Project Management Fundamentals for Telecommunications Projects
Project – A temporary endeavor undertaken to create a unique product, service or result

Project Management – the application of knowledge skills, tools and techniques to project activities to meet project requirements.
**Project Manager**—the person in overall charge of the delivery of a particular project
How the client described the project
How the PM understood the project
How the architect designed the project
How the engineers designed the project
How the contractors constructed the project

How the project was documented
How the client was invoiced
How the project was supported
What marketing advertised
What the client really needed
Processes performed to define a new project or a new phase of an existing project by obtaining authorization to start the project or phase

Processes required to establish the scope of the project, refine the objectives and define the course of action required to attain the objectives that the project was undertaken to achieve

Processes performed to complete the work defined in the PM plan to satisfy the project requirements

Processes required to track, review and regulate the progress and performance of the project

Processes performed to formally complete or close the project contract
<table>
<thead>
<tr>
<th>5 PM Process Group</th>
<th>Initializing</th>
<th>Planning</th>
<th>Executing</th>
<th>Monitoring &amp; Controlling</th>
<th>Closing</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 Knowledge Areas</td>
<td></td>
<td></td>
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<tr>
<td>P Integration M</td>
<td>Develop project charter</td>
<td>Develop PM Plan</td>
<td>Direct project work</td>
<td>Monitor and control project work</td>
<td>Close project or phase</td>
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<tr>
<td>P Scope M</td>
<td>Plan Scope M, collect requirements, define scope &amp; create WBS</td>
<td>Plan Schedule M, define activities, sequence activities, estimate duration and develop schedule</td>
<td>Validate scope, Control scope</td>
<td></td>
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<tr>
<td>P Schedule M</td>
<td>Plan Schedule M, define activities, sequence activities, estimate duration and develop schedule</td>
<td></td>
<td>Control schedule</td>
<td></td>
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<tr>
<td>P Cost M</td>
<td>Plan cost M, estimate costs &amp; determine budget</td>
<td></td>
<td></td>
<td>Control costs</td>
<td></td>
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<tr>
<td>P Quality M</td>
<td>Plan Quality M</td>
<td>Manage Quality</td>
<td></td>
<td>Control quality</td>
<td></td>
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<tr>
<td>P Resource M</td>
<td>Plan Resource M &amp; estimate activity resources</td>
<td>Acquire resources, develop team &amp; manage team</td>
<td></td>
<td>Control resources</td>
<td></td>
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<tr>
<td>P Communications M</td>
<td>Plan Comm M</td>
<td>Manage communications</td>
<td></td>
<td>Monitor communications</td>
<td></td>
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<tr>
<td>P Risk M</td>
<td>Plan Risk M, identify risks perform qualitative &amp; quantitative risk analysis</td>
<td>Implement risk responses</td>
<td></td>
<td>Monitor risks</td>
<td></td>
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<tr>
<td>P Procurement M</td>
<td>Plan Procurement M</td>
<td>Conduct procurements</td>
<td></td>
<td>Control procurements</td>
<td></td>
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<tr>
<td>P Stakeholder M</td>
<td>Identify stakeholders</td>
<td>Plan Stakeholder M</td>
<td>Manage stakeholder engagement</td>
<td>Monitor stakeholder engagement</td>
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</table>
Project Charter – the document issued by the project sponsor that formally authorizes the existence of a project and provides the project manager with the authority to apply organizational resources to project activities.

**Inputs**
- Business Case
- Enterprise environmental factors (conditions not under the immediate control of the team) that influence, construction or direct the project
- Organization process assets (plans, policies, knowledge bases that are specific used by the performing organization)

**Tools & Techniques**
- Expert judgement
- Data gathering (focus groups, checklists)
- Interpersonal and team skills
- Meetings

**Outputs**
- Project Charter
- Assumption Log
Work Breakdown Structure (WBS) – A hierarchical decomposition of the total scope of work to be carried out by the project team to accomplish the project objectives and create the required deliverables. Each descending level of the WBS represents an increasingly detailed definition of the project work.

Critical Path (CP) – The sequence of activities that represents the longest path through a project, which determines the shortest possible duration.
Project Delivery Methods

• Design-Bid-Build (DBB)
• Construction Management (CM)
• DB (Design-Build)
• P3 (Public-Private Partnership)
• IPD (Integrated Project Delivery)
DBB

- 2 contracts
- Linear process
- Control of design
- Low compliance bidding
- C & SCs has no input
- O responsible for changes
- Multiple contracts
- Linear process
- Early involvement from Cs
- Cost effective bidding
- Exposure of CM’s lack of proper oversight
- O responsible for cost changes
• 1 contract
• Constructability input during the design process
• Single point of contact
• Cost effective, Fast delivery
• O is pushed for early decisions
• O needs to manage on quality
PPP

- 1 contract + ongoing operation
- Constructability input during the design process
- Single point of contact
- Cost effective, Fast delivery
- O is pushed for early decisions
- O needs to manage on quality
IPD

- Team approach
- Team culture is equal in importance to owner goals
- Responsibilities are shared
- Cost effective, Fast delivery
- Pre-established relationship
- O needs to manage on quality
How costs work

$Profit

Contingency

Indirect Costs

Rent
Utilities
General Office expense

Direct Costs

Direct Labor
Direct Materials
Manufacturing supplies
DBB, CM, DB, PPP: Project team can work to keep project positioned for success but many forces act to disturb the equilibrium

IPD: Many forces to keep project positioned for success
TARGET COST = $100M

- Target
- Actual == Target
- Actual ~= Target
- Actual > Target
- Actual < Target

- $20M
- $20M
- $10M
- $30M

$80M
$80M
$90M
$110M
$60M
~new 10,000sqm airport terminal + 4,500sqm service building

~$300M

~450 data drops
• New regional general hospital
• $650M
• 15ORs, 108 IPRs
• 55,000 sqm
• 5800 data drops

9.2 Work area density

Table 1 illustrates the recommended telecommunication outlet/connector densities of the work areas based on the function at that location. While this is not an exhaustive list, it does represent the majority of the application-specific areas and spaces found in healthcare facilities. Further, as the names, functions and areas are not defined by any standard, each facility may have different nomenclature than listed here, so a reasonable review to compare functions and descriptions may be necessary to select the appropriate work area cabling density.

In Table 1, each area classification is listed with representative related spaces. Each space is listed with its associated “cabling services”, which refers to the relative cabling density of that work area location. The densities are defined as a range. Since adding horizontal cabling or outlets after initial construction can be complex and disruptive to the facility, the designer should select a number between the midpoint and upper end of the range if no other guidance or direction is provided.

a) \( L = \) Low: 2 to 6 outlets in each area
b) \( M = \) Medium: 6 to 14 outlets in each area
c) \( H = \) High: > 14 outlets in each area

<table>
<thead>
<tr>
<th>b) Surgery/Procedure/Operating Rooms</th>
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<tbody>
<tr>
<td>Patient Prep</td>
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<tr>
<td>M</td>
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<table>
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<tr>
<th>c) Emergency</th>
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</thead>
<tbody>
<tr>
<td>Ambulance Bay</td>
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<tr>
<td>L</td>
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</table>
• New 25,000 sqm general hospital

• 72 inpatient beds and 44 universal care beds along with operating rooms, diagnostic imaging, lab, pharmacy, dialysis, and administration space.

• ~$125M

• ~2500 data drops

• GPON
INTEGRATED PROJECT DELIVERY
An Action Guide for Leaders
Thank you