



ASSUMPTIONS: WHY ARE THEY IMPORTANT IN PROJECT MANAGEMENT

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Abstract

In project management, assumptions are statements or factors that are true, real, or certain for planning purposes, even though they may not be confirmed or guaranteed. Assumptions are essential for developing project plans, estimating timelines, and making decisions, but they come with a level of uncertainty. Assumptions are hypotheses or suppositions about conditions, events, or uncertainties that affect the project. Assumptions in your study are somewhat out of your control, but if they disappear your study would become irrelevant.[1]. They are often based on incomplete information or future events that are beyond the project manager's control. In this paper, we will understand the impact of assumptions on project planning, quantify the degree of assumptions, and how they will impact on project plan. The article also provides a real-life example of how the assumptions can be tracked effectively during project planning and project execution. Assumptions can be dangerous if they are not evaluated correctly with the correct degree of measure. Almost every project is initiated with some basic assumptions, which potentially decide the direction of the project. Based on my experience, in project management, unfortunately, assumptions are overlooked for their importance. A project can fail or will unrest if the assumptions are not taken into consideration from time to time. This paper also explains the technique to deal with project assumptions.

Key words - Project Management, Assumptions, Project plan, WBS, ACDL

I. INTRODUCTION

Assumptions are made to proceed with planning and decision-making in the absence of complete information. They help set the foundation for project plans and enable project managers to move forward with certain expectations. Project managers, along with the project team and stakeholders, should actively identify assumptions. These can be related to project scope, resources, timelines, dependencies, external factors, and more. You cannot just state that these are the assumptions you are making. Instead, you must justify that each assumption is “probably” true, otherwise the study cannot progress [1]. Throughout the project, assumptions



should be validated or confirmed as more information becomes available. If an assumption is proven false, the project plan may need to be adjusted accordingly. Assumptions is a key component of managing uncertainty in projects. Recognizing and addressing assumptions helps project managers anticipate risks and proactively manage them.

Along with other factors like scope, budget, quality, and time, the success of the project also depends on how ACDL (Assumptions, constraints, dependencies, and Limitations) are managed effectively. Normally most of the project managers are highly involved and engage their efforts in managing the risk as an outside factor but at the same time assumptions also need to be managed proactively. I believe the best way of managing anything is to quantify the magnitude and then track it to the closure. Before quantifying them, they must be categorized, attributed, and analyzed for impact. As assumptions are validated or proven false, project managers may need to adjust plans, communicate changes, and adapt strategies to address the evolving project landscape. Project managers should communicate assumptions to relevant stakeholders, ensuring that everyone is aware of the underlying expectations and uncertainties. To have them as part of an effective communication plan they need to be in countable format so that informed decisions can be made. Assumptions are not static; they should be reviewed and updated regularly throughout the project's lifecycle to reflect changing circumstances and new information. Effectively managing assumptions contributes to improved project planning, risk management, and overall project success by ensuring that decisions are based on a realistic understanding of the project environment. These papers collectively illustrate the diverse impacts that assumptions can have on various aspects of a project, from healthcare, medical, research and statistical study to software management.

II. HOW CRITICAL ASSUMPTIONS ARE?

Critical assumptions play a vital role in project management, influencing various aspects of the planning, execution, and success of a project. Understanding the criticality of assumptions is essential for project managers and teams.

How do assumptions play a critical role in project management? How can they impact the success of the project? or in general how the assumptions can be a game changer. This topic explains some of the areas where assumptions are critical functions. In one of my experiences, a few years back I was managing a large-scale healthcare technology and vendor transition project. The project was an estimated budget of 20 million, starting with assumptions - "This project assumes the CMS will provide legal approvals to XXX for their newly launched health plans in October, in order to start the plan services with an effective enrollment period starting December". This was a huge, critical assumption and external dependency that the project kick-started in February. Somewhere in early October, when the due date for the assumptions approached, the project was put on hold for a week until the legalities of these assumptions were complete.

There are stages where Assumptions started entering into the project. The assumptions captured in the beginning have a great influence on the scope of the project. Not managing these assumptions effectively can misdirect the project and even change the objective of the project.



Let's try to assess this assumption based on the below minimum necessary attributes of assumptions:

Assumption Attribute		Example
1	Assumption ID	24
2	Assumption Description	This project assumes the CMS will provide legal approvals to XXX for their newly launched health plans in October, in order to start the plan services with an effective enrollment period starting December
3	Source of Assumption	Legal Services
4	Assumption Category	External- Regulatory
5	Probability of Occurrence	HIGH -100 %
6	Effective Date of Assumption Impact	Inception- February 20xx
7	Criticality Rating	HIGH-10
8	Impacting Critical Path?	YES
9	POC for Assessment	Mr Brenon Hedge
10	Current Status	Review

Table. 1. Attributes of Assumptions with example

In addition, the #4, Assumptions category explains the influential nature of assumption and control characteristics, the probability of occurrence is very important as it defines the probability of change in the project plan based on the percentage of occurrence. In this case, columns #5 and #7 clearly indicate the project may be at risk or need plan B if assumptions are proven false. The column #8 serves a special purpose; it tells us that assumption has an impact on the project task which is on a critical path. The critical path is a sequence of stages



determining the minimum time needed to complete a project. This signifies, the criticality of the assumptions because the change in critical path impacts the project timeline, so budget or cost.

Assumptions are crucial in statistical and data studies because they form the basis for statistical methods, analyses, and interpretations. Understanding and appropriately handling assumptions are essential for ensuring the validity and reliability of statistical results. Most of the statistical hypotheses are based on some assumptions, having the wrong assumption will disapprove the hypothesis. Many statistical tests are based on specific assumptions about the data. Violating these assumptions can lead to inaccurate results and interpretations. Ensuring that the underlying assumptions are met enhances the validity of statistical tests. Understanding assumptions helps researchers choose statistical methods that are appropriate for the characteristics of their data. Assumptions impact the performance of statistical models. Violations of assumptions can lead to biased parameter estimates and inaccurate predictions, affecting the overall performance of the model.

Medical errors are a serious problem in healthcare. Misunderstanding anywhere in the healthcare system can lead to patient complications, even death. Our medical professionals need to be aware of incorrect assumptions that can compromise the process of making accurate, reasonable treatment plans and carrying out those plans [2]. Calling out assumptions in your care plans can help medical associates to treat the patients. In one of her book Ruth Tarantine mentioned, that her mother could have had permanent hearing loss if assumptions had not been challenged by her. She continued, at one of the LTAC facilities, her patient's mother suffered acute hearing loss. The nursing staff assumed it was because of the age factor and said, "Normal hearing loss can occur over a period of time". However, after Ruth's persistent follow-up and comprehensive assessment, the audiologist identified this assumption is wrong and her hear loss could be treated. Here one wrong assumption could have made one person deaf for their whole life.[10]

A prevalent assumption in the PBM industry is that PBMs, due to their large customer base, have substantial negotiating power with drug manufacturers. This leverage is believed to enable PBMs to negotiate lower drug prices, which in theory should lead to cost savings for both health plans and patients. This assumption underpins the value proposition of PBMs, suggesting that by pooling the purchasing power of numerous beneficiaries, they can negotiate more effectively than individual health plans or pharmacies could on their own. It's assumed that these negotiations result in rebates and discounts from pharmaceutical companies, leading to lower overall healthcare costs.

In summary, assumptions are an essential part of research, management, academic study, science, and every area.

Assumptions should be identified, assessed, and treated if possible before they turn out to be false.



III. TRACKING AND MANAGING ASSUMPTIONS EFFECTIVELY

Managing assumptions effectively is crucial for the success of any project, as unrecognized or poorly managed assumptions can lead to unexpected outcomes and project failure. Normally every project since inception should start identifying the assumptions and create a dedicated assumptions log where all assumptions are recorded, described in detail, and easily accessible to all stakeholders. Organize assumptions based on their impact and likelihood, which helps in prioritizing them for validation and review. For each assumption, assign an owner who is responsible for validating it and ensuring it's up to date. Schedule regular reviews of the assumptions log to verify the validity of assumptions throughout the project lifecycle. Treat assumptions as potential risks and integrate them into the project's risk management process. Share the assumptions log with all team members and stakeholders to ensure transparency and collective understanding. The Below diagram explains the relationship between the different entities of the project plan.

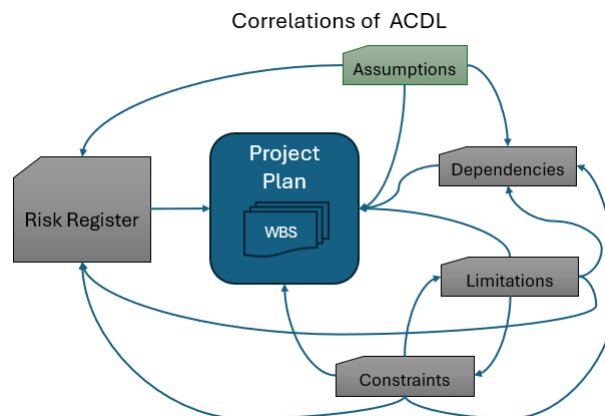


Fig 1: Correlations between the assumptions, constraints dependencies, limitations and project plan WBS

Most of the time assumptions create dependencies as an action item for assumptions. Some assumptions are unique, and they can only be tracked to the end of their lifecycle. Some assumptions are treatable or spawn dependencies. Dependencies can be internal or external. Depending on the controlling factor and their resolution plan, they can produce risks also. So, the coefficient factor between assumption, dependencies, and risk is higher, so their impact on each other. Changes in the probability of occurrence and /or severity may impact many places. It is advisable to review and assess assumptions, dependency, and risk together. As the project progresses, update the assumptions log to reflect new information and decisions. Clearly map out how assumptions influence decision-making processes within the project. Develop contingency plans for critical assumptions in case they prove to be incorrect. Review the accuracy of past assumptions in completed projects to refine the process of assumption management for future initiatives. Assumptions support the development of project constraints



by providing a "best guess" outlook, which is then used to define the boundaries (constraints) of the project. For example, if a team assumes they'll have a certain level of staffing, they might constrain the project timeline to match that staffing level. Constraints often lead to the identification of limitations, as they outline the barriers within which the project must be delivered. For example, if a project has a fixed end date (constraint), the team's ability to extend the project due to unforeseen issues is limited. Limitations can lead to additional assumptions or constraints. For instance, if there are limitations in budget (limitation), the project team might assume they have to use less expensive materials (assumption) and therefore constrain the project to simpler solutions. Assumptions are made to move forward in the face of uncertainty, constraints are the non-negotiable 'rules' the project must adhere to, and limitations are the boundary conditions that define the space in which the project can operate. They all must be carefully managed to ensure that a project progresses with a clear understanding of its operational environment and potential road blocks. As mentioned above, the ACDL register is the running project document. Not only does it record the ACDL but also documents the interrelations between them.

One of the good practices for tracking and managing the Assumptions effectively, they need to document and track on project plan / WBS. As shown below, every WBS task that has ACDL direct impact should be linked to ACDL id.

TASK #	TASK	ASSIGNED TO	PROGRESS	START	END	ACDL #
3.1	Print "Welcome" letters in predefined format for attributed members	Content Team	0%	1-Oct	10-Oct	A1R10D6

Fig 2: a plan snippet shows how assumptions can be tracked by associating them with project task.

As you see Column "ASDL#", it shows Assumption A1, Risk #10, and Dependency #6 are linked to Task #3.1. This is indicative that the 3.1 task 'Print "Welcome" letters in a predefined format for attributed members' cannot be completed unless the associated risk and dependency are resolved. The associated assumptions also need to be marked as closed if it's not impacting any other project task that is pending.

Tracking assumptions in a project plan involves a systematic approach to record, validate, and monitor each assumption over the life of the project. Include the assumptions log in your risk management plan. Any assumption that is invalidated should become a risk and manage accordingly. Many project management tools have features that allow you to track assumptions, link them to tasks, and monitor their status throughout the project lifecycle.

Assumptions are the "bread and butter" of project management, assumptions are the only fundamental element a project can start without having a clear scope.



IV. CONCLUSION

Assumptions in project management are proposed conditions or facts that are taken to be true without proof at the time of planning. Their importance lies in enabling progress when faced with uncertainty. They provide a base to formulate strategies, allocate resources, and set milestones, allowing project managers to construct a viable project plan and roadmap. The primary reason for making assumptions are the absence of complete information. They fill the informational voids that naturally exist at the start of any project, where variables are numerous and not all data can be known or predicted. Effective management of assumptions is crucial. It involves identifying, documenting, and validating them throughout the project lifecycle. Regularly reviewing assumptions for accuracy and relevance helps mitigate potential risks associated with them. The advantage of well-managed assumptions is the ability to move projects forward decisively, avoiding paralysis by analysis. They can also spotlight areas requiring more attention, thus focusing on risk management efforts where they are most needed. However, there are disadvantages. Incorrect assumptions can lead to poor decision-making, resulting in project delays, cost overruns, and failure to meet objectives. Furthermore, over-reliance on assumptions without adequate validation may introduce significant risks. A balance must be struck, where assumptions are used as a necessary tool for progression but are continually challenged and tested to ensure they remain valid and aligned with the project's evolving context.

APPENDIX

ACDL - Acronym for Assumptions, Constraints, Dependencies and Limitations

ACDL Register - A project artifact which documents the early identified assumptions, dependencies, constraints, and limitations. This is a running document and updated with new findings.

WBS- Acronym for work breakdown structure, in project management and systems engineering is a deliverable-oriented breakdown of a project into smaller components.

Critical Path - The sequence of stages/task determining the minimum time needed for an operation, especially when analyzed on a computer for a large organization.



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