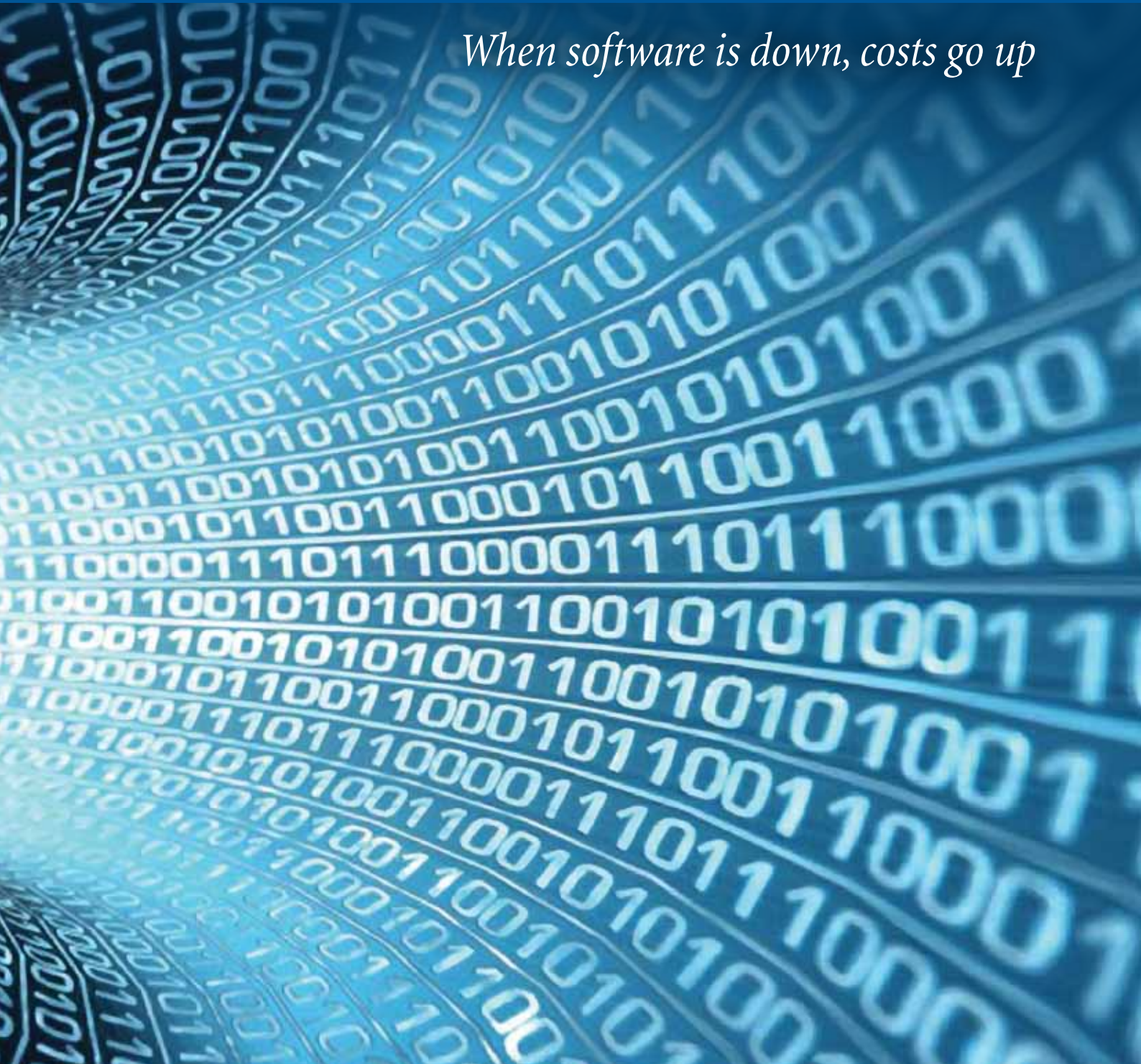


Integrated Software Quality Management

When software is down, costs go up



Our Mission

The mission of ABS is to serve the public interest as well as the needs of our clients by promoting the security of life and property and preserving the natural environment.

Quality & Environmental Policy

It is the policy of ABS to be responsive to the individual and collective needs of our clients as well as those of the public at large, to provide quality services in support of our mission, and to provide our services consistent with international standards developed to avoid, reduce or control pollution to the environment.

All of our client commitments, supporting actions, and services delivered must be recognized as expressions of Quality. We pledge to monitor our performance as an on-going activity and to strive for continuous improvement.

We commit to operate consistent with applicable environmental legislation and regulations and to provide a framework for establishing and reviewing environmental objectives and targets.



ISQM Delivers Value

The biggest challenge in moving high-specification newbuild rigs from the yard to the field is getting bugs out of the software. The move toward automation on offshore facilities has allowed drilling and production systems to work much more efficiently. But the introduction of complex integrated control systems also poses challenges. The reason is that the many pieces of software that enable faster and more efficient operations are developed relatively independent from one another.

Applying the recommendations in the *ABS Guide for Integrated Software Quality Management (ISQM)* for the supporting ISQM notation helps identify ways to mitigate software errors that can affect the safety of a unit and its crew. The ISQM notation also can assist with the verification of individual and integrated computer control systems that are critical to safe and efficient operations.

ISQM addresses this challenge by providing a framework to coordinate and it controls the way software development, integration and maintenance are managed throughout the life of the equipment. The ABS ISQM notation is a response to industry's needs.

REALIZE THE BENEFITS

Failed communication between critical components of a drilling or production system means operations falter, efficiency plummets and nonproductive time increases.

A total system integrity approach to streamlining software integration leads to faster commissioning, more reliable system performance, smoother upgrades and easier maintenance.





ISQM Meets Specifications

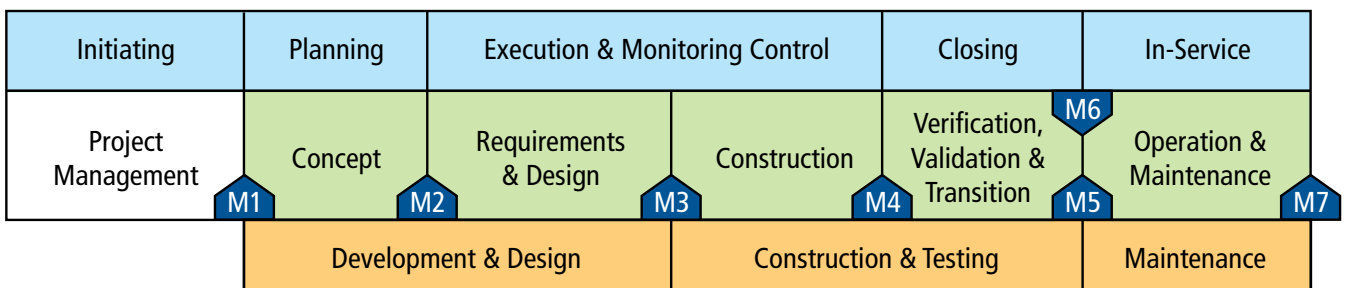
The recommendations listed in the ABS ISQM Guide can improve reliability and help to reduce the time and costs associated with commissioning and implementing critical systems. Following the ABS ISQM process is a way to:

- Meet safety, health and environmental specifications
- Manage operational and project risks
- Decrease nonproductive time
- Identify challenges early to improve life cycle
- Minimize schedule and cost escalation
- Review for compliance to specifications
- Manage challenges to programming
- Simplify programming validation
- Facilitate training

ISQM Streamlines Software Integration

While the offshore industry traditionally has focused on structures and equipment, software is now such a critical component of operations that it merits special consideration. Following a process for integrating the many disparate pieces of software that are essential to an efficient drilling or production system improves the speed with which reliable communication among the vital parts is achieved.

The ABS ISQM Guide provides a way to establish an interface specification at the front end of the design process and hold vendors accountable to conforming to it. The Guide offers a means of verifying integration activities are planned, executed and managed according to best practices.



The ISQM process is designed to uncover software issues early in the development phase, where effective solutions can be implemented to resolve the issues and manage project and schedule risks. Because ISQM is a methodology, it requires no new equipment. The focus is on software, with an emphasis on reducing the number of interfaces to decrease the opportunity for error.

ISQM Reduces Nonproductive Time

Software defects and errors make up a large percentage of nonproductive time for offshore assets; so getting a handle on software quality management minimizes the impact to the project schedule and helps to avoid cost overruns.

Following the ISQM process means software testing is more complete and takes place earlier in the process, thereby allowing for defects to be detected and corrected before commissioning.

Significantly more time and effort are devoted to factory acceptance testing. The payoff from this investment is less time and effort spent in commissioning the asset and far less time spent tuning and troubleshooting systems. Applying ISQM allows software to be verified before commissioning – clearly defines the requirements, outlines the specifications for verification testing and identifies the responsible parties for each action item along the way.

ISQM also facilitates proposed software upgrades while the asset is operating, reducing downtime due to software conflicts. The ISQM-developed documents allow the owner to review software updates for potential conflicts with other integrated systems, thereby reducing life cycle costs.

By delivering reliable software that accurately complies with the requirements and specifications, ISQM can increase the productive time of the asset. The ISQM-compliant integrated system encompasses design, construction and maintenance specifications developed from international standards including the Institute of Electrical and Electronics Engineers (IEEE); the Project Management Institute (PMI); and the information security standard published by the International Organization for Standardization and the International Electrotechnical Commission (ISO/IEC).



ISQM Mitigates Risk

Efficient, uninterrupted operation is the byproduct of ISQM. The offshore industry expects safety, reliability and productivity from high-specification assets. ISQM enables them to deliver. Statistics indicate that updates performed during traditional commissioning introduce a larger number of unintentional software defects than if the functionality issues were thoroughly vetted in the software development process.

When software development is managed such that issues can be addressed in the software development process, effective solutions can be applied to resolve issues and manage risk using a number of risk mitigation methods. Better software management results when software development follows a process in which stakeholders fully participate and operational philosophy is documented in a Functional Description or Concept of Operation document. These documents facilitate safety and environmental and project risk mitigation.

Software suppliers have diverse requirements and inherent limitations, which necessitate the development of effective and specific solutions. Verification of software involves using a number of test cases and exercising the software to uncover defects in the code. Testing the software involves test cases for proper communication, timeliness of the commands and data transfer between the different connected equipment in the integrated control system.

ISQM Improves Asset Management

Maintaining software quality during commissioning is challenging, but getting the asset up and running is only the first step. ISQM provides a means of managing vendor software updates for the life of the asset.

Software installed at delivery does not sit in a vacuum. Upgrades, patches and new releases made routinely by vendors can introduce errors into the system and create operating problems. Operators benefit from verifying that the software has been developed in a recognized process that meets their needs and performs as expected.



THE BENEFITS OF IMPLEMENTING ISQM

The ABS ISQM process provides a clear map for implementing a fully functional engineering process to assist software providers and relying parties in designing, developing, deploying and managing integrated software systems.

The process addresses how to implement production software, which significantly reduces the software development cost and reduces design, development and test cycle time. Following the ISQM process allows software shortcomings to be identified and addressed early in the process, which results in reduced software defect density rates.

In addition, ISQM provides references to source documents that supply information concerning the details of superior software engineering and project management practices. Applying ISQM is simplified by the fact that it is built on accepted standards and practices in the industry, which facilitates process implementation.

Better project management and planning are the foundation of an efficiently run project. The organizational interaction within the ISQM process helps create a stronger supply chain and improved subcontractor management. Applying ISQM facilitates project planning and execution, significantly increasing the probability of on-time product delivery.

For more information, contact a local ABS office or send an email to abs-isqm@eagle.org.



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