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Comparing Contracting Methods in Project Management

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1. Introduction

Project management means planning and controlling work by using the right skills, knowledge, tools, and methods to achieve project goals while staying within time, budget, scope, and quality limits. Contemporary literature emphasizes that projects increasingly operate in complex and uncertain environments, often involving multiple organizations and stakeholders. As a result, contracting has become a strategic decision that significantly influences project performance rather than a purely administrative function.

This essay critically examines four commonly used contracting methods in project management and construction: turnkey contracting, Mult contracting, do it yourself (DIY) contracting, and a hybrid approach combining Mult contracting with DIY. It explains how each method operates, evaluates their main advantages and limitations, and assesses their suitability for different project contexts. Particular attention is given to how contracting choices affect risk allocation, cost certainty, control over design and quality, schedule outcomes, and the level of project management capability required from the client.

Projects contract out work for several key reasons. Contracting enables access to specialized expertise that may not exist internally (Hughes and Champion, 2022). It can also shift risk by moving design and construction responsibilities to contractors, such as in turnkey or EPC contracts. (Samimi, 2024). Fixed-price contracts may improve cost predictability (Ahmed and El-Sayegh, 2020), while outsourcing can help clients manage large and technically complex projects more effectively (Ashkanani and Franzoi, 2022). Ultimately, contracting strategies are selected to align with organizational capabilities, resources and risk appetite (Li et al., 2025; Sarvari et al., 2021).

2. Contracting in Project Management: Background

Project delivery and contracting methods have evolved from traditional design bid build models to a wider range of arrangements, including design build, EPC/turnkey, public–private partnerships and collaborative approaches (Ahmed and El-Sayegh, 2020). These methods differ in how responsibilities for design, construction and risk are distributed between clients and contractors, significantly influencing project cost, schedule and change performance (Choi et al., 2021).

Recent studies argue that contracting selection should be treated as a configurational decision, where project complexity, risk, time pressure and client capability interact to

determine suitable delivery options (Li et al., 2025). For instance, complex infrastructure projects such as water and wastewater schemes often require multi criteria evaluation of contracting methods, balancing cost, risk, flexibility and stakeholder requirements (Sarvari et al., 2021). Research on megaprojects further shows that misalignment between project complexity and contracting strategy is a common cause of delays, cost overruns and disputes (Ashkanani and Franzoi, 2022; Lafhaj et al., 2024).

Within this context, the four contracting methods examined in this essay form a continuum, ranging from fully integrated turnkey solutions to multicontracting and DIY approaches, with hybrid models combining elements of both internal delivery and external contracting.

3. Turnkey Contracting

3.1 Definition

In a turnkey arrangement, a single contractor (often an EPC contractor) is responsible for delivering a complete, operational facility so that the client can “turn the key” at handover and start using the asset. The contractor usually undertakes design, procurement, construction and commissioning under one contract, often with a fixed price and clear performance specifications (Viitanen, 2021; Amirtash et al., 2021; Kömürlü, 2023). Turnkey is widely used in energy plants, oil and gas facilities, water treatment plants and other industrial or infrastructure projects where the output can be defined in advance (Ahmed and El-Sayegh, 2020).

3.2 Advantages

Evidence suggests that turnkey/EPC contracting can provide high cost and schedule predictability, especially when the scope is stable and the contractor has strong capabilities (Choi et al., 2021; Kömürlü, 2023). The client has one point of accountability, which simplifies coordination and can reduce transaction costs associated with managing multiple contracts (Hughes and Champion, 2022). Turnkey also lowers the requirement for in house technical resources, because the contractor integrates design and construction and manages most interfaces (Amirtash et al., 2021). In PPP contexts, similar integrated contracts are used to allocate construction and performance risks away from the public authority (Rasheed et al., 2022).

3.3 Disadvantages

However, several studies indicate that turnkey contracts may reduce client control over design choices and implementation details, which can be problematic when user requirements change or when innovation from the client side is important (Ahmed and El-Sayegh, 2020; Hall and Bonanomi, 2021). Change requests under fixed-price turnkey agreements are usually costly and time consuming, which can make projects less flexible in dynamic environments (Choi et al., 2021). There is also a concentration of risk in a single

contractor: poor performance, underpricing at bid stage or strategic behavior can have serious consequences for time, cost and quality (Samimi, 2024; Rasheed et al., 2022). In megaproject settings this single dependency may be especially challenging because complexity and uncertainty are high (Ashkanani and Franzoi, 2022; Lafhaj et al., 2024).

3.4 Suitable Project Types

Turnkey seems most appropriate where the client can specify clear output performance and where the scope is relatively stable over the project life cycle. Typical examples include power plants, water and wastewater treatment facilities, and industrial process plants, where the technology is mature and the owner wants limited day to day involvement during delivery (Amirtash et al., 2021; Sarvari et al., 2021). It may also suit public clients with limited internal project management capacity who want high predictability and are willing to pay a premium for risk transfer (Rasheed et al., 2022).

4. Multicontracting

4.1 Definition

Under a multi-prime contracting approach, the client enters into individual agreements with multiple contractors or suppliers, with each one handling a specific section of the project. The client, or a construction manager acting on its behalf, coordinates interfaces, schedules and technical integration. Instead of one main contractor, the project is delivered through a network of separate contracts (Hughes and Champion, 2022; Orango et al., 2024).

4.2 Advantages

Mult contracting may offer greater control over design, quality and scope because the client can choose and manage each specialist contractor. This structure can reduce overall cost by avoiding the margin added by a single main contractor and by using competition between multiple firms (Hughes and Champion, 2022; Osifo, n.d.). A recent study on large road construction projects in Kenya suggests that multi-prime approaches can improve performance when the client has strong leadership and integrates the work effectively (Orango et al., 2024). Mult contracting also increases flexibility to replace underperforming contractors or to add new packages as the project evolves.

4.3 Disadvantages

The main drawback is the high coordination burden placed on the client. The owner must manage technical interfaces, programme integration and dispute resolution across many contracts, which requires significant project management skills and resources (Hughes and Champion, 2022). If this capability is weak, the risk of delays, claims and cost overruns increases (Orango et al., 2024). Interface problems between packages can be difficult to allocate contractually, leading to gaps or overlaps in responsibilities. Administrative workload is also higher because more contracts must be tendered and managed.

4.4 Suitable Project Types

Mult contracting appears suitable where the client has strong internal project management capability and wants high control and customization. It can work well in complex, multi-phase projects such as IT systems integration, building refurbishments and infrastructure upgrades where different technical systems must be coordinated (Sarvari et al., 2021; Hall and Bonanomi, 2021). It may also be attractive in markets with a diverse pool of capable specialist contractors, allowing the owner to select “best in class” suppliers for each work package.

5. Do It Yourself (DIY) Contracting

5.1 Definition

Under a DIY or in house model, the client organization performs most project activities itself using internal staff and resources. External contracts are used only for specific materials or highly specialized tasks. In this sense, DIY can be seen as an extreme case of internalization of project management and delivery (Holopainen, 2022). Some studies on DIY laboratories and innovation spaces also illustrate how organizations build internal capabilities and infrastructures instead of outsourcing them (Damoah and Botchie, 2021).

5.2 Advantages

DIY models offer maximum control over design, quality and scheduling because the owner is directly responsible for all key activities. There is potential for lower cost, at least in theory, because no margins are paid to a main contractor and the organization can use existing staff and facilities (Holopainen, 2022). In house delivery also supports knowledge development and learning, which may be important for organizations that expect to undertake similar projects in the future (Ciric Lalic et al., 2022). Where intellectual property or sensitive data are central, keeping work internal may reduce perceived risks.

5.3 Disadvantages

The main limitation is that DIY requires substantial internal resources and expertise. If the organization lacks certain skills, there is a risk of technical errors, rework or slow delivery (Holopainen, 2022). The owner also carries most of the financial and schedule risk. In public sector facility projects, for example, in-house delivery has sometimes struggled with capacity constraints and rigid procedures (Holopainen, 2022). In addition, DIY may not be economical when projects are large, infrequent or outside the organization’s core business.

5.4 Suitable Project Types

DIY seems more appropriate for small to medium projects that are closely aligned with the organization’s core expertise, such as internal facility upgrades or internal IT developments in technically advanced organizations. It may also be suitable when

protection of proprietary knowledge is critical, or when the organization aims to build long-term internal capability for strategic reasons (Holopainen, 2022; Ciric Lalic et al., 2022).

6. Hybrid Contracting: Mult contract + DIY

6.1 Definition

A hybrid approach combines elements of DIY and Mult contracting. The client performs some tasks internally often project management, design or certain construction tasks while outsourcing other, more specialized components through multiple contracts. The result is a blended procurement strategy where internal and external teams work together (Hughes and Champion, 2022; Snežana Rutešić et al., 2020).

6.2 Advantages

Hybrid strategies aim to balance control, cost and risk. Key activities that are strategically important or closely linked to organizational knowledge can be kept in house, while external contractors provide specialist skills, capacity or technology (Snežana Rutešić et al., 2020). This can reduce costs compared with full turnkey delivery and reduce risk compared with pure DIY, because complex packages can be allocated to experienced contractors (Sarvari et al., 2021). Hybrid models also offer high flexibility in selecting contractors, adjusting internal resource levels and tailoring the delivery model to project needs.

6.3 Disadvantages

However, hybrid approaches still require strong coordination and integration capability. Managing interfaces between internal teams and external contractors can be challenging, especially in complex projects (Snežana Rutešić et al., 2020; Hall and Bonanomi, 2021). If roles, responsibilities and risk allocations are not clearly defined, there may be disputes or gaps in accountability. In addition, the mixed structure can make governance more complex, as it is not always clear whether the internal or external party should take the lead in resolving particular issues.

Stakeholder Analysis Matrix

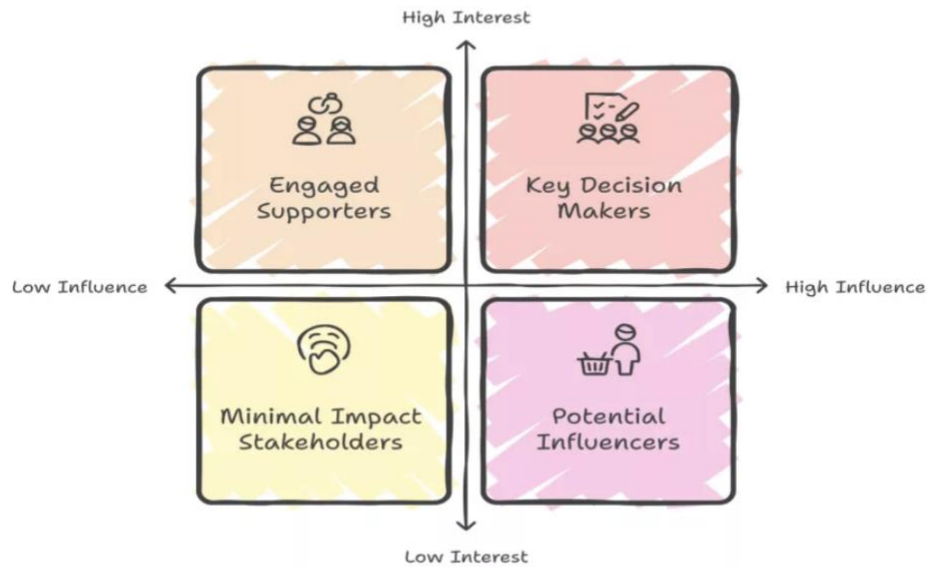


Figure 3. Stakeholder Influence/Interest Matrix for Multicontracting/Hybrid Projects

<https://www.6sigma.us>

6.4 Suitable Project Types

Hybrid contracting seems particularly suited to projects where customization and innovation are important, but where risk levels remain manageable. Examples include IT system rollouts where internal teams specify requirements and manage change while external suppliers develop and integrate software, or road and building maintenance programmes where internal units coordinate and supervise work carried out by multiple contractors (Snežana Rutešić et al., 2020; Hall and Bonanomi, 2021). Manufacturing system upgrades, where internal engineering teams work with specialist installation contractors, provide another example.

7. Comparative Evaluation of the Four Methods

7.1 Key Comparison Dimensions

Risk allocation. Turnkey and EPC contracts place most design and construction risk on the contractor, often reflected in higher contract prices (**Samimi, 2024**). In contrast, DIY retains risk with the client, while Mult contracting and hybrid approaches distribute risk between the owner and multiple contractors. Risk allocation is consistently identified as a key determinant in contracting selection (**Sarvari et al., 2021**).

Cost predictability. Fixed-price turnkey contracts typically offer higher upfront cost certainty, although variations may still lead to claims (**Kömürlü, 2023**). DIY and Mult contracting can reduce initial costs but increase exposure to cost overruns if coordination is ineffective (**Hughes and Champion, 2022**). Hybrid models combine fixed price elements with more flexible arrangements.

Control, capability and complexity. DIY and Mult contracting provide greater control and flexibility but require strong internal project management capability (**Holopainen, 2022**). Turnkey reduces client management effort but limits flexibility and may obscure interface risks (**Ahmed and El-Sayegh, 2020**). Hybrid strategies aim to balance control and complexity through selective outsourcing (**Ashkanani and Franzoi, 2022**).

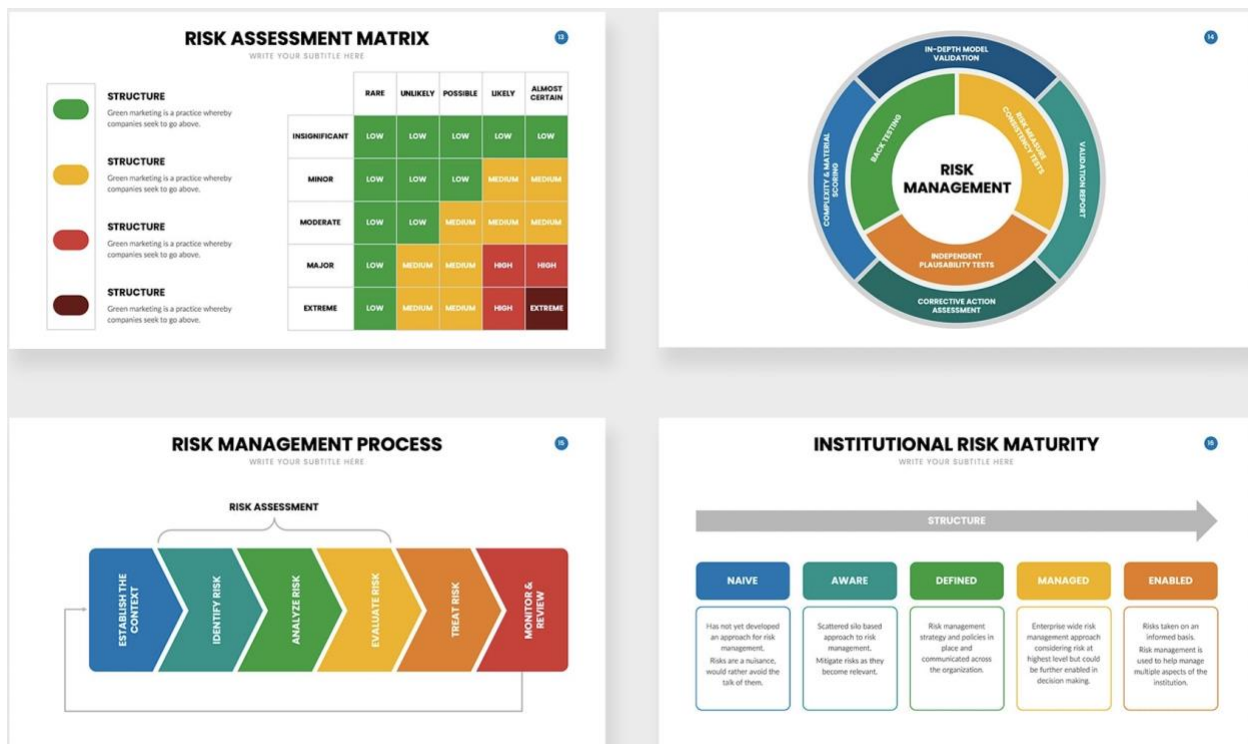


Figure 2. Sample Risk Register Comparing Contracting Methods

7.2 Scenario Illustration

In a municipal water treatment project, turnkey EPC may suit clients prioritizing cost and schedule certainty. Organizations with strong internal expertise may favor Mult contracting or DIY for greater control, while hybrid approaches combine in house design with specialist contractors for critical systems.

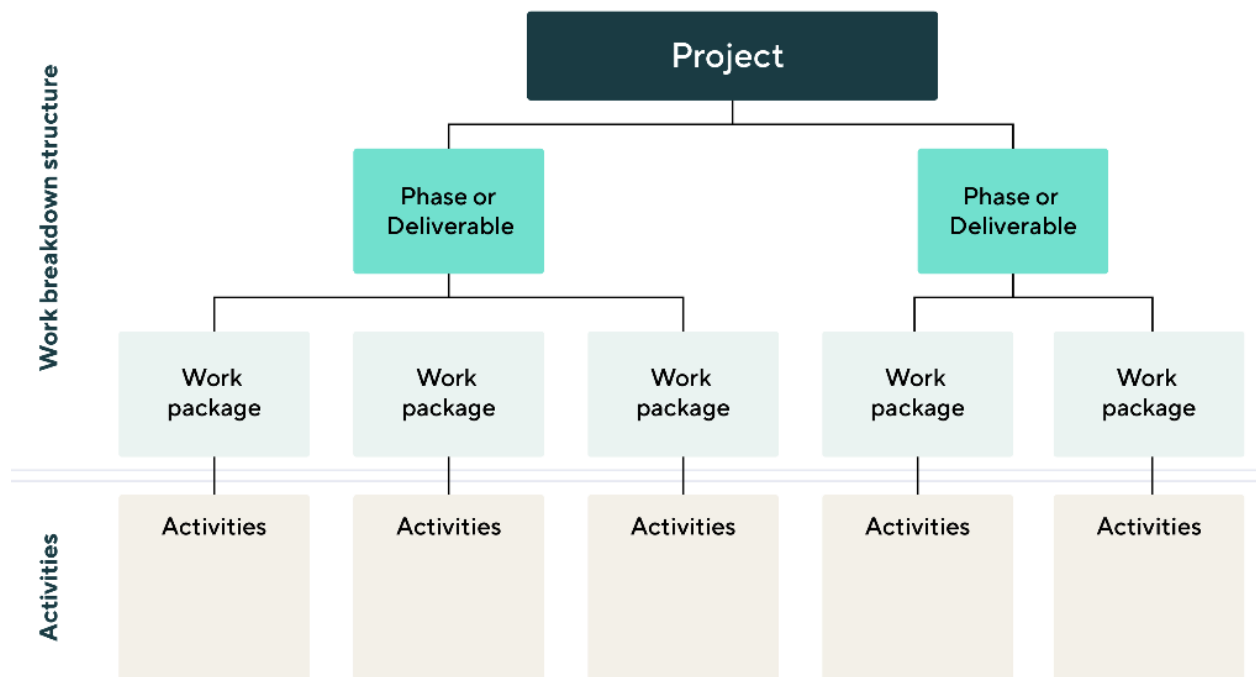
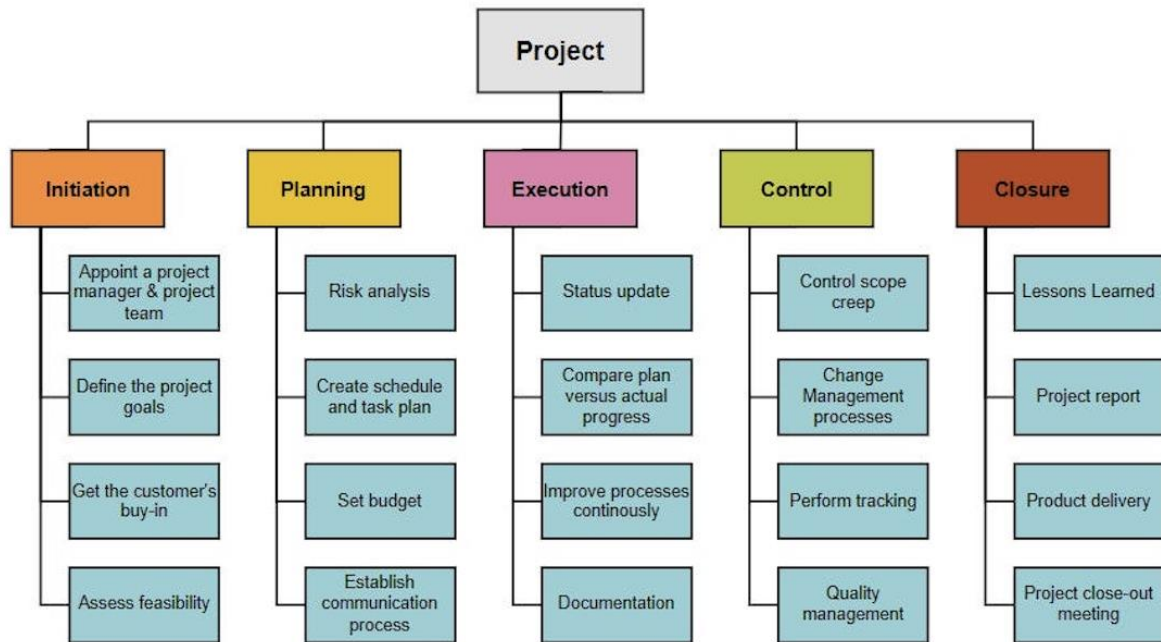


Figure 1: Example WBS showing major project packages and how turnkey vs multicontracting would allocate responsibilities.

One Page Construction Project Gantt Chart

This one pager shows a construction activity project gantt chart with details such as project name, project overview, project timeline, project gantt chart with tasks and timeline, project deliverables, estimated project costs etc.

Construction Project Name

CBZ Constructions Homes

Project Timeline

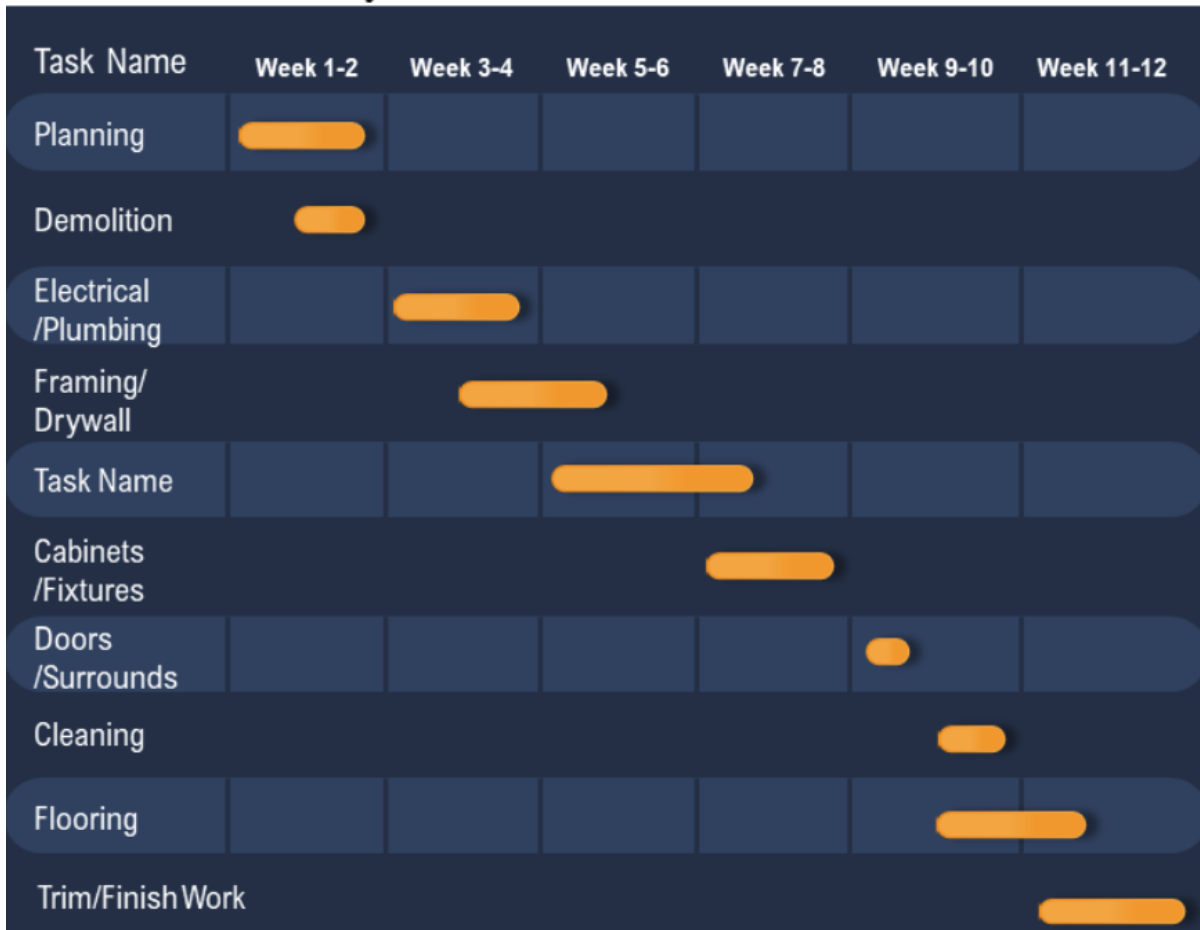
3 Months



Construction Project Overview

- ✓ CBZ Construction Company is to construct and build a home in XXXX Society for XXXX Client
- ✓ Text Here

Construction Project Gantt Chart Project Initiation Month - July for XXXXX Facility



Project Deliverables

- ✓ Project Management Plan
- ✓ Kickoff Meeting
- ✓ Media Plan
- ✓ New Facility Area Study
- ✓ Inventory Overview
- ✓ Land use Permit

Estimated Project Costs

\$ 25,000

8. Conclusion

This essay has analyzed four contracting methods turnkey, Mult contracting, DIY, and a hybrid multicontract DIY approach within contemporary project management. The analysis demonstrates that contracting selection is a strategic decision that directly affects risk allocation, cost certainty, design and quality control, and the level of capability required from the client organization (Hughes and Champion, 2022; Ahmed and El-Sayegh, 2020).

Turnkey contracting generally offers greater cost and schedule predictability through single point responsibility, but at the expense of flexibility. In contrast, Mult contracting and DIY approaches provide higher levels of control and potential cost advantages, while placing greater coordination and performance risks on the client and requiring strong internal project management capability (Holopainen, 2022; Orango et al., 2024). Hybrid strategies seek to balance these strengths and weaknesses by combining in house delivery of critical elements with external specialist contractors (Snežana Rutešić et al., 2020).

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