

Enhancing Operational Technology Efficiency and Risk Mitigation through PMO Partnerships

**Harnessing Cutting-Edge Technologies
to Drive Innovation and Efficiency in
the Digital Age**

protiviti®
Global Business Consulting

Optimizing Operational Technology: Leveraging PMO Partnerships for Efficiency and Risk Management

Innovative Approaches to OT Efficiency and Risk Control through PMO Partnerships

Upgrading operational technology (OT) and the applications that rely on it, including supervisory control and data acquisition (SCADA), is essential in today's rapidly evolving technological landscape, where operational efficiency, cybersecurity and regulatory compliance are paramount and can present competing priorities.

As companies increasingly rely on real-time data for decision-making, outdated SCADA systems can hinder performance, leading to delays and inefficiencies. Modern upgrades enhance the capabilities of SCADA systems by integrating advanced technologies, improving data analytics, and providing user-centric interfaces that enable better monitoring and control of processes. Furthermore, with the rise in cyber threats, upgrading SCADA is crucial for implementing robust security measures that protect critical infrastructure from vulnerabilities. Compliance with evolving state and federal regulations also serves as a value driver for these upgrades, ensuring that organizations meet safety standards and maintain operational integrity.

Key Stakeholders and Risk Mitigation in OT System Upgrades

An operational technology (OT) system upgrade project involves multiple stakeholders, each contributing to its success. Automation engineers and the SCADA team focus on technical aspects, enhancing system capabilities. The IT team ensures robust cybersecurity measures and compliance with IT standards, while the operations team provides insights into the data needs and operational challenges. Project managers oversee the planning and implementation. Additionally, vendors and technology partners supply necessary solutions and support. Executive leadership provides strategic direction and funding, fostering innovation and digital transformation within the organization.

The decision to modernize OT systems such as SCADA is not a simple one for most oil and gas companies. The capital investment is significant, there will be challenges integrating technologies and there is inevitable resistance coming from impacted users accustomed to the current environment, so when a decision to modernize is determined, these major OT upgrade projects become high-profile magnets of attention and feedback from many stakeholders. The complexity of these projects can introduce significant risks, from cost overruns and delays to misaligned objectives and security vulnerabilities. Without a structured approach to project governance and oversight, these risks can quickly escalate and eviscerate the original value proposition.

Two critical functions can mitigate these challenges and enable a disciplined OT project that achieves the desired return on investment: a proactive project management office (PMO) and an independent risk advisory partnership, often accomplished with internal audit (IA). The PMO provides structured governance, ensuring effective project planning and stakeholder alignment. Meanwhile, IA enhances project resilience by independently assessing risks, validating controls and reinforcing accountability. Together, these functions create a strong foundation for OT project execution, ensuring that projects are well-planned, effectively managed and aligned with strategic business goals. Today, we highlight some of the key examples your organization may encounter

The complexity of these projects can introduce significant risks, from cost overruns and delays to misaligned objectives and security vulnerabilities.

Risk Mitigation Through Effective Project Planning

Before the first line of code is written or the first piece of hardware is installed, a well-articulated project plan lays the foundation for success. The PMO, with its expertise in project management, ensures that every step is carefully planned, resources are allocated efficiently, and dependencies and contingencies are considered. The PMO also defines and maintains the project scope, manages project change requests to avoid unnecessary expansion and validates alignment with business goals, helping prevent surprises like scope creep, delays and budget overruns. IA enhances this planning process by independently identifying project risks that may impact the scope, timeline, cost or outcome of the project. With risks identified, the project team and stakeholders with governing responsibility over the project can coordinate to identify effective risk mitigation or avoidance strategies as part of the project plan.

Before the first line of code is written or the first piece of hardware is installed, a well-articulated project plan lays the foundation for success.

Driving Cross-Functional Engagement

Achieving alignment among a diverse group of project stakeholders is critical. The PMO fosters engagement by coordinating discussions, resolving conflicts and ensuring that departments understand their roles. Insufficient cross-functional coordination can lead to costly delays and misalignment. IA complements the PMO's efforts by assessing the effectiveness of cross-functional engagement and providing recommendations for improvement. When open lines of communication are maintained and effective collaboration occurs, both functions enable stakeholder alignment.

IEEE research highlights that many SCADA systems were originally designed without cybersecurity in mind, making them vulnerable to modern threats. Integrating SCADA with enterprise IT expands the attack surface, necessitating robust cybersecurity controls and continuous risk reduction.

Clear and Consistent Communications

Unclear communication can derail even the most well-planned project. The PMO ensures that project updates, challenges and successes are communicated effectively to all stakeholders. IA evaluates communication strategies, ensuring that messaging remains transparent, consistent and actionable. Regular review and documentation of decisions, risks and actions, such as formal steering committee minutes, improves visibility and ensures that issues are addressed promptly. By embedding structured yet adaptable communication strategies, organizations can maintain alignment and trust throughout the project lifecycle.

Unclear
communication
can derail even the
most well-planned
project.

Performance Tracking and Value Realization

Key performance indicators (KPIs) and value-realization metrics serve as critical benchmarks for measuring project success. The PMO defines these metrics, tracks progress and adjusts strategies as needed. IA provides an independent review of these metrics, ensuring that they are relevant, reliable and accurately reported. This combined approach ensures that the project delivers measurable benefits and maintains alignment with organizational objectives.

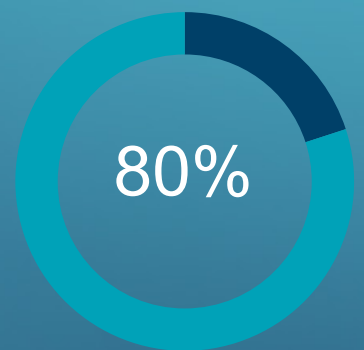
Master Data Management

Data integrity is foundational to operational technology projects, and master data management is critical in maintaining the integrity of data throughout the project lifecycle. The PMO oversees the processes for data entry, validation, storage and maintenance. IA evaluates these processes to ensure that they are robust and secure, safeguarding the quality and reliability of project data. Together, these functions safeguard data integrity, mitigating risks associated with inaccurate, incomplete or compromised information.

Pre-Implementation Testing

Before the new technologies go live, pre-implementation testing is crucial to identify and rectify software or hardware issues. The PMO coordinates these testing efforts, ensuring that relevant scenarios are identified and all scenarios are thoroughly tested. IA reviews these efforts by validating test scenarios, ensuring that results are properly documented and confirming that identified issues are addressed prior to go-live. This layered approach reduces the likelihood of post-implementation failures.

According to Protiviti's [2025 Top Risks Report](#), eight out of 10 executives believe that AI will improve cybersecurity and data privacy, which is critical for OT environments that are increasingly connected and vulnerable.



A Collaborative Approach to Success

By embedding governance and assurance throughout the project lifecycle, organizations can confidently navigate the complexities of OT modernization, leading to better risk management, improved project execution, and successful outcomes.

About the authors



Daniel O'Leary

Director, IAFA-Tech Audit & Advisory

Protiviti

Daniel is a Director in Protiviti's Houston office. He has more than 16 years of experience leading and executing IT audits and managing IT risk and compliance initiatives from roles in public accounting, industry, and consulting. At Protiviti, Daniel's focus has been managing IT SOX control audits, IT audits, and IT consulting reviews as an outsourced internal auditor.



Mark Stacey

Associate Director, IAFA-Tech Audit & Advisory

Protiviti

Mark is an Associate Director in Protiviti's IT Audit practice and has over 20 years of IT Audit experience in a range of business sectors, most recently in Healthcare and the Energy sector. He also has operational experience as a Program and Project Manager and is focused on delivering value in the Business-IT interface.

Protiviti (www.protiviti.com) is a global consulting firm that delivers deep expertise, objective insights, a tailored approach and unparalleled collaboration to help leaders confidently face the future. Protiviti and its independent and locally owned member firms provide clients with consulting and managed solutions in finance, technology, operations, data, digital, legal, HR, risk and internal audit through a network of more than 90 offices in over 25 countries.

Named to the [Fortune 100 Best Companies to Work For®](#) list for the 11th consecutive year, Protiviti has served more than 80 percent of Fortune 100 and nearly 80 percent of Fortune 500 companies. The firm also works with government agencies and smaller, growing companies, including those looking to go public. Protiviti is a wholly owned subsidiary of Robert Half Inc. (NYSE: RHI).