NISH
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PMOs
Project Management Organizations
White Paper

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1   Project Management Organizations

Project management is the *discipline* of planning, organizing, securing, managing, leading, and controlling resources to achieve specific goals. A *project* is a *temporary* endeavor with a defined *beginning* and *end* (usually time-constrained, and often constrained by funding or deliverables), undertaken to meet unique goals and objectives, typically to bring about beneficial change or added value.

A project management office is a *group or department* within a business, agency or enterprise that *defines and maintains standards for project management* within the organization. The PMO strives to standardize and introduce economies of repetition in the execution of projects. The PMO is the source of documentation, guidance and metrics on the practice of project management and execution.

PMOs can be gauged on their process capability or maturity level using a system such as the Capability Maturity Model Integration (CMMI).

PMOs usually follow a methodology/approach: Phased (Waterfall), Incremental, Iterative (Agile/Scrum), Lean, or Hybrid (mixture of these methodologies).

1.1   Benefits

Organizations with a PMO report significantly more projects coming in on time, on budget and meeting goals and business intent compared to those without a PMO.

Organizations with a PMO consistently *benefit* in the following areas:
* Reduce failed projects
* Deliver projects under budget
* Improve productivity
* Deliver projects ahead of schedule
* Increase cost savings

1.2   Functions

PMOs may take other functions beyond standards and methodology, and participate in *Strategic* project management either as facilitator or actively as owner of the *Portfolio Management process*. Tasks may include monitoring and reporting on active projects and portfolios (following up project until completion), and reporting progress to top management for strategic decisions on what projects to continue or cancel.

The degree of control and influence that PMOs have on projects depend on the *type of PMO structure* within the enterprise; it can be:
* Supportive - with a consultative role
* Controlling - by requiring compliance for example
* Directive - by taking control and managing the projects

1.3 Types

A PMO can be one of *three types* from an *organizational exposure* perspective:
- Enterprise - corporate PMO
- Organizational - departmental PMO
- Special - purpose PMO

The Project Management Institute (PMI) Program Management Office Community of Practice (CoP), describes the PMO as a strategic driver for organizational excellence, which seeks to enhance the practices of execution management, organizational governance, and strategic change leadership.

1.4 Maturity

Capability Maturity Model Integration (CMMI) was developed by a group of experts from industry, government, and the Software Engineering Institute (SEI) at Carnegie Mellon University (CMU). CMMI models provide guidance for developing or improving processes that meet the business goals of an organization. A CMMI model may also be used as a framework for appraising the process maturity of the organization.

CMMI is a process improvement training and appraisal program and service administered and marketed by Carnegie Mellon University (CMU) and required by many DoD and U.S. Government contracts, especially in software development. CMU claims CMMI can be used to guide process improvement across a project, division, or an entire organization.

There are *five maturity levels*. The process areas below and their maturity levels are listed for the CMMI for Development model:
- Maturity Level 1 – Initial
- Maturity Level 2 - Managed
- Maturity Level 3 - Defined
- Maturity Level 4 - Quantitatively Managed
- Maturity Level 5 - Optimizing

2 Methodologies

2.1 Waterfall

Waterfall approach means that you complete a number of phases in an ordered sequence: requirements analysis, design, implementation/integration, and testing.

Traditional phased approach identifies a sequence of steps to be completed, five developmental components can be distinguished (four stages plus control):
1. Initiation
2. Planning and Design
3. Execution
4. Monitor and Control
5. Completion

This approach can be more risky since problems may not be discovered until much later in the project, and don't show any value until completion.

Modified waterfall approach breaks the project down into two or more parts, sometimes called phases or stages. Manageable pieces allow you to prototype areas, and modify your design, with fewer risks to the project.

Project Management Institute, Project Management Body of Knowledge (PMBOK).
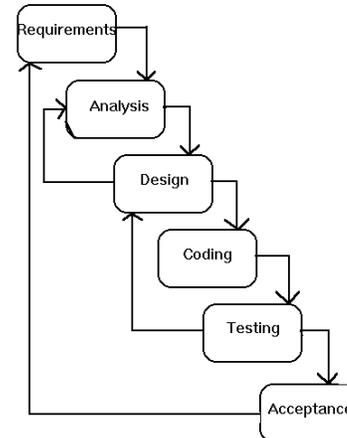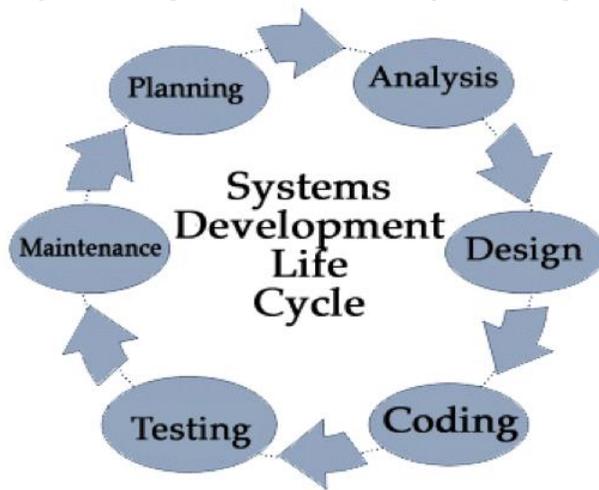
The waterfall model (Systems Development Life Cycle)
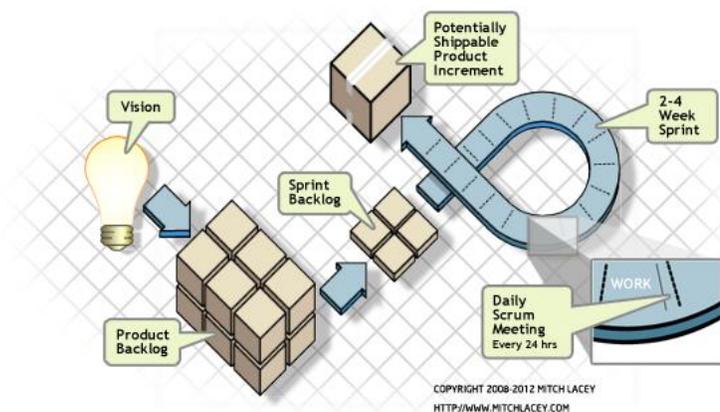
2.2 Iterative

Iterative approach involves a sequence of incremental steps, or iterations.

Iterations include some of the development disciplines (requirements, analysis, design, implementation...), have a well-defined set of objectives, and produce a partial working implementation of the final system.

Successive iterations build on the previous iterations to evolve and refine the system until the final product is complete.

Agile (Manifesto) - founded on a process view of human collaboration, is adaptive manner, rather than as a completely pre-planned process or difficult to plan ahead.

Scrum - agile software development method, rugby approach of one cross-functional team across multiple overlapping phases "team passing the ball back and forth".
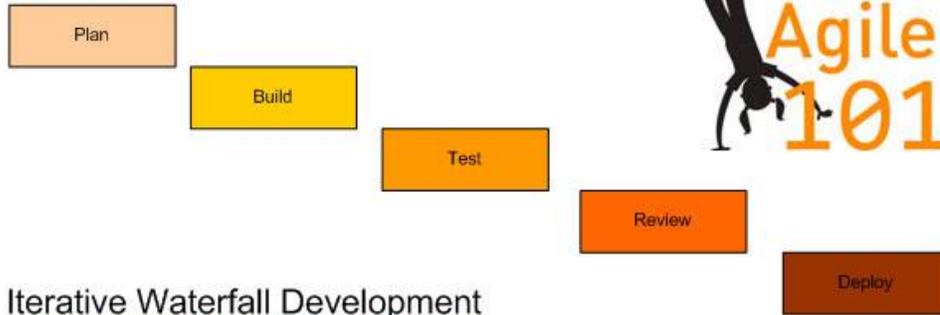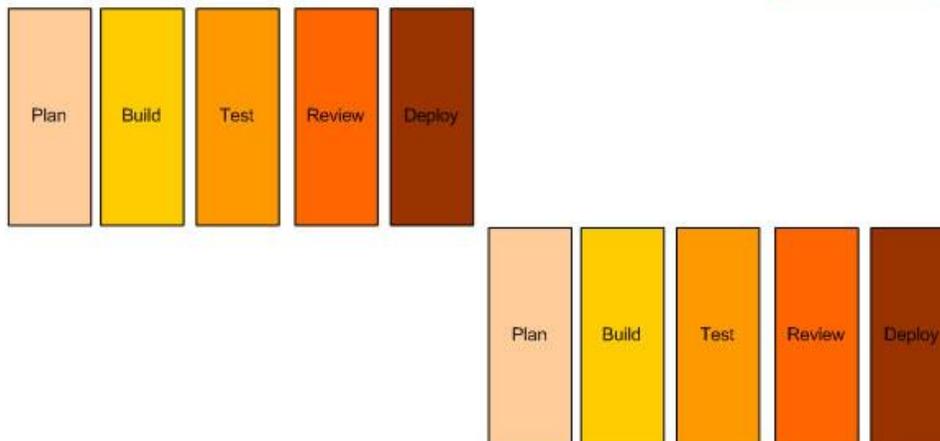

http://www.scrumalliance.org/pages/what_is_scrum

http://scrumpad.wpengine.com/features/scrumpad-overview
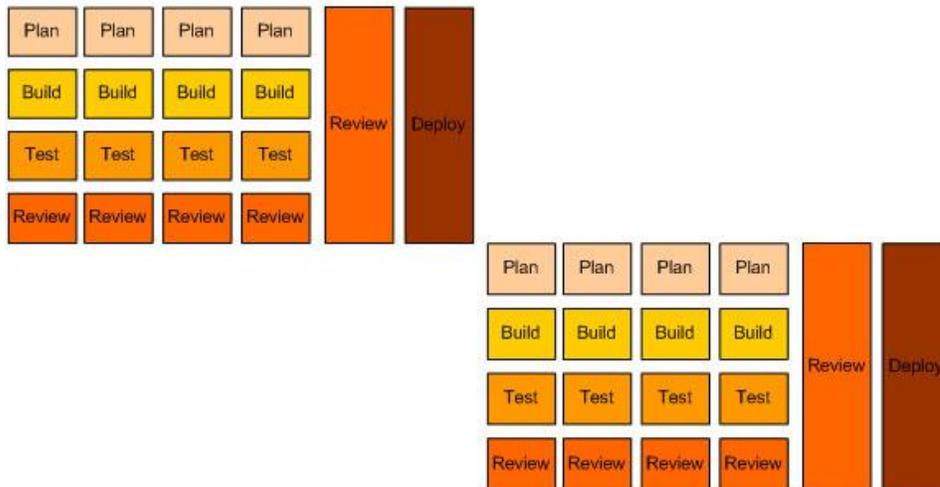
2.3 Comparative (Waterfall/Iterative)

2.4 Hybrid (Compromise)

Hybrid models are usually the compromise between waterfall and iterative methods.

Kanban is a method for managing knowledge work with an emphasis on *just-in-time* delivery while not overloading the team members. This approach presents all participants with a full view of the process from task definition to delivery to a customer. Team members pull work from a queue.

Kanban in the context of software development can mean a visual process-management system that tells what to produce, when to produce it, and how much to produce - *inspired by the Toyota Production System and by Lean manufacturing*.

The Kanban Method is rooted in *four basic principles*:

1. Start with existing process

The Kanban method does not prescribe a specific set of roles or process steps. The Kanban method starts with existing roles and processes and stimulates continuous, incremental and evolutionary changes to the system. The Kanban method is a change management method.

2. Agree to pursue incremental, evolutionary change

The organization (or team) must agree that continuous, incremental and evolutionary change is the way to make system improvements and make them stick. Sweeping changes may seem more effective but have a higher failure rate due to resistance and fear in the organization. The Kanban method encourages continuous small incremental and evolutionary changes to your current system.

3. Respect the current process, roles, responsibilities and titles

It is likely that the organization currently has some elements that work acceptably and are worth preserving. The Kanban method seeks to drive out fear in order to facilitate future change. It attempts to eliminate initial fears by agreeing to respect current roles, responsibilities and job titles with the goal of gaining broader support.

4. Leadership at all levels

Acts of leadership at all levels in the organization, from individual contributors to senior management, are encouraged.

This table lists differences between Scrum and Kanban methodology.

	Scrum	**Kanban**
Fixed-lenght iterations	Required	Optional
Commitment to a specific amount of work	Required - at the personal daily level and at the team level (per sprint)	Optional
Metrics for planning process improvement	Velocity	Lead Time
Cross-functional teams	Required	Optional
Item size	So it can be completed within one sprint	No particular
Prescribed diagram type	Burndown chart	No particular
Work-in-progess limits	Per sprint	Per workflow state
Estimations	Required	Optional
Adding new items to ongoing iteration	Not allowed	Allowed
Sharing sprint backlog/ kanban board	Within one team	With multiple teams or individuals
Prescribed team roles	Project Owner, Scrum Master, Team Member	No
Board life-time	Reset after each iteration	Persistent
Prioritization	Requires a prioritized product backlog	Optional

http://www.kanban-scrum.com/

3   Dashboards

In management information systems, a dashboard is "an easy to read, *often single page*, real-time user interface, showing a graphical presentation of the current status (*snapshot*) and historical trends of an organization's or computer appliances *key performance indicators* to enable instantaneous and informed decisions to be made at a glance."

In real-world terms, "dashboard" is another name for "progress report" or "report." Often, the "dashboard" is displayed on a *web page* that is linked to a database which allows the report to be constantly updated.

3.1 Types

Three main types of digital dashboard dominate the market today: *stand alone* software applications, *web-browser* based applications, and *desktop applications* also known as desktop widgets-driven by a widget engine.

3.2 Benefits

Digital dashboards allow managers to monitor the contribution of the various departments in their organization. To gauge exactly how well an organization is performing overall, allowing you to capture and report specific data points from each department within the organization, thus providing a "snapshot" of performance.

Benefits of using digital dashboards include:
- Visual presentation of performance measures
- Ability to identify and correct negative trends
- Measure efficiencies/inefficiencies
- Ability to generate detailed reports showing new trends
- Ability to make more informed decisions based on collected business intelligence
- Align strategies and organizational goals
- Saves time compared to running multiple reports
- Gain total visibility of all systems instantly
- Quick identification of data outliers and correlations

Typically PMO dashboard highlights the following status data:
- Overall project summary
- Schedule status
- Cost status
- Risk/issue status
- Teamwork status

Typically PMO portal highlights:
- PMO resources and tools (standards, templates, applications, schedulers)
- PMO repositories (databases, Share Point, TFS, version controls)

Appendix A – Glossary

Capability Maturity Model Integration (CMMI) - is a process improvement training and appraisal program and service administered and marketed by Carnegie Mellon University (CMU) and required by many DoD and U.S. Government contracts, especially in software development. CMU claims CMMI can be used to guide process improvement across a project, division, or an entire organization. CMMI defines the following maturity levels for processes: Initial, Managed and Defined.

Dashboard - is an easy to read, often single page, real-time user interface, showing a graphical presentation of the current status (snapshot) and historical trends of an organization's or computer appliances key performance indicators to enable instantaneous and informed decisions to be made at a glance.

Methodology - is a strictly defined combination of logically related practices, methods and processes that determine how best to plan, develop, control and deliver a project throughout the continuous implementation process until successful completion and termination. There are a number of approaches for managing project activities including lean, iterative, incremental, and phased approaches.

Project Management Office (PMO) - is a group or department within a business, agency or enterprise that defines and maintains standards for project management within the organization. The PMO strives to standardize and introduce economies of repetition in the execution of projects. The PMO is the source of documentation, guidance and metrics on the practice of project management and execution.

White paper - is an authoritative report or guide that informs readers concisely about a complex issue and presents the issuing body's philosophy on the matter. It is meant to help readers understand an issue, solve a problem, or make a decision.

Appendix B – References

ProjectManagementInstitute.org is the world's leading not-for-profit membership association for the project management profession. [PMP®](PMP) credential recognizes demonstrated knowledge and skill in leading and directing project teams and in delivering project results within the constraints of schedule, budget and resources.

[Scrum Alliance®](Scrum Alliance) is a membership organization that encourages and supports the widespread adoption and effective practice of Scrum. Learn more about Scrum. [CSM®](CSM) Certified ScrumMaster helps project teams properly use Scrum, increasing the likelihood of the project's overall success.

Kanban for Scrum Team. Scrum, Kanban and Scrumban are lean and agile methods, based on pull scheduling approach and the concept of self-organizing teams. Both require breaking the work into tasks, put an emphasis on using transparency as a key process improvement factor and highlight the importance of empirical metrics for stimulating continuous work optimization and increasing productivity.

Wikipedia (https://en.wikipedia.org)
- White paper. https://en.wikipedia.org/wiki/White_paper
- Project management office. https://en.wikipedia.org/wiki/Project_management_office
- CMMI. https://en.wikipedia.org/wiki/Capability_Maturity_Model_Integration
- Dashboard. https://en.wikipedia.org/wiki/Dashboard_(management_information_systems)
- Kanban (development). https://en.wikipedia.org/wiki/Kanban_%28development%29

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