

Sure thing

Tim Smallshaw, senior quality consultant at PMSS, explains the role of quality assurance in offshore wind energy projects

Quality assurance (QA) is about being 'in control' of all major areas of the project, so that you can assure the results are to the specification or of 'good quality'.

There is a wealth of experience and knowledge in the construction of wind farms: some experiences are good, some bad. The implementation of a quality management system (QMS) is a formal method of capturing this knowledge, to effectively assess risks and to develop action plans to ensure positive results.

This can be achieved by using lessons learnt, so that previous errors or problems are not repeated. Through performing risk analysis at early stages, incorporating best practice from other projects and workshops to capture the combined experiences of all members of the project, potential problems can be cured on the drawing board, not out at sea, and identifying the important items that require audit or inspection.

Prevention

The aim of the QMS strategy is to identify risks and counter measures at the earliest opportunity, with emphasis placed on prevention.

While ISO 9001:2000 is the

recognised quality system, it is not exclusive - the QMS for one project may have differing requirements to the next, depending on the project deliverables, and each project should be reviewed in its own right. However, there are core aspects of a QMS that make up the basic building blocks to ensure control:

- Document control: To ensure employees have the correct procedures and the procedures are properly maintained;
- Audits: To verify quality procedures are being followed;
- Non-conformance tracking: To monitor and track quality issues, to ensure that defects are kept from your customer;
- Corrective action and preven-

tive action: To correct flawed processes (quality procedures) when detected via audits and non-conformance tracking, to prevent defects from recurring; and

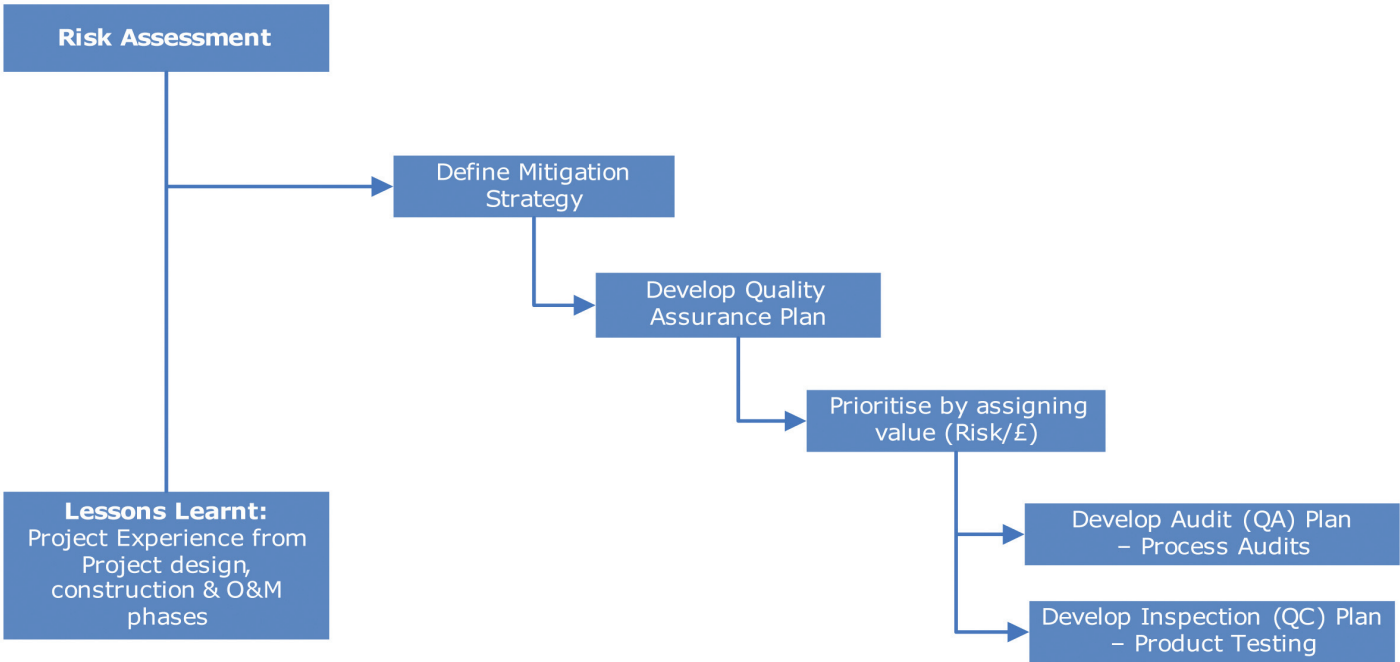
- Management review: Reviewing quality system data (performance) by use of quality metrics, to determine if the quality system is working and, if it is not, taking the appropriate action to improve the system.

Strategy

The QA plan will, where possible, allow for removal of potential problems at the design stage, instead of controlling them during construction.

The quality control (QC) plan will define the controls required during





manufacturing and construction of components.

This philosophy can be implemented for the project as a whole and used as a basis for each phase of the project. Subsequent project activities benefit from the ones before, by taking the information gathered and using it as an input into the next.

QA is often explained by the 'plan, do, check, act' (PDCA) cycle. This simple yet effective cycle is a widely used tool for problem solving and continuous improvement (see diagram above):

1. Implementing the quality plan defines the approved method of working.
2. Working as defined in the approved procedures results in a systematic process
3. Audits and inspections verify effectiveness of the system. Non-conformity reports raised for deviation from the norm are recorded.
4. Actions are defined to close

non-conformities and remove problems. Management reviews are held to monitor effectiveness, where improvements are identified and planned, where the cycle starts over.

Action

QA is a thought process, as much as it is a system, which must be learned (see diagram below). Quality assurance is about the application of controlled systems applied to risk management, applica-

tion of action plans, monitoring the results and taking action to improve.

With the application of systematic methods to prevent errors and have reactions ready for the problems that do occur, QA and quality tools (QT) realise a significant return on investment for all parties.

It is Fact: QA and QT add value wherever they are applied. The key to unlocking this value is to determine what level of investment is needed in QA for the project. □

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