Is ‘Intelligent Energy’ (IE) the same as ‘Digital Energy,’ the ‘Digital Oilfield,’ the ‘Field of the Future,’ the ‘i-Field’ and or any other branded or unbranded buzzwords that different majors, vendors and conference organizers have dreamed up? The answer to that question is yes. They are all the same. But that leaves us with the question of what do they collectively mean! This can be a hard question to answer if you are, as CERA did early in the 21st Century, trying to estimate the ‘added value’ that the digital oilfield will bring to the industry. Or indeed if you work in the division of a major or NOC and are trying to persuade management that investment in ‘digital’ is better than, say, buying barrels in the ground. On the other hand, as the excellent Society of Petroleum Engineers’ Intelligent Energy conference showed, the digital oilfield is a broad church where just about anything goes. It is variously, life of field seismics, fish hook wells, the ‘advanced collaboration environment,’ just in time maintenance, monitoring and water flood management. As one astute observer put it to us, ‘Intelligent energy is really about doing the blindingly obvious!’ Or, as BP’s Bernard Looney puts it, ‘Over time it is harder to explain – it has become the way we do business.’

For some, notably BP, the focus of IE is the collaboration room – variously BP’s Advanced Collaboration Environment, Shell’s Surveillance Center, Statoil’s Collaboration Facility, Saudi Aramco’s OSPAS and others. These high tech environments with big screens show what is happening offshore. Initially these were used to bring scarce resources – such as domain specialists – together during mission critical functions such as geosteering, and fracking. But for some, these facilities are evolving into more everyday work environments, supporting a migration of jobs from offshore to onshore. Perhaps the most interesting facet of the onshore ‘collaboration facility’ is the overlap with the traditional control room. Indeed, BP’s Valhall ACE already has a control room built-in. Saudi Aramco takes a more extreme view with its OSPAS\(^2\) Command and Control Center blending collaboration, control and automation.

Another route to the field of the future is the problem focused initiative targeting a specific problem. IE heard from Pemex on its Burgos artificial lift advisory system (ALAS), from Shell on its Gulf of Mexico ‘Bridge’ for exception-based surveillance, Petrobras GeDiG, Aramco’s AFK i-field, Statoil Aasgard operations, Total’s data validation and reconciliation, Wintershall’s North Sea Integrated Production Management System and Pioneer’s Oooguruk, Alaska HySys-based integrated production management system.

In the Health safety and the environment (HSE) Maersk Oil’s Peter Kapteijn presented a seminal paper on combining enhanced oil recovery with CO2 sequestration right from the start of a field’s development. Ron Cramer (Shell Global Solutions) argued for a ‘virtual person,’ constantly monitoring operations – automating fire and gas detection and emergency shutdown systems. Social networking and ‘Web 2.0’ is making an entry into the upstream as described in presentations from BG and Woodside. Looking to the future, Aramco is ‘betting on electro magnetics (EM), gigacell simulation, ‘resbots’ and borehole gravity to improve mapping of the inter-well space. Chevron envisages more application of the digital oilfield in

---

\(^1\) Image courtesy Saudi Aramco.

brownfields, fields with longer and more complex collection system, more smart wells and also smart equipment.

To return to the question of how much value is created by IE, BP is the most bullish – allocating a billion barrels of reserves to its Field of the Future technology flagship. Petrobras cited a percentage or two increase in operational efficiency due to GeDiG. Others are more circumspect. Schlumberger’s Satish Pai noted that ‘You cannot split out the digital component – it has to be how you do business.’ ExxonMobil’s Russ Spahr concurred that, ‘It is hard to divvy-up the value across technology, mindset and digital. But we do perform evaluation at the project level.’ Whatever the value, all agree that for IE to succeed, people have to change the way they work, otherwise the collaborative work environment is ‘just a very expensive telephone.’

**Highlights**

**Plenary Session ‘Value across the cycle’**
- The Khurais ‘mega’ i-field
- Business Leaders Session
- Shell’s exception-based surveillance
- CCS/EOR – the ultimate test of E&P ‘intelligence’
- Perdido Smart Field
- Saudi Aramco – OSPAS control center
- Total’s data validation and reconciliation
- Wintershall/TNO’s Matlab-based asset model
- Monitoring with a ‘virtual person’

**Table of Contents**

1005_1 Keynote, 10 years of Intelligent Energy – David Latin, BP ......................................................... 4
1005_2 Keynote, Field of the Future – Doug Suttles, BP ......................................................................... 4
1005_3 Plenary Session – ‘Value across the cycle’ – Moderator John Rigby, USB Research ...................... 5
  1005_3.1 The Digital Asset – Tim Probert, Halliburton ............................................................................. 5
  1005_3.2 The OSPAS control center – Mohamed Al Qahtani, Saudi Aramco ........................................ 5
  1005_3.3 The i-Field – Melody Meyer, Chevron ....................................................................................... 6
  1005_3.4 Smart Fields – Mathius Bichsel, Shell ......................................................................................... 6
  1005_3.5 Operations centers – Satish Pai, Schlumberger ........................................................................ 6
  1005_3.6 Q&A ........................................................................................................................................... 7
1005_4 The Khurais ‘mega’ i-field – Waleed Al-Mulhim, Saudi Aramco (SPE 128837).............................. 8
1005_5 Staged expansion of a digital oilfield, – Pedro Benoni, Petrobras (SPE 128766) ............................ 8
1005_6 Production processes integration in Burgos – Fabio Corbellini, Schlumberger (for Pemex – SPE 128731). ......................................................................................................................... 9
1005_7 What’s next for the digital oilfield – Jim Crompton (Chevron) and Helen Gilman (SAIC – SPE 127715)... 9
1005_8 Master of Petroleum Business Engineering – Peter Currie, TU Delft (SPE 127911) ....................... 9
1005_9 A roadmap for ‘global intelligence’ – Russ Spahr, ExxonMobil (SPE 128764) .............................. 10
1005_10 Business Leaders Session – Moderators Mike Hauser (Chevron), Judson Jacobs (CERA) ........ 10
  1005_10.1 Valhall ACE – Trevor Garlick, BP ............................................................................................ 10
  1005_10.2 Operations at Asgard – Helga Jorgenvag, Statoil .................................................................. 10
  1005_10.3 GeDiG – Christina Pinho, Petrobras ....................................................................................... 11
  1005_10.4 Q&A ........................................................................................................................................... 11
1005_11 ‘The next level’ Plenary Session – Chair Peter Kapteijn, Maersk .................................................. 12
  1005_11.1 Smarter Planet – John Brantley – IBM .................................................................................... 12
  1005_11.2 Integrated Operations – Trond Lilleg, Statoil (on behalf of Margareth Ovrum - SPE 128576) 12
  1005_11.3 End to end integration – Ashok Belani, Schlumberger ............................................................. 12
  1005_11.4 EM, borehole gravity, gigacell simulator – Samer AlAshgar, Saudi Aramco ............................. 12
  1005_11.5 A field full of pressure data – Derek Mathieson, Baker Hughes ........................................... 12
  1005_11.6 General Q&A ......................................................................................................................... 13
1005_12 Exception Based Surveillance, Tom Moroney, Shell (SPE 127860) ............................................. 13
1005_13 Energy and the environment - the ultimate test of E&P ‘intelligence’ – Peter Kapteijn, Maersk ...... 14
1005_14 Social Media/Web 2.0 – Jennifer Morrison, BG (SPE 128421) .................................................... 14
1005_15 Web 2.0 for innovation capture – Andy Watt, Woodside (SPE 128527) ........................................ 14
This Technology Watch report was produced by The Data Room. 
For more information and sample reports please visit 
www.oilit.com/tech or email tw@oilit.com.