

Project Management Fundamentals, work discipline and role of Tools

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1. Abstract

Project Management is fast becoming a matured subject with better definition of process areas and collection of best practices. This has helped to automate management tasks and generate useful data for analysis and decision making. Project Manager equipped with knowledge in this subject and well versed with tools is able to provide quality time for people, strategies, and customer irrespective of area of business. Floor discipline continues to be important as it ensures readiness of organization to adopt automation, helps to drive change and set the path towards achieving business goals. Tools should evolve as per specific need of an organization by a) identifying repeated patterns of tasks with costs, and b) picking relevant best practices from industry. Use of traditional tools like whiteboard, worksheets and little bit of automation is simplest way to start with. It helps to create a best fit for organization as well. It also helps users to understand, contribute and own the system.

Management should provide required budget and participate through review of results, to expedite roll out of process automation and make it effective. This helps organization to build their Knowledge Management system implicitly which improves reuse and response time to solve problems.

This paper shall use three project manager's area of work to demonstrate need of a system, transition to tools and benefits to organization at large.

Keywords:

Project Management, Efforts, Processes, Collaboration, Change Management, Innovation

2. Introduction

21st century marks the age of information revolution. It is not just information but the analysis, choices, decision making capability that shall give competitive edge to organization, teams and individuals. Those who are still stuck at data gathering and doing manually repetitive jobs are stuck in 20th century.

More than 70% of the time of project manager in IT industry goes into creating reports, tracking project execution. **Tools** capture essence of our age where rapidly electronic medium is replacing mundane jobs of information flow, decision making and helping organizations to achieve consistency, accuracy in operations. Use of Tools is not a choice but necessity to stay in business. Tools are available that use standard books of knowledge in this area and adopting best practices across industry. Collaboration has been redefined with web applications and boosted the overall drive for efficiency and knowledge management.

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On the other hand many of the project managers are not trained, find it difficult to manage themselves amid complex project management needs. They find themselves loaded with information coming from chat/emails/meetings/web. Their inboxes are their knowledge repositories in which many are marked for later action or reading. This stresses out PM, leading to de-motivation of team as well.

3. Changing Scenario

Tools and technology (Remote meeting, cloud hosting, and ubiquitous hi-speed internet) is fuelling

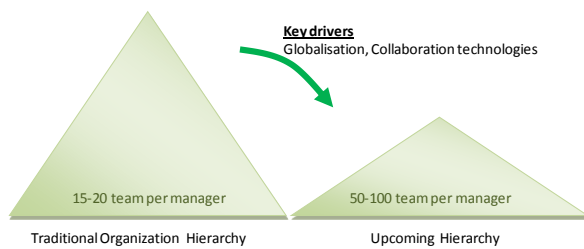


Figure 1 Reducing height of hierarchy

Globalisation much faster than expected. It is making availability of talent easier across boundaries, leading to different operating conditions in time to come. A project manager may have to deal with a team of even 20 people with 2 members sitting out of Bangalore, 4 out of Vietnam, 2 out of United State and 2 in Gurgaon. Hierarchical setup is giving way to flat organization structure and work on contract culture. This also means per Project Manager, there may be a team

of >50 people or number of vendors for outsourced work. It definitely requires freeing up more time from repetitive tasks by delegating to lesser costly resources e.g. tools or by entrusting knowledge workers with more responsibilities.

PM has to deal with so many variables (Figure 2) to run a project, many of which have to do with unpredictable nature of human beings. With bigger teams all of these areas become more significant and at times, lead to appointing dedicated functional managers.

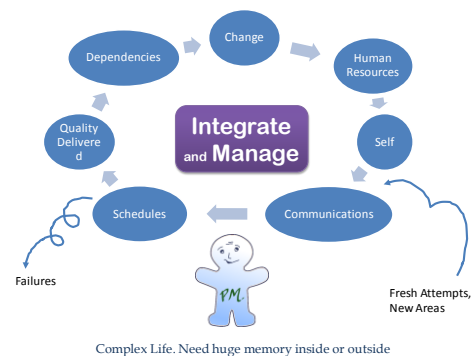


Figure 2 PM and Project mgmt tasks

4. Change Management

Change management is probably the biggest challenge of any project. Figure 3 captures different types of change management that an organization need to be geared for.

Project / Product Change Request Management

In service industry Change Management is most commonly heard issue and sometimes it takes serious dimensions at customer interface. It is a fact that no project ever goes without a change request. And, no customer wants to pay over and above the agreed budget for project. Changes may be triggered for following reasons:

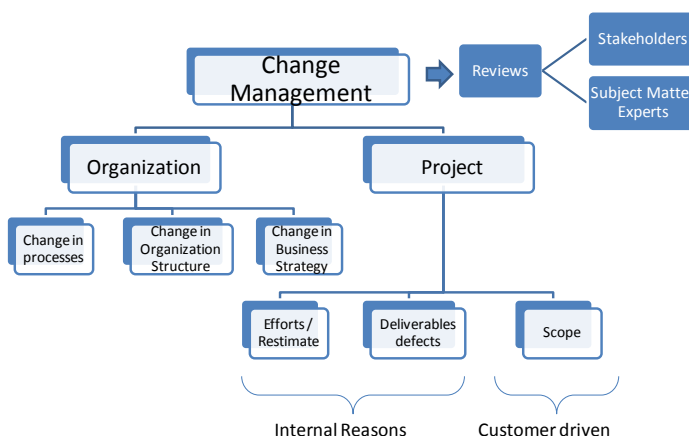


Figure 3 Different types of Change Management

- Scope was not clearly defined
- Missed line items in estimates
- Poor requirements analysis
- Wrong assumption about productivity
- Non-availability of skills as assumed during proposal stage
- Customer defined new requirement

/ Change in scope

A successful project manager and hence an organization should be able to proactively manage the change rather than reacting to the change. It also involves learning from past similar events. Few methods that may be deployed are:

- Link project budget with the breakup of budget assumed at the time of proposal (core efforts, mark ups for risks, skills)
- Standardize scope definition at the time of proposal/bidding for project
- Create database for productivity to improve estimation accuracy
- Categorize all change requests based into customer and non-customer driven
- Analyse all to see how they can be factored in earlier planning stage and reduced

Proposal efforts may include margin for the change. Proposal may also be carefully written to include “Out of scope” statements so as to define change requests better at later stages. Templates of

Change Request form

Customer	Date Initiated		
Change Title			
Change Description			
Custom Fid1	Custom Fid2	Custom Fid3	
Raised by		Custom Fid4	
Impact Analysis			
Efforts	Cost		
Implementation plan			
Pilot plan			
Roll out			
Monitoring and Review			
Approver	Date Approved		
Review and Approver comments			

Figure 4 Change Request form

capturing scope and requirements specific to domain can help to ensure completeness. Similarly, maintaining databases to keep track of budgeted efforts and change requests submitted can help generate an important customer and business characteristic/trend.

A system may be defined to pool buffers from different projects costing sheets into single bucket owned by one of the next level management stakeholders. Change request for internal reasons like re-estimation should be approved by approver of this bucket as part of the management review. PM should put up convincing case for the same. For example: Project A may have done wonderful job in delivery and didn't consume much of the skills contingency effort, however Project B ran into trouble because of new technology area and it was a new customer. Function head can allocate required funds to this project, knowing well the overall limit he has got across Function. In similar way, one can handle fixed price/estimation related risks and the pools may be available at different levels across organization. Timesheet should be tightly bound to reflect this management of efforts.

Having said some key points of change management, it leads to establishing a work flow that initiates a change, appoints a body to review the change and approve, appointing pilot team, a champion and then doing a roll out.

Figure 4 captures a simplistic implementation of a Change Request form based on the need identified here. Database sheet helps to provide report on approved CRs, total efforts approved, pending CRs and filters for review and analysis.

CR#	CR Title	Date	Raised By	Efforts	Cost	Impact	Approve/Reject	Status

Figure 5 Database for

Putting this in an online system, with log of all actions that take place helps track down all changes and impact. Also, it eliminates ambiguity in the system.

Configuration Management

Any change management discussion is not complete without talking about the configuration management. All changes

Baseline Definition	
Product/Project Release	
Component/Part# 1	
Component/Part# 2	
Document#1	
Document#2	

Figure 6 Project baseline

implemented lead to change in the system baseline. Unless and until they are controlled for later retrieval, Change Management is not effective. In manual approach to store and retrieve information, there used to be serious loss of information or duplication of information or missing implementation (traceability). Automation in version management and storage has been well supported by freeware community. Typical examples here have been lost version of a document that was used in a particular product release. Through use of tools like SVN all related documents can be labelled and retrieved at any later point of time. Agreeing on basic fundamentals of document numbering, tagging, directory structure, commit, retrieval and backup gives a significant advantage in saving rework and time spent in locating information.

A simple form (see Figure 6) can be created based on this, that captures change done, tag, owner, integrated by and verified by.

Reviews / Inspections

Inspections are most important activity in project lifecycle. It highly depends on the motivation and skill level of the inspector. Reviews might have been very rigorous, but human errors do happen in overlooking the comments while implementation. For example: comments are parked on earlier versions never got picked up, not all comments were disposed, and part of document towards the end never got looked at by any of the reviewers. As part of project plan, review plan must be laid out by identifying – artefact, estimated efforts for review, mandatory reviewers, approver, meeting schedule, defect log templates, categorization of defects. “Two by two” matrix is handy tool to judge review effectiveness. It plots average effort spent per unit size of document versus average defects found per unit size of document.

Depending on the size, different models and tools can be used to conduct inspection. Apart from simple to use inspection sheets, one can use discussion forums, walkthroughs and taking notes, embedded reviewing mechanism in documents and defect management tools. To build maturity and learn from each other all such inspections should be concluded with summary of findings in a worksheet or a database.

Motivating inspectors to find faults is extremely important. Also, if they run with more critical tasks at that time, they will fail to deliver the quality to review. Incentivising reviews might be good idea.

By making inspections effective project saves on cost significantly and are critical factor for customer retention.

5. Directing and managing work

This is the second biggest factor that takes away project manager's time (first is communications). It consists of primarily assignment and monitoring of tasks, managing his/her own tasks, appraising team and keeping them motivated to deliver best. While appraising team, PM has to communicate effectively on aspects like – availability, productivity, quality and team work. These are captured in following sections.

Efforts and estimation

Late hours of work and defects found at customer site has shown significant correlation. Since typically this happens in later parts of a project, it requires proactive handling. Causal analysis shows that slippages and poor tracking (missing forecast methods) at the start of project leads to accumulation of work towards the end. One can use internal interim milestones and ask PM or team to submit compliance to agreed deliverables or activities. This should help to give a verdict “We are on track” and in turn can be used to communicate to customer proactively on any possible delays. A significant factor in making this happen is the estimation practices and efforts data. This is done effectively by training team on estimation techniques. To begin with, a simple email or word template

capturing efforts and collated through team leads can be used to do this. Using Wide band Delphi one can arrive at consensus. As these practices mature with standard templates, one must migrate to organized databases to make them more useful for organization. From organization point of view this estimation data on smaller components can be reused while working for new opportunities and significantly reduces cost as well as time to respond.

Productivity

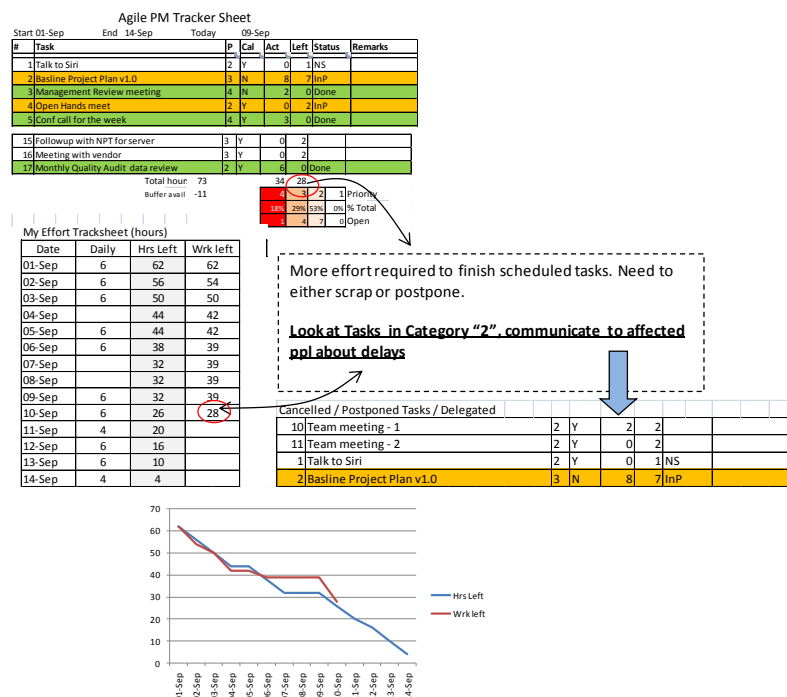
At many places, it is difficult to engage employees for even 8 hours. Such culture starts bringing inconsistency in system, takes away productive time of project manager into micro-management. The problem is not eight hours but reactive management of low productivity and wasteful debate of on each other's contribution per unit time during project execution. It is part of organization culture and should be facilitated from top. A simple excel sheet capturing efforts against macro tasks can be used to achieve this. Sometimes organizations have deployed advanced methods to gather in and out data of employees, but never analysed or linked to project tasks. Final goal of this effort should be to measure productivity and should be optimized to get just that. This data then should be analysed with a view to identify weak areas and improve; and not to penalise people as far as possible. A worksheet capturing – date, time in, time out, tasks worked on, hours on daily or weekly basis is good enough to start with. Ratio of efforts and output at project level, and a trend to capture how it varies over months helps to learn the productivity variation. This data then can be rolled up further to understand organization capability.

Team Vacation Planning

Many a times, sudden non-availability of a person leads to significant impact on project. It is always good to keep one of team meetings agenda to take update on any planned vacation. In fact this should be agreed before start of project and negotiated. A simple excel sheet may be used, or one may use “Outlook calendar” also to achieve the same thing or the same may be fed to the project management tools. Coupled with this is an extremely important matrix for shadow resources. Some may call it as competence matrix. On one side of matrix is the key expertise area required in project and on other side it is team members. Together they form an excellent framework to give due personal space not at project cost.

Work Management

In service industry, being very close to customer, work is unpredictable. Teams and Project Manager



struggle to get visibility from customer what shall be there in next 2-3 months. This is typical of extended teams in outsourced environment. Agile methodology comes handy in such scenarios. Agile is not any defined standard but collection of methods and tools to facilitate better response to customer needs and minimize product rollout risk at customer end. One of the tools used there is burn-down chart which truly capture the spirit of CPI (Cost performance index) and SPI (Schedule performance index) in graphical format. Every individual can also be maintaining his own personal

Figure 7 Agile tracking sheet and burn-down chart

burn down chart by putting together all his “TODOs” across different contexts in one product log. Estimating them and putting them to calendar can help individual/projects to make right commitments and adhere to them.

A pictorial view of burn-down chart and the inferences is shared in to help relate things well. In burn-down chart one track down actuals against the planned remaining efforts. It is like chasing target run-rate on per hour basis in cricket. If team is just staying on crease without making runs (completing tasks as planned), actuals will go flat in this chart which is an early alarm for corrective action.

6. Managing Communications

It is observed that biggest time consuming component is communications (email, chat, meetings, reports, browsing internet). They are known to be biggest distractions affecting productivity and quality output. Let us look at meetings and status- reports from PM's viewpoint.

Meetings

Following are five different types of meetings organized:

- Catch hold of anyone while you go through the corridor and pick up the discussion relevant to him/her (Corridor meetings)
- Send email to the persons whom you want to discuss with (One on one)
- See calendar of people you want to meet for free time, set agenda and invite them (Best Fit)
- Evaluate alternatives to meeting and use meeting only for collaborative and decision making work. Also, give a short call to confirm their availability (Best Fit and Personal touch)
- Inputs to meeting are well defined and are ensured to run meeting (Projectized)

Clearly the participants would prefer the last one as that make them better prepared and deliver value for their time.

Following are six commonly observed issues that affect meetings usefulness –

- Agenda less
- No follow-up on actions
- Participants don't arrive on time
- Chairperson does not end on time
- Do not conclude
- Hierarchy versus openness

Mostly it is to deal with education, setting the expectations. Based on above pointers and may be similar discussions in an organization's context, one can put together templates, checklists and meeting calendar to make them effective. One such example of meeting planner is quoted in Figure 8. Sometimes mandatory meetings don't happen. For example, critical reviews like “management review meetings”. They are supposed to happen every month but at times fail to happen. Causal analysis will show one or more of the following reasons:

- Don't work from their calendar
- Don't refuse their attention to interrupts and flow with them, ignoring pre-scheduled items

Meeting Planner (v1.0)

Schedule: Date: 14 March 2010 Start: 10:00:00 End: 11:00:00

Output: _____

Agenda: _____

Attachments: _____

What to look for?: _____

Participants (mandatory): Add

1		-	Your Role
2		-	
3		-	
4		-	
5		-	

Participants (optional): Add

1		-	Your Role
2		-	

Location: Book / Update _____

Minutes of Meeting: _____

Chairperson : _____ Est Hrs = _____

Secretary : _____

Prepared by : _____

Figure 8 Meeting planner

- c) Informal discussions have took place and meetings seems to duplicate the work
- d) Objective is not clear on why meeting is required

Solution can be to schedule such known events (management reviews, customer meetings) in the start of the project to participant's calendar. Draw a communication plan while doing project plan to capture details so as to avoid these gaps. Even if the plan changes, it helps to create a space in calendar to accommodate such things.

Across the sites, it is efficiently done using screen sharing, voice conference bridges, provided following discipline is maintained.

- Standardized layout of introduction and sharing it in writing (people should know names of other side and little more detail on their role in the activity)
- Good network bandwidth to allow both sides stay in sync (technology should not play spoil sport)
- Fair amount of time available to conduct meeting
- Moderated interaction so that everyone gets chance to speak
- Time is convenient (if working across time zones)
- Material is shared in advance (eliminates wasted time to understand purpose but to discuss doubts/defects and arrive at consensus)
- Training on tools basics but important features
 - Raise Hand
 - Chat offline
 - Using Whiteboard
 - Transfer control

Status Reports

While doing Status reports one mostly does copy paste of information from other sources for most of the time preparing the report and validating if information is right. In many cases, even making phone calls to find what is latest. This information can be updated by people involved, by outcome of events that have happened in status period as and when it happens and later retrieved by PM to capture in status report. This shall help to make it an independent offline activity. Following are key sections that get communicated:

- Risk Management (Top 2 risks with status on action plan)
- Key Milestones and status (SPI)
- People issues / statistics (Attrition, new hires, skip level meetings, appraisals, promotions)
- Financial Parameters (CPI)
- Travel / Training etc plans (optionally)
- Status on Change Requests and updated budgets

It becomes non-productive, if it becomes multiple reports going out with different formats/contents to different stakeholders. This can be further simplified by analysing needs of customer, establishing chain of reports right from team member, owner of information, location of information. One can draw a matrix of status items versus stakeholders to understand what all information can be reused. Another matrix can be made to figure out who delivers what?

This problem can be simplified by delegating, or devising simple tools to manage content that is updated by information owners in real-time. A click of a button should be able to generate appropriate template of status report, analysed/moderated by PM and send it out too. Doing so PM saves his/her bandwidth to do better quality job than just copy/paste. By doing so, an accurate and consistent communication goes out. An interesting dialogue between PM and auditor that highlights importance of status report is as follows:

Auditor: Please show status report

PM: Here is the report that I send to customer.

Auditor: Please show what do you share with management

PM: I cc to management

Auditor: do you share everything including people attrition, appraisal with customer, internal change requests

PM: No, we don't

Auditor: Then how do you communicate?

PM: We have daily one-on-one meeting

Auditor(wonders): How Management guy remembers interactions with all of them for their performance and related action points ?

7. Tools Lifecycle

Through few examples above and approaches, the fact of having to understand end user need is most important, followed by ability to deal with it in most optimal way and than only comes the automation. Over period of time, it is realized that “One size fit all” kind of approach does not work and one loses critical time in the process of absorbing third party tool.

Templates/checklists/dashboards should be defined according to the specific roles and prioritised business needs. Typical goal for such activities would be to a) Improve productivity/bottom line b) Increase volume of projects/operations c) Improve customer retention. Define light weight processes/work flows to start with.

One should try to capture “As Is” style of working without copying any external world before comparing and evaluating the change required. A process of 1000 people strong company if applied to 50 people strong company may not work. Evaluate the impact, identify champion and plan the roll out, preferably after testing through pilot. Figure 10 demonstrates typical evolution cycle of automation, some of those steps may be skipped depending on the organization maturity. As automation starts getting foothold in an organization, integration of all systems becomes extremely critical. Missing on this step, may result into duplicate work and erroneous data and an offline system. It's important to keep reviewing resultant impact on business goals at organization level through such actions. It directly reflects importance given to the drive.

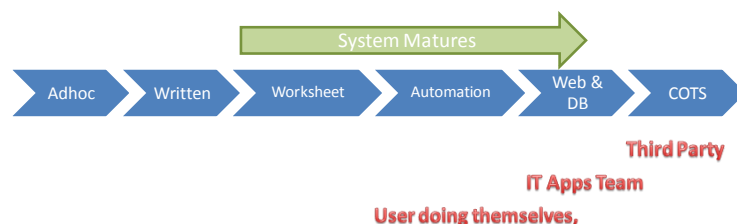


Figure 10 Evolution of tools

To achieve most of the project management tasks, one requires following five things, and in absence of any applications team support, PM can acquire basic skills to do them:

- Input mechanism
- Database for archival
- Logic to analyse data for dashboards and conclusions (may be very light weight to start with)
- Reports including charts
- Open interface to integrate with other applications in work flow

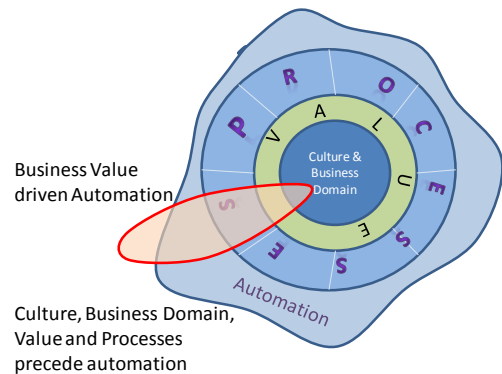


Figure 9 Business value driven automation

8. Conclusion

With sound project management fundamentals and a proven professional project management culture, one can leverage tools to jump to next level of “value decision making”. Tools are only successful by collaborative participation by all. At no point they should be treated as threat. Project Managers of today need to be strong on fundamentals and well versed with tools to meet the upcoming challenges of working with bigger size and multi-geography teams. More than the standard tools, a need must be felt and should drive innovation to simplify and standardize project management tasks suitable to an organization. Making a blue print of all processes at work in organization specifically around projects and drawing a roadmap to implement automation is worth the effort.

Management support is the most critical and their valuation of project manager’s effort in this direction can make all the difference. Management to organization is like brain to body. There should be balanced approach followed in focussing on domain and management practices in a project.

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Author's profile

Vineet Kumar Maheshwari has recently setup Da Kine Technologies to work into social applications and telecom software services domain targeting Indian market. He carries with him 16 years of rich experience in telecom software services and product development out of which approx 10 years is into management of different programs/projects ranging from 100 to 4000 Person-Months. He has worked with Hughes Systique and Aricent in past. During his tenure he has been delivering projects with high quality focus, innovating in management practices and roll out of management tools. He has led successfully his previous organization through CMMi assessment and ISO 9001 certification besides core business deliveries. He is a tool enthusiast and strongly believes in standardizing and automating repeated tasks. He has also played role of management representative, led process improvement group. He has been a trainer on project management related areas. He is a PMP certified professional.

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