Continuous Improvement Readiness Assessment Tool

A Practical Tool for Assessing and Developing Your Organisation's Continuous Improvement Culture
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The Need for Continuous Improvement:

CONTINUOUS IMPROVEMENT IS MORE IMPORTANT THAN EVER

It seems that the United Kingdom Continental Shelf has emerged from the longest downturn in recent history, and the industry is to be commended for halving the cost of production per barrel of oil; however, the need for efficient working in the UKCS has not stopped, and we must build upon the foundations of change that have been initiated. The 2018 OGUK Economic Report states that it is vital that the industry is able to sustain its improved competitive position.

The UKCS is one of the world’s most mature basins for oil and gas extraction. Despite the maturity of the basin there could be as much as 12 – 14 billion barrels of oil still to be harvested; however, the remaining reserves are technically difficult to extract when compared with less mature areas in other countries.

The technologically challenging environment coupled with an aging infrastructure has resulted in increased costs, which act as a disincentive for investment in the UKCS. To continue to be economically viable operators and contractors must find ways to optimise operations and do more with less resources.

In the short-term organisations can try to pass on lower costs to suppliers by insisting on lower prices—a common occurrence in response to the last downturn; however, if organisations are to be truly competitive they will need to explore new and innovative ways of working.

The Wood Report (2014): Maximising Economic Recovery, points to collaborative working between organisations as having significant potential to add value; however, operators and contractors can also work within their own organisations to improve their processes and gain efficiencies through formal programs of continuous improvement.

Advantages to successfully imbedding continuous improvement include quicker implementation of objectives and more efficient allocation of resources and capital. There is clearly opportunity for efficiency savings in the oil and gas industry, for example non-productive time in exploration is thought to account for 10% of the costs of drilling a well. OGUK’s Efficiency Task Force (ETF) has produced a number of guidelines that outline principles that can deliver expected cost savings of up to 25%.

DEFINITIONS AND FORMS

There is no formalized definition of continuous improvement, but the term is used to refer to a focused, company-wide formal process of ongoing incremental innovation. There are various methodologies to optimise all processes; allowing organisations to reduce waste and defects, quicken performance and enhance products.

Some of the most commonly known approaches for process performance improvement include Total Quality Management, Lean, Six Sigma and Quality Standards such as ISO 9000.

Companies may also have their own approaches which they have developed in house, often based on the improvement models similar to the Plan-Do-Check-Act approach.

In addition companies might employ activities such as After Action Reviews, the Balanced Scorecard and routine updating of procedures to capture lessons learned, as well as establishing lessons learned databases.

Further methodologies, such as Technical Limits, Drill the Well On Paper and Wash-Up workshops have been developed to meet the oil and gas industry’s specific needs.
THE EVIDENCE SHOWING BENEFITS FROM SUCCESSFUL IMPLEMENTATION

There is a wide body of evidence showing the benefit of continuous improvement programs in process industries. Large manufacturing companies such as Motorola and General Electric cite cost savings of Billions of dollars. Although there has been less formal research into the effect of continuous improvement in oil and gas companies, there is also a growing body of evidence that supports the value of a well-managed continuous improvement program.

The Prize: Costs Saved Through Continuous Improvement

- Joint venture using Lean and Six Sigma saved $1 Million in one field over one year. (Mabian, 2010)
- Operator saw returns of $1 Million for each continuous improvement professional employed. (McCall et al., 2009)
- Drilling contractor using Lean held costs flat while the industry average doubled. (Charles et al., 2012)
- Operator returns $100’s of Millions over 3 year continuous improvement program. (Chessa et al., 2013)
- Operator examined Lean and Six Sigma projects finding an average return of $1-2 Million. (Buell & Turnipseed, 2004)
- A project examining Gas Dehydration, reduced use of Glycol: savings of $500,000 per year. (Adwani et al., 2011)
As shown in the previous image, a number of studies have documented significant cash savings. However, research has also shown the impact that continuous improvement programs can have, in the oil and gas industry, when it comes to saving time.

**The Prize: Time Saved Through Continuous Improvement**

- Lean Six Sigma applied to rig moves resulting in shorter move durations. (O’Rielly et al., 2016)
- Establishment and use of Lessons Learned influential in reducing drilling times by 50%. (Whitson et al., 2001)
- Service company applied Continuous Improvement resulting in 11% reduction of time to manufacture a packer. (Vargus and Scott, 2015)
- Lean reduced Put on Production time of wells. Wells that met the company 6 day expectation time rose from 50% to 96% of wells. (Popa et al., 2009)
- Operator well and reservoir management cycle times reduced by 60%. (Zanvoord et al. 2009)
The Challenge:
CONTINUOUS IMPROVEMENT IMPLEMENTATION IS HARD TO DO

Although continuous improvement can bring significant savings, it can be difficult for organisations to get full value from their improvement programs, for example in one oil and gas study (Walker, 2008), 87% of project managers claimed that lessons learned databases were important; however, only 22% of project managers were adequately engaging with the process. Project Managers cited not being given the time to capture, store, and retrieve lessons from documentation. At times employee simply do not value continuous improvement processes, seeing them as flavour of the month endeavours, or re-badged iterations of previous failed campaigns.

In one recent study (O’Donnel, 2016), 55 oil and gas professionals were interviewed. In the course of the interviews it emerged that the majority believed the principle reason for ISO 9001 certification was for marketing or client satisfaction—although many of the interviewees did intimate that they witnessed organisational improvement benefits by going through the certification process.

Poor organization absorption of improvement methodologies can be found outside of the oil and gas industry also. One group of researchers (Lau et al., 2003) found that 56% of companies questioned, who held ISO 9000 certification, showed an unsatisfactory understanding of quality management.

Across all industries the estimation of failure rates for implementation of improvement approaches such as Total Quality Management are estimated to be between 30 - 80 percent (Candido & Santos, 2011; Souza-Posa, 2001). Research clearly indicates that the implementation of Continuous Improvement is difficult and prone to failure. Further, recent research in the UK gas and oil industry, suggests that the implementation of continuous improvement can also be difficult for operators and contractors.

CULTURE
Researchers have suggested that to successfully introduce continuous improvement approaches such as Total Quality Management, an organisation must be willing to change its culture. Cultural change cannot be achieved by simple top down exhortation, i.e. management saying that change must happen.

Toyota say when implementing continuous improvement 5% will act as champions, 90% will sit on the fence looking for leadership, and 5% will resist change (Chen & Meng, 2010).

Therefore, if an organization is to culturally adopt continuous improvement, successful strategies need to focus on the needs, expectations and motivation of all employees.

At its most basic, culture can be seen as ‘the way we do things around here’, i.e., when certain processes and behaviours are seen as the norm, those processes and behaviours can be seen as being part of the culture; however, at a deeper level cultures are driven by assumptions, values and beliefs. Therefore, to more accurately understand a continuous improvement culture—and where that culture is positioned—the continuous improvement beliefs of the people in that culture should be examined, to discover which positive or negative beliefs and conditions are hindering or motivating continuous improvement processes and actions.
The Opportunity:
IDENTIFYING AND MODIFYING THE KEY SUCCESS FACTORS THAT DRIVE CONTINUOUS IMPROVEMENT

Employee Perceptions

01 Continuous Improvement is Supported by Other People

02 Continuous Improvement is Seen as a Good Thing to Do

03 Practical Barriers to Continuous Improvement are Removed

PERCEPTIONS
The success of an organisation's Continuous Improvement program is reliant on the beliefs of the workforce, and can be based around three central perceptions 1) Is Continuous Improvement Supported by Other People? 2) Is Continuous Improvement Seen as a Good Thing to Do? and 3) Are there Practical Barriers to Continuous Improvement?

1. Is It Supported by Other People?
Questions connected to perceptions of continuous improvement support by other people include: Who supports it? How do people show their support? Does it bring people together, within and across teams? Does it lift morale? Are successes celebrated and shared? Are all levels of leadership vocal in their support of the program? Is it a priority? Is continuous improvement a stated value or part of the mission statement of the company?

2. Is It a Good Thing To Do?
Questions related to perceptions of continuous improvement being good to do, i.e. having value, include: Does it significantly reduce costs, defects, waste? Does it improve the service or product you supply? Could efficiencies result in job losses? Do people feel vulnerable about having their performance examined? Is it a “flavour of the month” exercise. Are efforts rewarded? Is their recognition for participation in employee appraisals?

3. Are There Barriers Making it Difficult?
Questions associated with perceptions of the difficulty or ease of continuous improvement include: Is their sufficient time and training? Is there too much jargon for people to understand the process? Are people empowered to take part and make local decisions?
**Self-Assessment Tool**

Oil and Gas UK brought together a group of industry continuous-improvement experts to answer the question: what factors promote continuous improvement success? Researchers from the Robert Gordon University analysed the group’s opinions and identified the key success factors. These success factors were used to develop a self-assessment tool that allows organisations to assess their own company’s central perceptions discussed previously, and measure their cultural readiness for continuous improvement. The assessment items are detailed below.

<table>
<thead>
<tr>
<th>Our Continuous Improvement Program...</th>
<th>True</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Allows suggestions to be implemented quickly</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>False</td>
</tr>
<tr>
<td>2. Sees effective suggestions result in lasting work practices</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>False</td>
</tr>
<tr>
<td>3. Reduces costs</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>False</td>
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<tr>
<td>4. Improves the features of the product or service we deliver</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>False</td>
</tr>
<tr>
<td>5. Reduces defects</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>False</td>
</tr>
<tr>
<td>6. Allows us to be competitive</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>False</td>
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<tr>
<td>7. Provides a widely understood way of improving</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>False</td>
</tr>
<tr>
<td>8. Encourages work teams to work together to find solutions to challenges</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>False</td>
</tr>
<tr>
<td>9. Enables people from different departments to work together</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>False</td>
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<tr>
<td>10. Captures lessons learned on the job</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
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<td>False</td>
</tr>
<tr>
<td>11. Shares lessons learned across teams</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>False</td>
</tr>
<tr>
<td>12. Helps to increase morale</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>False</td>
</tr>
<tr>
<td>13. Helps people to feel empowered to solve their work problems</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>False</td>
</tr>
<tr>
<td>14. Encourages workers to be creative in solving problems</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>False</td>
</tr>
<tr>
<td>15. Is an unnecessary cost</td>
<td>True</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>False</td>
</tr>
<tr>
<td>16. Takes too much worker time</td>
<td>True</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>False</td>
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<tr>
<td>17. Is not well understood</td>
<td>True</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>False</td>
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Our Continuous Improvement Program...

<table>
<thead>
<tr>
<th>Question</th>
<th>True</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>False</th>
</tr>
</thead>
<tbody>
<tr>
<td>18. Could result in ideas that would see people lose their jobs</td>
<td>True</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>False</td>
</tr>
<tr>
<td>19. Could expose weakness in worker performance</td>
<td>True</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>False</td>
</tr>
<tr>
<td>20. Is supported by adequate training for workers</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>21. Is a formal process that needlessly slows down good ideas being put</td>
<td>True</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>False</td>
</tr>
<tr>
<td>22. Is part of the way we do things around here</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>23. Is an expected part of my job role</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>24. Is just another initiative in long line of initiatives</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>25. Is promoted by senior management</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>26. Is promoted by middle management</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>27. Is promoted by supervisors</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>28. Is supported by visible continuous improvement professionals</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>29. Is supported by visible people who have a continuous improvement</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>30. Results in successes that are publicised within the company</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>31. Results in ideas that are rewarded</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>32. Is a priority</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>33. Helps meet our stated company values</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>34. Allows people to take acceptable risks in trying new ideas</td>
<td>True</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

FREQUENTLY ASKED QUESTIONS (FAQs)
These FAQs provide answers to questions on the practicalities of successfully using the survey to increase the performance of an organisation’s continuous improvement program.

Who should conduct the survey?
Aim to have someone who is objective and unbiased run the survey. For this reason a person who is employed as a continuous improvement professional is probably not best placed to run the survey. A member of the management team or someone from human resources can be an ideal candidate.

How many people and who should complete the survey?
To get a representative sample try to get as many survey participants as possible. Participants should come from across all departments and include all levels of management, as well as workers.
Frequently Answered Questions - Continued

**What should be done with the findings?**
This assessment tool is intended to identify focus areas for your improvement plan. It will help to pinpoint blockers to success. It will also show areas of strength, which can be highlighted, publicised and used to positively reinforce continuous improvement efforts.

**Are the Questions Presented In the Assessment the Only Questions that Can Be Asked?**
No. If you have other questions that you feel are appropriate and important for your organisation, then you should include them. Be wary of increasing the length of the tool so much, that it becomes overly time consuming to complete. A long assessment can result in less people being willing to complete it and as such you will have less feedback. You may also add boxes for respondents to enter additional feedback and suggestions.

**How do you score the survey?**
The overall survey score can be aggregated and will provide a benchmark for improvement. A high score indicates a readiness to change and support optimisation processes. The range of the survey is 34-170, with an average score of 140 plus indicating a supportive continuous-improvement culture. However, each individual assessment question is to be examined and it is for the organization to decide if they think that the result is acceptable and if it is not, what they can do to improve the result.

**Can the Assessment Be Repeated?**
Yes, as a healthcheck of the organisation’s continuous improvement culture, the assessment should be repeated after using the first assessment’s results as a baseline. After the first assessment a follow up should be conducted within 6 months of carrying out an implementation plan to improve hindering factors. Thereafter an annual or two-yearly assessment is recommended.

**Should the Assessment Be Anonymous?**
Assessment respondents must have the opportunity to respond anonymously; however, you will also want to try and gather information on the role and department of the respondents, as this can allow you to pinpoint later efforts to change perceptions, for example if one particular department holds negative views on a particular aspect, knowing which department will allow you to follow up and inquire further why they may feel that way and inform your next steps to improve processes and perceptions.

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**Continuous Improvement Survey Process**

1. **Choose Person/s Responsible For Assessment**
2. **Customise Assessment to Organisational Needs**
3. **Roll Out Assessment Get Baseline Data**
4. **Analyse Initial Results**
5. **Follow Up on Initial Results with Employees**
6. **Share Results Widely: Highlight Areas of Strength**
7. **Implement Necessary Changes**
8. **Re-Assess Measuring Against Baseline**
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References


