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New Technology From Concept to Delivery

D. Ellix, The Industry Technology Facilitator

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Abstract

It is well known that the path from concept to delivery for new technology is far from straightforward. There are many obstacles that can prevent even the best technological brainwaves making it into commercial application.

To help ease this flow of technology, most of the major oil companies collaborated to set up The Industry Technology Facilitator (ITF). Based in Aberdeen since 1999, ITF has been responsible for creating over 80 joint industry projects (JIPs), and delivering several significant technologies into the market place.

Four examples are highlighted in this paper. These are the SlimWELL[®] well construction system, AquaPurge[®] produced water cleaning, the exploration gravity gradiometer (EGGTM), and Downhole Gas Compression (DGC). Each of these has been supported from an early stage by ITF member companies, and is at, or near, the point of commercial field trials.

Introduction

“New technology from concept to delivery” sounds like a great concept, but in practice it is much more difficult to deliver. The technology has to pass successfully through a number of different stages, from feasibility to field trial, which are illustrated in Figure 1. There are several critical success factors, and they all have to be in place for a bright idea to make it to commercial reality. The relative importance of these factors can vary during the process of technology development. Some of them might not even be apparent at the outset, and external influences could change the drivers en route. The obvious factors include:

- Addressing a real business need
- Truly innovative

- Technically feasible
- Ahead of the competition
- Commercially feasible
- Finding end-user champion
- Securing development funding
- Finding first (and second) tame user
- Securing capital for production
- Technically, commercially and financially competent team



Figure 1 The stages of technology development

Having spelled out some of the challenges, it is of course worth remembering that technology has been, and will remain, the key to securing the future of our industry. Where would we be had we not developed 4D seismic, horizontal drilling and subsea production? And there is a significant prize still to be won from applying ever more advanced technological solutions. We can recognise the challenges of ultra-deep water, extreme high-pressure fields and unconventional oil. But even in a mature basin, such as the North Sea, technology has a role to play. Recent work under the auspices of the PILOT taskforce found that technology could deliver up to three billion additional barrels equivalent from the UK's brown fields (Ref 1).

Recognising both the prize and the challenge, UK based operators established ITF in 1999. ITF is a not-for-profit organisation owned and funded by 13 oil companies. Its remit is to foster the development and application of new technologies, which will add value to the exploration and production business of its members. To this end, ITF has defined and refined processes to capture and collate the members' business-driven technology needs, identify innovative solutions, and carry these forward through joint industry projects and field trials (Figure 2).