5. Project Commissioning, Start up and Operation:

Concept and Introduction: Commissioning

Commissioning is the process of planning, documenting, scheduling, testing, adjusting, verifying, and training, to provide a facility that operates as a fully functional system per the Owner's Project Requirements. The goal of the Commissioning Process is to enhance the quality of the delivered project by focusing the design and construction team on the Owner's goals for a functional and energy efficient building. The earlier a Commissioning Provider is involved in the project process the greater the chance there is for the Commissioning Provider to influence corrections without increased costs later.

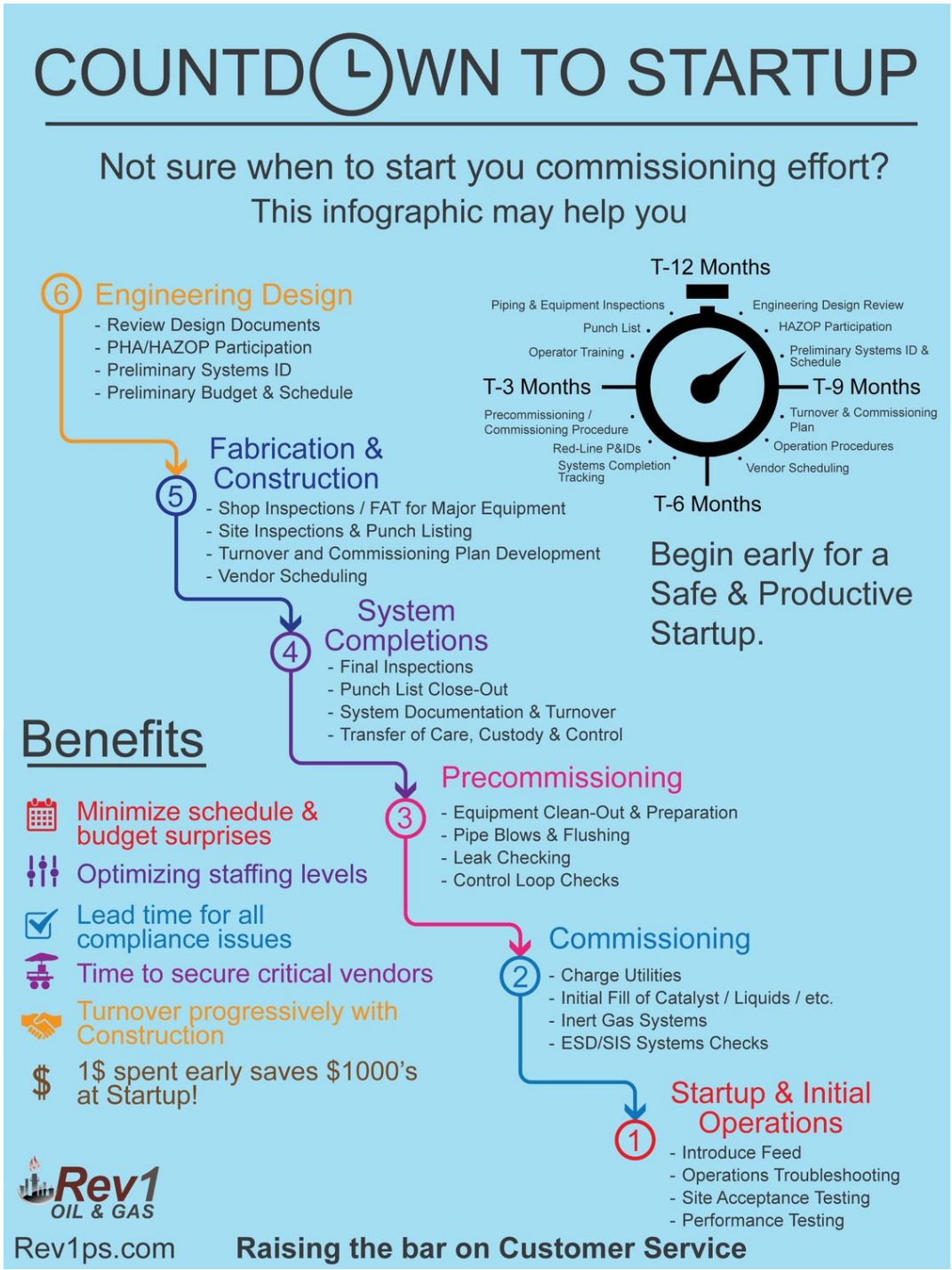
Commissioning verifies that the Works and all relevant systems, equipment and assemblies have been installed, tested, operated and maintained in accordance with the requirements of the relevant contract. Commissioning also includes the Works are built as designed, are certified by a suitably qualified engineer and are fit for the intended purpose. Commissioning takes place during the construction of the Works, before Completion (as defined in the relevant construction contract) of the Works.

Demand for commissioning services is increasing as the design and construction communities require that projects are delivered completely functional, on time, at low cost, and constructed to run in a highly efficient manner. The Commissioning Process helps to achieve all of these goals through review of design documents and construction installation. A third party provider, independent of the design and construction teams, can oversee the quality delivery of the project and provide the Owner with an advocate that will serve the project through completion.

- An ongoing & structured quality assurance process(ideally spanning from pre-design into occupancy) that ensure continual:

    - Communication
    - Documentation
    - Verification
- In simple terms, commissioning is intended to ensure a building meets the owner's requirements upon turnover.
- It is not
    - An event
    - A short team task
    - Punch list clearance
- It is a team sport-for successful commissioning, everyone must buy in to and participate in the process.

When is the best time to start commissioning effort?



"Begin with the end in mind, means to start with a clear understanding of your destination, it means to know where you are going, so you can better understand where you are and so the steps you take are always in the right direction" - Steven Covey

Smart building owners integrate commissioning into building projects to keep costs in line, meet design intent and operational needs, and improve efficiency. Commissioning simply improves an owner's chances of making necessary modifications and changes before problems negatively impact building operations and the bottom line.

Good	Better	Best
Commission during: Near the end of Construction	Commission during: Beginning of Construction	Commission during: Design Phase
Test systems for performance and efficiency	Monitor and review construction and systems installation	Help owner formulate project requirements
Ongoing review for completed and occupied building	Monitor and test systems throughout construction phase	Review design and engineering plans
	Final performance and efficiency tests	Monitor and review construction and systems installation
	Ongoing monitoring and reviews for completed and occupied building	Monitor and test systems throughout construction phase
		Final performance and efficiency tests; train building staff
		Ongoing monitoring and reviews for completed and occupied build

Types of Commissioning:

There are four primary types of commissioning:

New construction commissioning

This begins when the building is just an idea, a drawing or a schematic and is typically just called “commissioning.” It is a systematic process of verifying and documenting that a facility and all of its systems and assemblies are planned, designed, installed, tested, operated and maintained to meet the owner’s project requirements (OPR). Ideally, the commissioning process begins in pre-design, continues into the warranty period for a minimum of one year after construction, and involves the proper preparation of operations personnel.

Retro-Commissioning

Retro-Commissioning is the application of the Commissioning Process to projects not previously commissioned. Many buildings delivered without undergoing the Commissioning Process have deficiencies in design or construction that do not allow the building to function properly or in an energy efficient manner. The goal of the Retro-Commissioning Process is to discover these deficiencies and propose or provide solutions to them. Often, solutions recommended through the Retro-Commissioning process can be implemented at low cost and with little or no disruption to the building’s operations.

A great deal of opportunity is available in the Retro-Commissioning market. Energy use is ever increasing and existing buildings are a large source of that energy use. The opportunity to reduce energy use in existing buildings is one that cannot be ignored. The Retro-Commissioning Process provides a standardized method to gain the greatest efficiency gains and solve existing comfort and operational issues.

Re-Commissioning

Re-Commissioning is the application of the Commissioning Process applied to projects that have previously been commissioned. During building operations, systems may become out of balance or may be adjusted. As a result, the building may not operate in an efficient manner. Additionally, the needs of a facility may change as tenants, owners, and technologies change. The Re-Commissioning Process brings a high quality delivered project to the standards set by either the original or revised Owner's Project Requirements. A Re-Commissioning Process can typically be applied relatively inexpensively since documentation is available from the original commissioning of the building.

Continuous Commissioning

Continuous Commissioning is the constant application of the commissioning process to a building that has been previously commissioned or Retro-Commissioned. Continuous Commissioning ensures that a building does not deviate far from the current Owner's Project Requirements; requirements that should be updated as part of the process. Continuous Commissioning is a highly effective method to keep energy costs low and minimize system problems caused by neglect and changes to building operations.

Commissioning Stages:

There are eight stages of the commissioning process, which include; preparation, design, pre-construction, construction, commissioning of services, pre-handover, initial occupation, post-occupancy care.

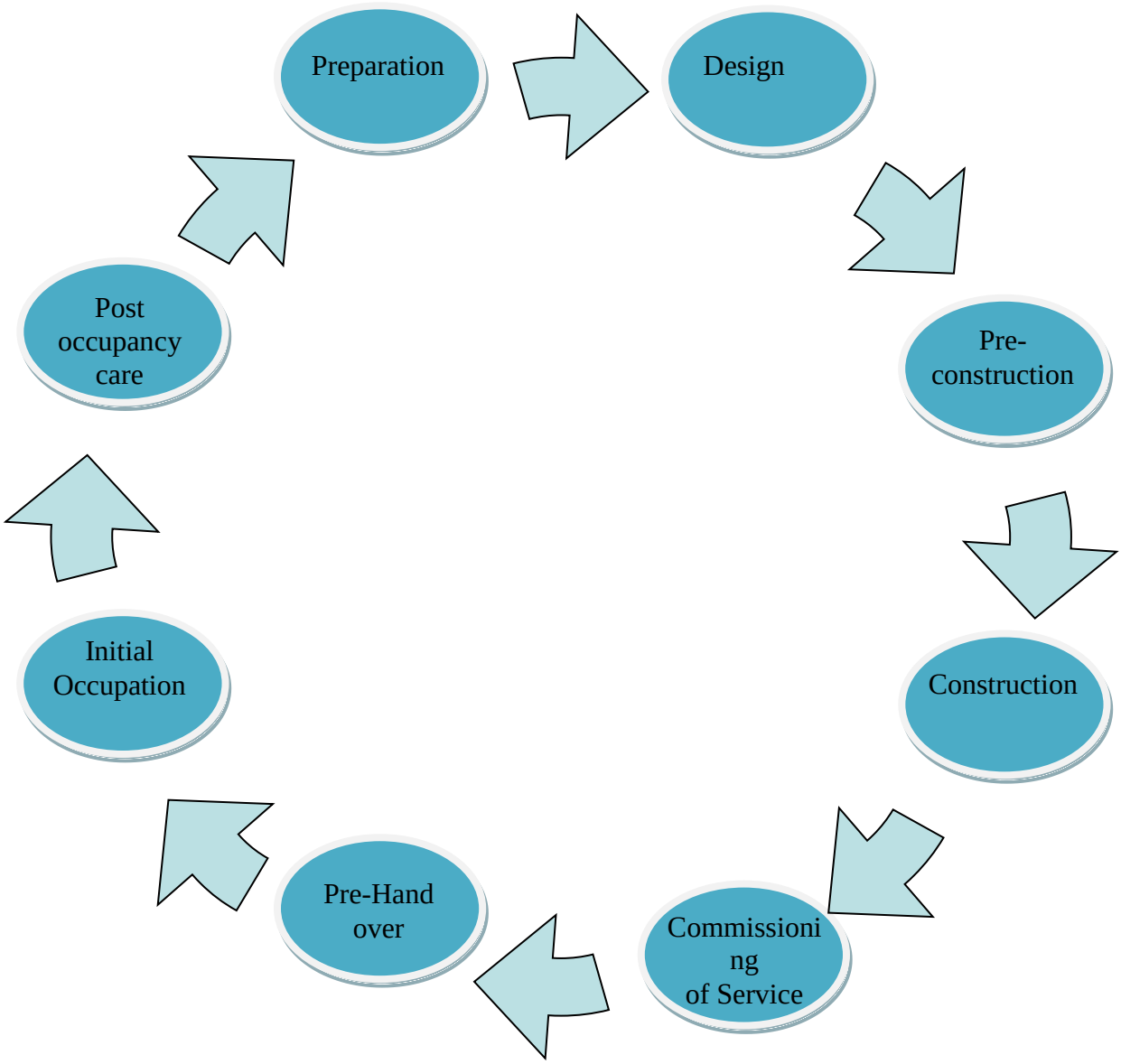


Fig: Commissioning Stages

A summary of activities carried out at each stage is listed below:

Stage 1: Preparation

- Form the commissioning team
- Review lessons and experiences from similar buildings and projects

- Clearly identify the performance outcomes expected by client and the end user
- Help produce the design brief that correctly represents the required performance

Stage 2: Design

- Review the performance outcomes with the client
- Ensure commissioning process activities have been clearly identified
- Ensure the performance outcomes reflect and changes to the system /project design

Stage 3: Pre-Construction

- Make sure the contractors clearly understand the performance requirements
- Verify the capabilities of the trade contractors to meet the requirements of the commissioning process

Stage 4: Construction

- Produce a detailed commissioning program
- Conduct pre-commissioning works, involving verification of installation works and static tests. Verify and document performance outcomes have been achieved.
- Ensure continuously progress is made the production of the O &M's manuals.

Stage 5 : Commissioning of Engineering Services

- Perform the setting to work of systems. Verify and documents that the required performance outcomes have been achieved.

- Undertake performance testing of the building, equipment and engineering services. Verify and documents that the required performance have been achieved.
- Involve facilities management personnel in the commissioning works
- Collate the commissioning checklists and test sheets

Stage 6: Pre-handover

- Verify the quality of the documentary evidence from commissioning process works
- Ensure that all required statutory documentation has been produced
- Conduct training of users and operators
- Produce and circulate building user guides
- Check the client's requirements and react to any differences

Stage 7: Initial Occupation

- Introduce user to their equipment/building and show how it operates
- Help the facilities management team with initial building operation
- Update commissioning records in accordance with and approved changes
- Update the O &M manuals in accordance with any approved changes.

Stage 8: Post-occupancy care

- Carry out seasonal commissioning
- Fine tune building and its engineer services
- Collect and review evidence about the building performance
- Update commissioning records and O &M manuals in accordance to ant seasonal commissioning and fine tuning works
- Produce lessons learned comparing building performance with design intent, client stakeholder expectation and benchmarks

Why Commissioning is so important?

Commissioning is a vital aspect and stage of the life of any facility and asset, which makes it extremely important to ensure it's completed before operations begin because it will counteract project risk and assist in the achievement of performance goal. Commissioning is important due to following reasons:

Person-centered and outcomes-focused

1. Person-centered and focuses on outcomes - Good commissioning is person-centered and focuses on the outcomes that people say matter most to them. It empowers people to have choice and control in their lives, and over their care and support.

2. Promotes health and wellbeing for all - Good commissioning promotes health and wellbeing, including physical, mental, emotional, social and economic wellbeing. This covers promoting protective factors and maximising people's capabilities and support within their communities, commissioning services to promote health wellbeing, preventing, delaying or reducing the need for services, and protecting people from abuse and neglect.

3. Delivers social value - Good commissioning provides value for the whole community not just the individual, their curers, the commissioner or the provider.

Good commissioning is Inclusive

4. Coproduced with people, their curers and their communities - Good commissioning starts from an understanding that people using services, and their curers and communities, are experts in their own lives and are therefore essential partners in the design and development of services. Good commissioning creates meaningful opportunities for the

leadership and engagement of people, including curers and the wider community, in decisions that impact on the use of resources and the shape of local services.

5. Promotes positive engagement with providers - Good commissioning promotes positive engagement with all providers of care and support. This means market shaping and commissioning should be shared endeavors, with commissioners working alongside providers and people with care and support needs, curers, family members and the public to find shared and agreed solutions.

6. Promotes equality - Good commissioning promotes equality of opportunity and is focused on reducing inequalities in health and wellbeing between different people and communities.

Good commissioning is Well led

7. Well led by Local Authorities - Good commissioning is well led by Local Authorities through the leadership, values and behavior of elected members, senior leaders and commissioners of services and is underpinned by the principles of coproduction, personalization, integration and the promotion of health and wellbeing.

8. Demonstrate a whole system approach - Good commissioning convenes and leads a whole system approach to ensure the best use of all resources in a local area through joint approaches between the public, voluntary and private sectors.

9. Uses evidence about what works - Good commissioning uses evidence about what works; it utilizes a wide range of information to promote quality outcomes for people, their curers and communities, and to support innovation.

Good commissioning Promotes a diverse and sustainable market

10. Ensures diversity, sustainability and quality of the market - Good commissioning ensures a vibrant, diverse and sustainable market to deliver positive outcomes for citizens and communities.

11. Provides value for money - Good commissioning provides value for money by identifying solutions that ensure a good balance of quality and cost to make the best use of resources and achieve the most positive outcomes for people and their communities.

12. Develop the commissioning and provider workforce - Good commissioning is undertaken by competent and effective commissioners and facilitates the development of an effective, sufficient, trained and motivated social care workforce. It is concerned with sustainability, including the financial stability of providers, and the coordination of health and care workforce planning.
[Reference: Commissioning for Better Outcomes: A Route Map, University of Birmingham]

Benefits of Commissioning:

1. **Reduced life-cycle costs**

In the long term, the projected life-cycle costs of buildings and facilities will be reduced as a result of the integrated efforts of the designer and the building operators to meet commissioning requirements. It will contribute to reduce construction costs while ensuring a more efficient use of energy over the years.

2. **Cost effective maintenance**

Involvement of O&M staff in commissioning, plus the training and documentation provided, is the basis for more effective operation, maintenance and management throughout the life of the facility.

3. **Occupant satisfaction**

The primary and immediate beneficiaries of a properly designed, constructed and commissioned facility are the occupants. They will enjoy

the advantages of living or working in an improved indoor environmental quality that's comfortable and safe and in surroundings that meet their everyday needs. Further benefits will accrue to the Owner/Investor as a result of having satisfied tenants in a quality building that complies with the requirements of the investment plan. Also, when building quality is translated into higher productivity and reduced absenteeism of the occupants, the overall savings become even more significant.

4. Quality assurance

The Owner/Investor is assured that a quality facility and a "surprise-free" product/environment have been provided. There will be fewer system deficiencies at building turnover. This will be achieved by ensuring that:

- The Contract Documents include all commissioning specifications,
- The requirements of these specifications will be met
- Fully documented tests and inspections will prevent minor errors from developing into serious operational flaws.

5. System performance verification

Commissioning extends into Operation phase, in order to verify performance under a full Page 16 of 35 October 21, 2010 range of operating conditions. This practice aims to provide a "no-surprises" operation cycle for both Owners and operation and maintenance (O&M) staff. A thorough process will help to avoid unforeseen or hidden O&M expenses later.

6. System documentation

Provision of accurate and useful historical records is assured. Such records provide important data for O&M efforts as well as for future renovations, upgrades or repairs. Technical reports and other commissioning documents serve as benchmarks for future system testing, re-commissioning and for maintenance or renovation activities.

7. Knowledge transfer

- Systematic development of commissioning documentation facilitates knowledge transfer from one phase of delivery to the next and from the delivery process to the ensuing ongoing operation of the facility.
- Feedback through project management and report mechanisms can provide benefits to other projects by reporting on experience gained through the Validation and Acceptance Process.

8. Protection of heritage character

The training and documentation provided and involvement of O&M staff in commissioning is the basis for informed maintenance that is sensitive to the needs of heritage materials and assemblies.

9. LEED and BREEAM certification

Commissioning is a requirement of various programs such as Leadership in Environmental and Energy Design (LEED), Building Research Establishment Environmental Assessment Method (BREEAM), Quality Guideline C2000 and enable the project to obtain the appropriate certification.

Procedure of Commissioning in various Phases:

Pre-Design Phase (Commissioning Process Objectives)

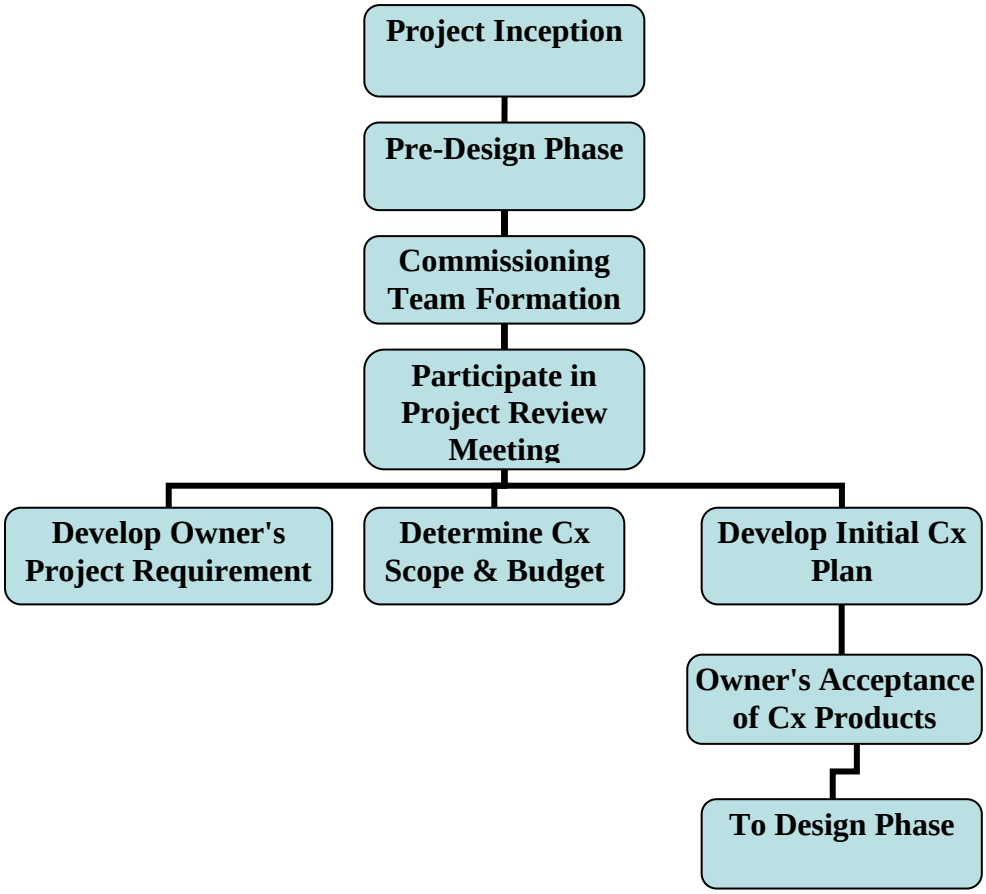
- Develop the Owner's Project Requirements (OPR)
- Review lessons from previous projects
- Identify commissioning scope and budget
- Develop initial commissioning plan
- Owner acceptance of pre-design commissioning activities

Pre-Design Commissioning Team

- Include many members:
    - Commissioning Agent or Authority
    - Programming Consultant
    - Owners representative
        - ✓ Users
        - ✓ Maintenance Staff
    - Design Team
    - Contractor's representative

Pre-Design Commissioning Document

- Owner's Project Requirements (OPR)
- Commissioning/design service contract integration
- Commissioning Plan
- Issues Log
- System control



Pre-Design Phase Commissioning Process Flow Chart

Design Phase (Commissioning Process Objectives)

- Update the commissioning Plan
- Verify the basis of design
- Develop commissioning process requirements for the construction documents
- Develop draft construction check lists
- Develop draft test procedures
- Define training requirements
- Perform OPR-based design preview
- Update OPR

(Prepare for construction phase Cx activities; verify design decisions and documentation match OPR)

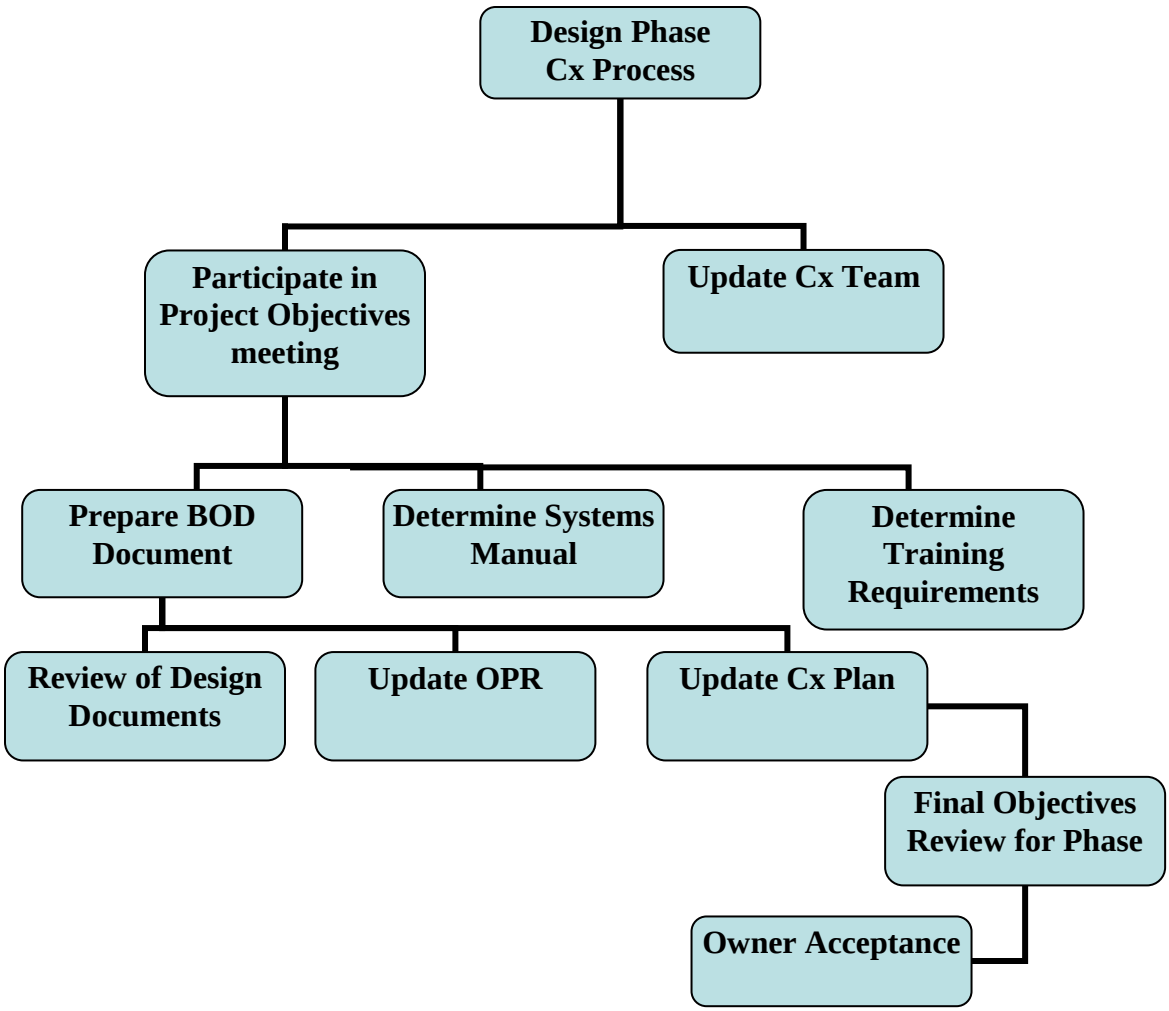
Design Phase Commissioning Plan

- This is a continually developing road map for upcoming activities and records of complete activities
- During the design phase, the plan will be updated to provide details regarding construction phase commissioning activities also an outline of occupancy and operations phase activities will be included
- A detailed training plan will be developed as a section of the Cx plan
- Ensure that the Cx plan adequately address Cx process activities, responsibilities, and schedule

Design Phase Commissioning Documents

- Basis of Design (BOD)
    - Code,Standards,Guidelines used
    - Basis for system/assembly selection
    - etc

- Commissioning Plan
- Construction Checklists
- Test Procedures
- System Manuals
- Issue Logs: the issues log is essentially the collective memory of the Cx team regarding problems that arise throughout the Cx process
- Training Plan



Design Phase Commissioning Process Flow Chart

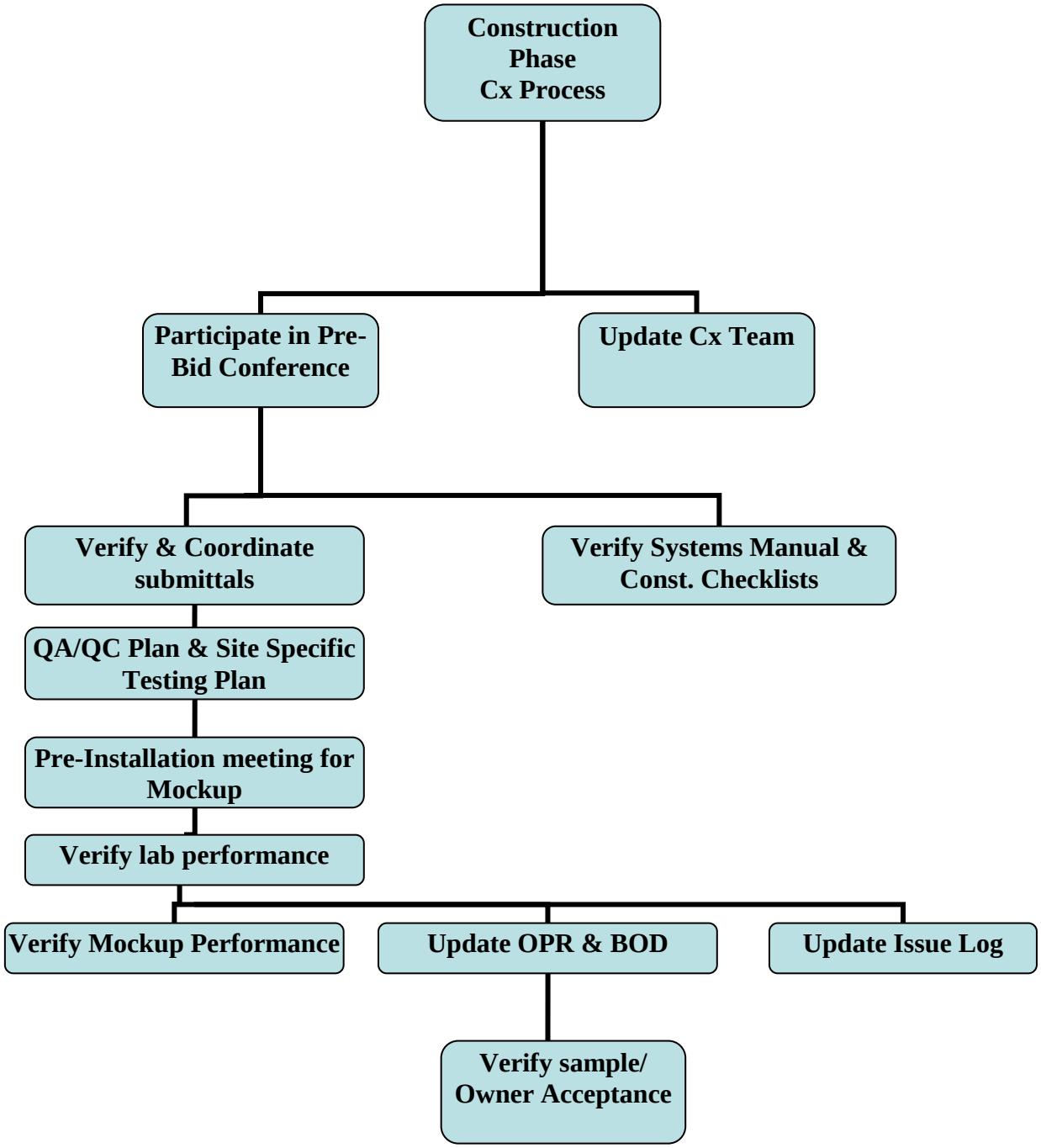
Construction Phase (Commissioning Process Objectives)

- Verify that submittals meet the OPR
- Finalize construction checklists and test procedures
- verify that systems and assemblies meet the OPR
- Verify system manual
- Update the OPR and Cx Plan

Construction Phase Outline

- Meetings and communications
- Updating Cx Documents
- Submittals Review
- Construction Checklists and Test Procedure
- Training

Mockup: a full-sized structural model built to scale chiefly for study, testing, or display.



Construction Phase Commissioning Process Flow Chart

Commissioning: Key to Success

☆ Good benchmarking and archiving of documents

- Owner's Project Requirements (OPR)
- Basis of Design (BOD)
- Commissioning Plan
- Construction checklists
- Training plan
- System manual
- Commissioning process report

☆ Explicit expectations and

- Clear RFQ/RFP for CxA
- Professional service contracts that address commissioning and provide clear statements of "who and "if then"

☆ Enforcement of Cx related contract provisions
☆ On going communications

- Cx meeting
- Cx report
- Issues logs

☆ Well reasoned clarity of purpose
☆ Verification by Cx team of all key elements against OPR
☆ Serious owner buy-in and support
☆ Owner acceptance of all deliverables/products

What are the major process components of New Building Commissioning?

Review all phases of design and construction documents for these areas:
a. Compliance with design criteria
b. Commissioning requirements
c. Bidding issues
d. Construction coordination and installation concerns
e. Performance aspects

f. Facilitation of operations and maintenance, including training and documentation g. Review the equipment submittals for compliance with commissioning issues
h. Verify the scheduling and procedures used for system start-up
i. Verify training of owner's operating staff is conducted per document's requirements
j. Verify operations and maintenance manual's compliance with contract documents
k. Prior to expiration of the construction contract warranty, assist the owner in assessing systems' performance and addressing related issues

The General Commissioning Process

1. Commissioning during construction begins with an initial Commissioning meeting conducted by the CA where the commissioning process is reviewed with the commissioning team members.

2. Additional meetings will be required throughout construction, scheduled by the CA with necessary parties attending, to plan, coordinate, schedule future activities and resolve problems.

3. Equipment documentation is distributed by the A/E to the CA during the normal submittal process, including detailed start-up procedures.

4. The CA works with the Contractor in each discipline in developing startup plans and startup documentation formats, including providing the Contractor with construction checklists to be completed during the installation and startup process.

5. In general, the checkout and performance verification proceeds from simple to complex; from component level to equipment to systems

and intersystem levels with construction checklists being completed before functional testing occurs.

6. The Contractors, under their own direction, will execute and document the completion of construction checklists and perform startup and initial checkout. The CA documents that the checklists and startup were completed according to the approved plans. This may include the CA witnessing start-up of selected equipment.

7. The CA develops specific equipment and system functional performance test procedures.

8. The functional test procedures are reviewed with the A/E, CA, and Contractors.

9. The functional testing and procedures are executed by the Contractors under the direction of, and documented by, the CA.

10. During initial functional tests and for critical equipment, the Engineer will witness the testing.

11. Items of non-compliance in material, installation, or setup are corrected at the Contractor's expense, and the system is retested.

12. The CA reviews the O&M documentation for completeness.

13. The project will not be considered substantially complete until the conclusion of Commissioning functional testing procedures as defined in the Commissioning Plan.

14. The CA reviews and coordinates the training provided by the Contractors and verifies that it was completed.

15. Deferred testing is conducted as specified or required.

Commissioning Plan:

The commissioning plan is a document that out lines the scope and defines the responsibilities, process, schedule and documentation requirements of the commissioning process. The Specifications will take priority over the Commissioning Plan. It should:

- Provide general information about the project
- Identify the Cx team members during each stage of the Cx process
- Define the roles and responsibilities for each Cx team member
- Identify the system to be Commissioned
- Create a schedule of Cx activities for each stage of the Cx process
- Establish documentation requirements associated with the Cx process
- Establish communication and reporting procedure for the CX process

The Purpose of a Commissioning Plan

The general purpose of a commissioning plan is to give direction for the entire construction process. It basically acts as a road map for entire construction team. It lays out roles and responsibilities of individuals and teams, includes lines of communication and reporting, provides a resolution process for issues, and provides overall coordination.

Things to be included in a commissioning plan are: (Building Project)

- **General Building Information.** This section of the commissioning plan lays out the basic information detailing the project, including the

project name, address, building type, building description, owner agency, and scheduled completion date.

- **The Commissioning Scope.** This section of the plan will document the official equipment checks for the building project. These systems will need to be commissioned in any general construction project: HVAC system, electrical system, and any other systems and equipment.

- **Commissioning Team Information:** The plan will include documentation of every person and company involved in the construction process. Information includes: the owner, project manager, commissioning provider, mechanical engineer, electrical engineer, general contractor, etc.

- **Project Schedule:** This section includes the entire project schedule, from initial design to the final commissioning report.

- **Roles and Responsibilities:** This section of the plan will lay out each of the roles of the teams and their descriptions. This will include every role listed in the Team Information section, followed by a detailed description of each team's role and how that role in the construction project.
- **General Management Plan and Protocols:** Every project needs specified protocols for handling various situations, because protocols ensure the project runs more smoothly. For example, this section of the commissioning plan will include the protocol for requesting information (RFI) or for requesting formal documentation during the construction process.

Commissioning Authority (CA): An independent authority, not otherwise associated with the A/E team members or the Contractor, though he/she may be hired as a subcontractor to them. The CA directs and coordinates the day-to-day commissioning activities. The CA does not take an oversight role.

Owner's Project Requirements: A document that provides the owner's vision for the planned facility and expectations for how it will be used and operated. It also provides a detailed explanation of the rationale behind the ideas, concepts and criteria that are defined by the owner to be important and to be tracked through design and construction. These concise concepts are likely to originate from the owner's program. The requirements may be written by the owner, the commissioning provider, or the design team in consultation with the owner. The Owner's Project Requirements remain relatively fixed from their initial development unless budget or other factors require a modification.

Owners Role and Responsibility in the Commissioning Process

1. Produces the Owner Project Requirements and submits to the Design Manager.
2. Reviews the basis of design developed by the design consultant(DC) and provides comments to the design Manager (DM).
3. Reviews all design documents and provides comments to the DM.
4. Coordinates maintenance staff participation in Cx activities.
5. Reviews O&M documentation and attends training.
6. Attends all training sessions.
7. Receives and retains a copy of the Commissioning Summary Report.
8. Provides maintenance representatives to facilitate the ten (10) month building review as necessary.
9. Attends commissioning meetings as necessary .

Commissioning Manager

The roles and responsibilities for Commissioning Manager may include:

- providing planning and technical advice on operational and maintenance (O&M) matters;
- coordinating commissioning activities during all project stages;
- ensuring O&M concerns are addressed;
- providing quality assurance;
- reviewing commissioning documentation at all stages of project delivery;
- verifying accuracy of Product Information and Performance Verification forms;
- Obtaining input from the Property Manager as well as the Operations and Maintenance staff.

Final Commissioning Report

During post-construction, the commissioning agent (CxA) is responsible for delivering a final commissioning report. This document is in addition to those items detailed in the "Turnover Commissioning Record" section. The final commissioning report shall include at a minimum:

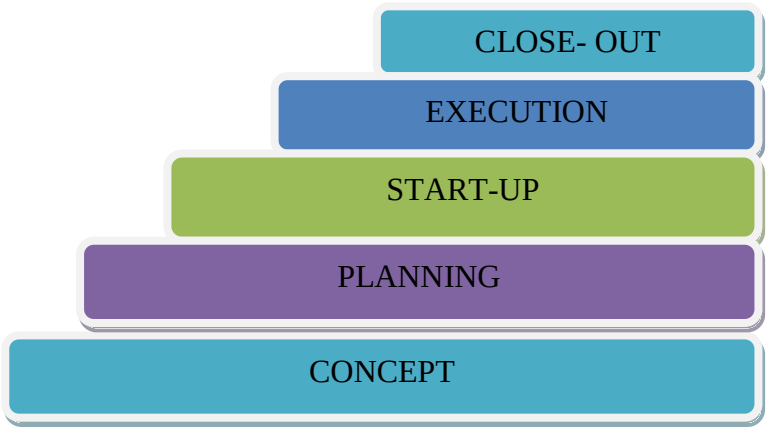
- A statement that systems have been completed in accordance with the contract documents and that the systems are performing in accordance with the final owner's project requirements document
- Identification and discussion of any substitutions, compromises, or variances between the final design intent, contract documents and as-built conditions
- Description of components and systems that exceed owner's project requirements and those which do not meet the requirements and why
- Summary of all issues resolved and unresolved and any recommendations for resolution
- Post-construction activities and results including deferred & seasonal testing results, test data reports and additional training documentation
- Lessons learned for future commissioning project efforts

- Recommendations for changes to GSA standard test protocols and/or facility design standards (i.e. GSA P-100, etc.)

The final commissioning report will be a critical reference and benchmark document for future re-commissioning of the facility.

The CxA is also responsible at this stage to ensure that the architect/engineer's (A/E's) update to the computer-aided-design (CAD) as-built drawings is completed.

Project Startup



Overview

Project Start Up is a short phase between the project planning and execution – it is responsible for successful transition of a project from a state of underlying concepts and plans to a state of practical execution. In other words this small, but very important stage stands for finishing and verification of the project's conceptualization and planning to obtain sustainable grounds for a successful project performance (a project will have a strong fundament to be started up).

In general, the Project Start Up embraces the following activities:

- Finalizing and signing off the project plan baselines (schedule, budget and quality).
- Finalizing and signing off the supportive plans (staffing, communications, issues, etc).
- Mobilizing and coordinating resources – the project team gets completely assembled.
- Putting sponsorship plans in action and assembling the committee of sponsors.
- Verifying all primary and secondary project documents.
- Conducting the project kick-off meeting.

(http://www.taskmanagementguide.com/glossary/what-is-project-start-up.php)

The project startup is a significant event in the life of a project. The project team must be formed, resources must be brought together, and the plan must be finalized.

- The major activities included in project start-up are selecting the project manager; establishing funding; developing project infrastructure such as accounting, procurement, and IT; holding a kickoff meeting, determining staffing; and building relationships.
- The start-up activities for small projects can utilize existing infrastructure for support functions and can have a single start-up meeting, while larger projects require more dedicated infrastructure and full-time staff, and the start-up meetings can take longer and involve more people.

Project Startup Plan:

1. **Make a Task List:** The tasks are the small jobs that make up the whole project. You want to create a detailed list determining every step along the way of your project. Prioritize that list. There will be tasks that are crucial to the project, which must be done, but there will also be some that you can sacrifice without impacting the overall success of the project.

2. **Duration:** Once you've collected all the necessary tasks to complete the project, you have to figure out to the best of your ability how long each of them will take to complete. You can only make an estimate, of course, but you should use past experience and any other factors at your disposal to make those guesses as accurate as possible.

3. **Dependencies:** Not all tasks are created equal, some cannot start until the one before it is finished. You need to know which tasks are dependent on one another. A dependent task has the potential to block another team member and throw the whole project off-track. Therefore, be sure to note those on your project plan and link them so you and the team are aware of the importance of completing one before starting the other.

4. **Resources:** The next step is deciding what resources you need to accomplish the tasks in the time you have allotted for each. This can include everything from project planning tools and team members to equipment and office space. You have to manage these resources, so you need to know what they are and plan accordingly.

But there are still more things to take into account in your project plan.

1. **Scope:** What are the activities and tasks that must be done to complete your project successfully? You need to document these project goals, from deliverables and tasks to costs and deadlines.

2. **Milestones:** These are major phases or events in your project that are collected to break up the monolith of the project into more digestible parts. They can be added to a Gantt chart, with a description and a delivery date—more on this next.

10 Common Startup Project Management Mistakes

The following is a list of common project management mistakes that startups often make and how to avoid these scenarios.

1. Selecting the wrong Project Manager

A typical startup may not have a person who has PMI certification or has experience with project management methodologies. There is a tendency to take a bottoms-up approach: find the people with the skillset to the work, but overlook the role of managing the project to success. A project manager is not just a coordinator of a project plan. He or she must be assigned responsibility and accountability for the completion of the project.

2. Not turning down requests from the project team

Startups are characterized by small team and flat environment. When managers are colleagues and there is little formal hierarchy, it is often difficult to say no. This is especially the case where open dialog is encouraged and is considered a feeder of innovation.

When a team member has a request a consensus-based culture may make it difficult for the manager to turn this down. Acquiescing to every request can form a dangerous precedent. It avoids short term conflict, but creates a dynamic where the team has too much power relative to management. The challenge for the manager is to find a way to say “no” without losing the sense of team comradery and collaboration.

The best way to achieve consensus is to provide the team with maximum transparency as to why decisions are made. For instance, if there is a request to add a functionality that would help a product, one needs to explain that right now the priority is speed to market.

When your employees understand your priorities and have visibility into the startup’s plans, they will be flexible and work with you. A command-and-control scenario is much less likely to be successful.

3. Inadequate planning for risk

Because risk is inherent in the life of a startup, there is tendency on the part of some startups to underestimate risk. Managing risk is one of the most important aspects of project management. This does not mean that

startups need to be completely risk adverse. However, they need to understand the risk and find ways to mitigate against risk.

For example, there is always a risk that a competitor will release a similar solution to the marketplace, thereby denting the long-term prospects of the company. Once a risk is identified, it is incumbent upon the organization to define a strategy to address this risk should it occur. In the case of a new competitor entering the market, the company must define a market segment whose needs can be met profitably. Gaining a deep understanding of a customer segment and focusing on this group of customers can help shield the company from other competitors. The alternative of ignoring risk and hoping that it does not occur is short sighted and irresponsible.

4. Not understanding scope

In many cases, startups do not emphasize the importance of scoping a project based on the belief that scope is fluid and will change. Even if scope does change, it is important to estimate the scope of the project so that at least there is a baseline expectation for both the project team and management.

5. Inadequate system for change tracking

When startups fail to treat project management as an important discipline, one of the biggest casualties is change tracking. If your processes and teams are democratized, there is a risk that everyone will make changes to their part of the project independent of the overall plan.

Whatever project planning methodology one uses, it is important that any change to the project plan be approved and also tracked. A situation where someone randomly changes part of the plan can result in confusion on the part of team members that are not aware of the changes. If the changes are not approved appropriately, changes can be made that are inconsistent with the overall strategy and plan.

6. Skipping Quality Control in rushing to market

It may be tempting to cut corners when rushing to market with a new product. Startup owners are under tremendous pressure to release their product before burning through cash investments.

However, tempting the scenario, it is also very dangerous. As a startup you are only as good as your reputation and a company that misses the mark with its first launch will not survive. Of course, there are scenarios

of small beta releases that contain bugs, where “friends and family” are likely to be forgiving.

However, when releasing a product, there is little understanding in a competitive marketplace. Therefore, when it comes to quality control, the same levels of quality from a large organization should be expected from a startup. If anything, a larger company has a portfolio of products and customers to rely on. A startup may only have one shot to impress an audience and cannot afford to misfire.

7. Not creating deliverable schedules

It is never easy to schedule a project, especially when many of the variables are unknown. When releasing a product for the first time to market, one has to make a significant number of estimates. Some of these will be accurate and some of these will fall short.

The temptation of not creating a detailed delivery schedule is great. There are many ways to justify it: we will figure this out as we go along, there are too many factors that we can figure out now, as a startup we don’t have want to be bogged down in meaningless process.

These justifications can have disastrous consequence. In fact, the very process of figuring out schedules helps to get everyone focused on the plan and identify some areas of risk. Use work breakdown structure to break down the project into the smallest possible activity or task. This applies to any methodology that your team uses.

8. Inadequate resource planning

Here is a common startup scenario. You hire young, dynamic and enthusiastic people who are committed to your organization. You give them a lot of responsibilities and expect them to multi-task. Over time, they overcommit to you and without realizing it, they start to burn out.

Larger organizations have more resources and can spread the burden but startups are often thinly spread. It is tempting to give smart people responsibilities that are not qualified to do and assume they will learn on the job. Without enough time and bandwidth, they can also fail on the job.

It is incumbent upon the startup project manager (even if that is not his or her official title) to understand the limitations of the team. Overcommitting people’s time will only lead to mistakes and burnout downline. It is better to identify a lack of resources upfront and alter

management. In some cases, it means reprioritizing your employees' time or it could also mean brining more resources to a project.

9. Not communicating regularly

In a hyper-connected world, there is a tendency to over-communicate. Your employees are likely to use SMS, Skype, Google Hangout and WhatsApp. Although your workers may be available for most of the day, many startup projects forget that there needs to be a rhythm to communication.

What is needed is a regularly time where the whole team can review progress, identify problem areas and work collaboratively on solutions. By bypassing "formal" status meetings, there is a risk that macro issues effecting the whole project will not be addressed.

Meetings need to be regularly scheduled with a predictable schedule of topics.

10. Not using project management software

Some startups consider project management software too complex for their needs. With the proliferation of online project management software, it is hard to imagine why some startups adopt this attitude.

The aversion to using project management software is so strong that some vendors have stepped into the niche by claiming that their team collaboration solution is not project management software.

We are not advocating the use of a particular solution or project management software. In fact, if the team wishes to use a physical Kanban Board, this is an acceptable approach.

The most important thing that there needs to be a way to document roles and responsibilities and to map out the project plan accordingly. Even the most rudimentary tool such as excel spreadsheet is better than avoiding the use of project management software.

(https://www.binfire.com/startup-guide-project-management-collaboration/)

How to Build a Startup Organization

Before we look at the discipline of project management, we need to start with building your team. Mature and well-funded organizations have the budget and bandwidth to hire professional project managers and then to train their teams on methodologies. A startup is less likely to have these resources so it is critical that each hire be examined.

Hiring the Best Startup Team

If you are a startup, there is a good chance that you cannot find all the talent you need in one location. You may also need to stretch your budget and rely on staff that are located in places where labor costs are less expensive. In our globalized and virtual economy, more and more startups are relying on remote workers to fill vital roles within the organization.

Hiring remote workers comes with risks. Startup employees require certain characteristics that are not as important in other workers: flexibility, emotional maturity and self-motivation. A startup environment is dynamic and quick paced if your workers cannot readily adjust to change, then it is unlikely that they will be able to contribute to you in the long term.

The hiring process is labor intensive and can be distracting for the startup owner. Below is some guidance for how to recruit for a startup:

Recruiting for a Startup: What to Look for in a Candidate

When filling a position, it is important to explain to candidates that your company is a startup and there are specific requirement and expectations that come with the job. In the job description, we suggest you cover the following:

- Explain the requirements and commitments from a startup. Many job candidates do not understand that a startup is unique. It is easy to confuse a startup and a small business. In reality, although no two startups are the same, there are key differences between startups and other businesses. Startups may require a different level of commitment and dedication that other companies do not even need.
- Expectations for work-life balance. If the job requires travel and long hours, this, this needs to be stated. Why? Because some potential employees may assume that a startup provides more flexibility that it does. In reality, the startup environment can be very taxing and require a level of dedication that is beyond the capacity of many employees.
- Experience in a similar environment. If you are seeking to fill a programming position, you will list any programming languages needed. If you are seeking to fill a startup role, you should consider candidates' experience in a startup environment. Has the person worked for a startup

before? If not, try to understand how they have worked in dynamic and fast changing organizations.

- Personal traits. When creating a job posting, we suggest that you list some of the specific characteristics that you are looking for. The ability to cope with stress is important. The most often overlooked trait is the ability to work well with team members.
- Quick learner. In startup environment you need people who can learn on the job, fast! Nobody is fully equipped to know the project's ups and turns. You need somebody who can adapt and find solutions for unforeseen problems fast.
- Ability in wearing multiple hats. An employee needs to be flexible and able to work on multiple tasks involving different disciplines.
- Ability to accept constructive feedback and open to give feedback to others. In short people with no excessive egos.

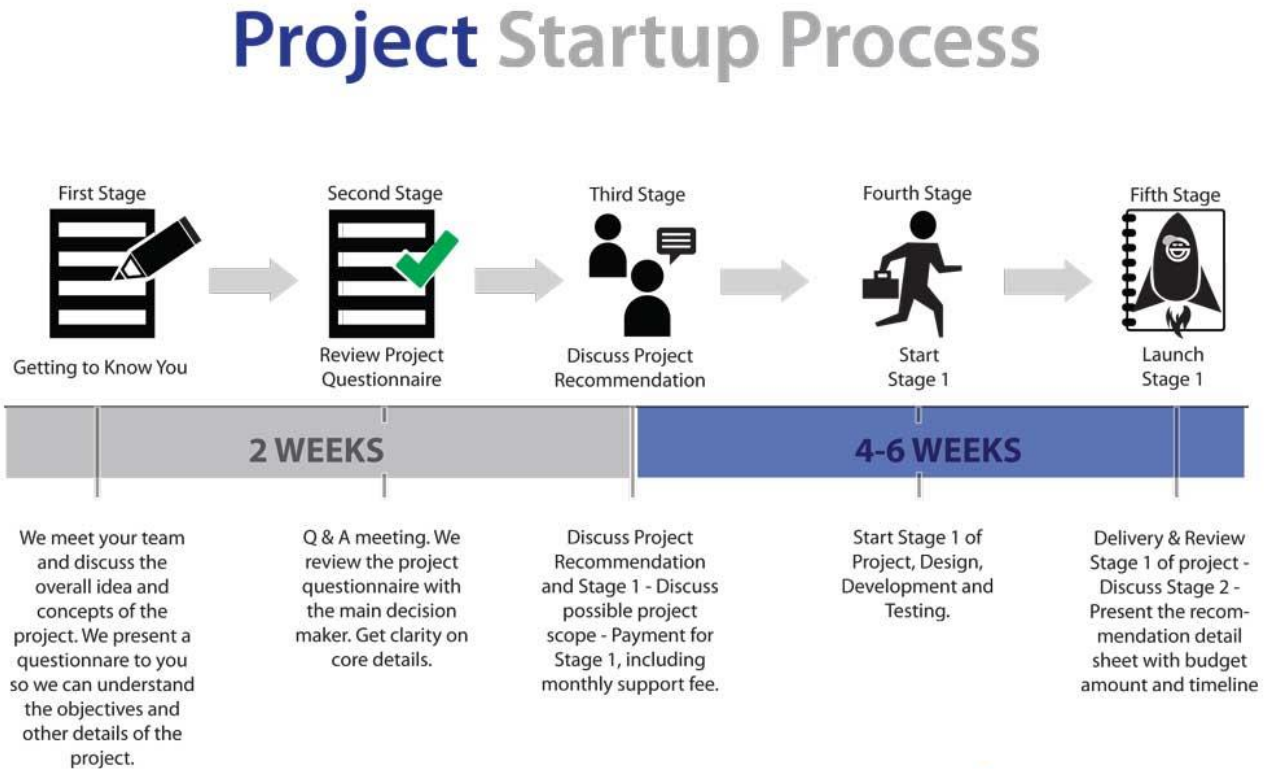
Tips to Help with the Hiring Process

The margin for error when hiring for a startup is much smaller. One bad hire can cause a delay in your product development or market launch. Here are some smart hiring practices for startups.

- If you are hiring a remote worker and conducting the interview remotely, insist that the interview by conducted via Skype or a similar tool. This will give you visibility into the candidate's home office. You will get insights into their level of organization and they present themselves professionally. Your employees are the public face of your company and how they position themselves will reflect upon you and your organization.
- Test prospective employees. If you are hiring a new employee for a coding role, then give them a sample scenario and ask for them to create a code in real time. There is almost no role that cannot be tested with a real life scenario.
- Aptitude testing. You will not release a product to market without testing it thoroughly (hopefully), so we suggest that you take the same approach when bringing a new employee into your organization. Tests can be written such as the Caliper or Myers-Briggs or you could provide role-play scenarios where candidates need to fill out an assignment or respond to a situation.
- Check references thoroughly. One of the biggest mistakes that hiring managers of startups make is to skip the reference checking step. One should never rely on written references alone. Ask the candidate for a references at the last three places of employment and call each of the references.
- Meet a candidate before hiring them. This may seem obvious, but there are people applying to work via remote and are even hired without meeting the hiring manager. Even if budgets are tight, we strongly

recommend that you find a way to meet a candidate before hiring them. You cannot gauge body language, chemistry or communication skills via a Skype Call.

Project Startup Process:



Establish the Plan Baseline

The first step of the project start-up stage is to finalize the project plan and establish a baseline. Baseline refers to a plan that has been placed under configuration management so that changes to the plan are made under the change control process.

Fine Tuning the Plan

A final tuning of the project plan typically occurs during the project start-up phase. This fine tuning consists of incorporating changes that result from management review or, in the case of a project that involves procurement, changes that result from contract negotiations. Only minor changes can be made to the plan at this time—major changes require a return to the project planning phase.

Minor changes are defined as a refinement of activities, the addition of oversight and quality activities, and alterations to the schedule. Any change that results in more than a 5% increase in cost or schedule should be viewed as a major change.

Plan Approval

During the start-up process, the plan is finalized by the Steering Committee. At this point, resources are committed and plans are made to quickly move to the execution phase.

The final project plan approval varies depending on the project and may require approval from the project manager, Steering Committee. If the effort includes contractors, it may be necessary to get the prime contractor and procurement to sign off on the plan.

The Steering Committee approval represents a commitment to implement the project as described in the plan. This is a commitment to scope, schedule, and budget.

Project Startup Checklist:

When does a project start? This is the primary question when the project startup stage begins. There are also other project startup questions to be answered. If you are going to start a project, you need to be ready to consider many questions and find right answers. The Project Startup Action Plan will help you as it includes tips on implementing the project startup stage. This action plan consists of the following topics:

a) Project Baseline
b) Staffing
c) Project Repository
d) Project Startup Meeting

1. Project Baseline

Create a baseline of your project considering the constraints of Time, Cost, Scope and Quality, as shown below.

- Time: create the schedule baseline that covers original project start to finish durations, timelines, durations of key project tasks, activities and milestones.
- Cost: set the planned or budgeted cost and define the expected project revenue.
- Scope: express the project effort in working hours and determine work packages and tasks within the work breakdown structure of your project.
- Quality: establish quality requirements and determine methods of quality assurance and control.

2. Staffing

- Create a staffing plan which establishes the necessity for roles and assignments within your project.

- Design a project team organization chart that specifies all the roles and assignments determined in the staffing plan.

- The following major roles can be specified in your organization chart:

    - Project Manager
    - Risk Manager
    - Quality Assurance Manager
    - TQM Facilitator Engineers
    - Team Leaders
    - Assistants

- Share copies of the chart among all team members.
- Create a staff rotation plan, a formal document describing how employees can rotate within the project and delegating their roles and duties.
- Prepare a staffing report showing that the project has been staffed with appropriate human resources.

3. Project Repository

- By means of IT technologies and software, create a project repository—a centralized database keeping critical information on the project and providing historical records on project startup activities.
- Use your project repository for strategic planning and management of the project. Note that the project repository is not intended for managing current project activities and tasks, but rather, it is used for storing and recording the initial steps of your project start checklist.
- When establishing your project repository (database), consider the next requirements to be met: The database should be accessed remotely through networks and Internet. The database is protected from internal and external dangers. A system of user permissions is embedded in the database providing authorized logins for team members. Backups of the database are made regularly for project data security and restoring purposes. Appropriate specialists are

employed and assigned to administering and maintaining the database throughout the project course.

- Consider adding the next information in your project repository:
    - Project summary information, including your project startup plan and key project startup questions to be answered at the initiation phase
    - Project staffing information
    - Project schedule Project budget
    - Project risk management measures
    - Quality audit measures
    - Original requirements and expectations of the customer

4. Project Startup Meeting

- Consider planning for a project startup meeting, which often refers to a project kickoff meeting when the project manager presents the project to key stakeholders. The next information on the project will be presented: Project goals and deliverables Basic requirements and ways to meet them Project management methodology (e.g., Prince2 project startup methodology, PMBOK methodology, etc.) Key members of the project team Project plan and schedule Project budget and project startup costs Assumptions and constraints Identified risks and ways to mitigate them (a contingency plan)
- Design a project startup meeting agenda that will describe key activities to be performed on the meeting and key issues (e.g., project start date and finish date) to be addressed during the meeting.
- Specify project start to start date in your meeting agenda.
- Share copies of your project startup meeting agenda with all participants.
- Send formal invitations to all meeting participants.

Project Startup Records:

Jobsite Startup Document Transmittal

To: M. Sullivan & Son Limited Date:

Att.:

Project: Job No.:

		Document	Provided	Outstanding	Ongoing	Not Applicable	Action By
CONTRACT	List of Contract Documents		☐	☐	☐	☐	
	Drawings		☐	☐	☐	☐	
	Specifications		☐	☐	☐	☐	
	Addenda		☐	☐	☐	☐	
	Geotechnical Report		☐	☐	☐	☐	
	Pre Bid Meeting Minutes		☐	☐	☐	☐	
SCHEDULE	***Construction Schedule***		☐	☐	☐	☐	
PROCUREMENT	***Cost codes***		☐	☐	☐	☐	
	Contact List	SQF 110	☐	☐	☐	☐	
	Purchase Orders	SQF 410	☐	☐	☐	☐	
	Budget		☐	☐	☐	☐	
MEETINGS	Site Meeting Minutes		☐	☐	☐	☐	
	Foreman Meeting Minutes		☐	☐	☐	☐	
CHANGES	Change Orders		☐	☐	☐	☐	
	Contemplated Changes		☐	☐	☐	☐	
	Site Instructions		☐	☐	☐	☐	
	Change Estimates	SQF 340	☐	☐	☐	☐	
	50,000 Codes		☐	☐	☐	☐	
	RFI's	SQF 130	☐	☐	☐	☐	
PERMITS	Notice of Project		☐	☐	☐	☐	
	Building Permits		☐	☐	☐	☐	
	Work Permits		☐	☐	☐	☐	
	Locates		☐	☐	☐	☐	

		Document	Provided	Outstanding	Ongoing	Not Applicable	Action By
LOGS	Change Estimate List	Invoice	☐	☐	☐	☐	
	RFI Log	SQF 130	☐	☐	☐	☐	
	50,000 Code Log		☐	☐	☐	☐	
	Site Instruction Log	SQF 370	☐	☐	☐	☐	
	Submittal Schedule	SQF 330	☐	☐	☐	☐	

	Inspection and Test Plan	SQF 320	☐	☐	☐	☐	
	Trade Qualifications Log	SQF 335	☐	☐	☐	☐	
	Reject/Hold Log	SQF 170	☐	☐	☐	☐	
	Superintendent's Log Book	SQF 100	☐	☐	☐	☐	
SHOP DRAWINGS	Shop drawings, **Samples, Mock-ups** (by trade)		☐	☐	☐	☐	
QUALITY ASSURANCE	MSS Quality Procedures, Forms & RH Tags		☐	☐	☐	☐	
	Quality Control Plan		☐	☐	☐	☐	
	Testing & Inspection Schedule		☐	☐	☐	☐	
	Inspection & Test Reports (by activity)		☐	☐	☐	☐	
	Punch Lists	SQF 180	☐	☐	☐	☐	
	Deficiency Lists		☐	☐	☐	☐	
TRADE RECORDS	MOL Registration of Constructors in Ontario		☐	☐	☐	☐	
	New Worker Orientation Checklist	SQF 112	☐	☐	☐	☐	
	Safety Certificates (First aid, CPR, fall arrest, etc.)		☐	☐	☐	☐	
	Trade Certificates		☐	☐	☐	☐	
HEALTH & SAFETY	OHSA or Canada Labour Code		☐	☐	☐	☐	
	Designated Substance Report		☐	☐	☐	☐	
	MSS Safety Policy		☐	☐	☐	☐	
	MSS Health and Safety Compliance Reports		☐	☐	☐	☐	
	Supervisor's Accident Investigation Report		☐	☐	☐	☐	
	WSIB 1234 Poster		☐	☐	☐	☐	
	Know Your Health and Safety Rep Poster		☐	☐	☐	☐	
	Emergency Response Poster		☐	☐	☐	☐	
	Emergency Response Procedure		☐	☐	☐	☐	
	Violence Prevention Policy		☐	☐	☐	☐	
	Anti-Harassment Policy		☐	☐	☐	☐	
	Job Hazard Analysis		☐	☐	☐	☐	
	Pre-Start – Daily Safe Work Plan		☐	☐	☐	☐	
	MOL Inspection Reports		☐	☐	☐	☐	
	MSDS Binder		☐	☐	☐	☐	

		Document	Provided	Outstanding	Ongoing	Not Applicable	Action By
ENVIRONMENTAL	Environmental Policy		☐	☐	☐	☐	
	Environmental Assessment		☐	☐	☐	☐	
	Spill Response Plan		☐	☐	☐	☐	
	Waste Management Plan		☐	☐	☐	☐	
LABOUR	Time Sheets	SQF 120	☐	☐	☐	☐	
	Visitor Sign In and Sign Out Register	SQF 115	☐	☐	☐	☐	

	Manpower records	SQF 190	☐	☐	☐	☐
	Mark-up Meeting		☐	☐	☐	☐
EQUIPMENT	Rental Equipment		☐	☐	☐	☐
	Equipment Safety Certificates		☐	☐	☐	☐
MATERIAL	Material Lists		☐	☐	☐	☐
	Material Delivery Records		☐	☐	☐	☐
MISC. DOCUMENTS	Correspondence – Sullivan		☐	☐	☐	☐
	Correspondence – City		☐	☐	☐	☐
	Correspondence - Owner		☐	☐	☐	☐
	Correspondence – Consultants (by discipline)		☐	☐	☐	☐
	Correspondence – Subtrades (by trade)		☐	☐	☐	☐
	Field Sketches		☐	☐	☐	☐
	Other miscellaneous documents		☐	☐	☐	☐
COMMISSIONING	Commissioning Plan		☐	☐	☐	☐
	Owner Training		☐	☐	☐	☐
	As-Built Drawings		☐	☐	☐	☐

Project Startup Reports:

PLS SEE ON PDF

Project Operations

Operations are those activities that don't aim to produce anything new, but to maintain and sustain a system. In a business, for example, administrative tasks are *operations*. ***Operations*** are repetitive and static, and aim to keep everything running. *Projects* produce a specific deliverable and then dissolve.

It's interesting to separate operational tasks from projects because thank to their ongoing, repetitive and standard nature they can be managed in a very convenient way. You can batch them into periodic routines, thereby minimizing the time they take. In addition, *operations* are totally predictable and can accurately be planned, which means that most of them

can even be automated. Of course, you need to always put the needed resources in place for them.

The bottom line is that you should always identify the operational tasks as they appear in your inbox. They are a large percentage of your activity that, if properly managed, will require only a small percentage of your effort. Ask yourself if you can automate them. If not, minimize their impact by including them in any of your regular routines. In these routines, always try to group similiar tasks that require the same work *context*.

Projects are unique and temporary (definitive beginning and ending), while Operations are ongoing and permanent with repetitive output.

- Projects have a fixed budget; on the other hand Operations have to earn profit in order to run the business.
- Projects are executed to start a new business objective and terminated when it is achieved, while Operational work does not produce anything new and it is ongoing.
- Projects create a unique product, service, or result; Operations produce the same product, aim to earn profit, and keep the system running.

You build the facility and deliver to the client. Your job is completed, and the client has started manufacturing the cars.

In this example, building the facility is an example of a project, because here you constructed a car manufacturing facility and handed it over to the client and signed off.

However, once the facility starts working and the car manufacturing process starts, this will be an example of operation, because here the

facility is producing a repetitive output, i.e. cars, and the process is ongoing.

What is Operational Work?

An ongoing work effort is generally a repetitive process because it follows an organization's existing procedures. The ongoing execution of activities that produce the same result or product repetitively is what Operations is all about.

Production operations, accounting operations, manufacturing a product are all Operational activities.


Routine Operational Work at a Factory

Operations are permanent initiatives that produce repetitive results, with resources assigned to do the same set of tasks and produce a standard output. In the life of a product, there will be many projects to improve the product, add new features etc. and these projects will come and go as required. The underlying production of the product will continue as usual, although there will be refinements done and included in the product over the period

STRATEGY

Strategy work refers to helping senior executives determine the overall direction in which they will take the business. It is about taking a top-down view of the business and looking at the allocation of scarce resources. Strategy consulting is difficult. It requires deep analytical skills

and the application of strong and disciplined problem solving skills. Principles like decision trees, MECE and hypotheses led research are used. Examples of strategy work include:

• What should be our long-term vision?

• Should we retain the same portfolio of businesses?

• Should we enter this market?

• What is the best way for us to extract value from our SUV division?

At the end of a strategy engagement, the client is given a detailed report outlining the exact market shares, pricing, volumes and other conditions under which the recommended strategy will work. The end of a strategy engagement must be a report. That's because a strategy is a plan. And before you implement anything, you need a plan.

Strategy engagements tend to involve long hours; they have a high intensity and involve senior client engagement. Throughout the engagement, strategy consultants must work with the most senior executives of a firm. Proper strategy consulting can only be done for the most senior executives. These are after all the decision makers of a business.

OPERATIONS

An operation consulting is actually very similar to strategy and is not implementation work. In an operations engagement the consultants are again usually working for senior executives to determine how to extract value (e.g. how to extract more value from a facility, plant, mine or division). Operations consultants apply the same problem solving approach as strategy consultants: MECE, decision trees and hypotheses led research. Examples of strategy work include:

• How do we increase the throughput of this plant?

• How do we reduce costs in this facility?

• How do we increase productivity in this factory?

• How do we reduce bottlenecks in this plant?

Here is a crucial similarity between operations and strategy engagements. At the end of an operations project, the client also will receive a detailed report outlining metrics, benchmarks and a laundry list of changes to improve the operations. At this stage the client and consultants have not yet implemented the recommendations.

Operations and strategy engagements use the same highly disciplined problem solving processes, but they apply it to different parts of the business. This is a very important point. Operations consulting are just as tough, just as intense and just as appealing as strategy consulting, provided it is done correctly.

IMPLEMENTATION

Implementation consulting is totally different from operations and strategy consulting. The consulting skill sets are different, the hours are different, the type of work is different and so is the profile of consultants and fee structures. In an implementation engagement, the consulting team must take the recommendations from the strategy and operations engagement and help the client realize the targets. Let's assume Bain advised an airline to set up a new low-cost airline division. The strategy calculated that doing this would lead to the airline saving $100 million over 3 years.

The implementation consultants need to determine the pieces of activity required to take all the existing employees within the airline, create a new division, brand it, set up the operating structures and move the employees to the new division. Although the implementation consultants will not do everything, like branding where a brand specialist firm would do the work, they will manage everything.

Here are some of the things involved in doing this:

• Setting up the new division

• Transferring employees and making adjustments to their employment contracts

• Creating a new profit center

• Setting up a new accounting system and adjusting SAP

• Assisting in deciding if the low-cost fleet will be leased or bought

• Creating a new organizational structure in micro-detail

• Set the start date for the new division and begin migrating process and employees

• Set up a trial run for the new division

• Determine the go live date

• Manage the labor unions

You get the picture right? Implementation is not just for the smartest MBAs. It's for smart people who can roll up their sleeves and literally work alongside a client to solve countless tedious problems and march towards a common goal. Yet, dumb people who can make things happen is a far more effective implementation consultant than someone with the best solution which is never used. Implementation consultants also use the strategy or operations plan as a guide only. No matter how good a firm is, they can never predict all the problems with implementing a strategy. The implementation team will need to find a way to make the strategy work. Implementation projects also have less stressful work hours. Since the team is working hand-in-hand with the client, they generally need to work to the clients' schedule. This slows down implementation projects. There is also a need to blend in more closely, use processes which can be used by everyone and focus more on transferring knowledge.

Project Operations Plan

A project operations plan shows the company's strategy for carrying out a project. Contractors and sub-contractors typically use these plans on large public works projects. Government agencies often request a project operations plan before approving any work. A project operations plan prevents any unplanned action that may not succeed in accomplishing project goals. The plan includes a predetermined and documented course of action on the project, which allows the effected government agencies to review the project goals and determine the effectiveness of the plan. The key components of a complete Operational Plan include analyses or discussions of:

Human and Other Capacity Requirements – The human capacity and skills required to implement your project, and your current and potential sources of these resources. Also, other capacity needs required to implement your project (such as internal systems, management structures, engaged partners and Network NOs and POs, and a supportive legal framework).

Financial Requirements – The funding required implementing your project, your current and potential sources of these funds, and your most critical resource and funding gaps.

Risk Assessment and Mitigation Strategy – What risks exist and how they can be addressed.

Estimate of Project Lifespan, Sustainability, and Exit Strategy – How long your project will last, when and how you will exit your project (if feasible to do so), and how you will ensure sustainability of your project's achievements.

Your Strategic Plan may only be considered complete when these components have been defined, at least in broad terms. As the project moves into Implementation, several of these components are then defined in more detail and tested in reality. Thus the Operational Plan provides a

critical bridge between the Action and Monitoring Plans (Step 2) and Implementation (Step 3) of those plans. The level of detail and formality of your Operational Plan will vary depending on the size and complexity of your project or program. Small projects may only briefly touch on each of these topics before moving on to implementation. Large, complex programs should be able to provide evidence that they have addressed each of the components of an Operational Plan. The larger the program, the more extensive and formal the treatment of each component should be.

Operation Planning

Operational planning is an estimation of what needs to be done to ensure operational processes are efficient and effective-that supply always meets demand.

Typical activities in the planning process include:

- Setting objectives-so that you know what is to be achieved by your plans and by when
- Allocating tasks and responsibilities-who is to be involved with the new product and service and how they are to be involved
- Scheduling-work patterns, process scheduling, supply and demand scheduling
- Assessing resource requirements-people and their skills, money (budgets), time, raw materials, plant and equipment, capacity

Monitoring of Operation

Every business needs to monitor workplace operations so that they can develop strategies designed to improve procedures and protocols. As a business scales up in sales or in size, the task of monitoring becomes more important. Monitoring operations requires management oversight, employee feedback and customer reviews. Improving the operations requires analyzing collected data to identify the underlying problems and to find resolutions.

What is Operational Reporting?

Operations management is a branch of management that involves the procedures of producing and redesigning of goods and services. Operational reporting is a reporting procedure about the operational details that present the team's current activity. It aims to support the daily activities of the organization.

Who does Operational Reporting?

Business teams do operational reporting, including the members of the team. Even business leaders can do operational reporting in case they need to provide information and updates to their lead superiors. In addition, the team secretary is usually designated to generate an operational report. There are also times in which the chief executive officer needs to provide an operational report to business affiliates.

Why do people do Operational Reporting?

Business teams do operational reporting in several reasons.

First, doing operational reporting helps business teams, members, and leaders to become updated with information, which makes them aware on the team's status and progress. They will also know the team's achievements and issues, along with the team's future plans, strategies, actions, and evaluation.

Another reason why business teams do operational reporting is the help the report provides them in the future. With the information inculcated in the report, team members, leaders, and affiliates will be able to compare data, analyze them, yield inferences and conclusions, as well as make rational decisions, which will help them reach their individual and group goals.

Operational reporting can also present urgent information, whether new or corrective, which can help the team adjust their future plans, strategies, and actions.

How to do Operational Reporting / Ways to do Operational Reporting

Operational reporting involves essential information on the undertakings, routines, standing, and development of the management team and the project itself.

In doing operational reporting, team members have to include factual, complete, accurate, and updated information. These elements serve as pillars to a good report, which allows team members, leaders, and affiliates to be informed on the team's standing and development.

The team should also include points, such as achievements and issues, as these also help the team members and leaders to navigate the team's performance, allowing them to reach their goals. The team's accomplishments will reflect the team's strengths and capabilities and can also inspire and motivate team members. The issues experienced by the team, whether actual or potential are included in the operational report, for the team to talk about possible ways to resolve or prevent problems.

Advantages of doing Operational Reporting

Operation reporting is advantageous to the management team for the following reasons.

Communication is one advantage of operational reporting. A strong channel communication allows the team and its members to function independently in any setting. Without communication, the team will not

be able to know if there are concerns or issues coming from other members of the team.

Including the team's achievements and strengths helps the team to be inspired and motivated in doing their tasks. In addition, the team's accomplishments will help the team grow stronger, making them more productive and able to reach their goals.

The issues and concerns that are inculcated in operational reporting are also included in the report. These inclusions will help the team prioritize various issues in the team, sort them to categories, and discuss ways to solve actual problems and prevent potential problems.

Disadvantages of doing Operational Reporting

While operational reporting can be advantageous in a number of ways, there are also times in which it can be a disadvantage to the team.

First is the cost operational reporting brings to the team, especially start-up teams or businesses. These teams do not have adequately high funds yet and doing the operational report can add to their expenses.

Another issue in doing reports is the use of the power of the internet in sending the report. While using the internet enables the team members to send and receive information and updates in reports in just one click, poor and absent internet connectivity also hampers them from doing so.

Doing reports is viewed as tedious and time-consuming. Some members of the team, especially those who already have lots of tasks and responsibilities, view it as an additional task that will consume their time allocated in doing their regular tasks.

Best Practices for doing Operational Reporting

Management reporting helps team members, team leaders, and affiliates to become completely informed, updated, and aware on the status and progress of the team and the project.

Team members and leaders should ensure that the information is complete and accurate when doing operational reporting. It is because the

information and updates in the report will serve as the basis or foundation of the team's future activities, such as planning, strategy making, action implementation, and outcome evaluation.

Organization is another trait of a good operational report. In doing operational reporting, the team can use headings and sub-headings in order to let the readers know the contents of the report once they scan it. These will also guide the readers as they read the report itself. In addition to headings and sub-headings, the team can also use bullet points in presenting information, especially critical ones, as these help readers locate main points in the report.

Important information in the report can also be written in bold, italics, or underlined. This puts emphasis on important details that the team member or team leader needs to convey to the team. Also, team members and leaders will be able to easily locate the salient points in the report. However, complete understanding of the report will be possible.

In order to ensure that the report contains accurate information, team members and leaders should also verify the content of the report. Errors identified should be promptly corrected, for the team not to formulate plans, strategies, and actions.

Quantitative data can also be indicated in the operational report. The team members and leaders can present such data using tools, such as tables, graphs, charts, and diagrams. These tools are far more efficient in showcasing numbers and figures, as opposed to narrative approach.

How to do Operational Reporting with Team reporter

Teamreporter is a business reporting application used by teams to reduce the number of status meetings. It is possible through the schedule report mails that the application sends to the team members. Teams with up to four members can use the application for free and signing up for an account is just fast as one, two, and three.

Teamreporter's interface is automated and easy to use, enabling team members and leaders to easily send and receive information and updates to and from other members of the team. Teamreporter will send them e-

mail notifications, asking them to send information or updates, such as their problems, accomplishments, and plans. After receiving the member's responses, Teamreporter will generate a data summary, which will be sent to the team the day after.

Flexibility is one of Teamreporter's assets, making it a valuable help in the team's arsenal. Team members and leaders can change the questions in Teamreporter's interface, allowing the team to solicit specific information from the members and leaders. Teamreporter's scheduled report mails can also be modified, along with the list of members who will receive the report and the list of members who need to send reports.

Team leaders can also use Teamreporter in securing an oversight of the status and progress of the team and the project. They can also identify the members who perform well, aside from those members who need further help. Also, the data in Teamreporter's report can be used team leaders when they evaluate teams and members, in addition to making their report and training modules.

Alternatives to Operational Reporting

While operational reporting can be helpful to the business team, there are some other alternatives that the business team can take into account when it comes to operational reporting..

E-mail reports and updates are some alternatives the team can use in doing operational reporting. These utilize the power of the internet, allowing team members and leaders send pertinent information updates about the team's status and progress to the team. This allows easy and fast dissemination of information to the team. However, poor or absent internet connection will disable the team from sending reports.

Status meetings can be done by the team in place of operational reporting. These meetings are quick in nature, but they allow the team members and leaders to become informed and updated on the team's status and problems. Also, status meetings give no issue to teams, like the startup teams. However, virtual teams cannot do live status meetings, as their members are dispersed in different locales and time zones.

HOME ASSIGNMENT:

1. List down the members included in team for commissioning of donor funded building project in Far-Western Region of Nepal. Write down the activities involved in commissioning procedures for building project.
2. Define project start-up and needed preparation for project start-up. Explain about project start-up process of any project in which you are more familiar.
3. How you differentiate between project commissioning & project start- up. Explain various activities involved in project commissioning of bridge structure along a district road project from Beni to Mustang sector that was constructed by technical team of Nepal Army.
4. How you prepare commissioning team and how you make procedure for it? Describe as third party commissioning Agent.
5. Discuss various activities of construction project to be carried out during Project start up and commissioning.