The Asset Life Extension team from Rockwell Automation has been created to promote awareness and assist with the management of risks associated with ageing offshore assets and onshore facilities. The UK Health and Safety Executive (HSE) recognise this challenge, initiating both the Key Programme 4 (KP4) initiative (2010) and HSE report RR509 (first published 2006).

Rockwell Automation has found that focusing on Equipment Obsolescence, as the preferable approach to Asset Life Extension, is a key initiative and a sound philosophy. Many of our clients have found Rockwell Automations’ approach more favourable in providing business cases and projected figures for CAPEX and OPEX forecasts.

Rockwell Automation recognises that this is an ever increasing concern for the industry and has reacted to the increasing demands of asset life management. Rockwell Automation has developed methods and tools to assist our clients to understand their current installed base and therefore allowing them to plan their future strategies.

Every company must have plans in place to accommodate the requirements of KP4. These are usually formulated via an internal process, however due to the increasing demands placed on engineering staff, this is either considered a low priority, or even forgotten altogether. Only select companies have the skills and knowledge to provide insight into specific obsolescence management issues, and Rockwell Automation has a proven track record assisting major Oil and Gas companies with their Asset Life Extension strategies.

Rockwell Automation provide reports that are aimed to adhere to KP4 along with ISO, BSI standards. KP4 can be used as a benchmark, introducing any additional requirements set out by the DEA Offshore Safety Act, PSA, SINTEF or DNV if required.

For further information you can contact the Aberdeen office on +44 (0) 1224 227780 and ask for a member of the obsolescence team.
Aim
To ensure that the risks to asset integrity associated with Ageing & Life Extension are controlled effectively.

Objectives
• To develop procurement and control measures that help reduce down time and improve overall safety of the offshore working environment
• To raise awareness of the need for specific consideration of Ageing & Life Extension (ALE) issues
• Enhanced proactive / preventative / scheduled maintenance
• To enhance the clients strategies regarding ALE and recommend an appropriate programme of remedial action if required
• To aid operators to develop a “best practice” industry approach to the management of ageing installations and conform to their responsibilities under the relevant regulatory bodies

Methodology
Ultimately, your deliverable, in whatever form, is only as good as the source information used, therefore data gathering and quality are the key. Experience has shown that a comprehensive site survey by one of our experienced engineers achieves the best results, however, other data collection methods can be used as required. Rockwell Automation has developed relationships with hundreds of OEMs and distributors that enables us to gather comprehensive information on parts, e.g. costs, lead times, upgrade paths, life cycle status etc.

The delivered report, tailored to suit clients’ requirements, will always incorporate forms of risk analysis such as vulnerability ranking of components, through to complete systems, this informs clients’ prioritisation strategies for Asset Life Extension.

The Team
• Vast amount of industry knowledge and skill
• Highly experienced and diverse background of various disciplines, incl. Marine, Mechanical, Electrical and Subsea
• Certified offshore survey engineers
• Adaptable to client requirements i.e. expanded or reduced
• Have experience with all forms of offshore/onshore installations
• Members of the International Institute of Obsolescence Management (IIOM)

Previous deliverables and results
• Project Plan issued periodically
• Specific Rockwell Obsolescence Assessment Report(OAR)
• Sourced data stored by RA and fully auditable
• Comprehensive photo reference library and parts listings per system/skid/item of equipment (BOMs)
• Systematic Risk Analysis and Scoring
• Structure to fit your existing Asset Life Extension strategy
• Integration to SAP and other tools
• Spares Management information, including failure rates
• Comprehensive spares procurement information
• Links in reports to additional info
• Recommended / Review of maintenance procedures if applicable
• OEM/Vendor Parts procurement
• OEM/Vendor recommendations
• Part(s) repair service by Rockwell Automation (Lektronix)
• FEED study (e.g. system life extension strategy)
• Asset and/or Systems Inventory
• Support contracts (Control & Instrumentation)
• SAP validation (Cross Referencing Information with Drawings, Workpacks etc.)
• OEM Training Requirements

All the above is not just restricted to the Oil & Gas industry, but can apply to all types of industry such as process and manufacturing etc.
Example 1

**Discipline:** Mechanical & Piping  
**System:** Generators, Turbine Driven  
**Boundary:** Inlet of gas generator to exit of the power turbine  

**Inclusions:**  
- Turbine Engine System  
- Lube Oil System  
- Liquid Fuel System  
- Ventilation & Exhaust System  
- CO₂ Fire Extinguisher System  
- Compressor Washing System  

**Report Findings:**  
- Categorisation and quantification of obsolescence status of turbine-driven system – deemed “End of Life”  
- Identification of specific critical motors no longer supported  
- Clear, prioritised action list created – including detailing options for replacement and repair where applicable  

**Outcomes/Actions:**  
Operational risks re-classed as “Mitigated”, enabling system to remain in use.

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Example 2

**Discipline:** Electrical, Controls & Instrumentation  
**System:** Alarm and Emergency Shutdown Systems  
**Boundary:** Topsides & Vessel, including all ESD system & marshalling panels and operator interfaces.  

**Inclusions:**  
- Safety Instrumented System  
- High Integrity Pressure Protection System  
- Emergency Shutdown Topside  
- Emergency Shutdown Vessel  

**Report Findings:**  
Significant discoveries;  
- Modicon Programmable Logic Controller & Klippon Field Termination Assemblies confirmed as obsolete  
- ESD system (previously unknown) identified with serious issues  

**Outcomes/Actions:**  
Client-initiated Topsides ESD System Upgrade project to mitigate long-term risk. Short term, extra spares and repair service purchased.
Example 3

**Discipline:** Controls & Instrumentation  
**System:** HVAC Accommodation & Utilities

**Boundary:** HVAC system Electrical, Control and Instrumented components within the cabinet including PLCs & marshalling/interface panels.

**Inclusions:**
- Living Quarters (LQ)
- Additional Living Quarters (ALQ)
- Extra Living Quarters (ELQ)

**Report Findings:**
- The power supplies and I/O Modules are current and active within the system
- The PLC GE Fanuc 90-30 is obsolete and unsupported so requires a full upgrade

**Outcomes/Actions:**
- Client-initiated PLC upgrade to mitigate long-term risk
- Short term, extra spares and repair service purchased

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<table>
<thead>
<tr>
<th>OR Code</th>
<th>OR Category</th>
<th>OR Category Description</th>
<th>Recommended Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Active</td>
<td>The Original Equipment Manufacturer’s (OEM’s) current main product. The hardware and/or software are available and supported.</td>
<td>No additional action required.</td>
</tr>
<tr>
<td>M</td>
<td>Mature</td>
<td>Not the latest product. The hardware and/or software are available and supported.</td>
<td>It is recommended to review the assets expected lifetime spares requirement before the product goes to retired status. Ensure drawings, data sheets, manuals &amp; specifications are kept and comprehensive. Ensure sufficient skills are maintained. Consider a replacement plan.</td>
</tr>
<tr>
<td>R</td>
<td>Retired</td>
<td>The hardware and/or software have limited support. A failed item would require exchange for a spare, repaired or re-manufactured item, or an equivalent.</td>
<td>It is recommended to review the risk and produce a strategic action plan before a failure affects business performance.</td>
</tr>
<tr>
<td>E</td>
<td>End of Life</td>
<td>The hardware and/or software are not supported. Exchange part not available. Repair or re-manufacture not possible.</td>
<td>It is recommended to review the risk and produce a strategic action plan before a failure affects business performance.</td>
</tr>
<tr>
<td>S</td>
<td>Site Survey</td>
<td>Not enough information to categorise.</td>
<td>Site Survey Required.</td>
</tr>
<tr>
<td>U</td>
<td>Unobtainable information</td>
<td>Unable to contact supplier or unable to obtain information from supplier.</td>
<td>It is recommended to review the risk and determine action.</td>
</tr>
<tr>
<td>N</td>
<td>No OR</td>
<td>No OR category required because the part is a generic commercially available item</td>
<td>No additional action required.</td>
</tr>
<tr>
<td>O</td>
<td>Outside OR</td>
<td>Outside standard OR life cycle. Item remains available, but would require remanufacturing.</td>
<td>Attention should be paid to manufacturing and delivery time constraints.</td>
</tr>
</tbody>
</table>

Table used in a typical report to define obsolescence risks and recommended actions

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