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Introducing Agile techniques into an Enterprise Project Management Office

A case study for the CAPM® Certification Course.

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Introduction

Deep Well Services Inc. is an oilfield services company that specializes in well drilling and rig management. It is one of the largest oilfield services companies in the world with operations in more than 120 countries and has been in business for over 70 years. It operates in an industry that is chronically affected by fluctuations in demand, which are tightly coupled to the price of oil. The industry is changing rapidly with new technologies constantly being introduced, which require significant investments in training and new business processes to support their customer base. Over the years, Deep Well has developed a reputation as an outcome-focused, customer-centric organization that is highly responsive to the needs of its customers. Its customers are among the largest companies in the world and they expect solutions that are tailored to their specific needs. Deep Well prides itself in finding creative ways to get the job done but also places a high emphasis on safety to ensure that its staff and customers are properly protected.

The Information Technology department is a reflection of the environment and market that Deep Well Services Inc. operates in. As an internal functional department, the organization emphasizes a careful, methodical approach to implementing and supporting technology with a focus on cost containment and schedule management. This approach has paid off in a way that the overall spend of the Deep Well Services IT department is almost half of the industry standard benchmarks. To accomplish this, the IT Project Management Office follows a well-defined waterfall project delivery lifecycle. Each phase of a project has several stage gates that require multiple sign-offs across the IT and sponsoring business organizations before a project can proceed. Scope, cost, and schedule are carefully monitored, and deviations follow detailed change management processes in an effort to minimize changes from approved project baselines.

This attention to project delivery detail has ensured that the IT department delivers its projects within its project budget and scheduled baselines. Typically the scope of the projects will be adjusted to fit within the other constraints, so

the IT department does not place any unplanned cost demands on the broader organization. However, with the speed of technology changes in the oil industry, the IT demands to support these changes have been rapidly increasing. The focus on budget and schedule within the IT department has often forced the operating companies within Deep Well to accept solutions that do not meet their overall customer and industry needs.

Challenges

With the IT department's focus on cost and schedule, the Project Management office has established a detailed waterfall project delivery lifecycle to ensure that all projects have well-defined requirements and supporting architecture before proceeding into Execution. Projects are required to document requirements, schedule, and budget in sufficient detail so that a project can be estimated with 90% accuracy. A number of different Microsoft Word and Excel templates are provided to assist Project Managers and coordinate these estimates from resources. This collection of documents requires project managers to spend a considerable amount of their time updating multiple sources of information and producing several different types of status reports for different stakeholders over the course of a week or month.

The Project Management office operates within a **Weak matrix** structure. Project Managers are assigned to projects primarily based on availability, and they rely on IT Delivery Managers who manage functional teams to assist with providing subject matter experts to support the requirements, estimation, and execution of the project. Project Managers have little say in what resources are assigned. Delivery Managers have primary responsibility for determining priority of work assigned to project resources, so most project resources are only assigned on a part-time basis and often to multiple projects. Delivery Managers are also responsible for timesheet review and approval. Project Managers are required to query the corporate financial system to understand what hours have been submitted by resources to their projects. In addition, any resourcing provided by outside suppliers is managed directly by Delivery Managers. While Project Managers provide inputs for SOW deliverables, the contract and vendor

relationship is the responsibility of the Delivery Manager. The result is high degree of frustration among Project Managers and the resources assigned to projects. Project resources feel consistent pressure from Project Managers and Delivery Managers to complete tasks based on schedules that do not take into account their commitments to other projects or changes in Delivery Manager's priorities. Project Managers struggle to receive estimates from project resources who are reluctant to commit to dates or deliverables. Often Project Managers create their own estimates to satisfy the PMO even though they might not have sufficient domain knowledge to form an estimate.

To address the cyclical demands of the industry, the Project Management Office is typically resourced with Project Managers from a staff augmentation company. Several PMO resources maintain control of the projects by conducting monthly audits that rate Project Managers on their compliance to a wide range of project characteristics such as schedule updates, budget management, risk and issue documentation, and knowledge and document management. The challenge is that most of the contract resources have a wide variety of Project Management experiences across different industries and lack the familiarity with the Deep Well Project Management's information systems and controls. The PMO conducts a half-day onboarding process for new contract PMs and provides reference information, but the complex waterfall lifecycle requires considerable time to become familiar with it. Most Project Managers rapidly find themselves flagged by the PMO audit team as not complying with internal processes. To address these audit findings, Project Managers are required to refrain themselves from working with their business sponsors, which reduces communication and thus stakeholder expectation management.

The business units working with IT are also struggling with this model. The operating companies that require IT services have grown increasingly frustrated that their projects are delivered within budget and schedule but without the agreed upon scope being provided. In addition, any changes to scope reflecting new business priorities require substantial effort to review and receive approval to adjust any of the project baselines. Increasingly, business units are exploring

their own paths to delivering solutions, hiring consulting companies, and establishing their own IT functions.

As a result of these challenges, many of Deep Wells's projects are seen as "failing" by the business even though the PMO feels that the projects are a success from a schedule and budget perspective. In addition, Project manager turnover is high with many Project Managers leaving out of frustration with delays in decision-making and also the difficulty in being accountable to project baselines without sufficient responsibility to support those baselines.

Solution

Recognizing the growing gap between business unit expectations and PMO delivery metrics, a new leader of the PMO, Karthik, decides to explore an Agile delivery approach for IT projects. To assist in understanding how Agile can address many of the issues the PMO is facing, Karthik consults the new "**Agile Practice Guide"** that the PMI published as part of their book, "**Project Management Body of Knowledge, 6th edition".**

Karthik quickly identifies that Agile will provide the business units with a greater ability to manage and prioritize the **product backlog** of requirements that the projects deliver. This will provide a much higher confidence in the business units, and they will receive the maximum value for their project investment. Agile projects only commit to the deliverables within a sprint, so the ability to adjust the priorities of the backlog without following the overhead of formal project change controls will be well received. However, Karthik realizes that the PMO will still need to have an understanding of the total scope of a project so that a reasonable estimate of costs, resources, and duration can be determined.

Karthik reviews the concept of a **Minimum Viable Product** or MVP for a release. The PMO will work with business units during the Initiation phase of a project to develop a Project Charter that outlines the MVP for a specific release from the product backlog. The Release will be constrained by schedule and budget. This will ensure that the PMO can support the organizational goals of managing costs

effectively as well as provide more voice to the business in ensuring they receive the most business value from the project as possible.

Karthik also looks at the "**Agile Manifesto"** principles to gain some ideas on how to streamline work within IT projects. One of the manifesto values emphasizes "*Individuals and Interactions over processes and tools*." Karthik realizes that many of the challenges being faced by the project teams are a result of resources spending too much time updating different spreadsheets, documents, and systems instead of collaborating and interacting. This appears to primarily affect projects that have degrees of novelty and complexity. Karthik develops a framework that assesses projects within the PMO portfolio based on their requirements and technical uncertainty. Projects that have high degrees of requirements and technical uncertainty are good candidates for using an Agile delivery lifecycle. These projects place a reduced emphasis on formal documentation and stage gate reviews and instead emphasize lightweight requirements and rapid application delivery. He also identifies that one of the benefits of Agile projects is their ability to provide interim deliverables that allow business stakeholders to provide feedback on project progress. Projects that cannot deliver a series of interim deliverables are not good candidates for Agile delivery techniques. Finally, he also recognizes that Agile projects require more active participation from business stakeholders to refine and prioritize the backlog and to provide feedback on the deliverables from each sprint or iteration. He also ensures that projects that are identified as good candidates for Agile techniques are accepted by their business stakeholders with an awareness of what engaging with an Agile project represents.

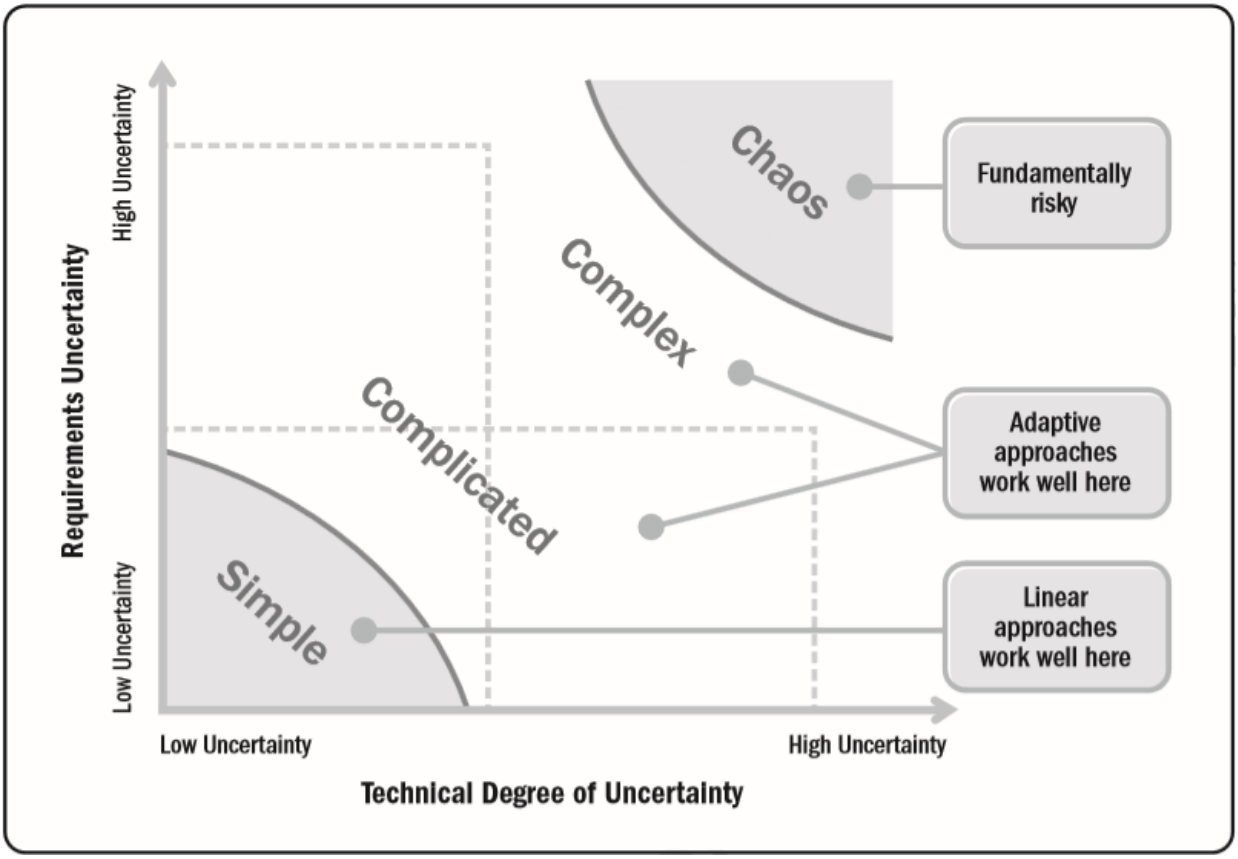

Figure 1 - Uncertainty and Complexity Model, PMI Agile Practice Guide, 2017, p.14

Karthik proceeds to develop an "**Agile Playbook"** to provide more guidance to Project Managers who are responsible for delivering Agile projects. As the organization culture still requires a strong budget and a schedule oversight, the playbook reflects a hybrid Agile approach. Projects would follow an initial planning process to develop the **product backlog, identify an MVP for a release, prioritize features, and develop a high-level schedule and budget**. Once these outputs are produced, the project would be reviewed by the PMO and IT leaders in a stage gate to fund and resource the project. After approval, the project would proceed with Agile development techniques, including developing deliverables using a consistent timeboxed iteration schedule. Karthik also ensured that Agile teams are **co-located** to increase collaboration and communication. The teams would leverage more **visual information radiators** on whiteboards to track progress and work assignments.

Karthik also ensured that resources assigned to the Project Managers were allocated full time to the project. As part of this, he also ensured IT leadership support that the Project Managers would be responsible for the priorities of all project resources. Along with this, the Delivery Managers would need to coordinate any production support requests with the Project Managers. While Delivery Managers would continue to manage vendor contracts, the Project Managers would act as a key contributor to the contract and would provide their approval before any formal agreements were signed. This would transition the IT PMO into a **strong matrix** model.

To reduce the administrative burden on Project Managers, projects managed with an Agile lifecycle would no longer need to provide weekly status updates and instead their iteration demos would provide their progress status. Agile teams would follow many of the Scrum ceremonies including **daily stand-ups**, **iteration demos,** and **retrospectives**. **Retrospectives** were considered part of the project lessons learned process and the traditional **Risk log** was replaced with risk attributes added to user stories that were prioritized for early delivery in the project iteration schedule. Monthly **budget and schedule reviews** would still be required in the corporate Project Management information system to ensure that the PMO continued to have a comprehensive, portfolio-based view on all projects under its responsibility.

In addition, Karthik identified the need to have additional support from accredited Agile experts. He created an Agile Delivery support team within the PMO which comprised of experienced Agile professionals, many of whom were **PMI Agile Certified Professionals (PMI-ACP).** This team helped ensure that Project Managers could receive guidance while applying Agile techniques and also to act as a feedback loop into the PMO governance model. The team also helped ensure that Project Managers hired from the staff augmentation company had the right Agile skill set and expectations before they joined the organization. Agile projects would continue to have audit reviews, but findings identified by the IT PMO audit team would be reviewed by the Agile Delivery support team They would have the responsibility to work with Project Managers to address any findings.

Final Outcome

It took Karthik several months to gain sufficient organizational support to move forward with his hybrid Agile Delivery model. It required a number of meetings with a wide range of IT functional managers and coordination with business unit representatives. Support from business units was quite high for this hybrid Agile model but there was quite some resistance from the Delivery Managers who feared losing control of their resources. It took some time to align all the key stakeholders, and Karthik had to get Executive support on the agenda that the Delivery Managers could backfill any of their project resources with contract staff.

The results from applying Agile techniques resulted in almost immediate benefits. Project planning time was reduced by 50% as teams could start development work with an initial MVP that the business stakeholders felt could be adjusted and reprioritized easily throughout the project. By reducing the project planning time, projects could start working on delivering business value much more quickly. Also, by taking a risk-based prioritization approach to the work delivered each iteration, the projects had less forecast variance as they progressed.

Project Managers appreciated that there was less administration to contend with, which gave them more opportunity to understand the business domain and to coordinate with project stakeholders. The project teams enjoyed working in a colocated, collaborative environment, which reduced the number of issues that projects typically experienced. The use of visual information radiators and lightweight tools such as the Kanban board showing the progress of iteration deliverables increased team's awareness of project progress.

The Business stakeholders involved in the project quickly appreciated the opportunity to provide feedback early and frequently through the project lifecycle. They became less dogmatic about the minute details of the features they requested and instead became more comfortable following a **Card-**

Conversation-Confirmation style of requirements gathering They would create a simple user story and use this to have a conversation about the requirements with the developers and document the confirmation acceptance criteria for the story. The business stakeholders also appreciated the opportunity to reprioritize the product backlog to reflect the changing business demands without the high overhead of the PMO change management process. This provided much higher degrees of flexibility than they had experienced in the past and they used this to support their own customer needs.

Lessons Learned

While the IT PMO processes followed by Deep Well Services Inc. had served it well during its many decades of operations, these same processes were limiting its ability to support its business stakeholders in a highly dynamic and market competitive environment. Introducing more Agile Delivery techniques such as a prioritized backlog, a minimally viable product release, delivery of business values in short iterations, a reduction in administrative activities and colocated, full-time teams all contributed to a more adaptive and responsive delivery model. The PMO also transitioned into a strong matrix model that gave it more confidence in delivering value to business stakeholders. This increased their confidence in the relationship with IT. While adopting a pure Agile Delivery model wouldn't have addressed the IT PMO's responsibilities to support accurate budget and schedule estimates, a hybrid Agile delivery lifecycle helped address many of the challenges it was facing.

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