



Owner's Risks versus Control in Megaprojects

Megaprojects are faced with major risks that cause cost overruns, delays, and poor quality. Owners do their best to manage these risks and control all the phases of their new projects. These efforts are generally exercised in the project delivery method framework. Project delivery method refers to all the contractual relations, roles, and responsibilities of the entities involved in a project. The most common project delivery methods are: traditional Design-Bid-Build (DBB), Design-Build (DB), and Construction Management at Risk (CMR).

Owners have different approaches to risk management. Some owners are risk averse and require the contractors to assume all possible project risks. There are other owners who accept some risks to achieve lower costs and/or shorter durations for projects. To decrease the risk of cost overrun, the owners have two main options, transfer the risk or put more emphasis on planning and controlling. Project control is a major responsibility of the owner who is the ultimate responsible entity for successfully finishing the project. To accomplish this duty, the owner develops and incorporates control mechanisms in the project life cycle and hires consultants to help them with their duties. Some owners delegate a part of their responsibilities of controlling the project to other parties involved (the contractor or designer). Pessimistic owners who believe in Murphy's Law (if something can go wrong, it will) may prefer to direct the location and quality of every brick and nail. These owners select a delivery method that gives them the highest level of control. On the other hand there are owners who outsource major parts of their control over the design and almost all of it in the construction phase. They define the scope, prescribe their expectations, and let the contractor control the project's complexity and uncertainty. These owners usually have less in-house expertise and may not be willing to hire new personnel for running a project. The issue here is that less risks and more control over the project are not simultaneously achievable in a delivery method. Some delivery methods give more control over the project to the owner and emphasize on design completion before starting the construction, while some other delivery methods facilitate the transfer of risk to the contractor.

In the traditional DBB method, the owner controls the preliminary design as well as the final design and the project will go out for bid only with the owner's approval. One of the owner's main risks in this method is that they own the details of design and are responsible for any errors or omissions in the construction documents. DBB gives considerable responsibility to the owner in both design and construction phases. This may increase the risk of delay in projects where the owner is not staffed sufficiently to respond in a timely manner.

DB is a delivery method in which the owner contracts with a single entity for both design and construction. The "design builder" guarantees that the design is complete and free of error. This system is widely considered as an opportunity for transferring risk to the contractor. This transfer of risks also gives the power and responsibility to the DB contractor to have a better control over design and construction phases of the project. The alternative is decreased control of the owner over the project.



In CMR the construction manager is hired during the design phase mostly based on qualifications to help the project team with constructability issues and preconstruction cost and schedule estimates. The CM is at risk because it holds the trade contracts and often guarantees the maximum price of the project. Some owners may include a clause for liquidated damages and make the CM responsible for the time as well as the cost.

While the ideal delivery method is one that facilitates risk transfer and gives the owner a high level of control over the project, the state of practice shows that there is a tradeoff between risk and control. If a delivery method provides an opportunity for the owner to transfer the risk it will limit the owner's control over the project and vice versa. A sophisticated owner assumes more risks as a price to have thorough control over the project. This owner more probably does not select a delivery method which is mainly useful for risk transfer. Experience with similar projects and sufficient staff is required for the owner who intends to have better control over the project. For example, the decision makers of Hong Kong Transit Agency first used DB but as the employees gained experience, they moved to DBB and now they decide on the choice of delivery method for each project based on risk management and alternatives for design. If an owner has not fully defined the scope and needs to have more control over the project to change its direction, they should not choose a delivery method that "freezes" the project early, although it may transfer more risks to the contractor at the outset. Changes in scope in DB delivery method are usually more costly.

In conclusion, the tradeoff between risk and control is an important aspect for selecting the most appropriate project delivery method. Each owner should be aware of its implications before embarking on a new project.