DOWNLOAD PDF CONSTRUCTION PROJECT LIFE CYCLE PHASES

Chapter 1 : Life Cycle Phases â€”

Construction Project Life Cycle The purchase of a constructed facility is a major capital investment. The owner can be an individual, a private corporation or a public agency.

Project management in construction, which includes juggling various tasks and ensuring a project meets its deadlines, takes a great deal of expertise. Breaking up a project into these five logical steps outlined by the PMI can help ensure your project is organized and successful every time. Project Conception and Initiation The first construction project phase is building conception and initiation. The owner initiates the idea and gathers his team of experts design, contractor, trades. Collectively, the team decides whether or not a project is feasible and if they can realistically complete it within the desired timeframe. This means gathering a team of trusted partners together to do meticulous research to determine the scope and cost of a project. A feasibility study looks at the goals, costs, and timeline of a project to determine if the project manager thinks they have enough resources to pursue the project. A business case document defines the reasoning for starting a new project and the financial benefits. If after further research and discussion a project is found to pass these evaluation tests, the project will move on to create a project charter or Project Initiation Document PID. On the contrary, if the team deems the project unprofitable or unachievable, they will cancel the project. Carry out a high level of risk analysis during the initiation phase. Identifying key risks at the beginning will help prepare your team for anything that might come up during the project. Having a written plan helps ensure that everyone on the team is on the same page and understands the steps that they must take to complete the project effectively. Gathering insight from all project stakeholders in the beginning will provide better alignment on cost, scope, duration, and quality. Hitting on each of these areas gives the team a well-rounded idea of what will go into a project and address any possible risks proactively. Therefore, an important part of project management in construction is having a thorough risk mitigation plan. The more issues that the team can address during the planning phase will save time and money during the execution phase. This is why early involvement of trade partners and subcontractors is critical. This phase is imperative in preparing and executing a successful project. Give some thought to who you want on your team. Do they have the skills required to carry out the role? If not, make sure they receive the proper training! This stage is where the team collectively develops deliverables to satisfy the customer. This is where the magic happens and the project comes to life. Using the plan as the project guide, team members assign specific tasks for completion and allocates resources accordingly. Some of the specific tasks during this phase include: With much of the execution happening at the jobsite, it is critical for those that are not on the jobsite to have visibility. Project managers in the office, designers, and owners rely on the updates of the field team to gauge execution. There are lots of fancy new technology available to gauge progress and jobsite activity such as drones, cameras, lasers, and sensors. However, sometimes a good old daily report will suffice. Software to help keep the whole team organized and on track! Project performance and control goes hand in hand with the previous step because they occur simultaneously. Many times the project manager must make several adjustments to keep a project on track. These KPIs determine degrees of variation from the original project goal. Communicate and stay flexible. Go into a project with the mindset that things are going to change because they will! Successful project managers know how to adapt and modify. Project Close Once the team executes all the deliverables and delivers it to the satisfaction of the customer, they can close the project. When the team officially completes the project, we move into the final stage of the construction project life cycle. This last step is vitally important because it allows team members to evaluate, document and learn from the project. Project Close helps members determine what issues they had so that they can make improvements in the future. A final team meeting is usually held and led by a project manager to officially mark the ending of the project. Valuable team members are rewarded and recognized, contractors are terminated, and project successes and failures are identified. Also, project managers must create a final project budget and report to close out the project. While this is the close of one project, all the lessons learned and data is important to take into future projects. When reviewing actual hours on specific labor activities versus the estimates, the team can adjust

estimates on future projects. For example, perhaps the team discovered that site work actually consumes labors. However, previous bids included estimates of hours. This is critical information that can be used to improve future bids. Prepare a list of anything left unfinished and identify who will complete these items. Make sure to communicate this information to any stakeholders so that they stay informed. The ultimate customer is the owner, and their satisfaction determines the overall success of the project. Conclusion Construction projects are complex which makes project management in construction equally complex. Project managers are the critical piece of this complex puzzle. Therefore, understanding the different construction project phases helps to ensure the process is much easier and efficient. The most important thing is to include the primary stakeholders including subcontractors as early in the project as possible. While each phase serves an important function, the most thoroughly planned projects are often the easiest and fastest to execute.

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Chapter 2 : The Project Life Cycle for Construction Management | NJIT Online

The Project Life Cycle (Phases) bpayne and Adrienne Watt The project manager and project team have one shared goal: to carry out the work of the project for the purpose of meeting the project's objectives.

Projects are usually constrained by factors such as scope, budget and time, requiring the project management function to optimize the allocation of resources and properly integrate them to overcome these constraints and meet predefined objectives. Managing project activities can be seen as a sequence of steps to be completed, in line with the five phases that define the project life cycle. Initiation Project initiation starts the project life cycle and involves assembling a team headed by a project manager and providing an overview of the project. The overview typically includes defining the reason for the project, business goals and the strategy to achieve the desired results. In addition, a preliminary scope, budget proposal, milestones and a completion date are given. This phase usually concerns senior managers who create a business case for the project based on a feasibility study and develop a project charter that specifies the project vision, scope, expectations and implementation plan. Planning Planning entails charting all necessary tasks for project completion and providing realistic task completion dates. The planning phase often involves creating a project management plan to guide the team. The PMP gives a detailed breakdown of required skills, risk assessment, non-labor resources and milestones for each task. It identifies the stakeholders and defines the criteria needed for the successful completion of each task -- how and when activities will be undertaken, procedures to be followed, reporting frequency and communication channels. The project team and the necessary resources are gathered and used to create the desired outputs of the project. The project manager oversees proper resource allocation to keep the project on schedule. He also maintains communication with both internal and external stakeholders -- the project team members, executive management and vendors -- to discuss project status. Control The control phase involves project testing and monitoring to make sure the work being executed complies with the plan and meets stakeholder expectations. The objective is project acceptance by the client. Project results are constantly monitored and if any deviations occur or the client requests a specific change, the data is fed back to the execution processes so corrective actions are taken. This phase is completed when deliverables -- the final outputs of the project -- are approved by the client as having met the prescribed quality standards defined in the plan. Closure The closure phase typically involves documenting the project -- a process that begins when deliverables are released by the contractor and formally accepted by the client. All pertinent materials are handed over, including project documentation, manuals and source code. All contract administration paperwork is completed, highlighted by the signed contract documents of acceptance. A formal project review report that identifies and rates the level of project success as well as a critical review of lessons learned is also given to the client.

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Chapter 3 : The Phases of Construction Projects | Career Trend

A software development project manager, for example, might define the following phases in the project's life cycle: initial proposal, process engineering - requirements analysis, process engineering - specifications, design, development, testing, deployment and support.

Institutional occupation Residential dwellings Each build consists of many interrelated tasks. To keep the projects on track and on schedule, project managers leverage their communication skills, expertise and troubleshooting acumen. This process includes deciding whether to hire individual contractors and architects or a full service firm, as well as whether to pay a fixed price for what it cost to erect the structure. If the property owner is not familiar with this process, they will hire a consultant to oversee the pre-project plans. While cost estimates emerge at this stage, it is important to note that it is impossible to develop a firm estimate until an engineer drafts the blueprints and itemizes all required resources. Project Planning and Design It is common practice to divide this phase into three stages. Finally, the designer outlines legal items such as contracts, permits and zoning specifications. By the time the project planning and design phase ends, the property owner and consultant have completely outlined the project and are prepared to select a contractor and execute the build. Estimating Cost of Labor, Materials and Equipment With fully outlined specifications, the cost estimator calculates all project expenses. Next, the estimator determines material costs based on current market rates, including delivery or pick up expenses and exchange rates for imported materials. Additionally, the estimator calculates indirect expenses, such as permit fees, temporary structures and administrative costs. Selecting Contractors Now that the property owner has completely outlined the project specifications, they select contractors through open bidding or by choosing from a handful of builders meeting specific criteria. If necessary, the owner or consultant will institute a pre-qualification process to screen out unqualified candidates. Potential contractors review the build specifications to determine whether the job is profitable. If so, they research the best ways to complete the project phases and then prepare a proposal for the property owner. Finally, the owner will choose the winning bidder among contractors who submitted acceptable proposals. Project Mobilization Once the property owner chooses a contractor, the bid winner must complete several tasks before commencing with the project. They must outline their planned activities to secure instruments such as bonds, licenses and insurance and review the cost estimate to familiarize themselves with projected expenses for reference during ongoing construction. The contractor also determines work site layout details â€” such as delivery entrances, site security, temporary structure placements and materials and equipment storage and then begins the build. Operation and Construction This phase involves three broad processes, task tracking and management; resource allocation and control; and recordkeeping and communication. Task tracking and management falls under five basic classifications:

Chapter 4 : Life Cycle Phase 4: Project Construction â€”

The 5 Stages of Project Management - Understanding a Construction Project's Life Cycle. Project managers serve as the backbone of successful construction projects, dealing with a vast number of complexities on a daily basis.

Closure Conceptual Phase Conceptual phase is the first phase of the project life cycle in which an idea is preliminary evaluated. Risk analysis also seriously affects the resources of the company. Planning Phase Planning phase is the second phase. The elements specified in the conceptual phase are refined at this stage. A solid identification of the needed resources is required in this phase along with the cost, time and performance parameters. The initial preparation of all the documentation essential to support the system is also included in this phase. The project which is based on competitive bidding has the conceptual phase which will contain the decision to bid. The planning phase of such project will contain the development of the entire bid package i. The system costs of most projects can be split into operating recurring and implementing nonrecurring kinds. One-time expenses are included in the implementation costs like purchasing computer hardware, construction of a new facility or detailed planning. Recurring expenses are included in the operating costs like manpower. It is shown in the figure that the operating cost may be decreased if the personnel perform at a higher position on the learning curve. When the cost positions of the firm must be established, the identification of learning curve position is very important during the planning phase. System Costs It is not permanently possible to understand what persons will be available or how quickly they can do at a higher learning curve position. Cost Benefit Analysis When the total cost of the project is approximately ascertained, a cost benefit analysis should be performed to ascertain if the estimated value of the information acquired from the system is more than the cost of acquiring the information. This analysis is mostly included as a component of feasibility study. There are many situations where the feasibility study is actually the conceptual and definition phases like in competitive bidding case. The approval of the top management is almost always essential before starting of such feasibility study because of the costs that can be incurred during these two phases. Cost Benefits Analysis Testing Phase The testing phase is the third phase which is generally a testing and final standardization attempt in order to begin operations. In this phase almost all documentation must be completed. Implementation Phase The implementation phase is the fourth phase of project life cycle in which the products or services of the project are integrated into the existing organization. If the objective of the project was to establish a marketable product, then product life cycle phases of market introduction, growth, maturity and a part of deterioration can be included in this phase. Closure Phase Closure phase is the final phase of the cycle in which resources are reallocated. The main point of this phase is to find out where the resources must be reassigned. Suppose a company sells products on the open consumer market. So, continuous stream of projects are required by that company for its survival. The efforts on the total system are evaluated in the closure phase and this phase acts as input to the conceptual phases for new systems and projects. This phase also influence other continuing projects in respect to priority identification. The size of the project or system is still not ascertained by any effort. Full time staffs are generally required by large projects. On the other hand small projects may need only part time people although their life cycle phase is similar to the larger projects. This indicates that multiple projects can be handled by an individual and there is possibility that each project among the group may be in different life cycle phase. In case of multiple project management , following questions should be considered Are the objectives of the project similar? For the benefit of the project For the benefit of the company Is there a difference between small projects and large projects? How the conflicting priorities be handled? Critical versus non-critical projects Non-critical versus non-critical projects Project Life Cycle Phases with Example In the following table different life cycle phases are identified which are mostly used. Ten different definitions for life the cycle phases by surveying ten different construction companies. Project Life Cycle As listed in the above table, the life cycle phases for computer programming are also shown in following figure which indicate how manpower resources can develop and decline during a project. The twelve month activity is probably represented in this life cycle. Project Life Cycle Short data processing life cycles are preferred by most of the executives because computer technology changes very quickly. An

executive of potential utility company stated that his company faces problem in ascertaining the way to close a computer programming project for improvement in customer service because an updated version emerge in the market when the package of the company is ready to be fully implemented. There is problem in deciding whether the new project should be started by canceling the original project. This decision is better supported by developing short data processing project life cycle phases, although through segmented implementation. It is generally obvious that the periodic review of major projects is the responsibility of the top management. This should be at least achieved at the finishing of every life cycle phase. Procedural manuals are prepared by many companies for project management and for organizing work using life cycle phases. Overlapping of the phases can be done as shown in figure, so that time should be saved and there should be fast tracking on the life cycle. The whole schedule is compressed by using this technique. There is no ideal method for defining project life cycle. Due to this fact each project management team can specify its own method to work on the project. Best common practices can be used by them and new ways can be learned for dealing projects with their experiences in general or in detail. Conceptualization, intermediate phase and closure are the only three phases that are surely performed. Technical information officer generally define phases in sequential order. Cost and staffing level is specified for each individual phase. Projects may include sub-projects which in turn may include their own project life cycle. For example, such activities are involved in initiating the project like identifying the members of the project team, specifying the scope and business objectives of the project and highlighting the key stakeholders.

Chapter 5 : What Are the Five Project Life Cycle Phases? | Bizfluent

Life Cycle Phase 4: Project Construction Project Construction safely builds a functional transportation facility. In this phase, the Colorado Department of Transportation (CDOT) bids the project, selects the contractor, and manages construction.

Chapter 6 : The Project Life Cycle - Understanding the 5 Stages of Project Management in Construction

Seasoned project managers know it is often easier to handle the details of a project and take steps in the right order when you break the project down into phases. Dividing your project management efforts into these five phases can help give your efforts structure and simplify them into a series of logical and manageable steps.

Chapter 7 : Phases of a Construction Project Life Cycle â€“ Part 1

3 project close-out phase is complete. The product life cycle begins at the moment the product begins to be used, sold or placed in operation, thus producing the benefits that justified the project in the first.

Chapter 8 : Planning Phase - Project Planning Phase

The project phases make up a project life cycle, and as such, the phases are tailored to fit a project's needs. According to the PMBOK Â® Guide, the elements of a project life cycle should define: What work must be accomplished.

Chapter 9 : Top 5 Project Management Phases

What Is Construction Project Management (CPM)? According to the Project Management Institute (PMI), project management is "the art of directing and coordinating human and material resources throughout the life of a project by using modern management techniques to achieve predetermined objectives of scope, cost, time, quality, and participating object.