - Identify time consuming activities:
 - infrequent, long activities
 - cumulative impact of improved efficiency on frequent, short activities
 - Benchmark operational event durations
 - Identify top quartile performance
- What's next?
 - Improve consistency
 - Identify & share best practices



The Technology Journey...

- Significant cost reduction can be achieved with existing technology

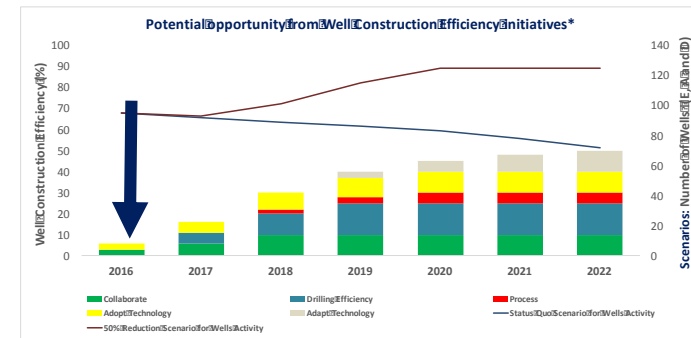


A Wells 'Hackathon' will be held to identify technologies that could significantly impact low cost well construction...

- ITF has been leading
 - Show case technologies, including case studies, seeking opportunities for technology uptake,
 - ITF/OGUK Survey to validate industry challenges (June 2016)
 - ITF June workshop: share case studies, identify opportunities, understand barriers to uptake
- Next step – Wells 'Hackathon'

Summary

- We have a clear mandate from Industry
- Progress is being made, but...
- We can only go as fast and as far as industry support allows
- Must find ways to sustain the new, lower benchmark



Oil & Gas
Technology Centre

Questions?