



GLOBAL INFRASTRUCTURE

# Project Delivery Strategy: Getting It Right

KPMG INTERNATIONAL





# Foreword

In the current economic landscape, project owners are scaling down or eliminating capital construction projects due to lack of financing, uncertainty over costs, and concerns about potential delays that could impact the feasibility basis of projects. Owners sometimes take these actions without considering the wide range of project delivery methods that can successfully mitigate cost, scope, and schedule risks. This paper discusses the project delivery options available to owners and describes the factors that influence an owner's selection of one method over another. Armed with this knowledge, project owners can learn how the selection of appropriate project delivery methods can support their decisions to proceed with high-priority projects and programs.

We hope that you will find this publication insightful and its information useful in tailoring a project delivery strategy for optimum outcomes.

**Nick Chism**

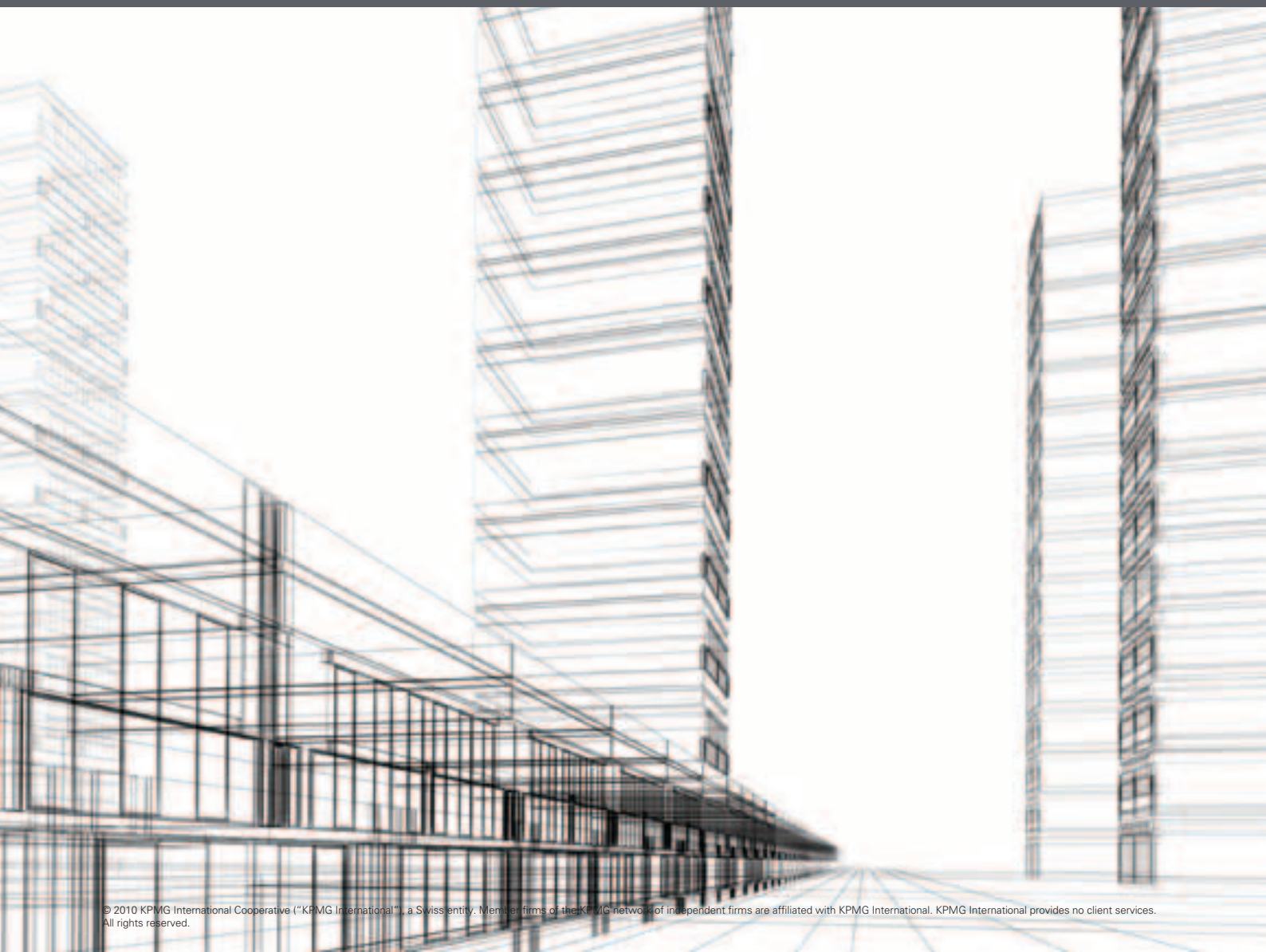
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## Applicability

- Power generation, transmission, and distribution
- Oil and gas production, transportation, and distribution
- Transportation networks (highways, bridges, tunnels, seaports, airports, railroads, and mass-transit)
- Health (hospitals, clinics, and emergency care facilities)
- Education (schools, offices, and dormitories)
- Sports arenas and facilities
- Art and culture (opera houses, museums, theaters, and cultural centers)
- Financial (banking, insurance)
- Communication facilities (telephone, internet, radio, television, cable, satellite)
- Water and wastewater
- Waste management (landfills, incinerators, and hazardous waste handling)



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**The appropriate delivery strategy will drive project cost, quality of design, construction, long-term maintenance, and project completion date.**



# Introduction



Developing a robust project delivery strategy can significantly affect the success of a large construction or infrastructure project. The appropriate delivery strategy typically drives project cost, quality of design, construction, long-term maintenance, and project completion date. Project owners planning large projects can improve their chances of success by performing a thorough assessment of the key objectives for the project and the delivery strategies available to execute it.

The spectrum of project delivery strategies ranges from those where the owners are fully involved to where their involvement is minimal. In practical terms for example, the strategies can vary from those where the owner is an active participant in the initial design phase through commissioning and operations to those where the owner has minimal involvement and relies on a turnkey contractor to coordinate all aspects of the project, including its long-term maintenance and operation.

The project owner's objectives and organizational characteristics dictate the available project delivery strategies. In all cases, the most appropriate delivery strategy will also depend on the specific project and circumstances — see Figure 1 below.

**Figure 1. Delivery strategies and decision factors**

		Delivery Strategies			
Is the project...		Traditional	Collaborative	Integrative	Partnership
Decision Factors	Large?	x	✓	✓	✓
	Complex?	x	x	✓	✓
	Subject to a High Risk of Scope/Design Change?	x	x	✓	✓
	Subject to High Interface Risk?	x	x	✓	✓
Does the owner...		Traditional	Collaborative	Integrative	Partnership
	Have Strong Project Management Resources?	x	✓	✓	x
	Have an Appetite to Share Project Risks?	x	✓	✓	x
	Have Requirements that May Evolve with Design Work?	x	✓	✓	x
	Require a Strong "Oversight" Role?	✓	✓	x	x
	Have a Pipeline of Other Similar or Identical Projects?	✓	✓	x	✓
	Need the Project Delivered Quickly?	x	✓	✓	x
Are...		Traditional	Collaborative	Integrative	Partnership
	Lifecycle Performance Optimizations Important?	x	x	x	✓
	Limited Number of Participants/Contracts Desired?	✓	x	x	✓

✓ The decision driver suggests that this procurement model is suitable

x The decision driver suggests that this procurement model may not be optimal

Source: KPMG International, Project Delivery Strategy: Getting It Right, 2010

Selecting the most appropriate project delivery strategy is only one of the many activities and decision points a project owner will face over the course of a major capital project. It is, however, one of the most important, affecting not only the project outcome but also the owner's internal management, support structure and the health of its relationship with all other project stakeholders.

The project owner's culture has a significant influence on the appropriate choices for project delivery strategy. The desire to understand and limit its risk by taking the project "one step at a time" might lead the project owner to select a more traditional approach. An active project owner with a "hands-on" approach, who doesn't mind sharing project risk in a transparent and open manner, is likely to be more comfortable with the collaborative and integrative models of project delivery. If the project owner works in an organization with stable needs that is looking for a solution that transfers project risks both in the short term and in the long term, it may choose the partnership delivery model.

Each project delivery method has advantages and disadvantages. This paper will focus on the factors a project owner should consider before selecting a project delivery strategy for a large capital construction or infrastructure project. The paper will explain how those selection factors can influence the timeliness, quality, and cost of a large project and encourage responsible stewardship over the long-term.

## Defining Project Delivery

There is no single industry definition for what constitutes *project delivery*. Project delivery is not only about the form of contract used to shift or share the risks inherent in a large capital project or the organizational structure of the project team. *Project delivery is about getting a quality project done — on time and on budget — and, more often, taking a life-cycle approach to make sure that the built asset is maintained over the long-term.*

This paper assumes that all of the mainstream delivery approaches currently in use can be placed into one of the following four categories:

- Traditional
- Collaborative
- Integrative
- Partnership.

The purpose for categorizing the delivery strategies in this way is to identify their similarities and explain their differences. Any of the strategies can potentially involve a fixed price, guaranteed maximum price, target price, or cost plus type of contract.

The industry has produced definitions of various project delivery methodologies — this paper has categorized some of these methodologies in Table 1. These labels have value in understanding the general structure and the roles and responsibilities of the primary players for delivering large-scale capital projects. However, even within the industry, there can be wide variations in application. For a more basic understanding of the project delivery strategies available to owners and the factors influencing their selection, we will avoid such labels in this paper where possible.

**Table 1. Project delivery strategies and project delivery methodologies**

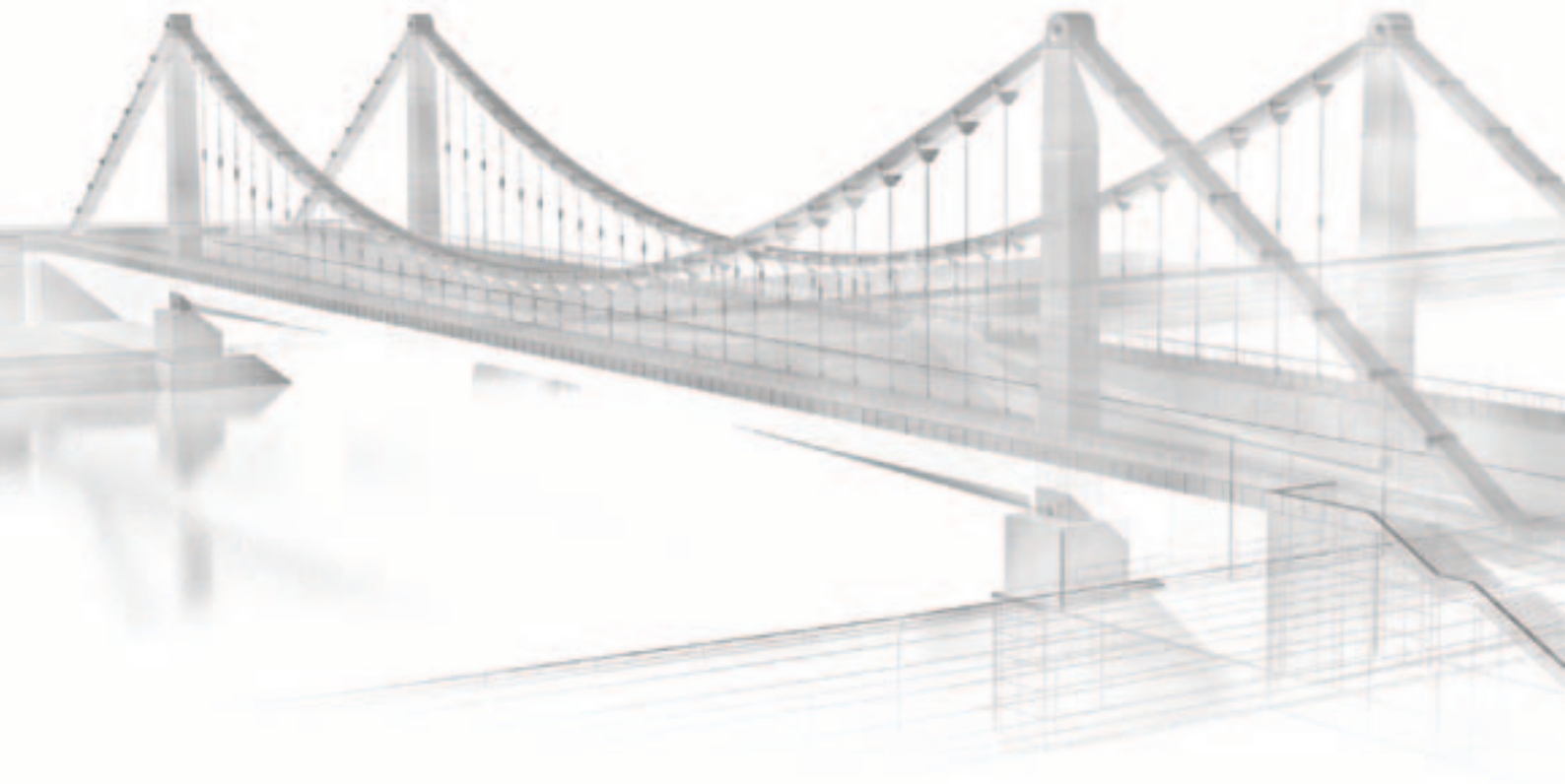
Strategy	Methodology
Traditional	<ul style="list-style-type: none"> <li>• design-bid-build</li> <li>• multiple prime contracting</li> </ul>
Collaborative	<ul style="list-style-type: none"> <li>• agency construction management</li> <li>• construction management at risk</li> <li>• design-and-build</li> <li>• engineering-procurement-construction</li> <li>• turn key</li> </ul>
Integrative	<ul style="list-style-type: none"> <li>• alliancing</li> <li>• partnering</li> <li>• integrated project delivery</li> </ul>
Partnership	<ul style="list-style-type: none"> <li>• build-operate-transfer</li> <li>• build-own-operate</li> <li>• build-own-operate-transfer</li> <li>• concession</li> <li>• design-build-finance-and-operate</li> <li>• private finance initiative</li> <li>• public private partnership</li> </ul>

Source: KPMG International, Project Delivery Strategy: Getting It Right, 2010





**The traditional model is fairly rigid and sequential, with construction following procurement, which can only be initiated after the completion of the design.**







# Project Delivery Strategies

Selecting the most appropriate project delivery strategy can have significant impacts on the cost, quality, and time for completing a large capital project and encouraging life-cycle maintenance.


The traditional model is fairly rigid and sequential, with construction following procurement, which can only be initiated after the completion of the design. The collaborative model allows for some overlap in the phasing of design and construction with all three parties — project owner, designer, and contractor — all involved at inception of the project. The integrative model builds upon the collaborative approach in that all three parties share project risks and are often linked through a common contract. The partnership model, used mostly in the public sector, involves the public and private sectors working together over a period lasting decades and puts life-cycle, maintenance, and operational considerations into a holistic framework. Table 2 provides examples of well known projects where these delivery strategies are being used currently or have been used previously.

**Table 2. Project delivery strategies and representative projects**

Strategy	Representative Project
Traditional	<ul style="list-style-type: none"><li>• Keystone Oil Pipeline Extension, Alberta to Oklahoma</li><li>• New York City Water Tunnel No. 3</li></ul>
Collaborative	<ul style="list-style-type: none"><li>• Singapore LNG Terminal</li><li>• Panama Canal Expansion Program</li><li>• New Doha International Airport, Qatar</li></ul>
Integrative	<ul style="list-style-type: none"><li>• Heathrow Terminal 5, United Kingdom</li><li>• Gorgon Gas Fields Development Project, Australia</li><li>• Sutter Health Capital Program, California</li></ul>
Partnership	<ul style="list-style-type: none"><li>• M25 Orbital, United Kingdom</li><li>• Kent County Council — Building Schools for the Future, United Kingdom</li><li>• State Highway 130, Texas</li><li>• New Royal Adelaide Hospital, Australia</li></ul>

Source: KPMG International, Project Delivery Strategy: Getting It Right, 2010

## Traditional Model



The traditional method of project delivery assumes that the project owner has completely and accurately defined the scope of the work through its design consultant and that a qualified contractor will be hired to construct the work. The project owner chooses a designer to develop the project requirements and to produce the drawings and specifications, which are intended to guide the contractor in executing the work.

The main contractor is responsible for construction. The construction agreement is often based on a firm fixed-price, and the general contractor receives periodic payments based on construction progress.

As time has proven, the traditional model breaks down when the design is incomplete or contains excessive errors and omissions. If the project owner is indecisive and makes numerous changes to the work scope (also known as “scope creep”), the main contractor’s ability to manage the construction phase becomes more difficult. The contractors often respond to these situations by requesting change orders and making claims for additional compensation. In the extreme, the parties become adversarial, which may lead to litigation or cost increases to both the project owner and the contractor.

## Collaborative Model

Partly in response to the high cost of litigation using the traditional model and partly because projects were becoming more complex, a collaborative project delivery strategy developed in the 1960s and 1970s. The collaborative model involved construction professionals in the early planning and design phases of the project and eased the barriers to communication that existed previously between the project owner and the main contractor.

One of the most well known collaborative project delivery approaches — design-and-build —involves the design consultant and the main contractor joining forces. By joining forces, the two parties can offer a “one-stop shop” to the project owner for delivering a large capital project under a single contractual agreement.

Project owners — particularly public owners of large infrastructure projects — are often too easily convinced that collaborative approaches are the only way to deliver projects successfully. These project owners may have had poor project delivery results using the traditional model and they are looking for opportunities to avoid an adversarial relationship with the main contractor. However, the collaborative model is not a panacea and is not the most suitable project delivery and contracting strategy for every project and for every owner.

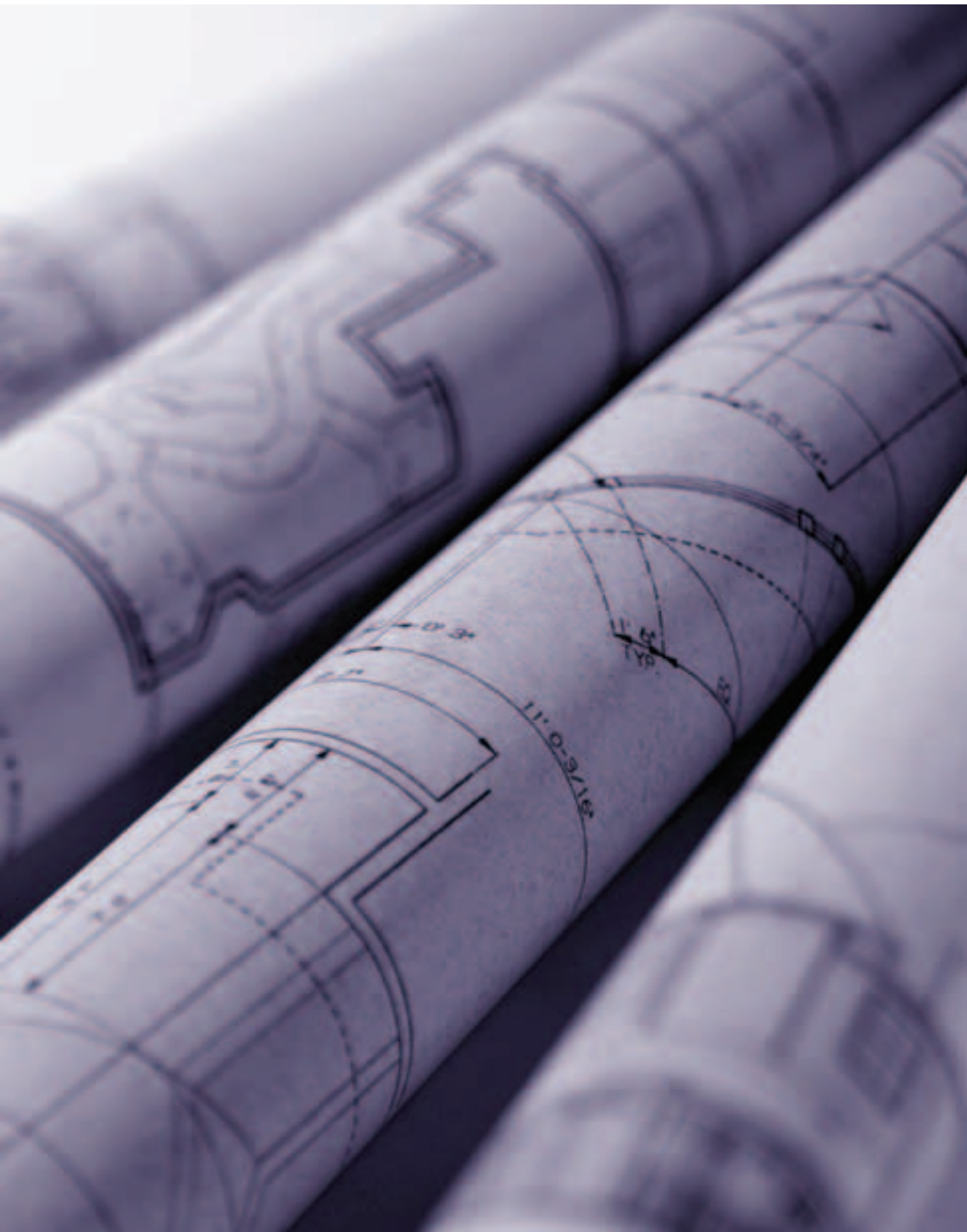
## Integrative Model

The integrative model of project delivery is a relatively new approach with risk sharing features unlike either the traditional or the collaborative models. In the integrative model, the project owner, the design consultant, and the contractor work as one team to develop, define, and deliver the project.

The integrative model is effective for complex projects where the cost of the project, time of delivery, and quality are equally important and not necessarily known at the outset, and where collaboration and dispute avoidance represent the parties’ relational aspirations. According to an industry proponent of the integrative model, it “strategically realigns participant roles, underlying motivations, and sequences of activities on a project to utilize each participant’s best talents and abilities at the most beneficial moment. Success is project-centric under an integrated delivery approach and relies on collaboration. The focus is on collectively achieving shared goals rather than meeting individual expectations. Success is measured by the degree to which common goals are achieved.”<sup>1</sup>

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<sup>1</sup> American Institute of Architects (AIA) National and AIA California Council (AIACC), *Integrated Project Delivery: A Guide*, version 1, The American Institute of Architects, 2007, 7. Web (accessed May 18, 2010)



## Partnership Model

As defined herein, the partnership model is a form of project delivery strategy where the design, construction, and operation of a building, highway, hospital, plant, or other facility is completed by one of the contracting parties for the benefit and use of another, including the general public. Typically, the party responsible for delivering the project is also responsible for financing the project in whole or in part and, most significantly, maintains the responsibility for the quality of the infrastructure over the long term.

One of the main features of the partnership model is the transfer of financing, project delivery, operation, and maintenance risks to a private sector entity. Hence, both the design risk as well as the construction risk rests with a private sector entity (other than where changes are requested by the public sector). The private sector entity is incentivized to deliver the project on time and to budget, as payment is typically withheld until the facility is operational. The private sector entity assumes responsibility, and therefore the risk, for the integration of all services.

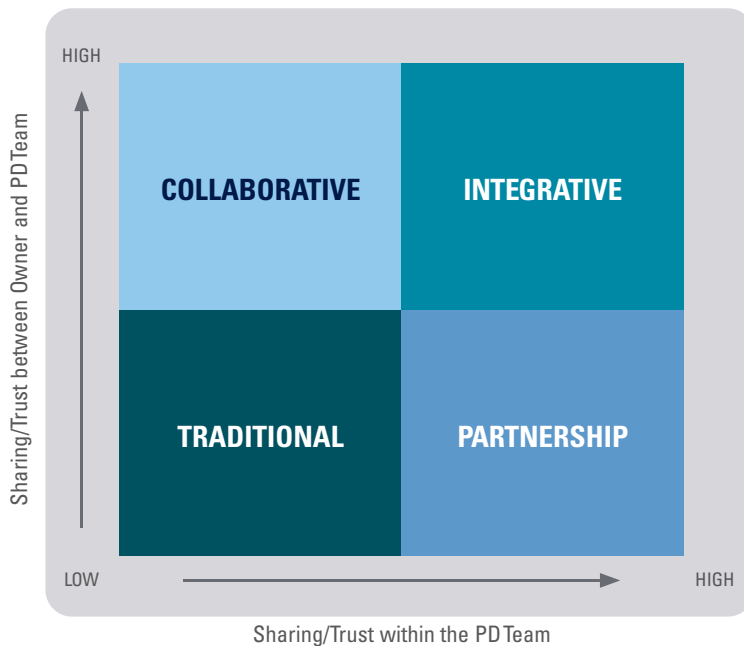
The private sector entity is contracted to provide the facility and lifecycle maintenance for the duration of the long term contract — between 20 and 100 years — and hence assume risk for availability and lifecycle costs. The private partner is incentivized via a payment mechanism, which can be based on user charges or flat payments deductible for poor performance.



## Two Dimensional Graphic of Project Delivery Models

To better understand these project delivery models and how they differ, the project delivery models can be viewed in a two-dimensional graphic as displayed below.

**Figure 2. Two-dimensional graphic**



Source: KPMG International, Project Delivery Strategy: Getting It Right, 2010

The vertical and horizontal axes of the graphic represent the degree of information sharing and trust among the parties involved in a project or program. Information sharing and trust are important components in clarifying the scope of a project, understanding the parties' motivations and expectations, and developing strong working relationships over the course of the project — and beyond — in the case of the partnership model. Information sharing and trust reflect how closely the parties' goals and objectives on the project are aligned.

The vertical axis represents the degree of information sharing and trust between the project owner and the project delivery team, and the horizontal axis represents the degree of information sharing and trust *within* the project delivery team itself. The traditional project delivery model reflects the (relative) low information sharing and trust among the parties, while the integrative model is quite the opposite reflecting full information sharing and trust. The collaborative and partnership models represent middle ground.



**This section outlines the factors that influence the stakeholders and how those factors can determine the selection of the most suitable project delivery method.**



# Factors Influencing the Selection of a Project Delivery Strategy

This section outlines the factors that influence the stakeholders and how those factors can determine the selection of the most suitable project delivery method.

## Cost

For many project owners, cost is the greatest risk and determining factor in deciding whether to proceed with a large capital project. This is not surprising, as commercial projects are usually developed in the context of revenue generation along with minimum acceptable financial rates of return. Usually, public sector projects must also be justified through cost benefit analyses before taxpayer funds are expended.

Cost is a function of the project owner's financial horizon. The project owner should evaluate options based not only on the lowest capital cost, but also on the cost of operating, maintaining, and replacing the facility over time. To complete the project within the overall budget, trade-offs may be needed to balance considerations of safety, reliability, durability, and cost.

## Schedule

Although cost is often the most important factor for the project owner, the project schedule, or time to completion, is also highly relevant. For manufacturing and industrial projects, the time to completion may be as important or of greater importance than the total cost of the project because of market conditions for commercial and consumer products. This also applies, for example, in the hotel, resort, and gaming industries where expected revenue streams depend on market timing and competition.

More so than for most other industries - in construction time is money. Construction delays caused by unusually poor planning and design, coordination of work on-site among contractors, late arrival of major equipment, site access and security requirements, adverse weather, unusual or differing site conditions, and other time related issues can quickly drain the project's contingency funds.

## Quality

Quality refers to project design features, equipment and material specifications, inspection and workmanship standards, system redundancies and safety requirements, and project life cycle considerations. Increasing project quality beyond what is considered "standard" for the facility under consideration will likely impact both the cost and time of construction.

## Project Scope, Size, and Complexity

Project scope, size, and complexity have a significant influence on the project owner's selection of a project delivery strategy. Where the project owner's scope is unclear and the project requirements are difficult to discern at the conceptual stage, there is little incentive for the designer and the contractor to agree to a fixed price for their services. In cases where it is anticipated that the owner will change the scope, add significant refinements or features to the project, or modify the expected quality, the owner may be better off employing a collaborative or integrative approach to project delivery.

The size of the project from an overall budget perspective can influence the selection of a project delivery and contracting strategy. Large projects require sophisticated management and project control structures which some delivery strategies have built into them.

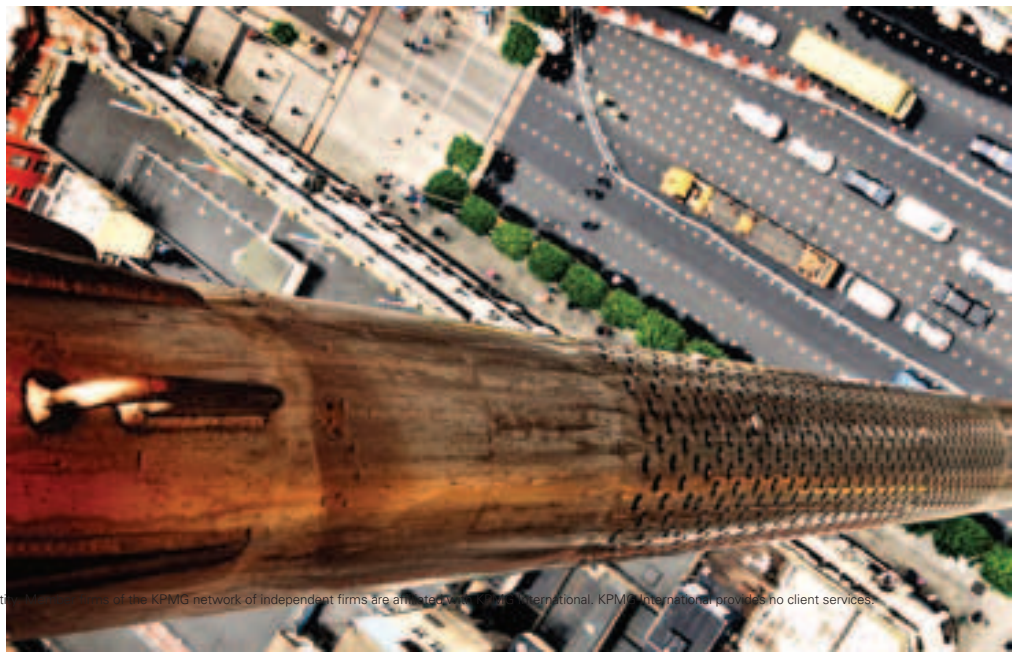
Project complexity is also a factor in selecting a project delivery strategy. Complex projects demand the participation of numerous design consultants with specialized experience. One delivery strategy can have an advantage over another in coordinating the input of these participants.

## Stability of the Owner's Requirements

The stability of the project owner's requirements refers to the degree to which project requirements may change during the design and construction processes and indeed during operations. If there is a likelihood that the owner's requirements will change, for example, due to stakeholder input, regulatory mandates, market forces, or cost limitations and other economic factors, the traditional model and the partnership model for project delivery may not be ideal. The traditional model assumes that the owner's requirements are fixed and can be competitively priced. The partnership model assumes that the requirements, for example, the need for a road connecting two cities, remain stable for a period of decades.

## Allocation of Risk

The most successful projects typically result from the efficient allocation of risk among the project participants. In construction, the party that can control, manage, or absorb project risk is usually the best the party to assign the risk.





The project owner's approach to risk allocation tends to influence its project delivery strategy. Where the project owner's scope is not well-defined, contractors will be reluctant to accept fixed-price contracts. Contractors generally attempt to shed risk during the construction phase and pass it on to the owner. In determining which project delivery strategy to use it is important to understand the owner's risk appetite.

## Project Management Resources

The skill and experience of the project owner's project management resources is a factor in the owner's selection of a suitable project delivery strategy. Owners that have experienced engineers and project managers who are engaged continuously on various projects are more likely to assume a more hands-on approach.

Project owners with internal resources, or utilizing various specialty consultants, may develop strong relationships with designers, equipment suppliers, and constructors that carry over from one project to another. Projects, for example, in the power industry, the oil and gas industry, and the environmental industry offer opportunities for owners, designer, and constructors to execute multiple projects on multi-year construction programs. Continuing relationships may foster greater trust among the parties and facilitate the use of collaborative and integrative models of project delivery where cost-plus and target price contracts can be used effectively.

## Number of Contracts/Interface Risk

Project owners with limited contract administration capabilities may wish to limit the number of contracts on a project. This is especially true for small to mid-size construction projects where the internal costs of contract management is excessive and cannot be justified from a budget perspective. Also, a large number of contracts increases the interface risks among designers and contractors. Unless the various contracts are aligned with one another, there is a risk of overlapping responsibility, questions of interpretation, and ambiguities, which can result in increased administrative burdens and legal fees.

## Checks and Balances

The traditional model of project delivery offers the owner important checks and balances. Because the designer contracts directly with the owner for design services and, in some cases, additional project inspection and construction observation services, there is a built-in system of checks and balances that carries over into the construction phase. The design team monitors the performance of the general contractor to make sure that the drawings and specifications are followed and that the design intent is carried out. In the partnership model, if external finance is being used, this role is taken and enforced by the bank, although the bank's focus will likely be on the contractor's ability to fulfill its obligations during construction and operations.

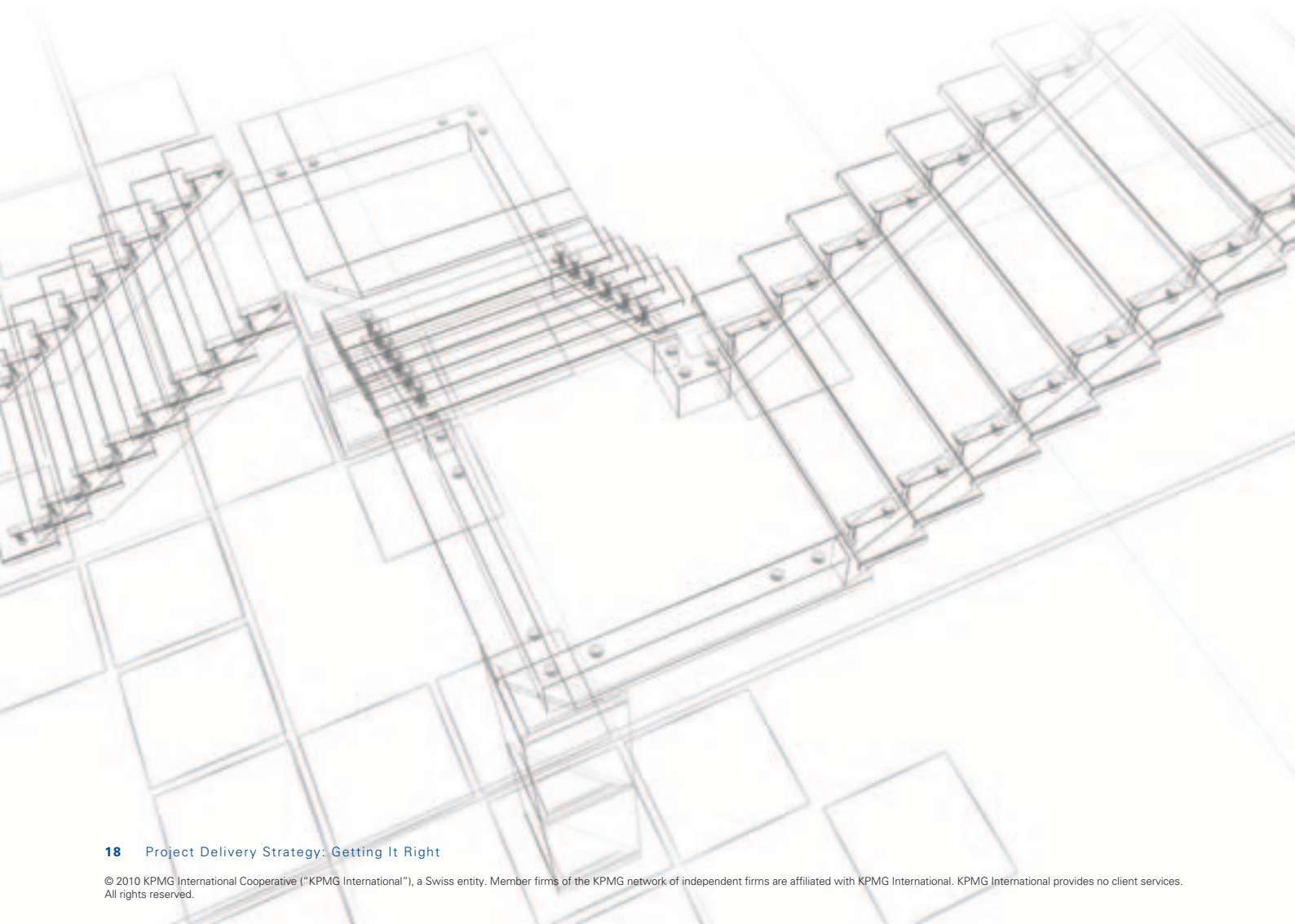
In some collaborative project delivery models, these checks and balances are not always in place, especially where the designer and the general contractor form a single entity to execute the project. Cost and schedule pressures may cause the design-builder or Engineering, Procurement and Construction (EPC) contractor to make suboptimal design or construction choices that may not be in the best interest of the owner.





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# Selecting the Appropriate Project Delivery Strategy

Having considered the important factors that influence the selection of a particular project delivery method, it is necessary to understand these factors in the context of the project owner's culture and internal capabilities. Is this a type of project the owner is familiar with? Does the project owner have close relationships with the market in the locale of the project? How involved does the project owner wish to be in managing the delivery of the project and administering the contracts?

It is well understood in the construction industry that no single project delivery method works best for all projects. Factors including the culture and experience of the owner, project size, complexity, and location need to be considered.

## Project Owner's Culture and Internal Capabilities

The project owner's culture has a significant influence on the appropriate choices for project delivery and contracting strategy. An active project owner with a "hands-on" approach, who does not mind sharing project risk in a transparent and open manner, is likely to be more comfortable with the collaborative and integrative models of project delivery. Owners who complete numerous projects per year using standard designs — for example, in the consumer retail, hotel, and franchise food industries — are comfortable using the collaborative model because they can predict their risk exposure with a high degree of certainty.

On the other hand, a project owner who completes one or two major capital projects every ten years is more likely to be risk averse and want to know its risk exposure up front before committing significant funds. The desire to understand and limit its risk by taking the project "one step at a time" might lead the project owner to select a more traditional approach. If the project owner is a public agency and funding for a major capital project is limited, the agency may consider the partnership delivery model, thereby transferring the risks of project delivery and asset maintenance to a private partner.

Publicly traded corporations with many layers of management may need greater contractual certainty and justification regarding the cost of a major capital project. This may limit the project team's ability to operate in an integrative environment and may lead to the adoption of the traditional model of project delivery, or a collaborative model with cost caps. Corporate sourcing and procurement policies may require project teams to obtain the maximum degree of competition for major capital projects and base the award on the lowest price submitted by bidders. Even if contract awards on a "best value" basis are permitted, price may carry significant weight in selecting the project delivery contractors. A major issue is that the performance of the infrastructure over its life cycle is often ignored in the evaluation.

Real estate developers with significant in-house project management and procurement experience often utilize collaborative project delivery models. This is because time is of the essence in most commercial development deals, and the incremental risk of cost uncertainty in the early stages of a project is outweighed by the potential cost savings generated by fast-tracking the project delivery cycle. Significant savings can be achieved by reducing indirect construction costs, management expenses, and financing costs, and by shortening the time between project initiation and the project's revenue stream.

## Understanding the Project

The type of project and its complexity in the selection of an appropriate project delivery method and contracting strategy cannot be overstated. Simple, straightforward projects, such as multi-family housing, light commercial, and low-rise office buildings that are commonplace for general contractors in the locale, can be performed using a traditional or collaborative approach with fixed fees or cost caps. These types of projects can often be considered construction commodities, and the low price in the marketplace usually represents the best overall value.

As the complexity and the level of quality required on a project increases, the use of fixed-price contracts increases the owner's risk of overpayment. The increased complexity and level of quality will usually cause the EPC contractor or main contractor to include a substantial project contingency in its price to the owner to cover potential estimating errors, price escalation, productivity losses, delays, and other project risks, which may never materialize. In such a case, the EPC contractor or constructor may earn a windfall profit at the expense of the owner.

In the most complex projects where quality requirements are the highest, for example, on nuclear power plant projects, subsea oil field development projects, and on large dams, bridges, and infrastructure projects where public safety is paramount, the collaborative approach may give way to the integrative approach. This is because the design cycle for complex projects is longer; numerous consultants, specialists, vendors, and stakeholders are involved; higher quality means increased time to fabricate, erect, and install project components; and the construction cycle is also extended, which gives rise to the likelihood of labor and price escalation. Additionally, the most complex projects are often subject to increased regulatory oversight, inspection, and control.

For highly complex projects, the integrative approach seeks to replace the individual project participant's self interest with a sense of common responsibility for the overall success of the project. And while fees may be capped, the project owner generally commits to paying for the project participant's costs.

In the partnership approach the public agency seeks to obtain the best possible value, which extends not only to the completion of construction, but also to the operation and life-cycle maintenance costs of the project. Given budgeting in the public sector, partnership contracts are often fixed price, albeit with a mechanism to periodically align the cost of operations with the market in the course of the operational period.

## Putting It All Into Context

As these factors and analyses imply, no single project delivery and constructing strategy is best suited for all project owners and all projects. The responsible action to take is not to default to any one delivery method, but to consider all options. Owners need to understand the potential benefits and risks associated with each of the options and make smart decisions. Consider the drivers for selecting a project delivery and contracting strategy that should result in the best project value. Consider the following questions:

- What are the owner's objectives and goals for the project?
- How skilled and experienced is the project owner?
- What are the defining characteristics of the project?

The purpose of this paper is not to conclude on a single "best" framework for delivering large capital projects that will work in all cases. Its purpose is to make project owners aware of the significant choices that are available for delivering capital projects and the factors that influence the selection of one model or approach over another.

When selecting a project delivery strategy, project owners with sparse industry experience, especially those planning projects outside the norm of their usual business models, are well advised to seek assistance from industry specialists. Experienced specialists can help the project owner to crystallize project objectives and assess its internal culture, risk appetite, and level of experience and, based on the selection factors discussed in this paper, determine the most appropriate project delivery strategy that has proven successful on other similar projects.

# Additional Insights

KPMG member firms provide a wide-ranging offering of studies, analysis and insights related to infrastructure. To access these reports and more, please visit KPMG's Global Infrastructure website [www.kpmg.com/infrastructure](http://www.kpmg.com/infrastructure)

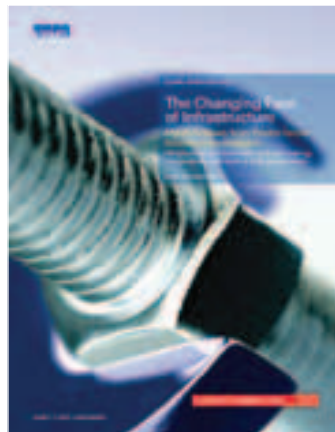
## KPMG-Economist Intelligence Unit (EIU) Survey Series

During 2009 and 2010, KPMG International commissioned a series of surveys with the EIU into issues and the way forward for infrastructure development worldwide. The three resulting surveys show a clear consensus of opinion by business leaders, infrastructure providers and government officials that as infrastructure ages around the world, we are making insufficient investments to protect our future.



### **Bridging the Global Infrastructure Gap: Views from the Executive Suite**

A survey of 328 C-level executives and board members from 22 countries. The majority of respondents expressed concern about the adequacy, quality and availability of infrastructure to support both their business growth and that of their national economies.



### **The Changing Face of Infrastructure: Frontline Views from Private Sector Infrastructure Providers**

A survey of 455 executives from 69 countries worldwide. The majority of respondents expressed concern regarding governmental effectiveness inhibiting infrastructure development.



### **The Changing Face of Infrastructure: Public Sector Perspectives**

Survey of 392 public sector infrastructure policy developers and procurers from 50 countries worldwide. The majority of respondents agree that the politicization of infrastructure priorities and lack of funding are the biggest impediments to infrastructure development.



### **KPMG-PMI Study on Drivers for Success in Infrastructure Projects 2010**

KPMG in India and the Project Management Institute undertook this survey to decode the issues inhibiting successful project delivery. Includes the views of over 100 top management personnel representing leading Indian companies across multiple infrastructure sectors.



### **Operating Healthcare Infrastructure — Analysing the Evidence**

This report contains some of the most comprehensive analysis to date of PPP operational performance. The report is the first in a series intended to highlight the need to improve the quality of information on operational performance and cost of infrastructure.



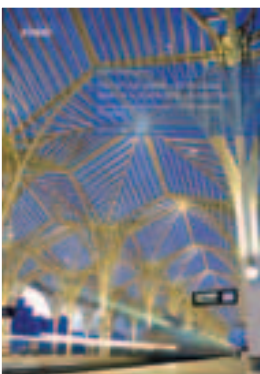
### **Success and Failure in Urban Transport Infrastructure**

This joint report with University of London College explores findings from nineteen urban transport infrastructure case studies from countries around the world, including New York, London, Hong Kong, Singapore, Dublin, Bogota, Manila, Manchester, and Bangkok.



### **Delivering Water Infrastructure Using Private Finance**

This report examines the risks and rewards of using private finance to fund water infrastructure, including how municipal governments and potential investors can benefit.



### **Rail at high speed — Doing large deals in a challenging environment**

Lessons learned from Portugal's first high-speed rail project and largest infrastructure PPP to-date. The report highlights key factors that may be of interest to other authorities around the world planning or implementing similar programs.



### **Global Construction Survey 2009 — Navigating the Storm: Charting a Path to Recovery?**

Despite the deepest recession in 60 years, the construction industry is surprisingly positive about its future prospects, according to KPMG International's 2009 Global Construction Survey, involving 108 senior leaders from 30 countries worldwide.

KPMG's Global Infrastructure professionals provide specialist Advisory, Tax, Audit, Accounting and Compliance related assistance throughout the life of infrastructure projects and programs.

Our member firm teams have extensive local and global experience advising government organizations, infrastructure contractors, operators and investors.

We help clients ask the right questions and find strategies tailored to meet the specific objectives set for their businesses. Our teams can help set a solid foundation at the outset and combine the various aspects of infrastructure projects or programs – from strategy, to execution, to end-of-life or hand-back.

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