College of Computer and Information Science
Malayan Colleges Laguna

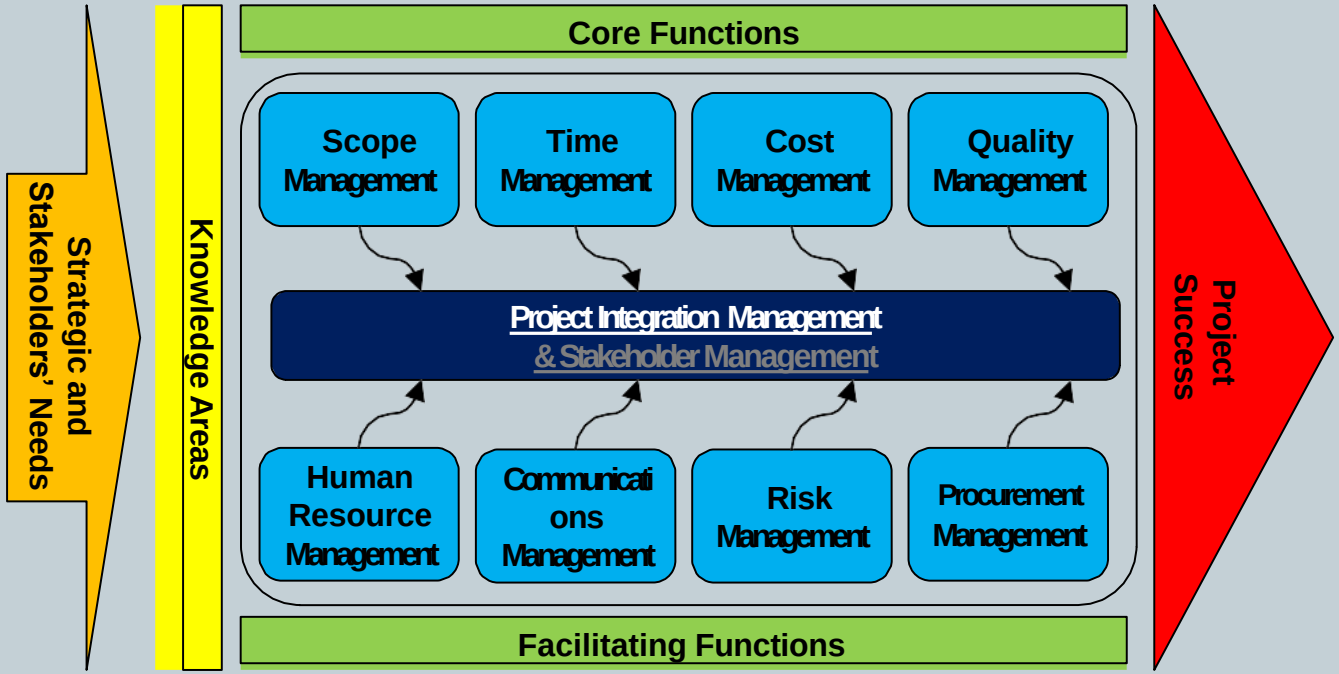
MALAYAN COLLEGES LAGUNA ONLINE

Module 2.1:

Project Integration Management

IT124P Project Management

Project Integration Management



Project Integration Management

Definition:

Project Integration Management includes the processes and activities to identify, define, combine, unify, and coordinate the various processes and project management activities within the Project Management Process Groups.

Processes:

1. Develop Project Charter
2. Develop Project Management Plan
3. Direct and Manage Project Works
4. Monitor and Control Project Works
5. Perform Integrated Change Control
6. Close Project or Phase

Project Integration Management Process

1. **Develop Project Charter —** The process of developing a document that formally authorizes the existence of a project and provides the project manager with the authority to apply organizational resources to project activities.
2. **Develop Project Management Plan** — The process of defining, preparing, and coordinating all subsidiary plans and integrating them into a comprehensive project management plan.
3. **Direct and Manage Project Work —**The process of leading and performing the work defined in the project management plan and implementing approved changes to achieve the project's objectives.

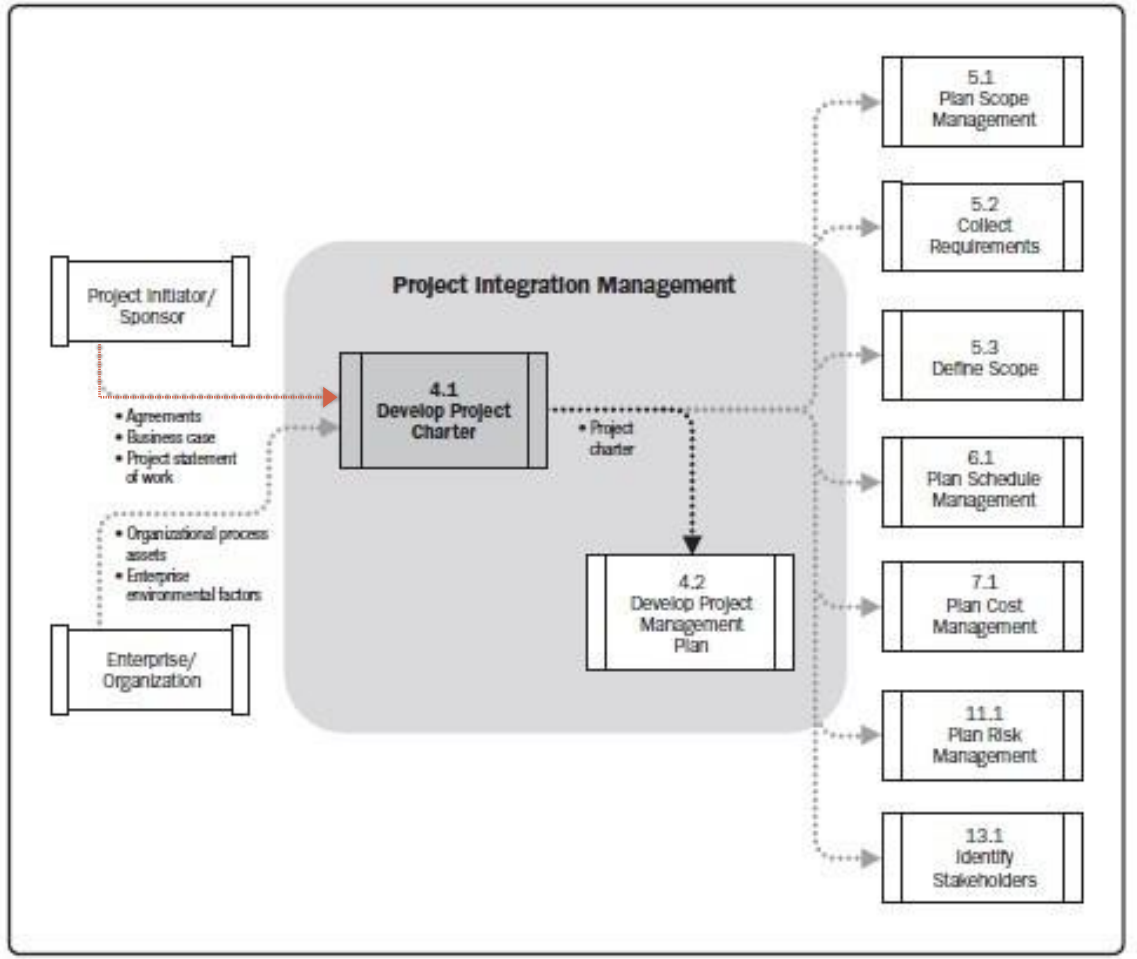
Project Integration Management Processes (c.)

4. **Monitor and Control Project Work —** The process of tracking, reviewing, and reporting project progress against the performance objectives defined in the project management plan.
5. **Perform Integrated Change Control —** The process of reviewing all change requests; approving changes and managing changes to deliverables, organizational process assets, project documents, and the project management plan; and communicating their disposition.
6. **Close Project or Phase —** The process of finalizing all activities across all of the Project Management Process Groups to formally complete the phase or project.

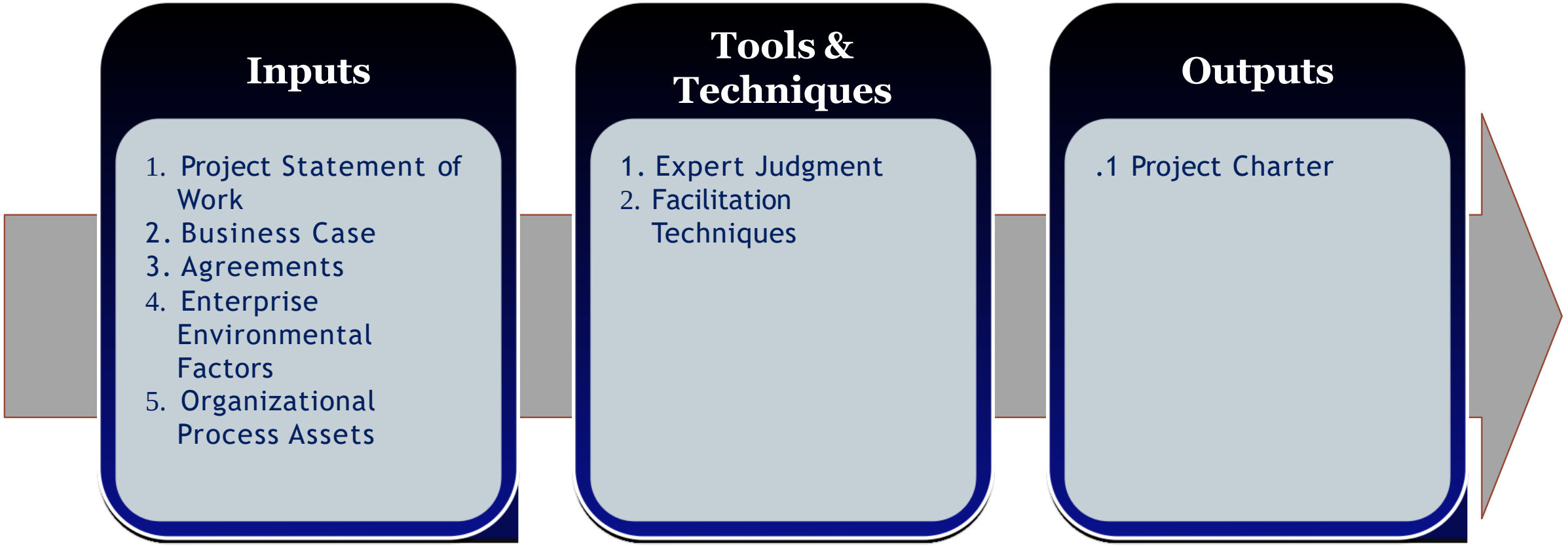
Project Charter & Data Flow Diagram

Project Charter —

The project charter is the document issued by the project initiator or sponsor that formally authorizes the existence of a project and provides the project manager with the authority to apply organizational resources to project activities.



Project Charter:
Inputs, Tools & Techniques, and Outputs



Project Charter

- Project Charter, includes:
  - Project purpose or justification,
  - Measurable project objectives and related success criteria, High-level requirements,
  - High-level project description, High-level risks,
  - Summary milestone schedule, Summary budget,
  - Project approval requirements
  - Assigned project manager, responsibility, and authority level
  - Name and authority of the sponsor or other person(s) authorizing the project charter.

Sample Business Case

Business Case
July 11, 2009

Project Name: Just-In-Time Training Project

1.0 Introduction/Background
Global Construction employs 10,000 full-time employees in 10 different counties and 15 states in the United States. They spend an average of $1,000 per employee for training (not including tuition reimbursement), which is higher than the industry average. However, the productivity of workers—especially in the sales, purchasing, engineering, and information technology departments—has not improved much in recent years. In the fast-paced, ever-changing construction market, training employees about new products, new technologies, and soft skills across a globally dispersed company with different populations is a challenge. By redesigning training, Global Construction can reduce training costs and improve productivity.

2.0 Business Objective
Global Construction's strategic goals include continuing growth and profitability. The company must have a highly skilled workforce to continue to compete in a global environment. Current training programs, however, are expensive and outdated. We can reduce costs by providing more targeted and timely training to our employees and by taking advantage of new technologies and business partnerships. Global Construction can also increase profits by improving productivity, especially by improving supplier management and negotiation skills.

3.0 Current Situation and Problem/Opportunity Statement
Global Construction has not updated its training approach or course offerings in the past five years. Most training is provided on-site during business hours and uses a traditional instructor-led approach with little or no technology involved. Department managers often request slots for various courses, but then they send whoever is available to the course because the department has already paid for it. Therefore, there is often a mismatch between skills needed by employees and the skills taught in a course. The current training is expensive and ineffective. Many employees would like training in key subjects that are currently not provided and that would use more modern approaches and technologies. If the training is directly related to their jobs or interests, employees are willing to take it on their own time, if needed. Survey results indicated that employees are most in need of training in supplier management, negotiating skills, project management, Six Sigma (a quality management methodology), and software applications (for example, spreadsheet and Web development tools).

4.0 Critical Assumptions and Constraints
This project requires strong participation and cooperation from a wide variety of people. A project steering committee will be formed to provide close oversight and guidance. Some of the requested training will be outsourced, as will development of unique courses. The project will include investigating and taking advantage of new training technologies, such as multimedia and Web-based courses that workers can take on their own time. Employees will also be able to contact instructors and internal experts via the Internet for guidance in performing current work tasks as part of this project.

5.0 Analysis of Options and Recommendation
There are three options for addressing this opportunity:
1. Do nothing. The business is doing well, and we can continue to conduct training as we have in the past.
2. Instead of providing any internal training, give each employee up to $1,000 to spend on outside training as approved by his or her supervisor. Require employees to stay with the company for one year after using training funds or return the money.
3. Design and implement a new training program as part of this project.
Based on the financial analysis and discussions with key stakeholders, we believe that option 3 is the best option.

6.0 Preliminary Project Requirements
The main requirements of this project include the following:
1. Based on survey results, the only current training that does not need to change is the Six Sigma training. No changes will be made in that area. The tuition reimbursement program will also continue as is.
2. Training for improving supplier management and negotiating skills, especially international negotiations, has the highest priority because these areas are the most important to the business today and will continue to be so for the next few years. Internal staff will work with outside firms to develop a customized approach to this training that takes advantage of internal experts and new technologies.
3. Demand is also high for training in project management and software applications. The project team will analyze several approaches for this training, including in-house courses, courses offered by local colleges/universities, and computer-based/online courses. They will develop and implement the best combination of approaches for these courses.
4. The project will include updating the corporate intranet site to explain the new training program, to allow employees to sign up for and evaluate courses, and to track training demand and expenses.
5. The project team will develop an approach for measuring the effect of training on productivity on an annual basis.

7.0 Budget Estimate and Financial Analysis
A preliminary estimate of costs for the entire project is $1,000,000. Half of the cost is for internal labor, $250,000 is for outsourced labor, and $250,000 is for outsourced training programs. These are preliminary estimates that will be revised as more details become known. Projected benefits are estimated very conservatively. Because the average amount spent on training last year was $1,000/employee, we assumed only a 10 percent or $100-per-employee reduction. This number is also very conservative, especially because much of the new training will be provided outside of work hours, and we are not including lost employee hours in the estimate.

Exhibit A summarizes the projected costs and benefits, and shows the estimated net present value (NPV), return on investment (ROI), and year in which payback occurs. It also lists assumptions made in performing this preliminary financial analysis. All of the financial estimates are very encouraging. The estimated payback is in the second year after implementing the new training program. The NPV is $505,795, and the discounted ROI based on a three-year implementation is 27 percent.

8.0 Schedule Estimate
The sponsor would like to see the entire project completed within one year. Courses will be provided as soon as they are available. The impact of training on productivity will be assessed one year after training is completed and annually thereafter.

9.0 Potential Risks
There are several risks involved with this project. The foremost risk is a lack of interest in the new training program. Employee input is crucial for developing the improved training and for realizing its potential benefits on improving productivity. There are some technical risks in developing courses using advanced technologies. There are also risks related to outsourcing much of the labor and actual course materials/instruction. The main business risk is investing the time and money into this project and not realizing the projected benefits.

10.0 Exhibits

Exhibit A: Financial Analysis

Discount rate	8%					
Assume the project is completed in Year 1						
			YEAR			
	1	2	3	4	TOTAL	
Costs	1,000,000	400,000	400,000	400,000		
Discount factor*	0.93	0.86	0.79	0.74		
Discounted costs	925,926	342,936	317,533	294,012	1,880,406	
Benefits	–	1,000,000	1,000,000	1,000,000		
Discount factor	0.93	0.86	0.79	0.74		
Discounted benefits	–	857,339	793,832	735,030	2,386,201	
Discounted benefits - costs	(925,926)	514,403	476,299	441,018	505,795	← NPV
Cumulative benefits - costs	(925,926)	(411,523)	64,777	505,795		
* Rounded to two decimal places.						
ROI →	27%					
			Payback in Year 3			
Assumptions						
Costs for the project are based on the following:						
Internal labor costs: $500,000						
Outsourced labor costs: $250,000						
Outsourced training costs: $250,000						
After implementation, maintenance costs are estimated at 40% of total development cost						
Benefits are estimated based on the following:						
$100/employeeyear X 10,000 employees						
No benefits are included for increased productivity						

Sample Project Charter

Project Charter
July 16, 2009

Project Title: Just-In-Time Training Project
Project Start Date: July 1, 2009 **Projected Finish Date:** June 30, 2010

Budget Information: The firm has allocated $1,000,000 for this project. Approximately half of these costs will be for internal labor, whereas the other half will be for outsourced labor and training programs.

Project Manager: Kristin Maur, (610) 752-4896, kristin_maur@globalconstruction.com

Project Objectives: Develop a new training program that provides just-in-time training to employees on key topics, including supplier management, negotiating skills, project management, and software applications (spreadsheets and Web development). Reduce the training cost per employee by 10 percent, or $100 per employee per year. Develop an approach for measuring productivity improvements from this approach to training on an annual basis.

Approach:

- Terminate all internal training courses except the Six Sigma training after new courses are developed.
- Communicate to all employees the plans to improve internal training and let them know that tuition reimbursement will continue as is.
- Work closely with internal managers and employees to determine the best approaches for providing training in supplier management, negotiating skills, project management, and software applications.
- Research existing training, and work with outside experts to develop several alternatives for providing each training topic.
- Develop and implement new training.
- Take advantage of new training approaches and technologies, and encourage employees to take some training during nonworking hours.
- Encourage experts within the company to mentor other workers on current job duties.
- Determine a way to measure the effectiveness of the training and its impact on productivity on an annual basis.

Roles and Responsibilities:

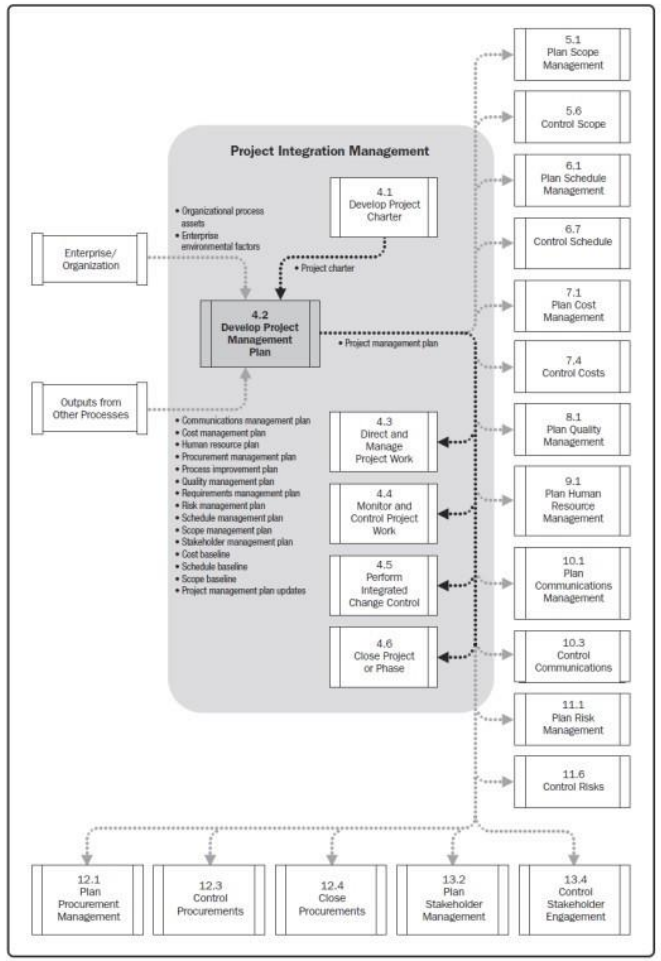
Name and Signature	*Role*	*Position*	*Contact Information*
Mike Sundby	Project champion	VP of HR	mike_sundby@globalconstruction.com
Lucy Camarena	Project sponsor	Training director	lucy_camarena@globalconstruction.com
Kristin Maur	Project manager	Project manager	kristin_maur@globalconstruction.com
Julia Portman	Steering committee member	VP of IT	julia_portman@globalconstruction.com
Tim Nelson	Steering committee member	Supplier management director	tim_nelson@globalconstruction.com
Mohamed Abdul	Team member	Senior programmer/ analyst	mohamed_abdul@globalconstruction.com
Kim Johnson	Team member	Curriculum designer	kim_johnson@globalconstruction.com
Etc.			

Comments: (Handwritten or typed comments from above stakeholders, if applicable)
"I am concerned about people's reactions to canceling most internal training and totally changing most training classes. I also hate to terminate some contracts with local training firms we've used for several years. We should try to get some of them involved in this project." Lucy
"I want to review all of the information related to providing the supplier management training. We need to make something available quickly." Tim

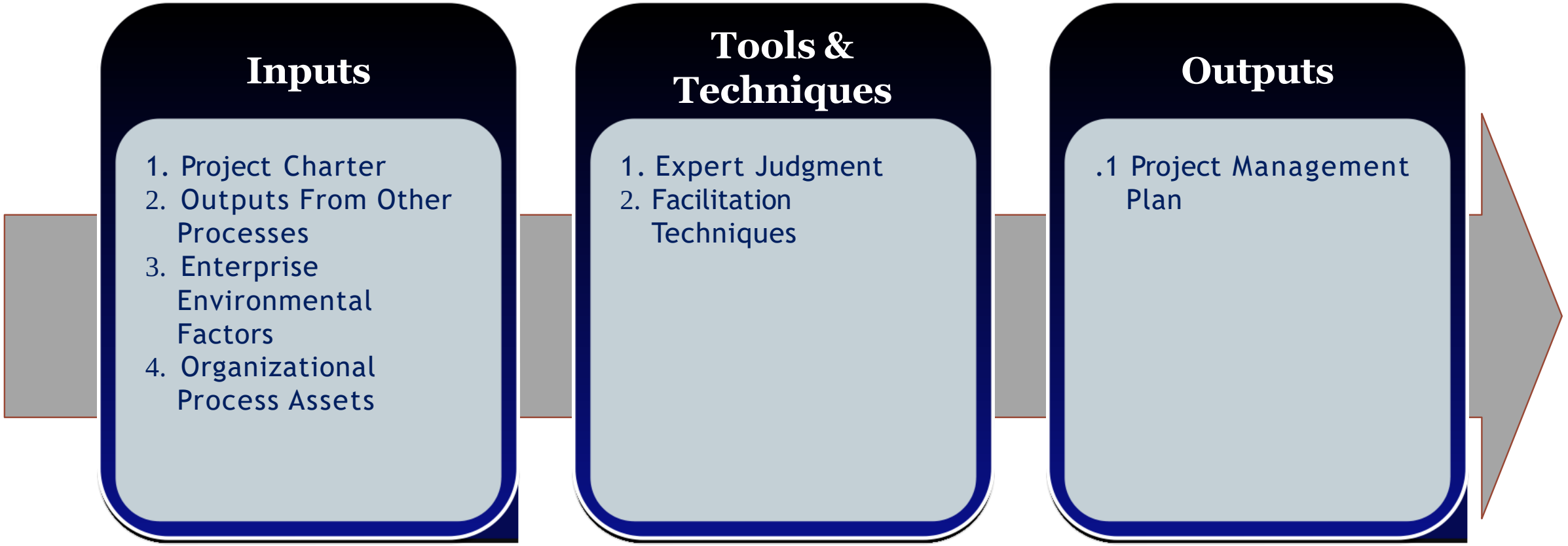
Project Management Plan & Data Flow Diagram

Project Management Plan —

The process of defining, preparing, and coordinating all subsidiary plans and integrating them into a comprehensive project management plan.



Project Management Plan: Inputs, Tools & Techniques, and Outputs



Project Management Plan

- Project baselines include, but are not limited to:
  - Scope baseline,
  - Schedule and
  - Cost baseline

Project Management Plan (c.)

- Subsidiary plans include, but are not limited to:
  - Scope management plan,
  - Requirements management plan,
  - Schedule management plan,
  - Cost management plan,
  - Quality management plan,
  - Process improvement plan,
  - Human resource management plan,
  - Communications management plan,
  - Risk management plan,
  - Procurement management plan, and
  - Stakeholder management plan.

Differentiation Between the Project Management Plan and Project Documents

Project Management Plan	Project Documents	
Change management plan	Activity attributes	Project staff assignments
Communications management plan	Activity cost estimates	Project statement of work
Configuration management plan	Activity duration estimates	Quality checklists
Cost baseline	Activity list	Quality control measurements
Cost management plan	Activity resource requirements	Quality metrics
Human resource management plan	Agreements	Requirements documentation
Process improvement plan	Basis of estimates	Requirements traceability matrix
Procurement management plan	Change log	Resource breakdown structure
Scope baseline • Project scope statement • WBS • WBS dictionary	Change requests	Resource calendars
Quality management plan	Forecasts • Cost forecast • Schedule forecast	Risk register
Requirements management plan	Issue log	Schedule data
Risk management plan	Milestone list	Seller proposals
Schedule baseline	Procurement documents	Source selection criteria
Schedule management plan	Procurement statement of work	Stakeholder register
Scope management plan	Project calendars	Team performance assessments
Stakeholder management plan	Project charter Project funding requirements Project schedule Project schedule network diagrams	Work performance data Work performance information Work performance reports

Sample Project Management Plan

Project Management Plan Version 1.0
September 17, 2009

Project Name: Just-In-Time Training Project

Introduction/Overview of the Project

Global Construction employs 10,000 full-time employees in 10 different counties and 15 U.S. states. The company spends, on average, $1,000 per employee for training (not including tuition reimbursement), which is higher than the industry average. By redesigning training, Global Construction can reduce training costs and improve productivity. The main goal of this project is to develop a new training program that provides just-in-time training to employees on key topics, including supplier management, negotiating skills, project management, and software applications.

Project Organization

The basic organization of the project is provided in Figure 1. The project sponsor, Lucy Camarena, will have the final say on major decisions, with consultation from the project steering committee and the project champion, Mike Sundby. The project sponsor should have time to thoroughly review important project information and provide timely feedback to the project manager. The project manager in this case reports to the project sponsor, and the team leaders and supplier project managers report to the project manager.

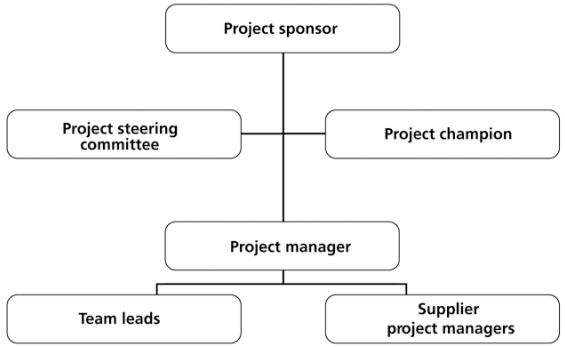


FIGURE 1 Project organizational chart

Management and Technical Processes

Management Processes:

1. Management Review Process: The project steering committee will meet at least monthly to provide inputs and review progress on this project.
2. Progress Measurement Process: The project steering committee will review project progress during project review meetings, and they can also review information as needed by viewing reports on the enterprise project management software system. Earned value data will be provided for this project and available on a weekly basis in the system. Post-project progress will also be measured to see if the project met its goals. These goals include reducing the training cost per employee by $100/person/year and receiving positive results from survey participants on the effectiveness of the training.
3. Change Approval Process: See Attachment 1 based on corporate standards.
4. Supplier Management Process: See Attachment 2 based on corporate standards.

Technical Processes:

1. Enterprise Project Management Software: All tasks, costs, resources, issues, and risks will be tracked for this project using our enterprise project management software. Data must be entered on at least a weekly basis to provide timely information.
2. Supplier Evaluation: The project team will coordinate with the purchasing department to follow our standard procedures for selecting and working with suppliers. See Attachment 2 for corporate standards.
3. Productivity Improvement: The project team will work with the finance and quality assurance departments to develop and implement a system to measure improvements in employee productivity that result from this new training program. The finance department will report on this information annually, beginning one year after the first new training course is offered.

Work to Be Performed

Summary: Research, develop or purchase, and implement a new just-in-time training program covering the topics of supplier management, negotiating skills, project management, and software applications, and determine a way to measure the effectiveness of the training and its impact on productivity on an annual basis. See the scope statement, WBS, and other scope documents for further details.

Schedule Information

The entire project will be completed in one year, with a projected completion date of June 30, 2010. See the project schedule and other time management documents for further details.

Budget Information

The total budget for this project is $1,000,000. Approximately half of these costs will be for internal labor, whereas the other half will be for outsourced labor and training programs. See the cost estimate and cost baseline for further details.

References to Other Project Planning Documents

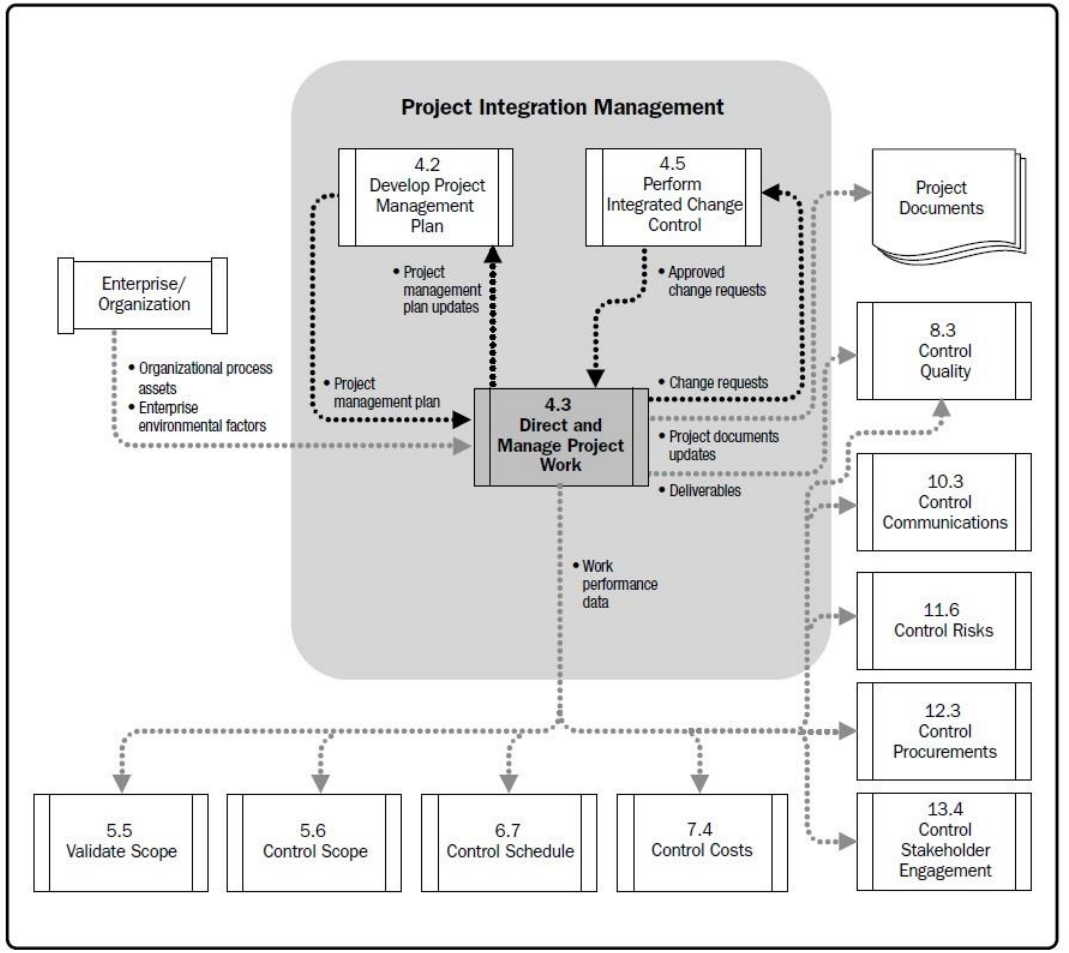
All current project plans created for this project are provided in Appendix A. Initial documents and revisions are available on the project Web site.

Sources: PMBOK Guide 5, PMI; IoPM, ITPM Kathy Schwalbe

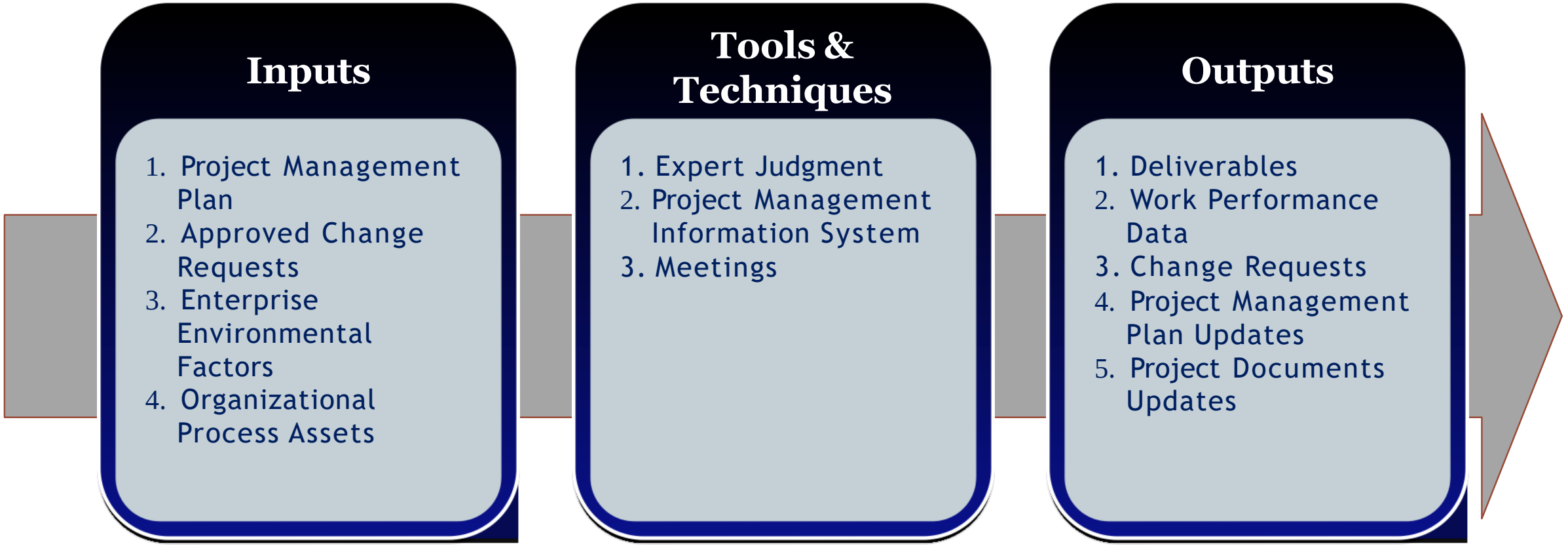
Direct and Manage Project Work & Data Flow Diagram

Direct and Manage Project Work —

The process of leading and performing the work defined in the project management plan and implementing approved changes to achieve the project's objectives.



Direct and Manage Project Work: Inputs, Tools & Techniques, and Outputs



Change Requests

- Changes may include, but are not limited to, the following:
  - **Corrective action**—An intentional activity that realigns the performance of the project work with the project management plan;
  - **Preventive action**—An intentional activity that ensures the future performance of the project work is aligned with the project management plan; and
  - **Defect repair**—An intentional activity to modify a nonconforming product or product component.

Sample Change Request

Change Request

September 22, 2009

Project Name: Just-In-Time Training Project
Date Request Submitted: September 22, 2009
Title of Change Request: Additional funds for supplier management course survey
Change Order Number: A200-17
Submitted by: Kristin Maur

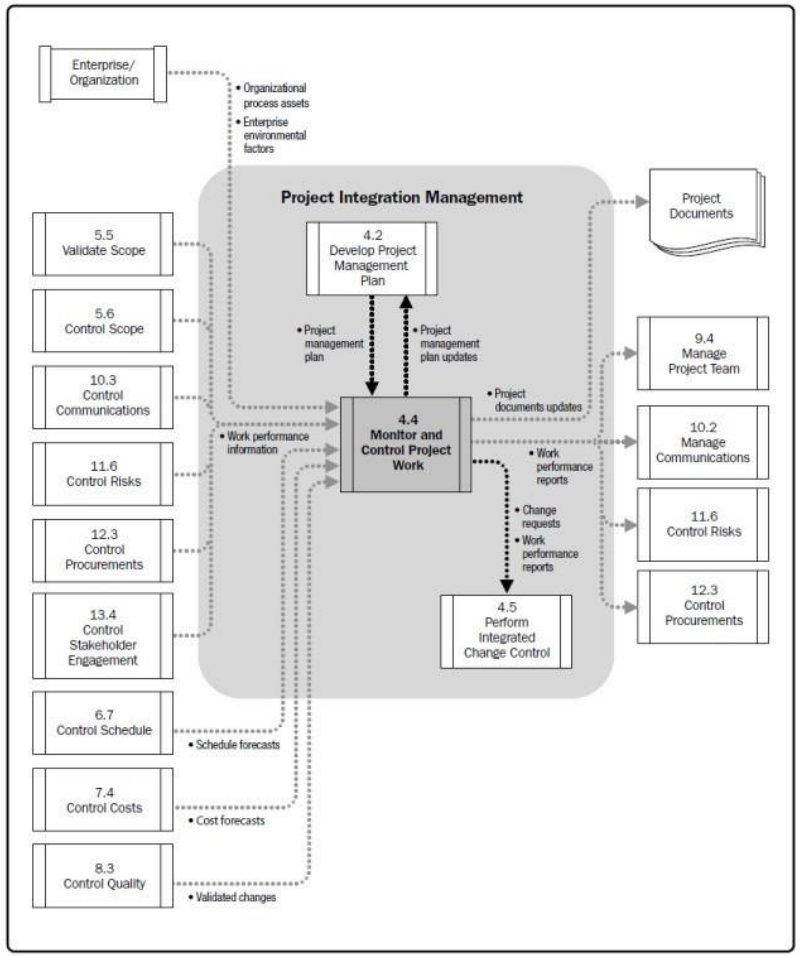
Change Category: __Scope __Schedule X Cost __Technology __Other
Description of change requested:
To avoid a schedule slip and have appropriate internal resources available, we are requesting the approval of paid overtime for creating and distributing the survey for the supplier management course.
Events that made this change necessary or desirable:
The IT person assigned to our project has several other important projects on hand. If these survey tasks are delayed, the entire project will be delayed.
Justification for the change/why it is needed/desired to continue/complete the project:
We must send out and analyze the survey in a timely manner because we need the information to develop the first supplier management course and select an appropriate supplier.
Impact of the proposed change on:
Scope: None
Schedule: None
Cost: $550
Staffing: One IT person will work 10 hours of paid overtime over a period of several weeks.
Risk: Low. This person suggested the paid overtime and has successfully worked overtime in the past.
Other: None
Suggested implementation if the change request is approved: Include the overtime pay in the normal paycheck.
Required approvals:

Name/Title	Date	Approve/Reject
Evan George/Affected Employee		
Stella Jacobs/Employee's Supervisor		
Julia Portman, VP of IT		

Monitor and Control Project Work & Data Flow Diagram

Monitor and Control Project Work —

The process of tracking, reviewing, and reporting the progress to meet the performance objectives defined in the project management plan.



Monitor and Control Project Work: Inputs, Tools & Techniques, and Outputs

Sample Milestone Report for Reporting Work Performance Information

Just-In-Time Training Project Milestone Report

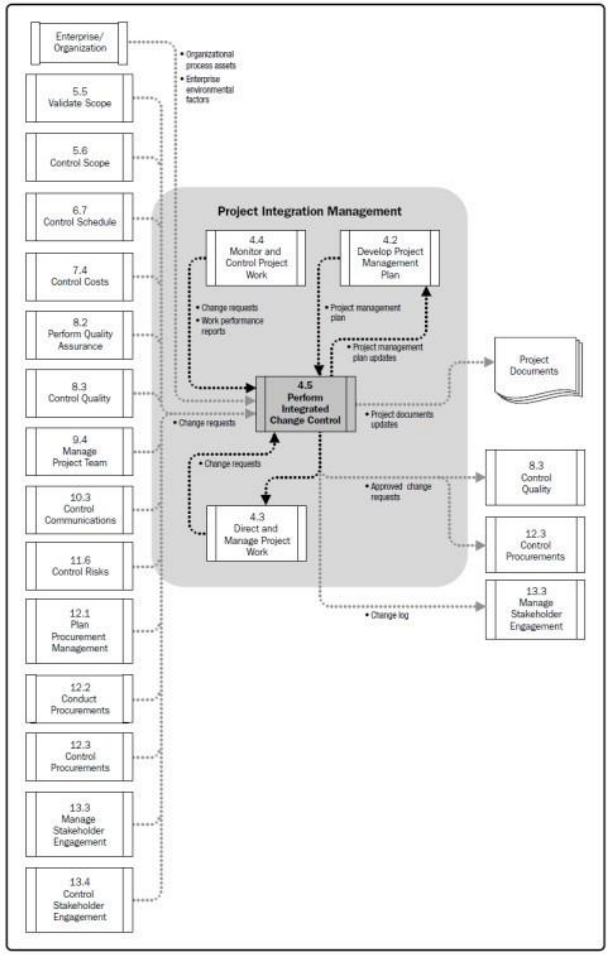
September 1, 2009

Milestone	Date	Status	Responsible	Issues/Comments
Researched existing training	8/13	Completed	Jamie (replaced by Abner)	Many basic courses available, but not much advanced/tailored training (Note: Replaced Jamie with better candidate for project after Jamie completed this task)
Supplier management training survey results reported to steering committee	8/24	Completed	Kristin	Great feedback; many people stressed the need to have instructor-led training and mentors for soft skills development
Meetings to determine potential partners completed	9/21	In progress	Kristin/Contracting	May need more time for meetings
Partnership agreements completed	9/28	Not started yet	Kristin/Contracting	May need more times to set up agreements
Developed executive course	11/9	Not started yet	TBD Supplier	
Developed introductory course	11/9	Not started yet	TBD Supplier	
Developed advanced course	11/23	Not started yet	TBD Supplier	
Held pilot course	11/23	Not started yet	TBD Supplier	
Pilot course results reported to steering committee	11/30	Not started yet	Kristin	

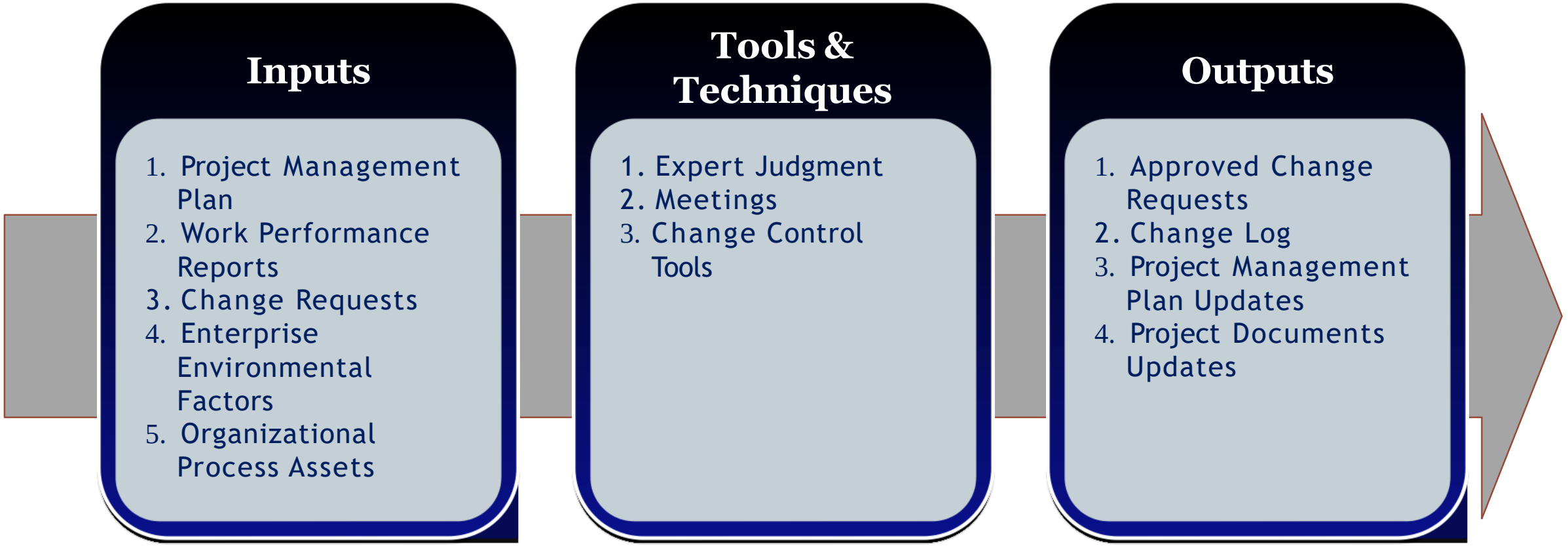
Perform Integrated Change Control & Data Flow Diagram

Perform Integrated Change Control —

The process of reviewing all change requests; approving changes and managing changes to deliverables, organizational process assets, project documents, and the project management plan; and communicating their disposition.



Perform Integrated Change Control: Inputs, Tools & Techniques, and Outputs



Perform Integrated Change Control: Outpu

- Approved Change Requests
- Change Log
- Project Management Plan updates
- Project Documents Updates

Sample Issue Log

Issue Log

August 20, 2009

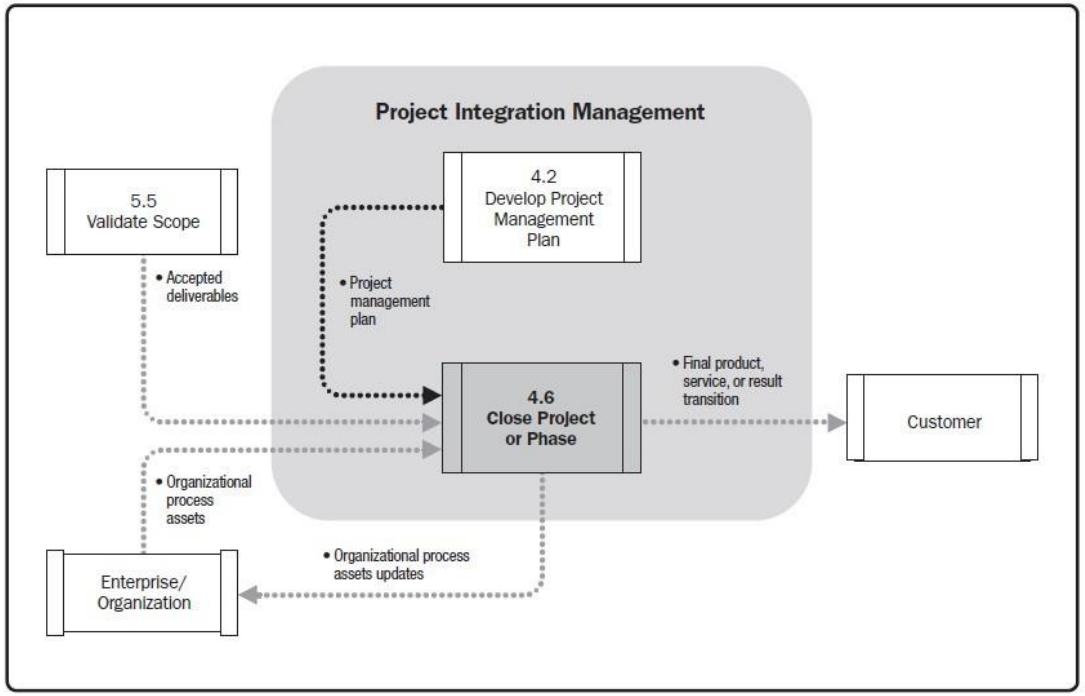
Project Name: Just-In-Time Training Project

Issue #	Issue Description	Impact on Project	Date Reported	Reported By	Assigned To	Priority (H/M/L)	Due Date	Status	Comments
1	Key project team member is not working out	Can severely hurt project because Jamie is our supplier management expert	Aug 2	Kristin	Kristin	H	Sep 2	Open	Working with Jamie and appropriate managers to find a replacement
2	IT staff that is performing survey is overallocated	Delaying the survey will delay the entire project because it is a critical task	Sep 26	Mohammed	Kristin	H	Aug 5	Closed	Paid overtime was approved
3	Julia Portman, VP of IT and steering committee member, now has conflicts with our weekly meeting time	Julia is a key member of the steering committee, and we need her at meetings	Oct 2	Julia	Steering committee	H	Oct 9	Open	Everyone will check calendars to find a new meeting time

Close Project or Phase & Data Flow Diagram

Close Project or Phase —

The process of finalizing all activities across all of the Project Management Process.



Close Project or Phase: Inputs, Tools & Techniques, and Outputs

Close Project or Phase: Outputs

- Final Product, Service, or Result Transition
- Organizational Process Assets updates
  - **Project files**
  - **Project or phase closure documents**
  - **Historical information**

Sample Customer Acceptance/Project Completion Form

Customer Acceptance/Project Completion Form
June 30, 2010

Project Name: Just-In-Time Training Project
Project Manager: Kristin Maur

I (We), the undersigned, acknowledge and accept delivery of the work completed for this project on behalf of our organization. My (Our) signature(s) attest(s) to my (our) agreement that this project has been completed. No further work should be done on this project.

Name	Title	Signature	Date
Lucy Camerena	Training Director	Lucy Camarena	June 30, 2010

1. Was this project completed to your satisfaction? **X** Yes ____ No

2. Please provide the main reasons for your satisfaction or dissatisfaction with this project.
The project met and exceeded my expectations. In my 15 years with this company, I have never seen workers so interested in training courses. Kristin effectively coordinated all of the people who worked on this project. We worked with a number of new suppliers, and everything went very smoothly.

3. Please provide suggestions on how our organization could improve its project delivery capability in the future.
One suggestion would be to try to improve our estimating and forecasting abilities. The project costs were slightly over budget, even with some reserve built in. The schedule buffer prevented the project from finishing late. We also need to improve the way we forecast the number of people who want to take courses. The demand for the Web-based courses was much higher than expected. Even though that was a pleasant surprise, it was still poor forecasting and caused extra work for project and support staff.

Thank you for your inputs.

Sample Lessons-Learned Report

Lessons-Learned Report

June 20, 2010

Project Name:	The Just-In-Time Training Project of Global Construction Inc.
Project Sponsor:	Lucy Camarena
Project Manager:	Kristin Maur
Project Dates:	July 1, 2009–June 30, 2010
Final Budget:	$1,072,000

1. Did the project meet scope, time, and cost goals?

We did meet scope and time goals, but we had to request an additional $72,000, which the sponsor approved. We actually exceeded scope goals by having more people take training courses than planned, primarily the Web-based courses.

2. What was the success criteria listed in the project scope statement?

The following statement outlined the project scope and success criteria:
"Our sponsor has stated that the project will be a success if the new training courses are all available within one year, if the average course evaluations are at least 3.0 on a 1-5 scale, and if the company recoups the cost of the project in reduced training costs within two years after project completion."

3. Reflect on whether or not you met the project success criteria.

All of the new training courses were offered within a year, and the course evaluations averaged 3.4 on a 5.0 scale. We do not know if the cost of the project will be recouped within two years after completion, but the number of people who took the Web-based training courses far exceeded our expectations. Because the Web-based training is more cost-effective than the instructor-led training, we are confident that the costs will be recouped in less than two years.

4. What were the main lessons your team learned from this project?

The main lessons we learned include the following:

- Having good communication was instrumental to project success. We had a separate item in the WBS for stakeholder communications, which was very important. Moving from traditional to primarily Web-based training was a big change for Global Construction, so the strong communication was crucial. The intranet-site information was excellent, thanks to support from the IT department. It was also very effective to have different departments create project description posters to hang in their work areas. They showed creativity and team spirit.
- Teamwork and supplier partnerships were essential. It was extremely helpful to take time to develop and follow a team contract for the project team and to focus on developing good partnerships with suppliers.
- Good planning paid off in terms of when plans were executed. We spent a fair amount of time developing a good project charter, scope statement, WBS, schedules, and so on. Everyone worked together to develop these planning documents, and there was strong buy-in. We kept the plans up to date and made key project information available for everyone on a secure Web site.
- Creativity and innovation are infectious: After departments had so much fun making their posters in their work areas, people picked up on the idea of being creative and innovative throughout the project. Everyone realized that training and learning could be enjoyable.
- The project steering committee was very effective, and it was extremely helpful to meet regularly with the committee. Having committee members from departments throughout the company was very important and helped promote the training created as part of this project.

5. Describe one example of what went right on this project.

We were skeptical about hiring an outside consultant to help us develop a short list of potential suppliers for the training courses, but it was well worth the money. We gained a good deal of useful information very quickly, and the consultant made excellent recommendations and helped us develop partnerships that benefited us as well as our suppliers.

6. Describe one example of what went wrong on this project.

The senior supplier management specialist assigned to the team at the beginning of the project was not a good fit. The project manager should have had more involvement in selecting project team members.

7. What will you do differently on the next project based on your experience working on this project?

For future training projects, it would be helpful to line up experts and mentors further in advance. We underestimated the number of people who would take the Web-based courses, and participants liked the interactive features, such as getting expert advice and having a list of people willing to mentor them on various topics. We were scrambling to recruit people, and then had to figure out how to organize them in an effective manner.

Project Integration Management Processes

1. **Develop Project Charter —** The process of developing a document that formally authorizes the existence of a project and provides the project manager with the authority to apply organizational resources to project activities.
2. **Develop Project Management Plan** — The process of defining, preparing, and coordinating all subsidiary plans and integrating them into a comprehensive project management plan.
3. **Direct and Manage Project Work —**The process of leading and performing the work defined in the project management plan and implementing approved changes to achieve the project's objectives.

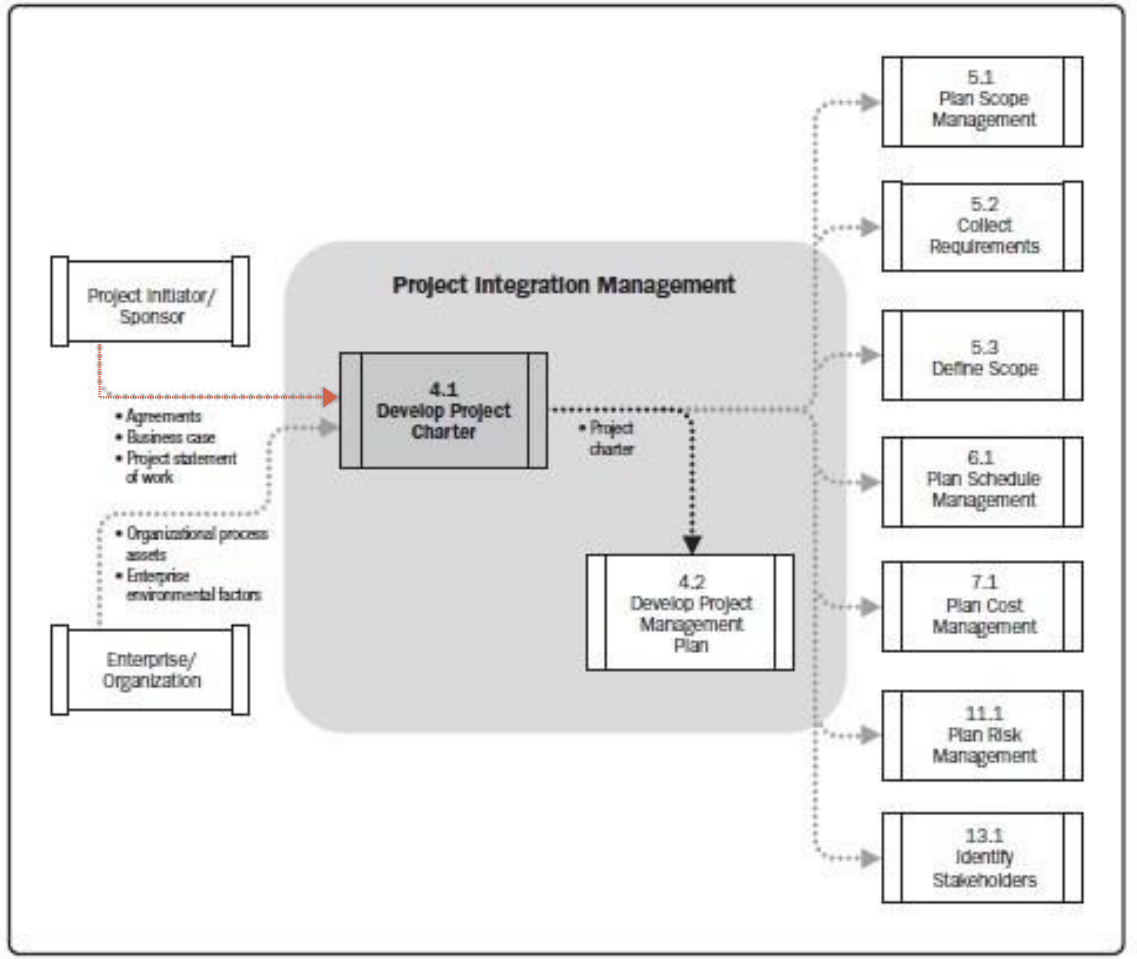
Project Integration Management Processes (c.)

4. **Monitor and Control Project Work —** The process of tracking, reviewing, and reporting project progress against the performance objectives defined in the project management plan.
5. **Perform Integrated Change Control —** The process of reviewing all change requests; approving changes and managing changes to deliverables, organizational process assets, project documents, and the project management plan; and communicating their disposition.
6. **Close Project or Phase —** The process of finalizing all activities across all of the Project Management Process Groups to formally complete the phase or project.

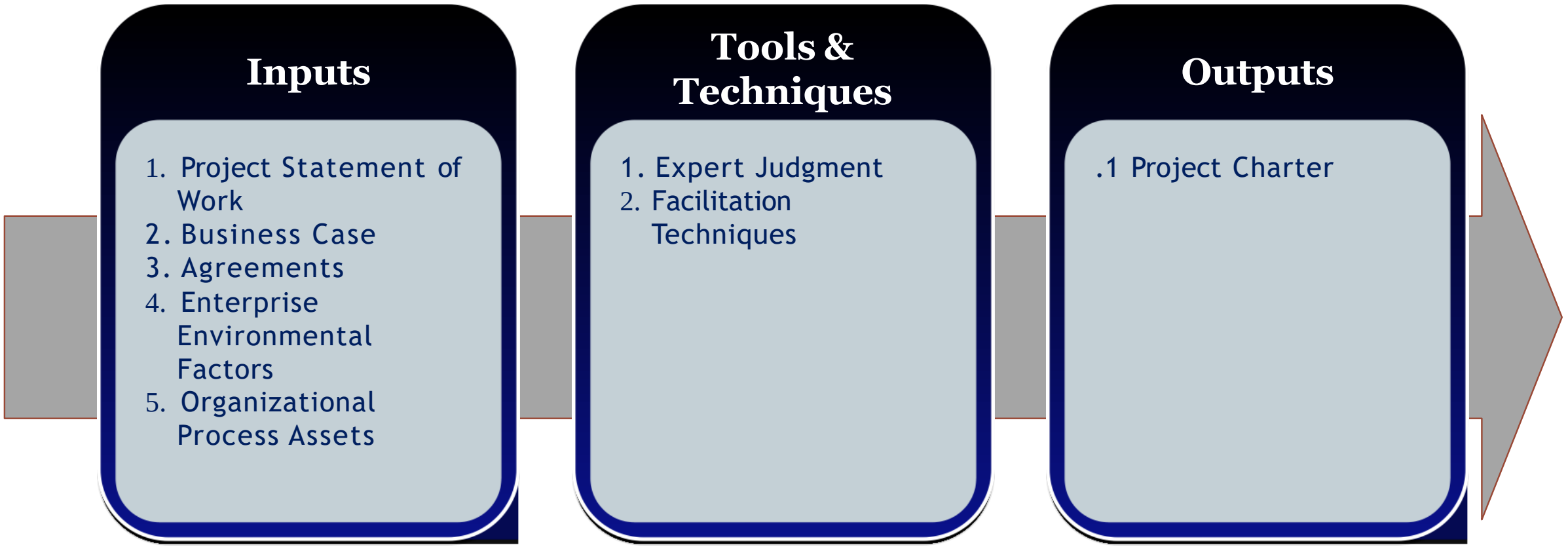
Project Charter & Data Flow Diagram

Project Charter —

The project charter is the document issued by the project initiator or sponsor that formally authorizes the existence of a project and provides the project manager with the authority to apply organizational resources to project activities.



Project Charter:
Inputs, Tools & Techniques, and Outputs



Project Charter

- Project Charter, includes:
  - Project purpose or justification,
  - Measurable project objectives and related success criteria, High-level requirements,
  - High-level project description, High-level risks,
  - Summary milestone schedule, Summary budget,
  - Project approval requirements
  - Assigned project manager, responsibility, and authority level
  - Name and authority of the sponsor or other person(s) authorizing the project charter.

Sample Business Case

Business Case
July 11, 2009

Project Name: Just-In-Time Training Project

1.0 Introduction/Background
Global Construction employs 10,000 full-time employees in 10 different counties and 15 states in the United States. They spend an average of $1,000 per employee for training (not including tuition reimbursement), which is higher than the industry average. However, the productivity of workers—especially in the sales, purchasing, engineering, and information technology departments—has not improved much in recent years. In the fast-paced, ever-changing construction market, training employees about new products, new technologies, and soft skills across a globally dispersed company with different populations is a challenge. By redesigning training, Global Construction can reduce training costs and improve productivity.

2.0 Business Objective
Global Construction's strategic goals include continuing growth and profitability. The company must have a highly skilled workforce to continue to compete in a global environment. Current training programs, however, are expensive and outdated. We can reduce costs by providing more targeted and timely training to our employees and by taking advantage of new technologies and business partnerships. Global Construction can also increase profits by improving productivity, especially by improving supplier management and negotiation skills.

3.0 Current Situation and Problem/Opportunity Statement
Global Construction has not updated its training approach or course offerings in the past five years. Most training is provided on-site during business hours and uses a traditional instructor-led approach with little or no technology involved. Department managers often request slots for various courses, but then they send whoever is available to the course because the department has already paid for it. Therefore, there is often a mismatch between skills needed by employees and the skills taught in a course. The current training is expensive and ineffective. Many employees would like training in key subjects that are currently not provided and that would use more modern approaches and technologies. If the training is directly related to their jobs or interests, employees are willing to take it on their own time, if needed. Survey results indicated that employees are most in need of training in supplier management, negotiating skills, project management, Six Sigma (a quality management methodology), and software applications (for example, spreadsheet and Web development tools).

4.0 Critical Assumptions and Constraints
This project requires strong participation and cooperation from a wide variety of people. A project steering committee will be formed to provide close oversight and guidance. Some of the requested training will be outsourced, as will development of unique courses. The project will include investigating and taking advantage of new training technologies, such as multimedia and Web-based courses that workers can take on their own time. Employees will also be able to contact instructors and internal experts via the Internet for guidance in performing current work tasks as part of this project.

5.0 Analysis of Options and Recommendation
There are three options for addressing this opportunity:
1. Do nothing. The business is doing well, and we can continue to conduct training as we have in the past.
2. Instead of providing any internal training, give each employee up to $1,000 to spend on outside training as approved by his or her supervisor. Require employees to stay with the company for one year after using training funds or return the money.
3. Design and implement a new training program as part of this project.
Based on the financial analysis and discussions with key stakeholders, we believe that option 3 is the best option.

6.0 Preliminary Project Requirements
The main requirements of this project include the following:
1. Based on survey results, the only current training that does not need to change is the Six Sigma training. No changes will be made in that area. The tuition reimbursement program will also continue as is.
2. Training for improving supplier management and negotiating skills, especially international negotiations, has the highest priority because these areas are the most important to the business today and will continue to be so for the next few years. Internal staff will work with outside firms to develop a customized approach to this training that takes advantage of internal experts and new technologies.
3. Demand is also high for training in project management and software applications. The project team will analyze several approaches for this training, including in-house courses, courses offered by local colleges/universities, and computer-based/online courses. They will develop and implement the best combination of approaches for these courses.
4. The project will include updating the corporate intranet site to explain the new training program, to allow employees to sign up for and evaluate courses, and to track training demand and expenses.
5. The project team will develop an approach for measuring the effect of training on productivity on an annual basis.

7.0 Budget Estimate and Financial Analysis
A preliminary estimate of costs for the entire project is $1,000,000. Half of the cost is for internal labor, $250,000 is for outsourced labor, and $250,000 is for outsourced training programs. These are preliminary estimates that will be revised as more details become known. Projected benefits are estimated very conservatively. Because the average amount spent on training last year was $1,000/employee, we assumed only a 10 percent or $100-per-employee reduction. This number is also very conservative, especially because much of the new training will be provided outside of work hours, and we are not including lost employee hours in the estimate.

Exhibit A summarizes the projected costs and benefits, and shows the estimated net present value (NPV), return on investment (ROI), and year in which payback occurs. It also lists assumptions made in performing this preliminary financial analysis. All of the financial estimates are very encouraging. The estimated payback is in the second year after implementing the new training program. The NPV is $505,795, and the discounted ROI based on a three-year implementation is 27 percent.

8.0 Schedule Estimate
The sponsor would like to see the entire project completed within one year. Courses will be provided as soon as they are available. The impact of training on productivity will be assessed one year after training is completed and annually thereafter.

9.0 Potential Risks
There are several risks involved with this project. The foremost risk is a lack of interest in the new training program. Employee input is crucial for developing the improved training and for realizing its potential benefits on improving productivity. There are some technical risks in developing courses using advanced technologies. There are also risks related to outsourcing much of the labor and actual course materials/instruction. The main business risk is investing the time and money into this project and not realizing the projected benefits.

10.0 Exhibits

Exhibit A: Financial Analysis

Discount rate	8%					
Assume the project is completed in Year 1						
			YEAR			
	1	2	3	4	TOTAL	
Costs	1,000,000	400,000	400,000	400,000		
Discount factor*	0.93	0.86	0.79	0.74		
Discounted costs	**925,926**	**342,936**	**317,533**	**294,012**	**1,880,406**	
Benefits	–	1,000,000	1,000,000	1,000,000		
Discount factor	0.93	0.86	0.79	0.74		
Discounted benefits	–	**857,339**	**793,832**	**735,030**	**2,386,201**	
Discounted benefits - costs	(925,926)	514,403	476,299	441,018	**505,795**	← NPV
Cumulative benefits - costs	(925,926)	(411,523)	64,777	505,795		
* Rounded to two decimal places.						
ROI →	**27%**					
			Payback in Year 3			
Assumptions						
Costs for the project are based on the following:						
Internal labor costs: $500,000						
Outsourced labor costs: $250,000						
Outsourced training costs: $250,000						
After implementation, maintenance costs are estimated at 40% of total development cost						
Benefits are estimated based on the following:						
$100/employeeyear X 10,000 employees						
No benefits are included for increased productivity						

Sample Project Charter

Project Charter
July 16, 2009

Project Title: Just-In-Time Training Project **Project Start Date:** July 1, 2009 **Projected Finish Date:** June 30, 2010
Budget Information: The firm has allocated $1,000,000 for this project. Approximately half of these costs will be for internal labor, whereas the other half will be for outsourced labor and training programs.
Project Manager: Kristin Maur, (610) 752-4896, kristin_maur@globalconstruction.com
Project Objectives: Develop a new training program that provides just-in-time training to employees on key topics, including supplier management, negotiating skills, project management, and software applications (spreadsheets and Web development). Reduce the training cost per employee by 10 percent, or $100 per employee per year. Develop an approach for measuring productivity improvements from this approach to training on an annual basis.
Approach: • Terminate all internal training courses except the Six Sigma training after new courses are developed. • Communicate to all employees the plans to improve internal training and let them know that tuition reimbursement will continue as is. • Work closely with internal managers and employees to determine the best approaches for providing training in supplier management, negotiating skills, project management, and software applications. • Research existing training, and work with outside experts to develop several alternatives for providing each training topic. • Develop and implement new training. • Take advantage of new training approaches and technologies, and encourage employees to take some training during nonworking hours. • Encourage experts within the company to mentor other workers on current job duties. • Determine a way to measure the effectiveness of the training and its impact on productivity on an annual basis.

Roles and Responsibilities:

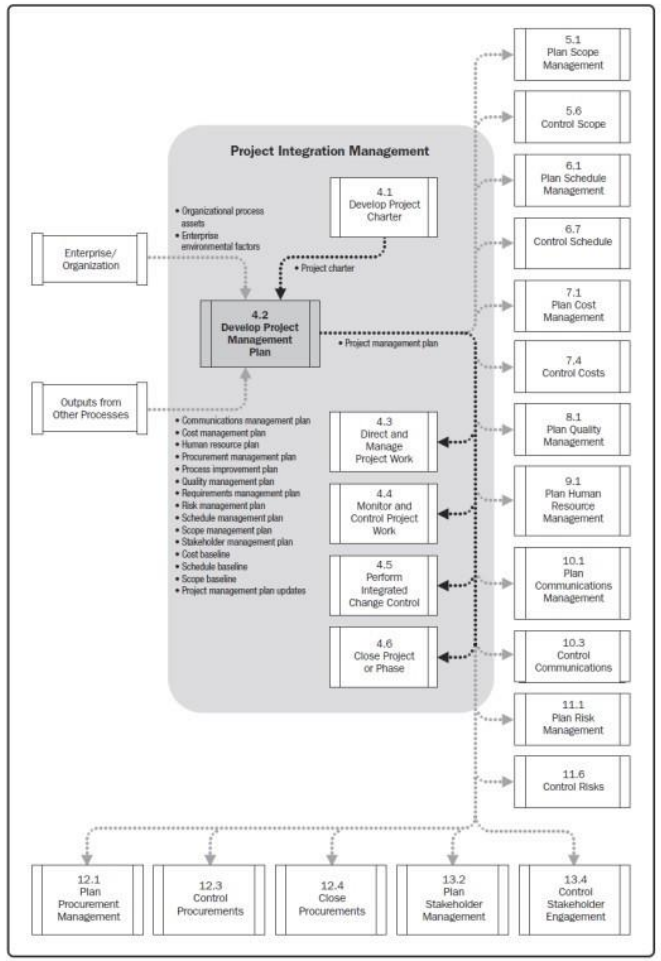
Name and Signature	*Role*	*Position*	*Contact Information*
Mike Sundby	Project champion	VP of HR	mike_sundby@globalconstruction.com
Lucy Camarena	Project sponsor	Training director	lucy_camarena@globalconstruction.com
Kristin Maur	Project manager	Project manager	kristin_maur@globalconstruction.com
Julia Portman	Steering committee member	VP of IT	julia_portman@globalconstruction.com
Tim Nelson	Steering committee member	Supplier management director	tim_nelson@globalconstruction.com
Mohamed Abdul	Team member	Senior programmer/ analyst	mohamed_abdul@globalconstruction.com
Kim Johnson	Team member	Curriculum designer	kim_johnson@globalconstruction.com
Etc.			

Comments: (Handwritten or typed comments from above stakeholders, if applicable)
"I am concerned about people's reactions to canceling most internal training and totally changing most training classes. I also hate to terminate some contracts with local training firms we've used for several years. We should try to get some of them involved in this project." Lucy
"I want to review all of the information related to providing the supplier management training. We need to make something available quickly." Tim

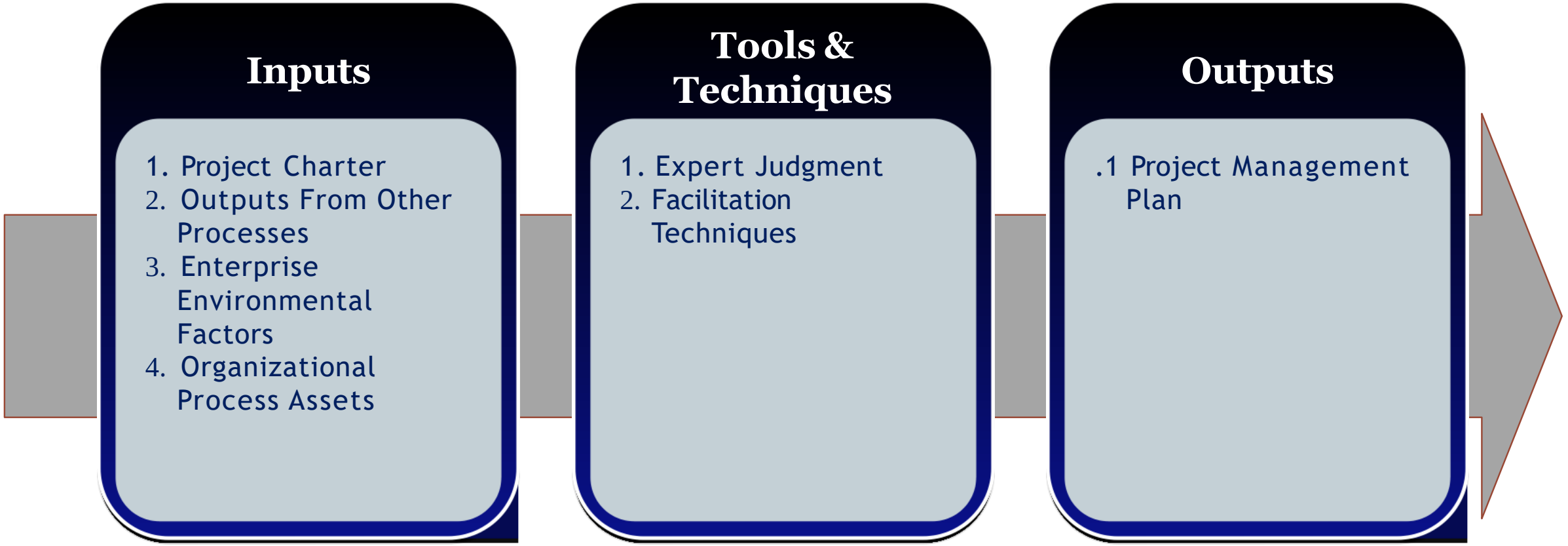
Project Management Plan & Data Flow Diagram

Project Management Plan —

The process of defining, preparing, and coordinating all subsidiary plans and integrating them into a comprehensive project management plan.



Project Management Plan: Inputs, Tools & Techniques, and Outputs



Project Management Plan

- Project baselines include, but are not limited to:
  - Scope baseline,
  - Schedule and
  - Cost baseline

Project Management Plan (c.)

- Subsidiary plans include, but are not limited to:
  - Scope management plan,
  - Requirements management plan,
  - Schedule management plan,
  - Cost management plan,
  - Quality management plan,
  - Process improvement plan,
  - Human resource management plan,
  - Communications management plan,
  - Risk management plan,
  - Procurement management plan, and
  - Stakeholder management plan.

Differentiation Between the Project Management Plan and Project Documents

Project Management Plan	Project Documents	
Change management plan	Activity attributes	Project staff assignments
Communications management plan	Activity cost estimates	Project statement of work
Configuration management plan	Activity duration estimates	Quality checklists
Cost baseline	Activity list	Quality control measurements
Cost management plan	Activity resource requirements	Quality metrics
Human resource management plan	Agreements	Requirements documentation
Process improvement plan	Basis of estimates	Requirements traceability matrix
Procurement management plan	Change log	Resource breakdown structure
Scope baseline • Project scope statement • WBS • WBS dictionary	Change requests	Resource calendars
Quality management plan	Forecasts • Cost forecast • Schedule forecast	Risk register
Requirements management plan	Issue log	Schedule data
Risk management plan	Milestone list	Seller proposals
Schedule baseline	Procurement documents	Source selection criteria
Schedule management plan	Procurement statement of work	Stakeholder register
Scope management plan	Project calendars	Team performance assessments
Stakeholder management plan	Project charter Project funding requirements Project schedule Project schedule network diagrams	Work performance data Work performance information Work performance reports

Sample Project Management Plan

Project Management Plan Version 1.0
September 17, 2009

Project Name: Just-In-Time Training Project

Introduction/Overview of the Project

Global Construction employs 10,000 full-time employees in 10 different counties and 15 U.S. states. The company spends, on average, $1,000 per employee for training (not including tuition reimbursement), which is higher than the industry average. By redesigning training, Global Construction can reduce training costs and improve productivity. The main goal of this project is to develop a new training program that provides just-in-time training to employees on key topics, including supplier management, negotiating skills, project management, and software applications.

Project Organization

The basic organization of the project is provided in Figure 1. The project sponsor, Lucy Camarena, will have the final say on major decisions, with consultation from the project steering committee and the project champion, Mike Sundby. The project sponsor should have time to thoroughly review important project information and provide timely feedback to the project manager. The project manager in this case reports to the project sponsor, and the team leaders and supplier project managers report to the project manager.

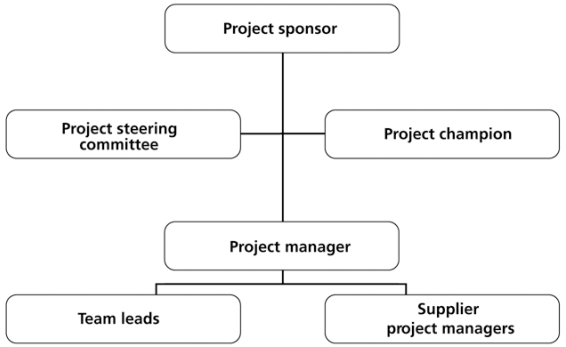


FIGURE 1 Project organizational chart

Management and Technical Processes

Management Processes:

1. Management Review Process: The project steering committee will meet at least monthly to provide inputs and review progress on this project.
2. Progress Measurement Process: The project steering committee will review project progress during project review meetings, and they can also review information as needed by viewing reports on the enterprise project management software system. Earned value data will be provided for this project and available on a weekly basis in the system. Post-project progress will also be measured to see if the project met its goals. These goals include reducing the training cost per employee by $100/person/year and receiving positive results from survey participants on the effectiveness of the training.
3. Change Approval Process: See Attachment 1 based on corporate standards.
4. Supplier Management Process: See Attachment 2 based on corporate standards.

Technical Processes:

1. Enterprise Project Management Software: All tasks, costs, resources, issues, and risks will be tracked for this project using our enterprise project management software. Data must be entered on at least a weekly basis to provide timely information.
2. Supplier Evaluation: The project team will coordinate with the purchasing department to follow our standard procedures for selecting and working with suppliers. See Attachment 2 for corporate standards.
3. Productivity Improvement: The project team will work with the finance and quality assurance departments to develop and implement a system to measure improvements in employee productivity that result from this new training program. The finance department will report on this information annually, beginning one year after the first new training course is offered.

Work to Be Performed

Summary: Research, develop or purchase, and implement a new just-in-time training program covering the topics of supplier management, negotiating skills, project management, and software applications, and determine a way to measure the effectiveness of the training and its impact on productivity on an annual basis. See the scope statement, WBS, and other scope documents for further details.

Schedule Information

The entire project will be completed in one year, with a projected completion date of June 30, 2010. See the project schedule and other time management documents for further details.

Budget Information

The total budget for this project is $1,000,000. Approximately half of these costs will be for internal labor, whereas the other half will be for outsourced labor and training programs. See the cost estimate and cost baseline for further details.

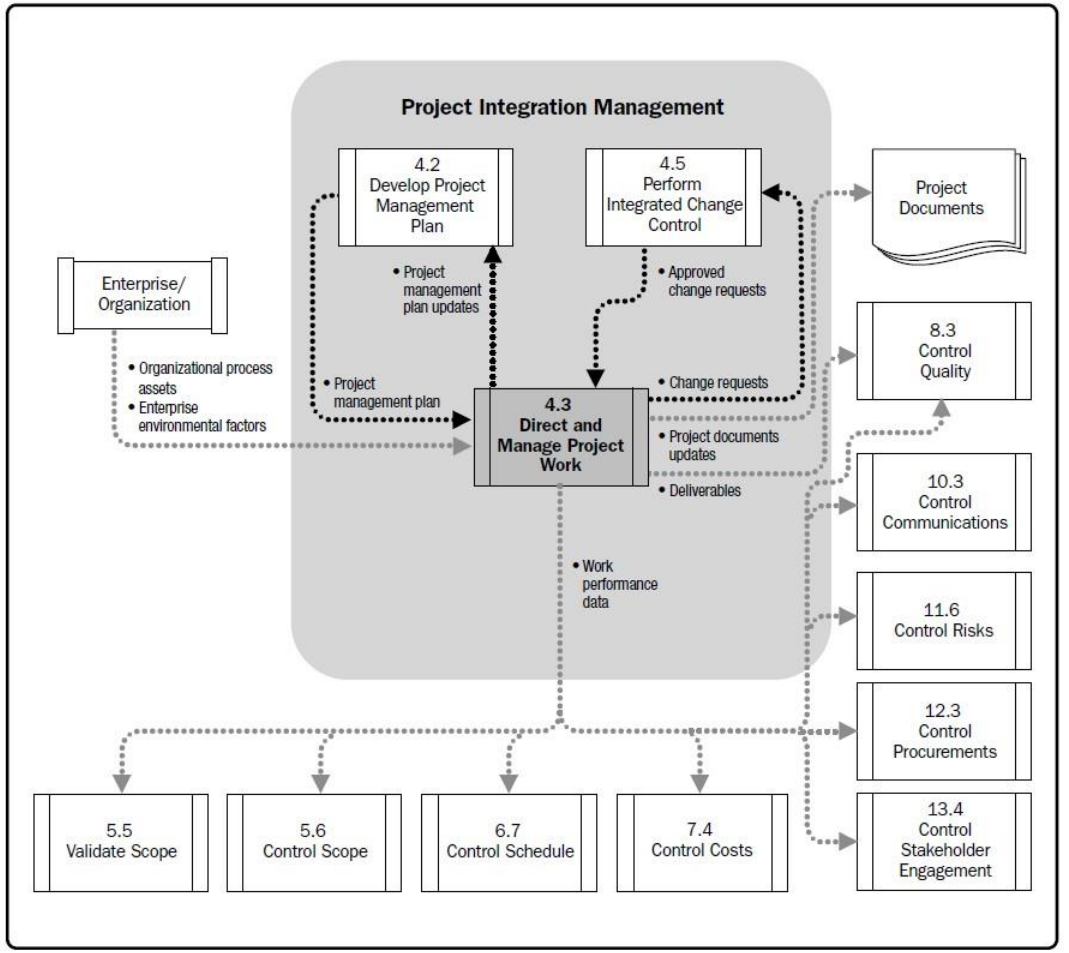
References to Other Project Planning Documents

All current project plans created for this project are provided in Appendix A. Initial documents and revisions are available on the project Web site.

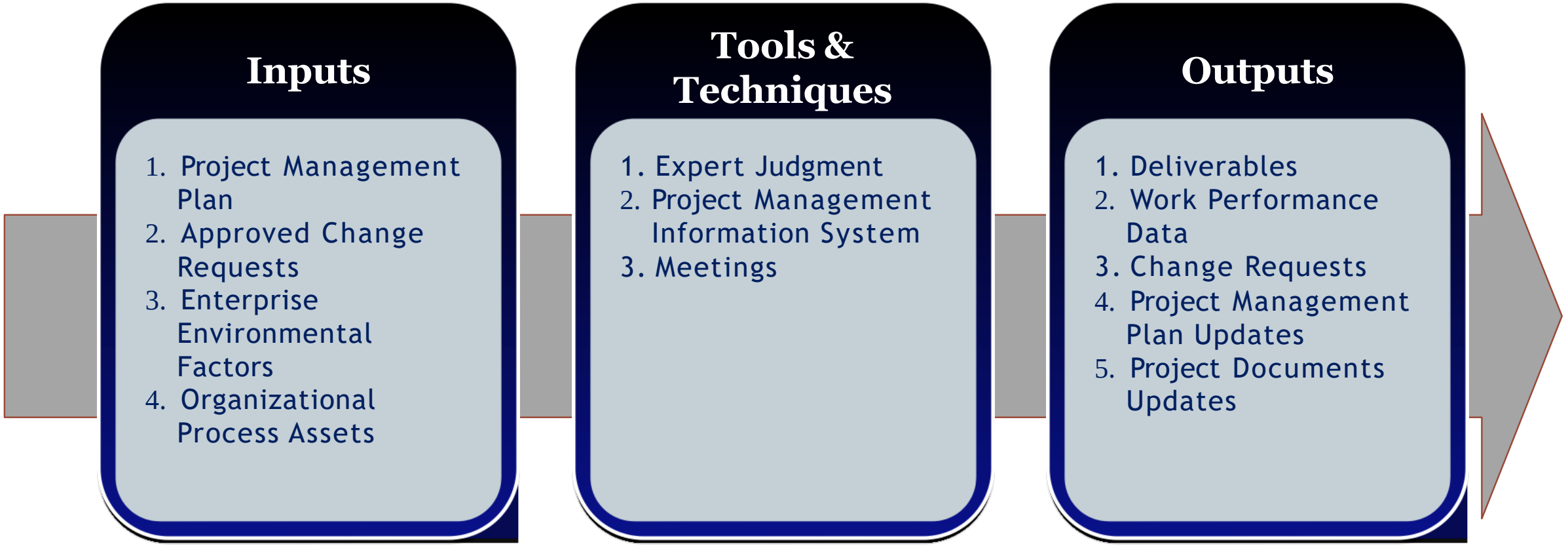
Direct and Manage Project Work & Data Flow Diagram

Direct and Manage Project Work —

The process of leading and performing the work defined in the project management plan and implementing approved changes to achieve the project's objectives.



Direct and Manage Project Work: Inputs, Tools & Techniques, and Outputs



Change Requests

- Changes may include, but are not limited to, the following:
  - **Corrective action**—An intentional activity that realigns the performance of the project work with the project management plan;
  - **Preventive action**—An intentional activity that ensures the future performance of the project work is aligned with the project management plan; and
  - **Defect repair**—An intentional activity to modify a nonconforming product or product component.

Sample Change Request

Change Request

September 22, 2009

Project Name: Just-In-Time Training Project
Date Request Submitted: September 22, 2009
Title of Change Request: Additional funds for supplier management course survey
Change Order Number: A200-17
Submitted by: Kristin Maur

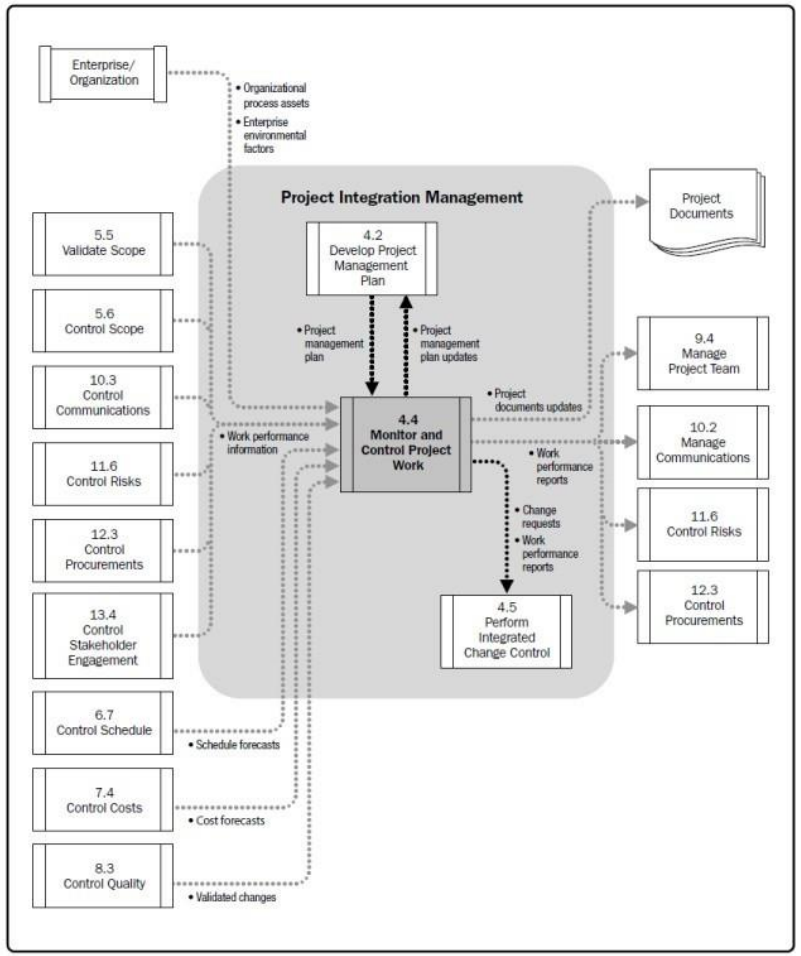
Change Category: __Scope __Schedule X Cost __Technology __Other
Description of change requested:
To avoid a schedule slip and have appropriate internal resources available, we are requesting the approval of paid overtime for creating and distributing the survey for the supplier management course.
Events that made this change necessary or desirable:
The IT person assigned to our project has several other important projects on hand. If these survey tasks are delayed, the entire project will be delayed.
Justification for the change/why it is needed/desired to continue/complete the project:
We must send out and analyze the survey in a timely manner because we need the information to develop the first supplier management course and select an appropriate supplier.
Impact of the proposed change on:
Scope: None
Schedule: None
Cost: $550
Staffing: One IT person will work 10 hours of paid overtime over a period of several weeks.
Risk: Low. This person suggested the paid overtime and has successfully worked overtime in the past.
Other: None
Suggested implementation if the change request is approved: Include the overtime pay in the normal paycheck.
Required approvals:

Name/Title	Date	Approve/Reject
Evan George/Affected Employee		
Stella Jacobs/Employee's Supervisor		
Julia Portman, VP of IT		

Monitor and Control Project Work & Data Flow Diagram

Monitor and Control Project Work —

The process of tracking, reviewing, and reporting the progress to meet the performance objectives defined in the project management plan.



Monitor and Control Project Work: Inputs, Tools & Techniques, and Outputs

Sample Milestone Report for Reporting Work Performance Information

Just-In-Time Training Project Milestone Report

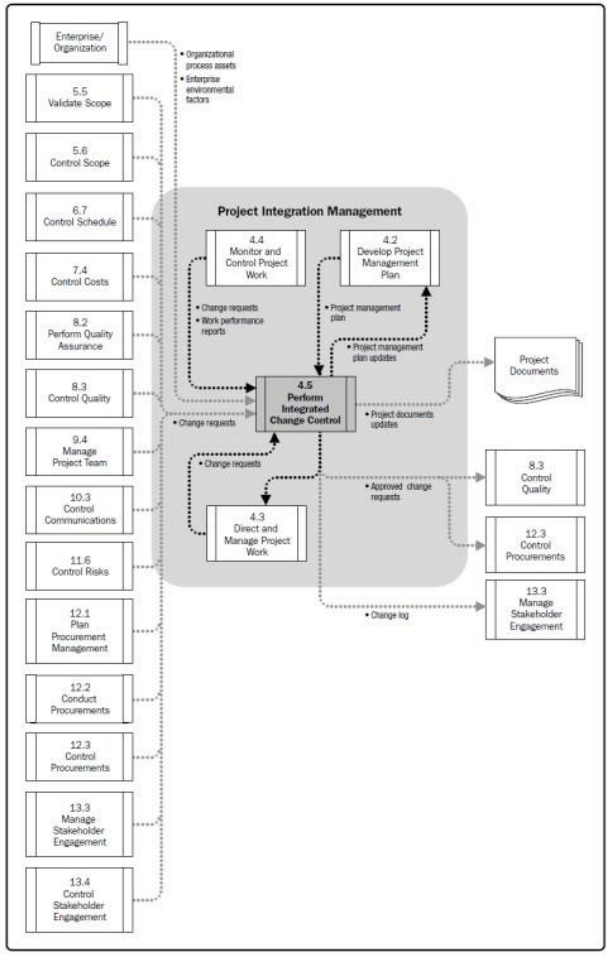
September 1, 2009

Milestone	Date	Status	Responsible	Issues/Comments
Researched existing training	8/13	Completed	Jamie (replaced by Abner)	Many basic courses available, but not much advanced/tailored training (Note: Replaced Jamie with better candidate for project after Jamie completed this task)
Supplier management training survey results reported to steering committee	8/24	Completed	Kristin	Great feedback; many people stressed the need to have instructor-led training and mentors for soft skills development
Meetings to determine potential partners completed	9/21	In progress	Kristin/Contracting	May need more time for meetings
Partnership agreements completed	9/28	Not started yet	Kristin/Contracting	May need more times to set up agreements
Developed executive course	11/9	Not started yet	TBD Supplier	
Developed introductory course	11/9	Not started yet	TBD Supplier	
Developed advanced course	11/23	Not started yet	TBD Supplier	
Held pilot course	11/23	Not started yet	TBD Supplier	
Pilot course results reported to steering committee	11/30	Not started yet	Kristin	

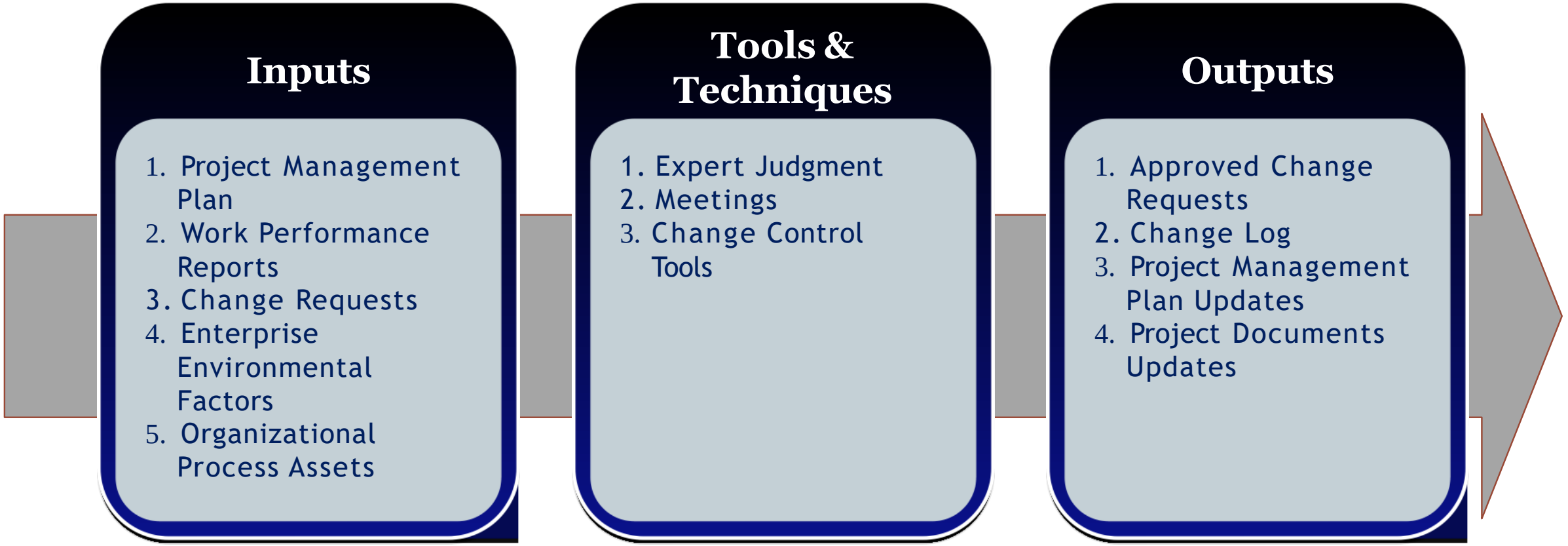
Perform Integrated Change Control & Data Flow Diagram

Perform Integrated Change Control —

The process of reviewing all change requests; approving changes and managing changes to deliverables, organizational process assets, project documents, and the project management plan; and communicating their disposition.



Perform Integrated Change Control: Inputs, Tools & Techniques, and Outputs



Perform Integrated Change Control: Outputs

- Approved Change Requests
- Change Log
- Project Management Plan updates
- Project Documents Updates

Sample Issue Log

Issue Log

August 20, 2009

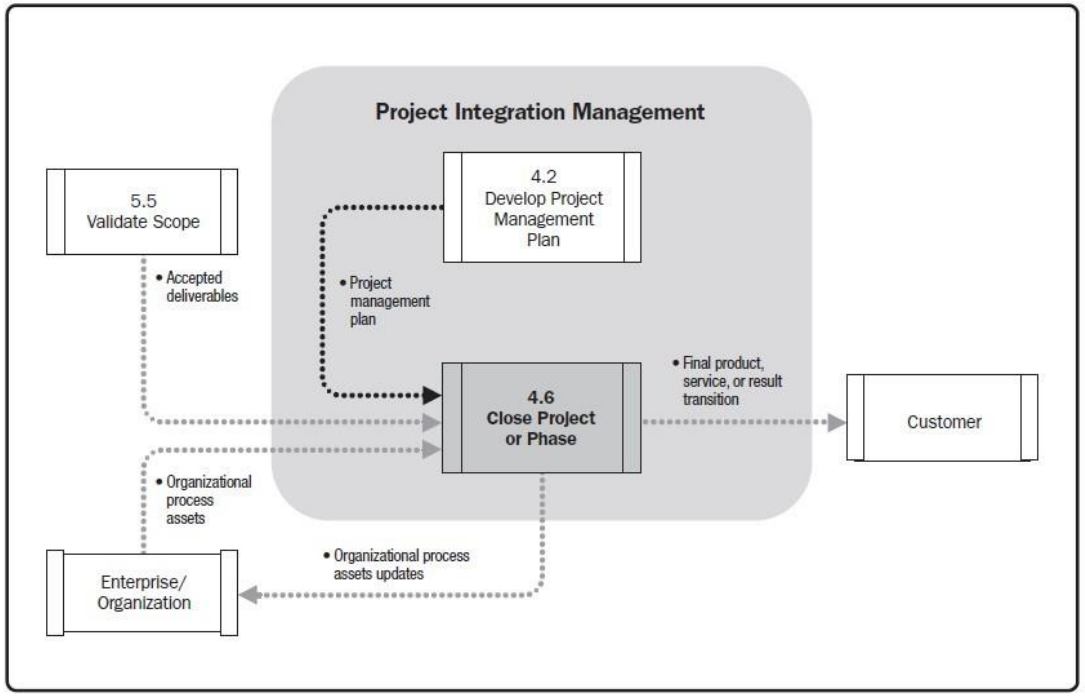
Project Name: Just-In-Time Training Project

Issue #	Issue Description	Impact on Project	Date Reported	Reported By	Assigned To	Priority (H/M/L)	Due Date	Status	Comments
1	Key project team member is not working out	Can severely hurt project because Jamie is our supplier management expert	Aug 2	Kristin	Kristin	H	Sep 2	Open	Working with Jamie and appropriate managers to find a replacement
2	IT staff that is performing survey is overallocated	Delaying the survey will delay the entire project because it is a critical task	Sep 26	Mohammed	Kristin	H	Aug 5	Closed	Paid overtime was approved
3	Julia Portman, VP of IT and steering committee member, now has conflicts with our weekly meeting time	Julia is a key member of the steering committee, and we need her at meetings	Oct 2	Julia	Steering committee	H	Oct 9	Open	Everyone will check calendars to find a new meeting time

Close Project or Phase & Data Flow Diagram

Close Project or Phase —

The process of finalizing all activities across all of the Project Management Process.



Close Project or Phase: Inputs, Tools & Techniques, and Outputs

Close Project or Phase: Outputs

- Final Product, Service, or Result Transition
- Organizational Process Assets updates
  - **Project files**
  - **Project or phase closure documents**
  - **Historical information**

Sample Customer Acceptance/Project Completion Form

Customer Acceptance/Project Completion Form
June 30, 2010

Project Name: Just-In-Time Training Project
Project Manager: Kristin Maur

I (We), the undersigned, acknowledge and accept delivery of the work completed for this project on behalf of our organization. My (Our) signature(s) attest(s) to my (our) agreement that this project has been completed. No further work should be done on this project.

Name	Title	Signature	Date
Lucy Camerena	Training Director	Lucy Camarena	June 30, 2010

1. Was this project completed to your satisfaction? **X** Yes _____ No

2. Please provide the main reasons for your satisfaction or dissatisfaction with this project.
The project met and exceeded my expectations. In my 15 years with this company, I have never seen workers so interested in training courses. Kristin effectively coordinated all of the people who worked on this project. We worked with a number of new suppliers, and everything went very smoothly.

3. Please provide suggestions on how our organization could improve its project delivery capability in the future.
One suggestion would be to try to improve our estimating and forecasting abilities. The project costs were slightly over budget, even with some reserve built in. The schedule buffer prevented the project from finishing late. We also need to improve the way we forecast the number of people who want to take courses. The demand for the Web-based courses was much higher than expected. Even though that was a pleasant surprise, it was still poor forecasting and caused extra work for project and support staff.

Thank you for your inputs.

Sample Lessons-Learned Report

Lessons-Learned Report

June 20, 2010

Project Name:	The Just-In-Time Training Project of Global Construction Inc.
Project Sponsor:	Lucy Camarena
Project Manager:	Kristin Maur
Project Dates:	July 1, 2009–June 30, 2010
Final Budget:	$1,072,000

1. Did the project meet scope, time, and cost goals?

We did meet scope and time goals, but we had to request an additional $72,000, which the sponsor approved. We actually exceeded scope goals by having more people take training courses than planned, primarily the Web-based courses.

2. What was the success criteria listed in the project scope statement?

The following statement outlined the project scope and success criteria:
"Our sponsor has stated that the project will be a success if the new training courses are all available within one year, if the average course evaluations are at least 3.0 on a 1-5 scale, and if the company recoups the cost of the project in reduced training costs within two years after project completion."

3. Reflect on whether or not you met the project success criteria.

All of the new training courses were offered within a year, and the course evaluations averaged 3.4 on a 5.0 scale. We do not know if the cost of the project will be recouped within two years after completion, but the number of people who took the Web-based training courses far exceeded our expectations. Because the Web-based training is more cost-effective than the instructor-led training, we are confident that the costs will be recouped in less than two years.

4. What were the main lessons your team learned from this project?

The main lessons we learned include the following:

- Having good communication was instrumental to project success. We had a separate item in the WBS for stakeholder communications, which was very important. Moving from traditional to primarily Web-based training was a big change for Global Construction, so the strong communication was crucial. The intranet-site information was excellent, thanks to support from the IT department. It was also very effective to have different departments create project description posters to hang in their work areas. They showed creativity and team spirit.
- Teamwork and supplier partnerships were essential. It was extremely helpful to take time to develop and follow a team contract for the project team and to focus on developing good partnerships with suppliers.
- Good planning paid off in terms of when plans were executed. We spent a fair amount of time developing a good project charter, scope statement, WBS, schedules, and so on. Everyone worked together to develop these planning documents, and there was strong buy-in. We kept the plans up to date and made key project information available for everyone on a secure Web site.
- Creativity and innovation are infectious: After departments had so much fun making their posters in their work areas, people picked up on the idea of being creative and innovative throughout the project. Everyone realized that training and learning could be enjoyable.
- The project steering committee was very effective, and it was extremely helpful to meet regularly with the committee. Having committee members from departments throughout the company was very important and helped promote the training created as part of this project.

5. Describe one example of what went right on this project.

We were skeptical about hiring an outside consultant to help us develop a short list of potential suppliers for the training courses, but it was well worth the money. We gained a good deal of useful information very quickly, and the consultant made excellent recommendations and helped us develop partnerships that benefited us as well as our suppliers.

6. Describe one example of what went wrong on this project.

The senior supplier management specialist assigned to the team at the beginning of the project was not a good fit. The project manager should have had more involvement in selecting project team members.

7. What will you do differently on the next project based on your experience working on this project?

For future training projects, it would be helpful to line up experts and mentors further in advance. We underestimated the number of people who would take the Web-based courses, and participants liked the interactive features, such as getting expert advice and having a list of people willing to mentor them on various topics. We were scrambling to recruit people, and then had to figure out how to organize them in an effective manner.