Software Project Initiation – a Practitioner's Perspective

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Background

If I were asked to name one step, which is crucial for success of project execution, I would have to say - that it is Software Project Initiation (SPI). A software project that is well initiated has much more probability of being successful than a software project that is not as well initiated. Certain mistakes that are committed in initiation time would not lend themselves for correction during the subsequent phases project execution. That is why I am recording my experiences on this subject.

Software Project Initiation Activities

Software Project Initiation starts after the organization acquires a project from one of its clients. The objectives of the SPI are –

1. Ensure that ownership for project execution, delivery and customer acceptance is entrusted to a Software Project Manager (SPM)
2. The SPM is provided with support-commitments from service departments of the organization
3. The project is started on the right footing – a project started well, is half completed!
4. The experience of the organization is brought to bear upon the project

SPI activities are shared between the organization and the Software Project Manager (SPM). Normally an organization that is organized for executing software development projects would have a department that is entrusted with the responsibility of acting as the repository of project records as well as the nodal agency for initiating and closing of projects. In some organizations, the delivery head holds this responsibility. In some organizations, a special department under the title of Project Management Office (PMO) or Project Repository would be there. This department carries out the SPI at organization level.

The organization (PMO) performs the following activities during SPI –

1. Identifies the SPM
2. Prepares the Project Dossier and hands it over to SPM
3. Assists SPM to obtain necessary SLAs (Service Level Agreements) from other departments of the organization

The SPM performs the following activities during SPI –

1. Study the project specs and ensures that they are complete
2. Carry out software estimation, namely,
    a. Size of software to be produced
    b. Effort needed for executing the project successfully along with needed skill sets of the person power
    c. Schedule for the project execution
    d. Cost Estimation for the project
3. Obtains budgetary sanctions for the estimates
4. Raise requests for necessary resources, namely,
    a. Person power
    b. Hardware resources
    c. Software resources

   d. Seating facility
   e. Networking and Internet
5. Prepare project plans
   a. Project Management Plan
   b. Configuration & Change Management Plan
   c. Quality Assurance Plan
   d. Project Execution and Delivery schedule
   e. Product Integration Plan
   f. Deployment Plan
   g. Induction Training Plan
   h. Handover Plan
   i. Issue Resolution Plan
6. Setup Development Environment
   a. Setup seating facility
   b. Setup hardware
   c. Setup system software and development tool kit
   d. Setup information sharing directories
   e. Setup networking and Internet
   f. Setup work allocation and execution mechanisms
7. Arrange project specific skill training required, if any, to project team members
8. Train project team on all aspects of project execution as specified in the project plans
9. Organize the project team into its constituent functions, module teams, QA teams, Database team etc
10. Conduct a Project Kickoff meeting with other concerned departments and obtain commitments for project specific service levels and issue resolution mechanisms

Now let us examine each of these activities in detail.

Organization level activities –

First let us consider the organization level activities.

Identify SPM

Once the go ahead (in the form of a management approval, a purchase order from a customer, a letter of intent) is received the Project Management Office would identify an SPM. Identification of a PM is subject a few subjective and objective factors such as –

1. Availability of SPMs
2. Past experience in the present domain
3. Expertise in the present technical domain
4. Capability to handle the present team size
5. Willingness of the SPM to handle the project and so on

Prepares the Project Dossier and hands it over to SPM

Project Management Office or whosoever is handling the responsibility of SPI at organization level prepares a project dossier and hands it over to SPM. The dossier would consist of –

1. Technical Specs of the project as finally agreed to with the customer
2. Important milestones of the project along with dates by which to reach them
3. Other requirements such as communication mechanisms, progress reporting formats and intervals. Escalation mechanisms and so on

4. Pointers to past experience like similar past project estimates, project plans etc. – this brings the organizational experience to bear upon the project execution.
5. Information pertaining to raising bills and invoices
6. Project Initiation Note (PIN) – this note contains basic info about the project.
7. Any other aspect specific to the project

This is the beginning dossier for the project and all measurements are carried out in the backdrop of the info mentioned in this dossier. This dossier would be handed over to the SPM who would maintain it further during project execution.

Sample Project Initiation Note

Project Name	**Development of Software for Materials Management**
Project Id	DP/2008/MM/001
Project Description	Develop software for material Management function including procurement, warehouse management and inventory control
Start Date	1st Oct 2008
End Date	1st Feb 2009
Project Manager	**abc**
Person Months (Efforts)	56
Resources - Software	To be identified after estimation
Resources - Hardware	To be identified after estimation
Reference Documents	1. Technical Specs 2. Documents of project xyz 3. Metrics data of project xyz
Raised By & Date	PMO – 15th Aug 2008

Assists SPM to obtain necessary SLAs (Service Level Agreements) from other departments of the organization

SLAs would be agreed to between the SPM and service departments like HR (Human Resources), Finance, Networking and Systems Administration departments etc. Project Management Office would coordinate such a meeting at the request of SPM and ensures that an amicable resolution is achieved between project requirements and the service departments. This is conducted at the request of SPM.

Sample SLA

Project Id **Date:**

S No	Description of the Activity	SLA for the project	Responsibility
1.	Installation of new computer Hardware Installation of Communication Equipment Installation of Peripherals	- 1 day for small systems for Desktops and Printers 1-2 days for big systems such as Servers 1 Week for routers, Switches, Communication Controllers	Sys Admin
2.	General trouble shooting and problem rectification of computer systems and peripherals in different projects	- 30 Min – 4 Hrs from request - In case of procurement time is dependent on vendor	Sys Admin
3.	Operating System Installation and Troubleshooting	- 0.5-2 days	Sys Admin
4.	PC / Desktop Printer Allocation	1-3 days from requisition (Subject to availability)	Sys Admin
5.	Software / Consumable Issue	30-60 Minutes (Subject to availability)	Sys Admin
6.	Software Installation	2-4 Hours	Sys Admin
7.	Software Problem / Network Troubleshooting / PC or printer troubleshooting	2-4 Hours.	Sys Admin
8.	Mail Server related problems. PROXY Server Related Problems	30-60 Minutes	Sys Admin
9.	Review and Editing of proposals	25 pages/day	Tech Writer
10.	Review and Editing of documents (System and User documentation)	20 pages/day	SQAG
11.	Conduct audit	1 day	SQAG
12.	Prepare audit report	2 working days after audit	SQAG
13.	Review of Project Plans	2 days to do the review	SQAG
14.	Conduct Final Inspection for deliveries	2-3 Hours	SQAG
15.	Conduct Audit	0.5-2 Days depending on the item	SQAG
16.	Conduct Project closure	1-2 days	PMO

S No	Description of the Activity	SLA for the project	Responsibility
17.	Conduct Quality training	3 days	HR
18.	Co-ordinating Project Specific Training	Within 2 weeks after receiving request (Duration depends on type of training)	HRD
19.	Processing Waiver Request	1 week	SEPG
20.	Allocation of skilled manpower to projects	1-2 weeks required from the day of request, provided the necessary training requirement can be fulfilled	HR

SPM level activities

Most of the other SPI activities are carried out by either the SPM or a person designated by him. SPM takes ownership of all the SPI activities. SPM may take networking and Sys Admin personnel to Setup development environment and networking. Let us consider each of the SPI activities below.

Study the project specs and ensures that they are complete

SPM studies the specs received from the client including –

1. Technical specs
2. Delivery commitments
3. Milestone details

He studies all these and makes an assessment of achieving them. He would interact with Project Management Office or the customer as required and fills the gaps in the specs, if any.

Carry out software estimation

SPM carries out software estimation, namely,

1. Size of software to be produced
2. Effort needed for executing the project successfully along with needed skill sets of the person power
3. Schedule for the project execution
4. Cost Estimation for the project

SPM would estimate the size of software product to be produced. SPM would choose an appropriate size measure based on the organizational standard and customer preference, if any. Then he would convert the size into effort in person days or hours using appropriate productivity figures. He would work out the schedule of development and then cost of development.

Software Estimation is large enough topic in itself and I have addressed a separate paper on it.

Obtains budgetary sanctions for the estimates

SPM would submit to appropriate authority in the organization for the software estimates and interface to obtain necessary sanctions for the budget. This sanction would be useful in obtaining

the required resources for the execution of the project. SPM would follow the organizational processes for this activity.

Raise request for necessary resources

Based on the sanctioned budget, SPM would raise necessary requests on appropriate authorities for project resources, namely,

a. Person power – of necessary mix of skills, development platform experience, domain expertise and level – this is normally raised on HR department. In larger organizations it is common to have a resource cell that is vested with the authority of allocating people to projects. If people were to be recruited, this department would interact with HR for recruitment.
b. Hardware resources – this request would be raised on Sys Admin department who would allocate necessary hardware for the execution of the project. Sys Admin would procure special hardware if any required for the project and make it available to the SPM.
c. Software resources - this request would be raised on Sys Admin department who would allocate necessary system software and development kit for the execution of the project. Sys Admin would procure special software if any required for the project and make it available to the SPM.
d. Seating facility – this would be raised on the Administration or Facilities department. Admin / Facilities department would provide necessary seating facility for the project team in such a way that the team is collocated.
e. Networking and Internet – this would be on Sys Admin department who would provide necessary interconnection for the project team, provide required security, and Internet facilities.

Sample Resource Request Form

Project Id : Date :

Sl. No	Resource Requested	Resource Type	Qty	Required by Date	Probable Release Date
1	Java Programmers	Personnel	12	10th Oct 08	1. 5 by 20th Nov 08 2. 10 by 10th Dec 08 3. 5 by 1st Jan 09
2	Business Analysts – Finance	Personnel	2	1st Oct 08	1st Jan 09
3	PCs	Hardware	2	1st Oct 08	1st Jan 09
4	PCs	Hardware	12	10th oct 08	1. 5 by 20th Nov 08 2. 10 by 10 Dec 08 3. 5 by 1st Jan 09
5	Oracle DBA	Personnel	1	1st Oct 08	10th Dec 08

Requested By & Date Approved by & Date

Prepare project plans

Project Planning is an involved activity and is probably the single factor that can cause project success or failure. Since this is a large subject I addressed a separate paper on this subject. However, in a nutshell, the following plans are prepared.

a. Project Management Plan – this contains details of the project scope, milestones, tools & techniques used in the project, communication and issue resolution mechanisms, etc are detailed.
b. Configuration & Change Management Plan – this plan contains details of development configuration, development state promotion, change management procedures, naming conventions and so on.
c. Quality Assurance Plan – this plan contains quality assurance activities proposed for the project, metrics to benchmark the project, quality assurance roles and responsibilities for the project etc.
d. Project Execution and Delivery schedule – this is a detailed work breakdown based schedule listing all the activities with resources and dates assigned for each of the activities such that it gives the probable dates of reaching the set milestones, deliveries and project completion.
e. Product Integration Plan – this plan contains the proposed approach for integrating the product and integration testing along with roles and responsibilities for product integration.
f. Deployment Plan – this plan contains details of hardware and software required for deploying the solution, the schedule of deployment, roles and responsibilities for deployment etc.
g. Induction Training Plan – this plan contains the details of topics to be covered for training new entrants to the project, pointers to course material, roles and responsibilities for conducting the induction training and its evaluation etc.
h. Handover Plan – This plan contains details of hardware and software components to be handed over to the client representatives, acceptance mechanisms, roles and responsibilities of persons involved in handing over the completed project to the customer etc.
i. Issue Resolution Plan – this plan contains details about reporting issues, obtaining resolution, roles and responsibilities etc.

Setup Development Environment

Development environment involves seating the project team together, ensure that all the developers have necessary development tool kit, access communication facilities and the QA personnel have all necessary testing tools, and a separate test environment and so on. The following activities are included -

a. Setup seating facility – take possession of the seats provided by the Admin/Facility department and allocate them to team members in such a way that each member is located in the related group and ensure that the team is seated
b. Setup hardware – provide necessary hardware resources to the team members
c. Setup system software and development tool kit – ensure that all team members are provided with necessary system software, database management system, development tool kit including editors, compilers, debuggers and so on.
d. Setup information sharing directories – organize the information such as user requirements, design documents, project plans, training materials, issue reporting formats, test plans and all other formats and templates needed for the team working in

convenient directories and providing need based access to all the team members and ensuring security thereon.

e. Setup networking and Internet – ensure that all hardware of the project team is interconnected and Internet is provided to the team on as needed basis
f. Setup work allocation and execution mechanisms – deploy work registers at a commonly accessible places and inform the communication protocols for making work allocation and as well as reporting work completion and keeping the team informed of the same
g. Identification of appropriate standards and guidelines for coding, designing, testing, reviewing, and defining them where they are not available.

5. Arrange project specific skill training required, if any, to project team members – as needed arrange class room / self-study training to the team members and all activities connected with such training
6. Train project team on all aspects of project execution as specified in the project plans
7. Organize the project team into its constituent functions, module teams, QA teams, Database team etc
8. Conduct a Project Kickoff meeting with other concerned departments and obtain commitments for project specific service levels and issue resolution mechanisms. This is carried out with the help of PMO (Project Management Office) who would arrange the meeting and invite all necessary department representatives to be present. In this meeting, SPM presents the details of the project including milestones and the support needed from those present as well as the SLAs needed. After negotiating the SLAs all-present note their commitments and implement and adhere to those during the project execution. Typically, SQA (Software Quality Assurance), Sys Admin, Admin/Facility, Networking, Marketing & CRM (Customer Relationship Management) department representatives would attend this meeting.

Phase-end Audit

This is the last activity of the SPI. SPM invites the Internal Auditor designated for the project to audit the project for conformance with the defined Project Initiation Process of the organization. The audit may unearth non-conformances, if any and report to the SPM. SPM would arrange for the rectification of the non-conformances and close them.

This concludes the SPI – Software Project Initiation and the project execution phase starts.

Common Pitfalls in SPI

The following are the common pitfalls of SPI.

Ineffective PMO or no PMO

Many organizations fail to visualize the importance of an efficient and effective PMO. Often times, I had seen a relegated role to the PMO. It is sometimes attached to the secretariat of the Delivery Head. Sometimes, a refugee is settled in PMO and the role would be to raise the PIN and custodian of project records. This type of PMO can not aid the SPM when needed; it cannot provide right references to the SMP during project initiation and every project is always started from the scratch – I have seen this happen in more than one organization that has executed multiple projects in similar domain. It is not always possible to get the best resources for the project and in such cases PMO can play an important role by being the mentor and provide expert assistance when needed by the project. During project execution too, PMO can measure the project health with metrics such as earned value, quality and productivity and assist the ASPM in course correction midway thru the project.

My suggestion would be to have robust PMO – the benefits outweigh its cost.

Identification of wrong SPM

Often times, an SPM is selected more because he is available than he is most suitable de to expediency. Sometimes, the selection becomes political when there is prestige is associated with the project. I have seen this happening in many projects, SPMs vie with each other to handle a prestigious project and in such cases cronies of the top boss would become the SPM rather than the most suitable one. Needless to say that the SPM can only play politics and try to manipulate the people to execute the project than lead it from the front. Sometimes, the most suitable SPM is unavailable – a host of reasons like being engaged on a different and equally important project, not willing to take up the project, etc. – hence the second best SPM is to be selected. In such cases, PMO has a greater role to play – it can play the role of a mentor to the SPM and ensure project success.

Identification of inappropriate resources

Human resources are crucial for success in software development projects. Ideally a project team should consist of resources that are proficient in the development platform and have worked in similar domain. Practically, it is not always possible due to reasons like – resources not being available or tied up in another project or the resources not willing to join the project. But it can be ensured that the project team has a balanced mix of experts and not-so-experts, some people with experience in the domain, and some people who can mentor juniors – this is to be ensured. I have seen that all experts being allocated to one project and starving the other project.

Wrong SLA's

Another frequent pitfall I saw is providing wrong SLAs to the project. Project needs in-time response to its needs especially provision of resources, troubleshooting when an issue arises, provision of expert assistance when stuck with an issue and so on. If the SLAs provided are not in tune with project requirements – due to reasons like inadequate infrastructure or lack of experts or due to political reasons – the consequences would be undesirable.

Delays in SPI activities

Sometimes, PMO takes more time in identifying the SPM; sometimes, identification and allocation of resources gets delayed; sometimes the project kickoff meeting and arriving at satisfactory SLAs excess time – all these delays have to be absorbed by the project execution. Sometimes, delays are used as a tool to get the SPM agree to SLAs, resources etc. Whatever, is the reason, any delay in SPI would put more pressure on the project execution as unless the SPI is completed, execution cannot start.

Poor software estimation

Robust software estimation helps in right identification of resources and the quantity of resources required to execute the project efficiently. Both over estimation as well as underestimation results in imbalance in the project team, which is, does not augur well for project health during execution. Many organizations do not treat software estimation as an important activity. The do not collect metrics on effort spent and contrast them with estimated effort and come out with proper adjusted norms. Many organizations do not even standardize a software size measure for their organization. Ball Parking is the most used software estimation technique. Training on software estimation and provision of metrics to aid accurate estimation are vital for a software development organization.

Poor standards and guidelines for development

Standards and guidelines assist the development team in achieving predictable quality for the end product. A high quality set of these will go a long way in executing the project efficiently and effectively. Many organizations pay either lip service to this concept or implement them poorly just for namesake.

Poor project planning

The saying attributed to Abraham Lincoln says thus "If am given six hours to fell a tree, I would use the first four in sharpening the axe" – is the best that I can describe the importance of planning. More often than not, SPMs take project plans of an earlier project and do a "save as" project plans for the new project. While I do not argue to do away with this practice, I would suggest that project plans be made afresh, however use the "cut & paste" from the earlier project plans – this affords fresh thinking about the requirements of the current project.

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Your feedback is gratefully solicited – please email your feedback to the author
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