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| **Table A1-2. Application of Agile in *PMBOK® Guide* Knowledge Areas** (Agile Practice Guide) | |
| ***PMBOK® Guide* Knowledge Area** | **Application in an Agile Work Process** |
| **Section 4 Project Integration Management** | Iterative and agile approaches promote the engagement of team members as local domain experts in integration management. The team members determine how plans and components should integrate. |
|  | The expectations of the project manager as noted in the *Key Concepts for Integration Management* sections in the *PMBOK® Guide* do not change in an adaptive environment, but control of the detailed product planning and delivery is delegated to the team. The project manager's focus is on building a collaborative decision-making environment and ensuring the team has the ability to respond to changes. This collaborative approach can be further enhanced when team members possess a broad skill base rather than a narrow specialization. |
| **Section 5 Project Scope Management** | In projects with evolving requirements, high risk, or significant uncertainty, the scope is often not understood at the beginning of the project or it evolves during the project. Agile methods deliberately spend less time trying to define and agree on scope in the early stage of the project and spend more time establishing the process for its ongoing discovery and refinement. Many environments with emerging requirements find that there is often a gap between the real business requirements and the business requirements that were originally stated. Therefore, agile methods purposefully build and review prototypes and release versions in order to refine the requirements. As a result, scope is defined and redefined throughout the project. In agile approaches, the requirements constitute the backlog. |
| **Section 6 Project Schedule Management** | Adaptive approaches use short cycles to undertake work, review the results, and adapt as necessary. These cycles provide rapid feedback on the approaches and suitability of deliverables, and generally manifest as iterative scheduling and on-demand, pull-based scheduling, as discussed in the Key Trends and Emerging Practices section for Project Schedule Management in the *PMBOK® Guide*. |
|  | In large organizations, there may be a mixture of small projects and large initiatives requiring long-term roadmaps to manage the development of these programs using scaling factors (e.g., team size, geographical distribution, regulatory compliance, organizational complexity, and technical complexity). To address the full delivery life cycle for larger, enterprise-wide systems, a range of techniques utilizing a predictive approach, adaptive approach, or a hybrid of both, may need to be adopted. The organization may need to combine practices from several core methods, or adopt a method that has already done so, and adopt a few principles and practices of more traditional techniques. |
|  | The role of the project manager does not change based on managing projects using a predictive development life cycle or managing projects in adaptive environments. However, to be successful in using adaptive approaches, the project manager will need to be familiar with the tools and techniques to understand how to apply them effectively. |
| **Section 7 Project Cost Management** | Projects with high degrees of uncertainty or those where the scope is not yet fully defined may not benefit from detailed cost calculations due to frequent changes. Instead, lightweight estimation methods can be used to generate a fast, high-level forecast of project labor costs, which can then be easily adjusted as changes arise. Detailed estimates are reserved for short-term planning horizons in a just-in-time fashion. |
|  | In cases where high-variability projects are also subject to strict budgets, the scope and schedule are more often adjusted to stay within cost constraints. |
| **Section 8 Project Quality Management** | In order to navigate changes, agile methods call for frequent quality and review steps built in throughout the project rather than toward the end of the project. |
|  | Recurring retrospectives regularly check on the effectiveness of the quality processes. They look for the root cause of issues then suggest trials of new approaches to improve quality. Subsequent retrospectives evaluate any trial processes to determine if they are working and should be continued or new adjusting or should be dropped from use. |
|  | In order to facilitate frequent, incremental delivery, agile methods focus on small batches of work, incorporating as many elements of project deliverables as possible. Small batch systems aim to uncover inconsistencies and quality issues earlier in the project life cycle when the overall costs of change are lower. |
| **Section 9 Project Resource Management** | Projects with high variability benefit from team structures that maximize focus and collaboration, such as self-organizing teams with generalizing specialists. |
|  | Collaboration is intended to boost productivity and facilitate innovative problem solving. Collaborative teams may facilitate accelerated integration of distinct work activities, improve communication, increase knowledge sharing, and provide flexibility of work assignments in addition to other advantages. |
|  | Although the benefits of collaboration also apply to other project environments, collaborative teams are often critical to the success of projects with a high degree of variability and rapid changes, because there is less time for centralized tasking and decision making. |
|  | Planning for physical and human resources is much less predictable in projects with high variability. In these environments, agreements for fast supply and lean methods are critical to controlling costs and achieving the schedule. |
| **Section 10 Project Communications Management** | Project environments subject to various elements of ambiguity and change have an inherent need to communicate evolving and emerging details more frequently and quickly. This motivates streamlining team member access to information, frequent team checkpoints, and colocating team members as much as possible. |
|  | In addition, posting project artifacts in a transparent fashion, and holding regular stakeholder reviews are intended to promote communication with management and stakeholders. |
| **Section 11 Project Risk Management** | High-variability environments, by definition, incur more uncertainty and risk. To address this, projects managed using adaptive approaches make use of frequent reviews of incremental work products and cross-functional project teams to accelerate knowledge sharing and ensure that risk is understood and managed. Risk is considered when selecting the content of each iteration, and risks will also be identified, analyzed, and managed during each iteration. |
|  | Additionally, the requirements are kept as a living document that is updated regularly, and work may be reprioritized as the project progresses, based on an improved understanding of current risk exposure. |
| **Section 12 Project Procurement Management** | In agile environments, specific sellers may be used to extend the team. This collaborative working relationship can lead to a shared risk procurement model where both the buyer and the seller share in the risk and rewards associated with a project. |
|  | Larger projects may use an adaptive approach for some deliverables and a more stable approach for other parts. In these cases, a governing agreement such as a master services agreement (MSA) may be used for the overall engagement, with the adaptive work being placed in an appendix or supplement. This allows changes to occur on the adaptive scope without impacting the overall contract. |
| **Section 13 Project Stakeholder Management** | Projects experiencing a high degree of change require active engagement and participation with project stakeholders. To facilitate timely, productive discussion and decision making, adaptive teams engage with stakeholders directly rather than going through layers of management. Often the client, user, and developer exchange information in a dynamic co-creative process that leads to more stakeholder involvement and higher satisfaction. Regular interactions with the stakeholder community throughout the project mitigate risk, build trust, and support adjustments earlier in the project cycle, thus reducing costs and increasing the likelihood of success for the project. |
|  | In order to accelerate the sharing of information within and across the organization, agile methods promote aggressive transparency. The intent of inviting any stakeholders to project meetings and reviews or posting project artifacts in public spaces is to surface as quickly as possible any misalignment, dependency, or other issue related to the changing project. |