WHITEPAPER

Project Time Management: The Foundation for Effective Resource Management

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About Cognitive Technologies
Cognitive Technologies, Inc. www.cognitive-technologies.com is a professional services firm that delivers technology management services and solutions to commercial and government clients. Operating at the intersection of people and technology, Cognitive Technologies specializes in project and program management, requirements, process re-design, and the implementation of PMO tools. Founded in 1987, Cognitive Technologies has offices in Washington, DC, Atlanta, GA, Hilton Head, SC, and Austin, TX. Cognitive Technologies is a Microsoft Certified Partner and a Journyx Preferred Partner.

Introduction

According to a 2008 Gartner report, 15% of all projects failed because of high cost variance, while 18% were unsuccessful because they were substantially late.[1] Because technology projects involve the management of human resources in order to accomplish the target schedule, cost, and quality, it is reasonable to assume that poor resource management is a leading contributor to failure of technology projects.

Resource management for IT projects involves managing information workers who are categorized by skill types or job functions. For example, a project team may require business analysts, developers, team leads, project managers, architects, or database analysts. Finding an available information worker with the right skills to assign to a project or task can be one of the most challenging problems confronting the project manager. Typically, quality staff members are scarce and heavily sought by competing projects. Without effective resource management processes, project managers struggle with allocation issues across all of their projects. Additionally, if existing resource management processes are ineffective, strategic projects don't get priority for critical, scarce resources.

We live in the midst of what has been called the "knowledge explosion". To survive, organizations must develop strategies for assessing and deploying the use of their resources.[2] Resource management consists of resource planning, management, and analysis, all of which depend on the availability of accurate, valid data. Without good data, the management, forecasting, and reporting of all other project information is suspect and quite frequently leads to the question, "Where did things go wrong?"

We contend that project time management is the foundational process for resource management on technology projects. Why? Every industry has its metrics. The auto maker tracks the number of tires put on new cars and the number each worker produces. The farmer counts his chickens and the resources (food, water, etc.) used to produce the eggs harvested. But project tracking of resources in the IT industry is different. The factor that we are tracking most often is worker time, rather than materials or material cost, because project tasks are performed by knowledge workers. Time spent is one of the key metrics that can be used for this type of resource.[3] Project time management provides actual and factual data, not "best guesses" of worker time spent.

In this paper we present project time management as a foundation for good resource management. We provide a definition and discuss general steps for implementing project time management. Next, we share tips for successfully implementing time management and avoiding common pitfalls. Finally, we share benefits of a time management solution.

[1] (Apfel, Hanford, Light, Stang, Mieritz, & Fitzgerald, 2008)
[2] (Meredith & Mantel, 1989)
[3] (Finch, 2007)

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What is Project Time Management?

Project time management is the process of individuals recording their effort or time spent working on a specific task in order to report status. It encompasses the reporting of progress on projects at both a task and a resource level. Time tracking provides the organization with the transparency needed to determine who is working on what project, how many hours are scheduled, and how many have been worked. Unfortunately, organizations that do not have good resource management processes, specifically time management, are left asking questions like:

- "Who is working on what?"
- "How do I get this project back on schedule?"
- "How much more work will it take to finish?"

The process of time management provides project managers (PMs) with the information they need to determine why a project is falling behind schedule and enables them to react before it is too late. It also allows management to evaluate the original work efforts and durations to determine if they were accurate. In the words of Curt Finch, an industry leader in time management, "in the information worker world, the only asset to be tracked is time."[4]

Project time management requires the use of tools and policies in order to create a standard for monitoring and measuring project work. The tools utilized in this process must be able to capture and manage time, both by individual and assigned tasks. Most organizations will use a combination of tools to accomplish this. While tools are necessary, they are not sufficient. Effective project time management requires policies for the processes of creating, changing, recording, and managing time records. For example, if each part of the organization uses a different process for maintaining project data, the result is inconsistent project time data across the organization. Project time management policies also improve the accuracy of project data, such as status reporting and staff utilization. One example of a policy is the definition of a standard work week. This would include the number of hours per day, and the start and end of the reporting period. If the organization does not enforce the use of the same policy, the project data will not be usable for benchmarking or forecasting.

Implementing Project Time Management

The specific implementation of a good project time management solution will depend on the organization's culture and processes for managing projects. Here are four general steps to follow when implementing your project time tracking solution. Each of these is discussed further in the text that follows.

1. Decide on the processes and policies that you will establish and enforce. Sometimes this is dependent on the organization's cultural norms and its ability to accept change.

2. Determine which tools you have, which ones you want to procure or implement, and how they will affect the processes you want to follow.

[4] (Finch, 2007)

3. Develop and implement a change management strategy to ensure that the organization "buys in" and supports the new processes for project time management.

4. Follow a project plan and schedule to develop, implement, and rollout your new solution.

Decide on Processes and Policies

According to Knutson, two of the seven characteristics that represent the major deliverables of any enterprise wide program management (EPM) implementation are "consistent processes" and "clearly defined roles and responsibilities."[5] Processes describe how work gets done. Processes have structure (what should happen, when), as well as roles and ownership (who is responsible for what). At a minimum, when implementing project time management, you should have processes for team members, project managers, and administrators. In larger organizations you will probably add time administrator, Project Management Office (PMO) staff, and executive roles. These roles are not meant to replace the normal organization's time reporting roles of supervisor, manager, department head, or human resources (HR) specialist. Instead, they dictate who is responsible for project time management.

The main processes that should be developed and implemented are illustrated in Table 1. Let's take a deeper look at each of these processes.

Table 1: Responsibilities for Time Management Processes

Process	Responsibility
Schedule management	PM
Time reporting	all team members
Time approval	PM and/or managers
Task/ assignment changes	PM or PMO
Reporting	PM, PMO or Admin

Schedule Management

Schedule management starts with the sub-processes of planning, estimating, and creating the schedule, as well as making assignments. Then it involves processes for controlling and executing the schedule. Schedule management processes are usually the responsibility of the project manager. Schedule management processes require three main components: tasks, resources, and assignments. A project's schedule should include both tasks and assignments, especially if you are using an outside vendor, and should address all of the requirements or components that will be needed.[6]

[5] (Knutson, 2000)
[6] (Van Valkenburgh, 2008)

Time Reporting

Once the schedule has been developed and assignments for tasks have been made, the execution and management team must have processes that insure the schedule remains accurate. For project information to be useful (i.e., consistent and accurate) the processes must be implemented for the parts of the enterprise that are working on projects. It starts with a process of time reporting in which all team members are recoding their time and effort using the same method. If the organization allows different policies for recording time—such as one group recording all time worked on a task, and one group using an eight-hour cap, the organization cannot view project time in a common way or use 'rolled up' data reporting. By having a single set of policies for your processes, the organization can use a common set of project data to predict resource utilization or determine which projects went over or under initial estimates.

Time Approval

Time approval is the process by which PMs and managers know what their team members are working on and how much of each task they have completed. Once a solid foundation of time reporting has been established, individual and group performance and status can be measured consistently. This also allows for the implementation of a single, consistent time approval process for all projects and groups. And when using a web-based resource management solution, time approval becomes a communication tool that occurs in real time and cuts down on much of the lag time created when using email.

Task/Assignment Changes

Because no project makes it from start to finish without enduring some modifications, there must be a process for communicating these changes to and from the project team. It is the job of the PM or PMO to make sure the changes are communicated in a timely manner. An example of what may need to be communicated: suppose a team member was assigned a two-week task, but during the first week finds a problem and needs to communicate that the task is going to take longer than the time initially allotted. With an established time reporting and approval process, team member feedback regarding changes will be communicated faster, which allows the PM to better adapt to the change in schedule. The team members can also address the needs of the project and anticipate problems or shortcuts before they reach problem areas.

Reporting

Reporting processes are essential to communication, both within a project and throughout the organization's management team. Each part of a team has separate responsibilities crucial to the success of a project. Consequently, reporting processes and capabilities must be enterprise wide. Project status is the most common type of project reporting, and the most common form of communication will be the status report. The status report process provides regular updates to management regarding accomplishments, actual progress versus the plan, and issues or changes that the project team is facing as it completes its work.[7] An executive needs access to high-level progress reports, while each team member needs the ability to view reports that focus on his/her individual tasks.

There may be additional processes required by an organization's culture, but these are the basic ones that are used for managing time on projects. All processes are created and implemented using polices to communicate and enforce them. Most often these policies (and therefore, processes) are enforced by tools that the organization has implemented.

Procure and Implement Tools

There are a vast number of tools on the market for assisting with all areas of project management. Some of these tools are suites of applications, and others are single purpose tools used for a single process. The two major tools that are needed for project time management are a schedule tool and a time management and reporting tool. These tools or applications allow for schedules to be created and maintained, and for individual resources to report time spent on tasks.

Table 2 presents a sampling of some of the more common tools on the market.

Table 2. Common Tools

Suite of Products and Tools	Schedule Management Tools	Project Resource Management Tools
Clarity PlanView Primavera MS Project Server/PWA Tenrox Deltek	Microsoft Project (Std and Pro) Tenrox Project Planning	Journyx ProjectXecute Tenrox Project Planning Replicon Web Resource

[7] (Letavec, 2006)

Develop and Implement a Change Management Strategy

New processes for time management represent a major change initiative for organizations in which project teams previously were not required to track time. Decades of studies consistently show that 50-70% of change initiatives fail. Arthur D. Little and McKinsey & Co. have studied hundreds of organizations with change initiatives and found that 2/3 fail to produce the results expected. So before we roll out our new time management policies and processes, let's look at the major reasons change initiatives fail. The following traits are often evident in the post mortems of failed change initiatives:

- **Too top down**—Program managers and directors usually understand that they have to craft a vision for changing a process. But they fail to relate their vision to the desired end results or help the individual project team members see what must be done to implement the new processes and make them a part of how work gets done.

- **Failure to make it a project**—A change initiative is a project unto itself. It has a start and an end. It should be crafted to translate the management team's vision into reality. Just like most good plans, it needs to have flexibility and contingency built in. After all, few projects finish without making adjustments!

- **Not people focused**—Just crafting a vision and "saying it will be so" does not "make it so." Staff readiness must be examined. You must explain what you are doing and why and ensure the team knows what they must do differently. Bottom line—you must have team/staff commitment in order to implement time management processes effectively.

- **Being too insular**—Organizations may need outside, objective help to implement the desired change. Unfortunately, too many try to go it alone. The better approach is to find facilitators who have helped other organizations implement time management. They can provide the training, support, and advice needed to be successful. Change is a contact sport—arm yourself with support.[8]

John Kotter (Harvard Business School) has said that "the most general lesson to be learned from successful cases is that any change process goes through a series of phases that, in total, requires a considerable length of time." Management must keep at it, pushing the change through, providing people the support, tools, and motivation they need. For big ideas to stick, they have to seep into the DNA of the organization and become "the way we do things here."

[8] (Mcgraw, 2005)

Follow a Project Plan

Last, and perhaps most important, the implementation of a time management solution requires good project planning. The implementation of your project time management solution should use good PM principles and can actually be a model for other projects. The planning process for this project should include the steps:

- Estimating resources
- Defining major milestones
- Creating a rough order of magnitude (ROM) cost
- Developing a project plan, budget, and schedule.

The project also needs to obtain stakeholder approval, show how it meets strategic objectives, and be aligned with the organization's budget. Be sure your project schedule and plans also include all of the components required to have a successful implementation. Some of these components are training, configuration and database load, documentation, job aids, procurement for both hardware and software, and IT infrastructure capabilities.

Tips, Tricks, and Common Pitfalls

All implementation projects have common pitfalls and challenges. We have identified some tips to address potential pitfalls to project time management implementations.

- **Always get top / executive management buy-in.** Do this before attempting to implement a project time management solution. Without executive commitment you will have some groups that may not participate fully, and this can lead to inconsistent results. Make sure the executives involved see the benefits of implementing time management processes and they will support you when problems occur or you encounter resistance to change.
- **Don't implement more process change than the organization can absorb!** Project time management involves many policies and processes. Prioritize these and implement the most critical ones first. You might also start your time management implementation using one team or sub-unit as a pilot to work out the bugs and get the processes tuned to your organization.
- **Don't let the tools drive your processes**. Some time management tools are not flexible and can't accommodate your organizational needs. It is acceptable to utilize multiple tools, working together, if this allows the organization to consistently follow the new processes. For example, many organizations have a legacy HR time system (e.g., SAP, PeopleSoft, Oracle). In this scenario, implementing a project time management system which provides data to the legacy system may be a preferred method for meeting the organization's needs. PMs get the data they want, and HR gets the data it needs.
- **Provide training and job aids**. Even though many people will tell you they don't need to be shown how to do a process like record their time

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on tasks – don't buy it! The one person who says this will be the person who messes up the entry and thus, the data.

- **Designate responsibilities to specific people**. A 'responsible designee' doesn't necessarily spend time and effort on project activities like a resource does. Normally assigned to higher level activities on the WBS, the responsible person is held accountable for crucial deliverables on the project.[9]

Benefits

Once an organization decides to implement better project time management, executives immediately look for a return on investment. Some benefits are easily quantified, while others are harder to measure. The benefits for project time management are found at many levels in the organization and summarized in Table 3.

Table 3. Project time management benefits span organizational levels.

Level	Benefits
Executive	More insight into staff use and staffing needs Objective reports with less interpretation on actual progress
PMO / PMs	Accurate schedules that reflect true status and progress Better planning and forecasting from historical data, enabling estimates to be based on prior projects and tasks Status based on actual progress, which can be compared to original baselined targets
Resource Manager / Department Head	Visibility into staff utilization and assignments Ability to spot trends and issues earlier
Individual Contributor/ Team member	Ability to see what work is scheduled near term and long term Ability to communicate when reality is different than planned effort Better coordination by being able to see what other tasks are linked to their work

Additionally, an overall benefit is increased organizational maturity. Standards and metrics for organizational maturity require the rigor provided by project time management. The Software Engineering Institute's *CMMi* maturity model includes time management processes as requirements for achieving higher levels of organizational maturity. The PMI OPM3 model also requires that an organization implement and use these processes consistently to gain a higher-level maturity rating.

[9] (PMI, 2008)

Closing

In this paper we have presented a definition of project time management and discussed general steps for implementing a project time management solution. Next, we shared some tips and pitfalls to avoid when implementing project time management. We concluded with a presentation of the benefits of a robust time management solution.

We are not claiming that project time management is a *new* revelation in the IT world. Rather, we hope this paper has drawn attention to the importance of how you choose to track valuable assets (i.e., people resources) on your projects. To those organizations who say they already fill out timesheets at the end of the week/month, we would ask: Can you use that data to do historical analysis on the performance of individuals on your project team? Can you use that data to see who is under/over utilized today? Can you use that information to forecast availability in the future and actually verify those forecasts?

An established project time management solution reveals issues that can be dealt with before they morph into problems and "project crushers." The old saying "the best predictor of the future is the past" has a direct correlation to project time management. This is why it is critical to have resources track their work efforts against assigned tasks. Having an historical record of what was actually worked, against what was planned provides a basis for estimating future projects. In summary, when organizations have better methods, processes, and data for managing their scarce human assets, they can achieve consistent and more predictable project results.

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McGraw - Biographical Information

Bruce A. McGraw is the CEO of Cognitive Technologies, a professional services firm delivering project and program management services, products, and PMO tool implementation to commercial and government clients. Previously, Mr. McGraw was the VP of Consulting Operations, overseeing all technology and large-scale projects, including PMOs and the establishment of enterprise program management offices for manage major development initiatives.

Mr. McGraw is a program manager with over 25 years of experience across multiple industries. His ability to craft pragmatic solutions to meet project goals, coupled with experience in all aspects of project management, enables him to meet customer expectations with on-time, within-budget deliveries. Mr. McGraw has a successful track record in leading mixed teams, consisting of client and vendor resources, to accomplish project and business goals.

Mr. McGraw holds an MS in Technology Management from the University of Maryland's University College and a BS in Business Administration from the University of South Carolina. Mr. McGraw is a certified Project Management Professional (PMP) and is an active member of the Project Management Institute. He has trained in four project management methodologies, has authored numerous articles, and presented workshops in a variety of topics, including managing virtual project teams.

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Ross Leonoudakis is a Project Manager for Cognitive Technologies specializing in project schedule management. He holds an Orange Belt in Microsoft Project and provides clients with assistance in dynamic scheduling. Mr. Leonoudakis runs the OnTrack Schedule Assessment service for Cognitive Technologies and provides analysis on project schedules for clients. Mr. Leonoudakis graduated from the University of Texas at Austin with a bachelor's degree in Finance and is a Microsoft MCTS.

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