



Notion Solutions, Inc.

Reconciling the Agile Team with Enterprise Project Management

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Table of Contents

Software Development in the Enterprise	4
Understanding Application Development Approaches	4
Enterprise Demands for Application Development	4
Enterprise Project Management Practices	5
Enterprise Project Management with Project Server 2010	5
Agile Practices for Successful Application Delivery	5
Agile Application Development Practices	6
Agile Application Development with Team Foundation Server.....	6
Agile and Enterprise: The Best of Both Worlds.....	7
Integrating EPM and Agile Tools.....	8
Agile and Enterprise Project Management in Action.....	9
Agile and Enterprise Resource Management	9
Conclusion.....	10
Resources.....	11
Team Foundation Server and Project Server 2010 Integration Feature Pack Resources	11
Microsoft Project 2010 Resources:	11
Microsoft Visual Studio Team Foundation Server 2010 Resources.....	12

Software Development in the Enterprise

Business Processes within the enterprise are becoming more and more driven by software systems. Booking flights for a trip or transferring money in a bank account, it's usually software that makes it happen. Successful software development projects lead to valuable software that improves business processes within an enterprise. These software-based business processes can increase profitability and drive competitive advantage. For more information on software development processes, see the whitepaper "What is ALM?" available at <http://www.microsoft.com/visualstudio/en-us/solutions/management>

Understanding Application Development Approaches

Traditional project management techniques call for a significant understanding of project scope and the duration and interdependencies of work tasks. This is highly beneficial for fixed priced projects and projects where the cost of rework is high and time to complete tasks is well understood. As the software development industry has matured, iterative project management approaches have been adopted to allow for easy incorporation of the inevitable change that occurs during a project. These iterative project management techniques can reduce rework, improve quality and speed time to market. Commonly referred to as "Agile" techniques, the general concept is to prioritize needed tasks and select a subset for immediate work, deferring analysis of the lower priority tasks until a later time. A challenge arises when most software development and other project efforts in an organization are managed with a traditional approach, while other software development projects are managed in an Agile way.

Enterprise Demands for Application Development

Enterprises like to select, fund and manage all project efforts in a similar manner. This is vital for a business to be able to assess status of projects and manage change and expenditures effectively. Therefore enterprises expect their software projects to be managed in such a way that overall progress and cost can be tracked and measured against expectations. This data can then be used to justify either the continued investment or cutbacks in a software project. Resource utilization and forecasting also needs to be available so that new projects can be planned based on the capacity of existing teams.

Enterprise Project Management Practices

Enterprises must effectively manage their investments in order to maximize success. They must prioritize projects against business goals, plan projects at a high level while being able to drill into the details with effected teams. Being able to report on work assignments for employees and track project progress is critical to effective enterprise project management. The general flow of a project is as follows:

1. Project ideas are suggested
2. Project is evaluated based on the following
 - a. Value
 - b. Alignment with business goals
 - c. Cost
 - d. Risk
 - e. Resource needs and availability
3. Project is selected
4. Resources are assigned
5. Work begins
6. Progress is tracked
7. Project priority is measured against other business priorities

Enterprise Project Management with Project Server 2010

Microsoft Project Server 2010 is a complete solution for addressing the EPM needs of organizations. Being built on Microsoft SharePoint 2010, Project Server 2010 provides a rich web portal for users throughout the organization to collaborate on projects. Portfolio selection and management are combined with enterprise resource and project management. Project requests can be entered directly into Project Server 2010 and project plans can be created for those projects that are selected. Reporting is available to view resource availability across all managed projects so that projects can be planned with resource constraints in mind.

Agile Practices for Successful Application Delivery

Changing needs and priorities are issues with all projects. To account for this constant change, new techniques have emerged for managing work on software development projects. It was discovered that a team constantly working closely with a business group could meet the changing needs of that business group much more quickly when unimpeded by a static project plan. Iterative approaches to software

development have existed for decades, first popularized by the spiral model as defined by Barry Boehm. More recently, various techniques for iterative project management are referred to as “Agile”. Agile is formally described in the “Manifesto for Agile Software Development” published in February 2001. The focus of Agile techniques to allow the software development team to communicate regularly with the business users to make communication seamless and allow for easy adaptation as needs change.

Agile Application Development Practices

Scrum is one particular Agile project management methodology that has gained much traction in recent years. Scrum emphasizes a highly iterative approach to project management where customer needs are reassessed and reprioritized at regular intervals. This iterative reassessment is critical to success with agile software practices. For software projects being managed with Scrum, all proposed work is placed in one large backlog. Work is performed in time boxed iterations (called sprints). Only a subset of all work in the backlog is addressed during each sprint. For example, if there are 20 items in the backlog for a software project, the items are prioritized based on business needs and based on the team’s capacity, assigned to a particular sprint. At the completion of the sprint, the backlog is reprioritized and another sprint is performed on the highest value items remaining in the backlog. This allows for a constant reprioritization of work with every sprint, allowing the development teams to be more agile in responding to changing business needs. Only items being worked on in a given sprint are investigated sufficiently to accurately ascertain scope and effort. This makes it very difficult to schedule long running projects and have a date denoting completes of the effort.

Agile Application Development with Team Foundation Server

Team Foundation Server supports agile project management, including Scrum. When setting up a team project inside Team Foundation Server to manage work, a selection is made to choose a software process. By default, you can choose MSF for Agile Software Development or MSF for CMMI Process Improvement. Both of these processes allow for iterative project management. Optionally, extra software processes can be downloaded and used, or you can create your own custom process. Microsoft has released Microsoft Visual Studio Scrum 1.0, a Team Foundation Server Scrum process available at <http://msdn.microsoft.com/en-us/vstudio/aa718795.aspx>. Using Team Foundation Server Work Items, you can create a product backlog, rank the items, and then define a sprint. This is highly efficient for Visual Studio and Eclipse developers as the backlog can be viewed and edited directly from their development IDEs using the direct integration available with Team Foundation Server. As developers complete their tasks, they can mark those work items complete and burndown reports (See Figure) can show a trend line to access velocity and likelihood of completion of remaining items during the sprint.



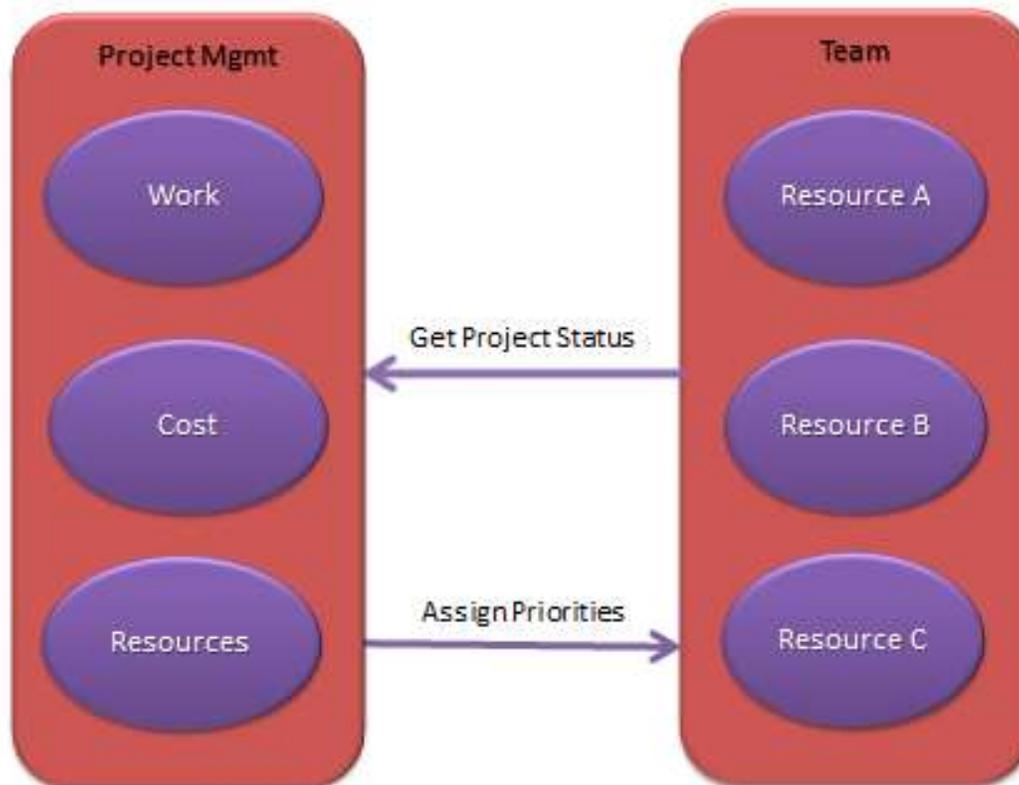
Figure: Burndown Report provided with Team Foundation Server

Agile and Enterprise: The Best of Both Worlds

Organizationally, it is critical to see how a development project supports the business needs and be able to report on progress and resource utilization. Using Team Foundation Server and Project Server 2010, data can be integrated in such a way to allow an Agile team to use Team Foundation Server to maximize their productivity, but at the same time allowing for reporting at the project level.

Integrating EPM and Agile Tools

The *Team Foundation Server 2010 and Project Server Integration* tools allow for status data to be pulled from Team Foundation Server and synchronized with Project Server 2007 or Project Server 2010. This facilitates reporting in project server while the team manages their sprint with Team Foundation Server. Product backlog items can be entered in either Team Foundation Server or Project Server and the data will be synchronized. This gives Product Owners a more familiar means of working with development team. The ranking and management of the product backlog can be done in Team Foundation Server. Once prioritized, items from the product backlog can be assigned to a sprint backlog and the development team can begin work.



Agile and Enterprise Project Management in Action

Managing the interaction between Project Server users and Team Foundation Server users is relatively straightforward. Project Server can be used for initial project initiation. Once a project is selected for work and a project is created in Project Server, high-level product backlog items can be entered. A corresponding team project would be created in Team Foundation Server and synchronization would occur and create the backlog in Team Foundation Server. Work would not be scheduled or decomposed inside the Project Server project plan. Instead, the agile team would prioritize the work in Team Foundation Server using Excel, Team Web Access, Team Explorer or other tool of their choosing. Once the work is prioritized, the items for the first sprint will be selected and work will commence. The sprint backlog items can be decomposed into whatever tasks the team needs to manage the work. The tasks work items created from decomposition should have remaining work and completed work fields that will be synchronized with Project Server. These hours will be rolled up to the backlog item and synchronized. Only the top-level backlog items will have their status synchronized back to Project Server. This synchronization will allow for status (active, blocked, etc.), progress (work remaining) and completeness (done or not done) to be viewed inside Project Web App. This transparency and traceability allows for the visibility needed by business units and the PMO.

Agile and Enterprise Resource Management

Organizations also need to be able to track when resources are fully engaged or available for other assignments and assign work to those resources as appropriate. Project Server is designed to handle this data easily. For an Agile team, this can be a challenge. The discrete work activities for a team member will not be known past the current sprint. Agile teams work by having people assigned to the team, either as full-time or part-time members. For Enterprise Resource Planning of development staff, tasks should be created inside Project Server to denote their assignment to an Agile team.

Consider this scenario, an upcoming 4 week sprint with the following team members inside Project Server; tasks would be created to record their assignment to the sprint. Individual tasks should be created for each team member for each sprint. This extra data provides an enterprise with the means of reporting on where staff resources are allocated. This allows for better planning both for future projects and future hiring needs. As shown below, if resource availability were viewed in Project Server, Anna and Paul would show as having some availability and that availability could be consumed by other projects.

Resource Name	Role	Capacity	Total Hours	Project Task
Anna	Tester	75%	120	4 weeks duration, 75%
Dave	Developer	100%	160	4 weeks duration, 100%
Colin	Developer	100%	160	4 weeks duration, 100%
Paul	DB Developer	50%	80	4 weeks duration, 50%

The team members themselves would use work item tracking inside Team Foundation Server to assign and manage their tasks for the sprint. These items may or may not be included in a project plan.

Conclusion

With planning and consideration, it is possible to meet the desires and goals of the enterprise, while allowing development teams to work in the manner that is most effective for their productivity. *Team Foundation Server 2010 and Project Server Integration* allows for the seamless integration of data between Team Foundation Server and Project Server. This integration achieves the following key capabilities:

- Provides up to date **insight into portfolio execution, alignment with strategic objectives, and resource utilization** of software development projects by leveraging the quantitative data stored in different systems.
- Automates the **exchange and sharing of project information across teams** and improving coordination between teams using disparate methodologies, like waterfall and agile, via common data and agreed upon metrics.
- Enables development and project management teams to **use familiar tools to collaborate and communicate** project timeline and progress such as Microsoft Visual Studio, Project, and SharePoint.

These enterprise goals of portfolio, project and resource management flow objectives directly to the development team while using status data coming directly from the development team to report on enterprise projects. This seamless flow of information helps maximize the value of software projects within the organization.

Resources

Team Foundation Server and Project Server 2010 Integration Feature Pack Resources

- Solutions For Application Lifecycle Management: <http://www.microsoft.com/visualstudio/en-us/solutions/management>
- MSDN Product documentation: <http://msdn.microsoft.com/library/gg455680.aspx>

Microsoft Project 2010 Resources:

Product information

- Project 2010 product site: <http://www.microsoft.com/project>
- Project Team Blog: <http://blogs.msdn.com/project>
- Case Studies : <http://www.microsoft.com/project/en/us/customer-success.aspx>

End-User Product Help

- Project 2010 Help <http://office2010.microsoft.com/project-help>
- Project Server 2010 Help <http://office2010.microsoft.com/project-server-help>

Interactive content - Videos & Sessions & Webcasts

- <http://www.microsoft.com/showcase/en/US/channels/microsoftproject>
- <http://www.microsoft.com/events/series/epm.aspx>

Project Professional 2010 and Project 2010 Demo Image:

- Download: <http://go.microsoft.com/?linkid=9713956>
- Hosted Virtual Lab: <http://go.microsoft.com/?linkid=9713654>

IT Professional related - TechNet

- Tech Center: <http://technet.microsoft.com/ProjectServer>
- Admin Blog: <http://blogs.technet.com/projectadministration>

Developer related - MSDN

- Developer center: <http://msdn.microsoft.com/Project>
- Programmability blog: http://blogs.msdn.com/project_programmability

Got Questions? Search or ask in the official Microsoft Forums!

- <http://social.msdn.microsoft.com/Forums/en-US/category/projectserver2010,projectprofessional2010/>

SharePoint 2010 Products

- <http://sharepoint.microsoft.com>

Microsoft Visual Studio Team Foundation Server 2010 Resources

- Team Foundation Server MSDN Page: <http://msdn.microsoft.com/en-us/vstudio/ff637362.aspx>
- Microsoft Visual Studio Team Foundation Server 2010 Trial – ISO: www.microsoft.com/downloads/details.aspx?FamilyID=3660cacf-f077-44d3-a9d9-97e801da2035&displaylang=en
- Team Foundation Server Team Blog: http://blogs.msdn.com/b/team_foundation/
- Brian Harry's Blog Site: <http://blogs.msdn.com/b/bharry/>
- Channel 9 Team Foundation Server Videos: <http://channel9.msdn.com/tags/TFS/>