



استفاده از ضریب هوشی (IQ)، هوش هیجانی (EQ) و هوش ارزشی (VQ) در مدیریت پروژه

مقدمه: معرفی دوره آموزشی

ارائه دهنده:

سید محمدرضا علوی پور

(PhD, PMP, CMIT)

Introduction

استفاده از ضریب هوشی (IQ)، هوش هیجانی (EQ) و هوش ارزشی (VQ) در مدیریت پروژه



یکی از ضعف‌هایی که گریبان بسیاری از پروژه‌ها را گرفته است عدم مهارت کافی در بخش مهارت‌های نرم (Soft Skills) می‌باشد. از آن جهت که آموزش‌های لازم در بسیاری از دانشگاه‌ها و موسسات در این زمینه ارائه نمی‌شود، مخاطبان و تصمیم‌گیرندگان پروژه‌ها گاهی با عدم دانش کافی در این زمینه برای پیشبرد پروژه مواجه هستند. اما باید توجه نمود دانشی که یک مدیر پروژه در بخش مهارت نرم و خصوصاً در صنعت پر پیچ و خم و آشفته ساخت و احداث نیاز دارد، با صنایع دیگر در بسیاری از موارد متفاوت بوده و باید این ساختار بر اساس سیستم پروژه تدوین گردد. ساختاری که در موسسه ACEMI تدوین شده و برای نخستین بار در کشور، به صورت تخصصی برای مدیران پروژه ارائه می‌گردد. اما دوره‌ای که تدوین شده یکی از دوره‌های مهارت نرم (Soft Skills) بوده و بر اساس یک رویه استاندارد در سه بخش تقسیم‌بندی شده است. ابتدا باید بدانیم که ساختار مهارت نرم، نباید از ساختار مهارت سخت تفکیک گردیده و باید در یک مسیر هدایت گردد. بخش اول، استفاده از ضریب هوشی (IQ) و نحوه بکارگیری مهارت‌های سخت در پروژه بوده و بخش دوم آن به نحوه استفاده از هوش هیجانی (EQ) در پروژه اختصاص دارد. اما بخش سوم که شاید یک بخش جدید باشد، استفاده از هوش ارزشی (VQ) بوده، تا بتوان بر اساس نیاز مهارت‌های سخت و ترکیب آن با هوش هیجانی، مسیر شغلی را بر اساس ارزش‌گذاری، تعیین نمود و در نهایت استراتژی مشخصی را برای خود صرف نظر از جایگاه (مدیر پروژه، کارفرما، سرمایه‌گذار، پیمانکار و...) تدوین نمود. اینکه چگونه باید این سه (ضریب هوشی، هوش هیجانی و هوش ارزشی) با یکدیگر تلفیق شوند تا مدیر پروژه در جایگاه تصمیم‌گیرنده بتواند در کنار مهارت‌های سخت و فنی بهترین نتایج را رقم زند، موضوعی است که در یک رویه جامع در این دوره به آموزش آن خواهیم پرداخت.

What will you learn?

آنچه خواهید آموخت

در این دوره می‌آموزید که چگونه سه موضوع بهره‌هوشی (IQ)، هوش هیجانی (EQ) و هوش ارزشی (VQ) می‌تواند در پروژه به مدیر پروژه، در فازهای مختلف کمک نموده تا نتایج بهینه‌تری حاصل گردد. در این دوره:

۱. در بخش IQ محدوده عملکردی و بهره‌گیری از دانش و تخصص و هوش ما در مدیریت پروژه، بخصوص با توجه به روش‌های اجرای پروژه (Project Delivery Systems) اهمیت پیدا می‌کند.
۲. در واقع اینکه چه فردی، چرا، چه زمانی، کجا و چگونه باید از دانش مهارت سخت و بهره‌هوشی خود استفاده نماید تا پروژه را مدیریت کند، بخش IQ بوده و پس از آن به بخش EQ وارد شده و مجدد طی یک نقشه راه درباره اینکه چه کسی، به چه شکلی، چرا، چه زمانی، کجا و چگونه باید از هوش هیجانی (EQ) خود و البته ترکیب آن با IQ استفاده نماید تا پروژه را به موفقیت رساند، صحبت خواهیم کرد.
۳. حال بعد از یادگیری تمام این موارد و هدایت شدن در یک مسیر مشخص، منسجم و استاندارد، در بخش سوم به سراغ هوش ارزشی (VQ) رفته و در این بخش یاد می‌گیرید که چگونه بر اساس موارد IQ و EQ مسیر شغلی و حرفه‌ای خود را تنظیم نمایید. اینکه به چه شکلی، چه کسی، چرا، چه زمانی، کجا و چگونه باید از این ساختار ارزش‌گذاری استفاده نمود و چگونه باید این سه قالب IQ و EQ و VQ را برای آینده شغلی ترکیب نماییم، موضوعی است که در گام آخر به آن خواهید رسید.

Syllabus

۱. استفاده از بهره هوشی (IQ) در مدیریت پروژه

- ارائه نقشه راه استفاده از IQ در مدیریت پروژه: دلایل اهمیت یکپارچه سازی مهارت سخت و بهره گیری از IQ در مدیریت پروژه، شرح اهمیت و اهداف استفاده از IQ از نگاه پروژه، دانشجویان معماری، مدیریت ساخت و مدیریت پروژه، معماران، مشاوران، پیمانکاران و مدیریت ساخت، نقشه راه IQ و ...
- تعریف مدیر پروژه و محدوده های دانشی آن در ساختارهای مختلف: تعریف مدیریت ساخت، مدیریت پروژه های ساخت، مدیریت پروژه و تفاوت های آن، بررسی محدوده های مدیر ساخت و تفاوت آن با مدیر پروژه، بررسی استانداردهای مدیریت ساخت، بررسی الزامات مدیر ساخت از منظر IQ و ...
- وظایف و مسئولیت های مدیر پروژه در ارتباط با حوزه های دانشی و روش های اجرا و تحویل پروژه: روش های اجرا و تحویل پروژه جایگزین (ADS)، بررسی ریسک های روش ها و نحوه بکارگیری IQ برای کاهش این ریسک ها، بررسی مدیر ساخت به عنوان یک عامل تعیین کننده در مدیریت روش های تحویل و اجرای پروژه، بررسی تمامی انتظارات از مدیر ساخت و نحوه بکارگیری IQ برای مدیریت بهینه این روش ها و ...
- بررسی دلایل وجود مدیر پروژه در فازهای مختلف پروژه: مدیریت انتظارات، بررسی نقش ها و مسئولیت های مدیر ساخت برای مدیریت قرارداد، بررسی مدیر ساخت به عنوان عامل مدیریت ساخت (نه عامل مدیریت قرارداد)، بررسی جایگاه های پر اهمیت مدیر ساخت و نحوه استفاده از IQ برای مدیریت مناسب انتظارات و قرارداد در پروژه و ...
- چه زمانی و در چه مکانی مدیر پروژه باید ورود نماید و از بهره هوشی (IQ) خود استفاده کند؟ فازهای پروژه و طرح و بررسی اهمیت IQ مدیر پروژه برای مدیریت مناسب در فازهای مختلف از جمله فاز قبل از طراحی، طراحی، تدارکات و مناقصه، ساخت، پس از ساخت، خاتمه و انتقال مدیریت، بررسی جایگاه و مسئولیت های مدیر ساخت در هر یک از فرآیندهای ذکر شده، ارائه چکلیست های متعدد در جهت بهره وری از IQ برای مدیریت بهینه فازها و ...
- مدیر پروژه چگونه از بهره هوشی (IQ) خود در جهت ایجاد ارزش افزوده در مدیریت برنامه زمان بندی، مدیریت هزینه، مدیریت کیفیت و مدیریت محدوده پروژه استفاده می نماید؟ باید ها و نبایدهای مدیر ساخت در مدیریت پروژه، بهره گیری از IQ برای مدیریت برنامه زمانی، مدیریت هزینه، مدیریت کیفیت و مدیریت محدوده، نحوه شناسایی مدیر ساخت مناسب و نامناسب از منظر IQ و ...

Syllabus

۲. استفاده از هوش هیجانی (EQ) در مدیریت پروژه

- ارائه نقشه راه استفاده از هوش هیجانی (EQ) در مدیریت پروژه: تعریف هوش هیجانی (EQ) و بررسی اهمیت آن در پروژه، بررسی اهمیت هوش هیجانی (EQ) برای مدیر ساخت و ارائه نقشه راه و ...
- چه فرد یا افرادی توسط مدیر پروژه مدیریت و رهبری می‌شوند و چه فرد یا افرادی نیاز به بالاترین EQ دارند؟ شرح جایگاه مدیر ساخت از منظر رهبری، بررسی جایگاه مدیر ساخت از منظر مدیریت، بررسی جایگاه مدیر ساخت از منظر مدیریت و رهبری طراحان پروژه، پیمانکاران، تیم تحت نظارت خود، همکاران و مدیران ارشد خود، سایر ذی‌نفعان پروژه، بررسی افرادی که در پروژه نیاز به بالاترین سطح هوش هیجانی (EQ) دارند و بررسی مسیر صحیح در بکارگیری هوش هیجانی (EQ) برای مدیر ساخت و ...
- چه مفاهیمی از EQ باید در پروژه ترویج یافته و چه مهارت‌هایی در این مسیر باید افزایش یابد؟ بررسی ساختاریافته هوش هیجانی (EQ)، بررسی مفاهیمی که باید در پروژه و از منظر هوش هیجانی توسعه یابد، بررسی ارتباطات نفر به نفر در پروژه، شرح فرآیند انتقال اطلاعات بین اعضای تیم، بررسی داینامیک گروه‌های کاری، بررسی اهداف، قاعده‌ها و ارزش‌ها، نقش‌ها، معیارهای عضویت در تیم و ارتباطات، بررسی نحوه توسعه مهارت‌ها در زمینه افزایش هوش هیجانی (EQ)، بررسی طبیعت پروژه‌ها، نحوه پاسخ به فشارهای کوتاه مدت در پروژه، نحوه پاسخ به مقاومت موجود در نیروهای کاری، نحوه مواجهه با فرهنگ مردسالارانه در پروژه، نحوه ارتقای هوش هیجانی و ...
- دلیل آنکه مدیر پروژه به ترکیب EQ و IQ نیاز دارد چیست؟ بررسی دلایل نیاز به ترکیب EQ و IQ در مدیریت پروژه، بررسی اهمیت این ترکیب برای برآورد انتظارات از مدیر ساخت، اجتناب از ادعاهای و رسیدن به اتفاق نظر و البته جذاب کردن محیط پروژه برای تیم‌های پروژه و ...
- چه زمانی و کجا باید از EQ در پروژه استفاده نمود؟ بررسی نحوه بکارگیری EQ در فازهای مختلف پروژه، بررسی تفاوت‌های موجود در نحوه بکارگیری هوش هیجانی در هر بخش، بررسی نکات کلیدی در زمینه بکارگیری هوش هیجانی برای مدیریت بهتر در چرخه حیات پروژه و ...
- چگونه می‌توانیم مهارت‌های EQ را به عنوان مدیر پروژه در خودمان ارتقاء دهیم؟ بررسی نحوه بکارگیری هوش هیجانی (EQ) برای مدیریت بهتر ارتباطات، مدیریت Tone، مدیریت Volume، مدیریت Style، مدیریت روابط، اقناع، اجتناب، مراحل چهارگانه توسعه تیم‌ها، بکارگیری ابزارهای مشاهده و رهبری، نحوه بکارگیری هوش هیجانی برای حل تضاد منافع و ...

Syllabus

۳. استفاده از هوش ارزشی (VQ) در مدیریت پروژه

- هوش ارزشی (VQ) چیست و مدیر پروژه چه زمانی می‌تواند ارزش آفرین باشد؟ تعریف هوش ارزشی (VQ) و بررسی مسیر آموزشی، شغلی و حرفه‌ای که یک مدیر ساخت باید برای بدست آوردن ارزش طی نماید، بررسی نحوه ترکیب IQ و EQ برای ایجاد بالاترین VQ، بررسی خدمات مدیر ساخت برای ارزش آفرینی در پروژه، بررسی گزینه‌های حرفه‌ای و شغلی مدیریت ساخت، بررسی بخش‌های مختلف بازار مدیریت ساخت، بررسی مسیرهای آموزشی مدیریت ساخت، بررسی فرآیند رشد در مسیر Agency CM، بررسی فرآیند رشد در مسیر CM-AT-RISK، شناسایی ارزش خود به عنوان مدیر ساخت و ...
- چه فردی در پروژه ارزش ایجاد نموده و چه فردی باید دارای بالاترین هوش ارزشی (VQ) باشد؟ بررسی هوش ارزشی (VQ) از منظر دانشجویان، افراد اجرایی، کارفرمایان، صنعت و ...
- دلایل نیاز به VQ از نگاه مدیر پروژه: بررسی دلایل نیاز مدیر ساخت به هوش ارزشی (VQ) بالا، بررسی دلایل نیاز کارفرمایان به بکارگیری مدیر ساخت‌هایی با هوش ارزشی (VQ) بالا، بررسی نظرسنجی‌های انجام شده در زمینه هوش ارزشی (VQ) و ...
- چه زمان و کجا به هوش ارزشی (VQ) در پروژه نیاز است؟ بررسی جزئیات زمانی و مکانی بکارگیری صحیح هوش ارزشی (VQ)، بررسی این موارد از منظر دانشجویان، بررسی این موارد از منظر افراد اجرایی، بررسی این موارد از منظر کارفرمایان کسب و کار و ...
- چگونه و طی چه فرآیندی می‌توانیم به مدیر پروژه‌ای با بالاترین VQ تبدیل شویم؟ چگونه یک مدیر ساخت می‌تواند از هوش ارزشی (VQ) خود جهت بهبود پروژه‌ها استفاده نماید؟ مقایسه بین IQ و EQ و VQ در فرآیند حرفه‌ای و شغلی برای سطوح مختلف حرفه‌ای (سطح مقدماتی Early Career، سطح میانه Mid-Career و سطح بلوغ یافته Mature-Career) همراه با داستان‌های فراوان از مدیران مختلف در دنیا، توصیه‌های شغلی در ارتباط با IQ و EQ و VQ، به همراه بررسی نحوه ترکیب IQ و EQ و VQ برای رسیدن به بلوغ کاری و حرفه‌ای در مدیریت پروژه

مهارت‌های نرم (Soft Skills) - سطح توسعه فردی				
ارائه گواهینامه حضور بر اساس حضور بیش از ۶۰ درصد در دوره و گواهینامه حرفه‌ای بر اساس قبولی در آزمون برای هر دوره				
سطح ۵	سطح ۴	سطح ۳	سطح ۲	سطح ۱
مهارت مذاکره	مدیریت استرس	مهارت ارتباطات	هوش هیجانی	
مهارت رهبری	مدیریت تعارضات	مهارت تیم‌سازی		

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استفاده از ضریب هوشی (IQ)، هوش هیجانی (EQ) و هوش ارزشی (VQ) در مدیریت پروژه

فصل اول: استفاده از بهره هوشی (IQ) در مدیریت پروژه
بخش اول: ارائه نقشه راه استفاده از IQ در مدیریت پروژه

ارائه دهنده:

سید محمدرضا علوی پور

(PhD, PMP, CMIT)



What we will learn?

☐ Reasons for learning intelligent quotient (IQ)

- ❖ Concepts
- ❖ All parties involved

☐ Process of learning intelligent quotient (IQ)

- ❖ Road map

Reason For Learning “Intelligent Quotient (IQ)”

(Concepts)

Introduction

❑ Construction management involves the management of **three** basic project parameters:

cost, time, and scope (including both the quantity and quality of the work).

- ❖ All these **parameters are closely linked** and that a change in one can affect the others.
- ❖ In the parlance of the **construction management** profession, this linkage is sometimes known as the **“triple constraint” theory**.
- ❖ **Increase or decrease** the length or magnitude of **one side** of the triangle and the **lengths of the other sides** are affected.

Maintaining the proper balance!

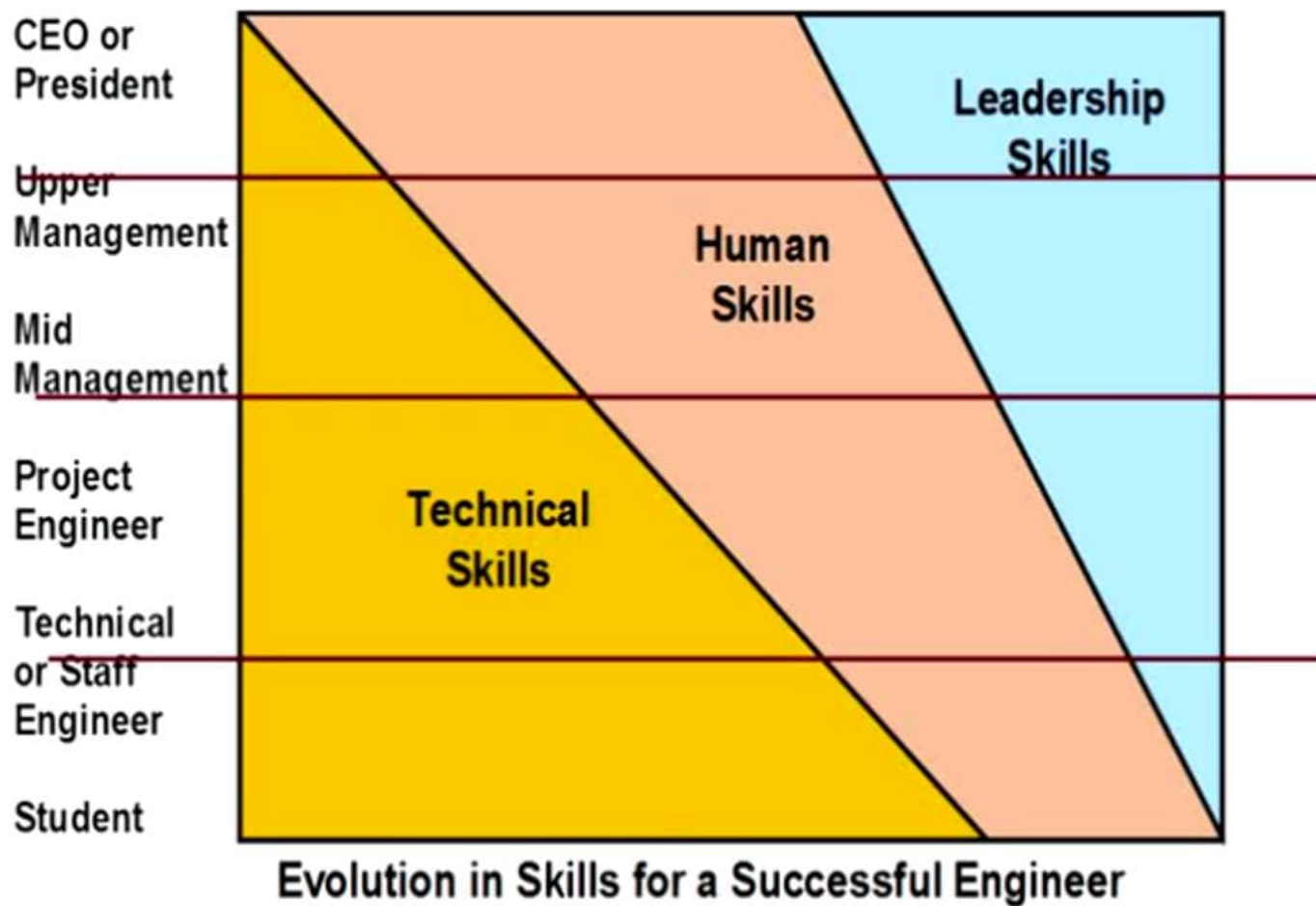




Introduction

Two of the most important factors in the construction process are
communications and planning.

Introduction





**Reason For Learning “Intelligent
Quotient (IQ)”**

(All Parties Involved)

Objective of the IQ

□ This section:

1. Answers to the question of **what do you do for a living?**
2. Is a form of therapy so we can **clearly verbalize** that **what “we CMs” do for a living** is an **essential component of the building process**.



Objective of the IQ

❑ The section

1. **Offers** a **road** that leads to that **“promised land.”**

2. **Tells**

i. **Where** the most **“lethal landmines”** are

ii. **How** to **avoid** them

3. **Illustrates**

1. Internal **quality check system**,

2. A **method** and **procedure** that developed to manage, monitor and evaluate large construction programs.



Objective of the IQ

This System

1. Assures **well-managed** projects,
2. Enhances the **quality** of design, and
3. Helps to **protect** architects, construction managers, contractors and project owners.



From Artist to Architect to CM back to Artist

Students of architecture and construction management

- ❑ **Students** of architecture and construction management will
find a clear, sensible and clever **presentation of a subject**
that is based on **common sense**,
but that **often seems boring and dry**.



❑ Architects will learn

how to work with construction managers.

This will help them

1. *Meet their **objectives**,*
2. *Complete their **deliverables**, and*
3. *Improve their **businesses**.*



Professional Construction Managers

❑ For professional Construction Managers, this section offers

1. An **overview** of all the **components of their work**,
2. **Discussion** of all the **new project delivery models**.



Contractors

- ❑ **Contractors** will benefit from this **information** and **discussion** as well.
 - ❖ Some contractors **may not clearly** see the **value of understanding** the **Owner's point of view**,
as **represented** by a **construction manager**.
 - ✓ This section may help those contractors **expand** their **career opportunities**.



❑ Project Owners will benefit the most,

business executives and facilities administrators who work with

1. Architects,
2. Construction managers and
3. Contractors who **design and construct** their projects.

✓ For these Owners, this section will

i. Clarify the **process**

ii. Help them **learn how to work** with **Construction Managers**
as their advocates in **leading the design and construction team.**



Construction management

1. What is **Construction Management** and How does it **differ** from
 - ❖ Project Management
 - ❖ Construction Administration
2. What exactly does a **Construction Manager** do?
3. What are their **backgrounds**?
4. How are they **trained**?
5. What is a **Construction Manager's role** throughout the **design and construction** process?
6. How does the **Design-Build system** and **Integrated Project Delivery** work?
7. How will these **new models** affect **architects and architecture**?



But before and above all, how do we manage schedule, cost, scope and quality?

Process of “Intelligent Quotient (IQ)”

(Road Map)

Road map



WHO? EXPERIENCED MANAGEMENT
PROFESSIONALS IN CONSTRUCTION

WHAT? OWNER ADVOCATES

WHY? BECAUSE SOMEONE NEEDS TO LEAD

WHEN? DURING THE LIFECYCLE OF AN ASSET

WHERE? RIGHT ALONGSIDE THE OWNER

HOW? BY MANAGING TIME, COST, QUALITY
AND SCOPE



استفاده از ضریب هوشی (IQ)، هوش هیجانی (EQ) و هوش ارزشی (VQ) در مدیریت پروژه

فصل اول: استفاده از بهره هوشی (IQ) در مدیریت پروژه
بخش دوم: تعریف مدیر پروژه و محدوده های دانشی آن در ساختارهای مختلف

ارائه دهنده:

سید محمدرضا علوی پور

(PhD, PMP, CMIT)



استفاده از ضریب هوشی (IQ)، هوش هیجانی (EQ) و هوش ارزشی (VQ) در مدیریت پروژه
تعریف مدیر پروژه و محدوده های دانشی آن در ساختارهای مختلف

What we will learn?

☐ Who are CMs?



Road map

In this section

WHO? EXPERIENCED MANAGEMENT
PROFESSIONALS IN CONSTRUCTION

WHAT? OWNER ADVOCATES

WHY? BECAUSE SOMEONE NEEDS TO LEAD

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WHERE? RIGHT ALONGSIDE THE OWNER

HOW? BY MANAGING TIME, COST, QUALITY
AND SCOPE

Who Are CMs?

Who we are?

"We are the enforcers, controllers, overseers, facilitators, coordinators, negotiators, mediators, planners, directors, conductors, and jugglers who follow through on the project until the job is done. We think of ourselves as the stagecoach driver keeping the horses forging ahead [aware of the risks], through rain, sleet or snow [safely], avoiding the bandits – delivering the job on time [on budget, on quality, within scope expectations] and above all maintaining our sense of humor."

**Construction Controls Group (CCG)
Mission Statement**



CM as Stagecoach Driver avoiding the bandits to deliver the project on time...



Construction Management

- ❑ **Construction Managers** provide services **specifically to the construction industry**, and not to be confused with **Project Managers** who provide services **across all industries** including construction.

"Construction Management is a professional practice consisting of an array of services applied to construction projects and programs through the planning, design, construction and post construction phases for the purpose of achieving project objectives including the management of quality, cost, time and scope."

Construction Management Association
of America Website, February 2011
"Most reliable source"



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"Most reliable source"

"Construction Project Management is the overall planning, coordination and control of a project from inception to completion aimed at meeting a client's requirements in order to produce a functionally and financially viable project that will be completed on time within authorized costs and to the required quality standards. Project management is the process by which a project is brought to a successful conclusion. Construction project management (CPM) is project management that applies to the construction sector (3rd Forum "International Construction Project Management" 26/27 June 2003 in Berlin)."

Wikipedia, February 2011
"Not a reliable source"



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Wikipedia, February 2011
"Not a reliable source"

*"Project Management is the overall process of safely managing a quality project from start to finish applicable to any industry including manufacturing, aerospace, research & development and so on... within budget, on schedule and meeting scope expectations. **Construction Management (CM)** or **Construction Project Management (CPM)** is the same Project Management process applied specifically to the construction industry addressing all associated risks. Program Management represents the CM or CPM process on a larger scale for multiple projects on a single program."*

What is your CM IQ?, 2011
"Lisa's opinion of course"



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Construction Management

See Video #01



Construction Management Standards of Practice

❑ Due to our **diverse backgrounds** in this industry,

Construction Managers come from **varied backgrounds**

legal, engineering, architectural or construction.

there is all the **more reason to develop Standards of Practice** to

ensure we bring

1. Consistency
2. Excellence

to the **projects** and **programs** we manage.

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Construction Management Standards of Practice

 ASCE AMERICAN SOCIETY OF CIVIL ENGINEERS	1852	 Construction Management Association of America	1982
 The American Institute of Architects	1857	 Construction Industry Institute®	1983
 AGC THE CONSTRUCTION ASSOCIATION	1916	 The Society of Construction Law	1983
 aace International The Authority for Total Cost Management.	1956	 Lean Construction Institute Transforming Design and Construction	1997
 CONSTRUCTION INSTITUTE	1975 2000	These are just a few!	



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Construction Management Standards of Practice

14802

SEPTEMBER 1979

CO3

JOURNAL OF THE CONSTRUCTION DIVISION

EVALUATING PCM FIRM POTENTIAL AND PERFORMANCE^a

By Clyde B. Tatum,¹ M. ASCE

INTRODUCTION

In the spring of 1975 the Executive Committee of the ASCE Construction Division formed the Committee on Professional Construction Management (PCM). Structured in two subcommittees, this group has worked toward definition of PCM organization and methods of evaluation as one charge and suggestion of PCM methodologies and administration as the second. The results of first-phase efforts in each of these areas were presented at a PCM session during the 1978 Chicago ASCE convention.

PCM is one of many available approaches to contracting for construction. These approaches, also called project delivery systems (3), define the relations

15478

JUNE 1980

CO2

JOURNAL OF THE CONSTRUCTION DIVISION

PROFESSIONAL CM: THE ARCHITECT-ENGINEER'S VIEWPOINT^a

By Clyde B. Tatum,¹ George M. Gans,² Members, ASCE,
and George T. Harper³

INTRODUCTION

The professional construction management (PCM) form of organization is currently being utilized on diverse types of projects with increased frequency. As compared with other project delivery systems (2), this organizational system offers cost and schedule advantages on certain projects, and offers owners a degree of control and participation in key decisions not possible with many other delivery approaches.

In recognition of this increased usage of PCM, the Construction Division of ASCE formed a standing committee on this topic in the Spring of 1975 (1). To establish a frame of reference, this committee has defined PCM as a form of project organization in which a project management team, consisting of the owner, the construction manager (CM), and the design organization, is formed to satisfy the owner's construction needs (see Fig. 1).

15081

DECEMBER 1979

CO4

JOURNAL OF THE CONSTRUCTION DIVISION

THE TRADE CONTRACTORS' VIEW OF CONSTRUCTION MANAGEMENT^a

By Donald S. Barrie,¹ M. ASCE

INTRODUCTION

Construction Management (CM) or Professional Construction Management (PCM), as defined and practiced by the Associated General Contractors, the American Institute of Architects, the Consulting Engineers Council, the American Society of Civil Engineers and others, has come of age. No longer is there great debate about a new form of nonadversary relationships which will make obsolete and replace the traditional single general contractor, the developer, or the design-constructor. Rather, PCM is being generally accepted by the industry as another form of implementing the building process which, like other forms, is subject to successful and unsuccessful applications.

15027

DECEMBER 1979

CO4

JOURNAL OF THE CONSTRUCTION DIVISION

PROPOSED CONSTRUCTION MANAGEMENT SPECIFICATION^a

By Kenath A. Kettle,¹ F. ASCE

INTRODUCTION

During the past approx 15 yr the terms "Construction Management" and "Construction Manager" have come to designate a particular construction system utilized generally on large and complicated projects whose construction life may extend for more than 2 yr or 3-yr. The definition of these terms has never been widely accepted nor have these terms been applied in a uniform

Construction Management Standards of Practice

Introduction

- What is Construction Management?
- About CMAA, Mission & Vision, Publications, Resources
- Construction Manager Certification Institute (CMCI)
- Construction Industry Institute
- (CII), CMAA/CII Alliance, and CII Best Practices

Professional Practice

- Construction Management Profession and Certification
- Code of Ethics
- Essential Definitions
- Legal Relationships
- CM Fee Structures
- Enforcement of Terms & Conditions of CM Agreements and Laws

Learning Objectives: Describe the qualifications for becoming a Certified Construction Manager (CCM); Understand CMAA's Code of Ethics; Define key industry terms; Distinguish between project and program management; Understand how project delivery systems impact CM services; Explain legal relationships between CM and owner; Identify typical fee structures.

Program Management

- Program Management Defined
- Pre-Design Phase: Program Development
- Design Phase
- Procurement and Construction Phase
- Post Construction Phase

Learning Objectives: Describe the similarities and differences between project and program management; Describe the role of program management during each project phase; Identify the key members needed on a Project Management Team.

Project Management

- Project Management Definitions, Functions, and Focus
- Goals, Philosophies, and Concepts
- Key Functions of the Project Manager
- Project Management Tools
- Project Management Services by Phase

Learning Objectives: Define Project Management and describe its functions and goals; Describe the key skills of a Project Manager; Describe common tools used for Project Management; Explain the Project Manager's role during each construction phase.

Professional Construction



Contract Administration

- Delivery and Procurement Methods
- Contract Forms and Terms
- Contract Administration through Project Phases

Learning Objectives: Gain an understanding of the advantages/ disadvantages of the type of contract administered by studying: delivery methods, procurement methods, types of payment contract terms; Become familiar with the commonalities and differences in the contract forms; Learn the required contract administrative activities in each project phase.

Time Management and Time Management Lab

- Time Management Overview
- CPM Building Blocks
- Calculate the CPM Schedule
- Scheduling by Project Phase
- Time Impact on the Schedule
- Time Management Calculation Activities

Learning Objectives: Explain the importance of time management in CM; Identify the primary objectives of CPM scheduling; Define key CPM terms; Describe the fundamentals of CPM scheduling; Explain how time impacts the project schedule.

Building Information Modeling (BIM)

- Introduction to BIM and common applications
- BIM and the role of the CM
- BIM by project phase

Learning Objectives: Describe the primary uses of BIM; Identify the role of the CM with BIM; Describe the role of BIM during each phase of the project.

Quality Management

- Terms and definitions
- Quality Management Plans
- Quality Management by construction phase

Learning Objectives: Define Quality Management terminology; Describe the Quality Management Plan; Evaluate the AQ/QC processes; Conduct reviews for quality assurance.

Sustainability

- Sustainability goals, objectives, and requirements
- The CMs role in sustainability
- Tools for sustainable construction management
- Sustainability by construction phase

Learning Objectives: Describe the common features of a sustainable project; Customize CM tools for a project with sustainability goals and requirements; Understand a Sustainability Plan; Provide leadership to achieve a project's goals and requirements; Identify tasks by phase.

Cost Management & Value Engineering

- Cost Management overview
- Preliminary budgeting
- Cost Management System
- Cost Estimating
- Cost Management by project phase
- Value Engineering

Learning Objectives: Understand the CM's roles and responsibilities for controlling project costs; Describe the methods for developing the project and construction estimates and budget; Explain the Cost Management System; Monitor and manage costs during all project phases.

Safety & Risk Management

- Project Safety
- OSHA Requirements and Liability
- CM's Roles and Responsibilities
- Project Safety Plan Implementation
- Lessons Learned in the Field
- Risk Management

Learning Objectives: Describe the CM's roles and responsibilities related to safety; Explain OSHA's requirements and guidelines for construction safety; Recognize liabilities associated with safety violations; Identify and report safety hazards.

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Construction Management Standards of Practice



Best practices



Business intelligence



Leadership education



Architectural research



Firm ownership resources



Project delivery resources



Workplace culture resources



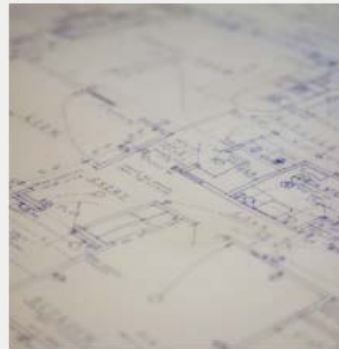
Business development resources



Salary calculator



Contract Documents



MasterSpec

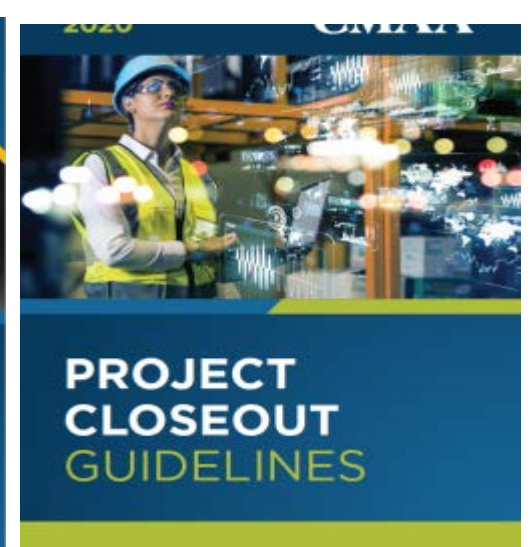
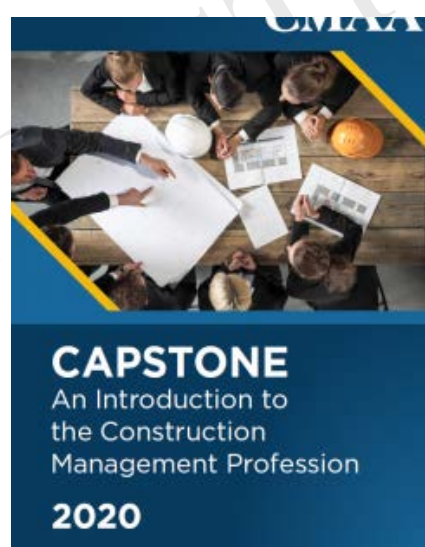
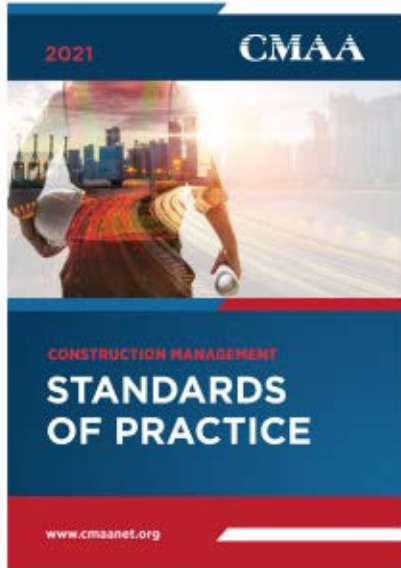


Practice Management

ذکر مطالب فوق تنها در صورتی

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February 2017

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نوش ارزشی (VQ) در مدیریت پروژه
نای مختلف

Construction Management Standards of Practice



10S-90: Cost Engineering Terminology \$

Document: [Download Publication](#)



11R-88: Required Skills and Knowledge of Cost Engineering \$

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17R-97: Cost Estimate Classification System \$

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18R-97: Cost Estimate Classification System - As Applied in Engineering, Procurement, and Construction for the Process Industries \$

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33R-15: Developing the Project Work Breakdown Structure \$

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48R-06: Schedule Constructability Review \$

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49R-06: Identifying the Critical Path \$

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50R-16: Trending and Forecasting of CPM Schedules \$

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53R-06: Schedule Update Review - As Applied In Engineering, Procurement and Construction \$

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54R-07: Recovery Scheduling - As Applied in Engineering, Procurement, and Construction \$

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55R-09: Analyzing S-Curves \$

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57R-09: Integrated Cost and Schedule Risk Analysis Using Risk Drivers and Monte Carlo Simulation of a CPM Model \$

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37R-06: Schedule Levels of Detail - As Applied in Engineering, Procurement, and Construction \$

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39R-06: Project Planning - As Applied in Engineering and Construction for Capital Projects \$

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40R-08: Contingency Estimating - General Principles \$

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41R-08: Understanding Estimate Ranging \$

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42R-08: Risk Analysis and Contingency Determination Using Parametric Estimating \$

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43R-08: Risk Analysis and Contingency Determination Using Parametric Estimating - Example Models as Applied for the Process Industries \$

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44R-08: Risk Analysis and Contingency Determination Using Expected Value \$

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45R-08: Scheduling Claims Protection Methods \$



66R-11: Selecting Probability Distribution Functions for use in Cost and Schedule Risk Simulation Models \$

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67R-11: Contract Risk Allocation - As Applied in Engineering, Procurement, and Construction \$

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68R-11: Escalation Estimating Using Indices and Monte Carlo Simulation \$

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69R-12: Cost Estimate Classification System - As Applied in Engineering, Procurement, and Construction for the Hydropower Industries \$

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70R-12: Principles of Schedule Contingency Management - As Applied in Engineering, Procurement and Construction \$

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71R-12: Required Skills and Knowledge of Decision and Risk Management \$

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72R-12: Developing a Project Risk Management Plan \$

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73R-13: Establishing Labor Productivity Norms \$

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75R-13: Schedule and Cost Reserves within the Framework of EIA-748 \$

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77R-15: Quality Control/Quality Assurance for Risk Management \$

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78R-13: Original Baseline Schedule Review - As Applied in Engineering, Procurement, and Construction \$

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79R-13: Level of Effort Planning and Execution on Earned Value Projects - Within the Framework of EIA-748 \$

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80R-13: Estimate at Completion (EAC) \$

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81R-13: Required Skills and Knowledge of Earned Value Management \$

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Construction Manager Certification Institute (CMCI)

❑ CMs hail from a **wide variety of backgrounds**, making it even **more difficult to define** who we are.

❖ **CM Certification Program** as administered by the **Construction Manager Certification Institute (CMCI)**.

- ✓ CMCI, is an **independent administrative body** of the **Construction Management Association of America (CMAA)**.
- ✓ CMCI's **mission** is "to **recognize through certification**, the individual **knowledge and experience** that meet the established practices of Construction Management."
- ✓ CMCI's **vision** is to be the **recognized authority** in **certifying managers** of the construction process.



استفاده از ضریب هوشی (IQ)، هوش هیجانی (EQ) و هوش ارزشی (VQ) در مدیریت پروژه
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Construction Manager Certification Institute (CMCI)

See Video #02

CM Know-how

❑ A good CM **knows**

1. How to lead
2. What he or she doesn't know
3. When additional expertise is needed
4. Never oversteps his or her boundary to take on responsibility or liability outside the contract.

A **CM needs** to be familiar with delivery options and contract requirements, and *understand the **roles and responsibilities** of each team member.*



استفاده از ضریب هوشی (IQ)، هوش هیجانی (EQ) و هوش ارزشی (VQ) در مدیریت پروژه

فصل اول: استفاده از بهره هوشی (IQ) در مدیریت پروژه
بخش سوم: وظایف و مسئولیتهای مدیر پروژه در ارتباط با حوزه های دانشی و روشهای اجرای پروژه

ارائه دهنده:

سید محمدرضا علوی پور

(PhD, PMP, CMIT)



استفاده از ضریب هوشی (IQ)، هوش هیجانی (EQ) و هوش ارزشی (VQ) در مدیریت پروژه
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What we will learn?

- ❑ What do CMs do?
 - ❖ Project delivery
 - ❖ Alternative delivery systems
 - ✓ PM Competency assessment tool

What Do CMs Do?

(Project Delivery)



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Road map

In this section

WHO? EXPERIENCED MANAGEMENT
PROFESSIONALS IN CONSTRUCTION

WHAT? OWNER ADVOCATES

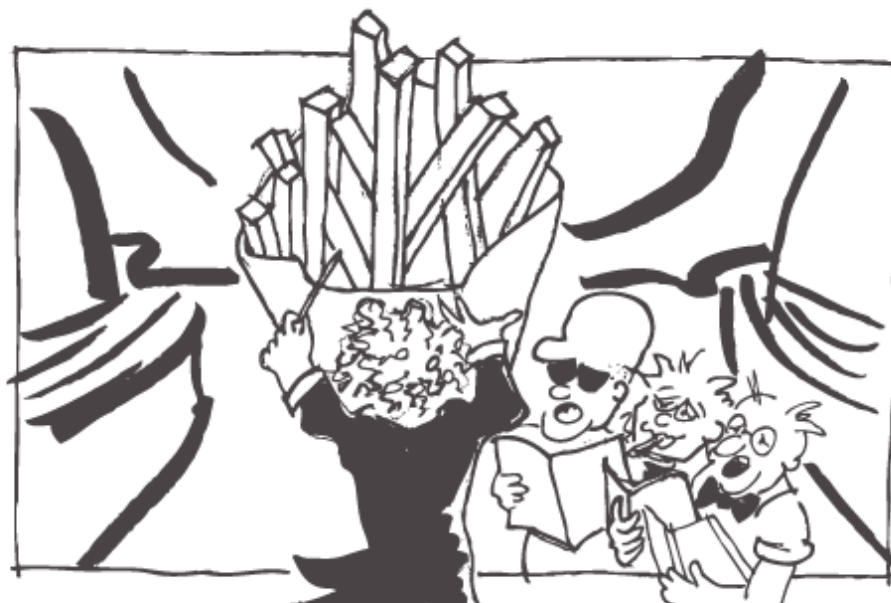
WHY? BECAUSE SOMEONE NEEDS TO LEAD

WHEN? DURING THE LIFECYCLE OF AN ASSET

WHERE? RIGHT ALONGSIDE THE OWNER

HOW? BY MANAGING TIME, COST, QUALITY
AND SCOPE

WHO? EXPERIENCED MANAGEMENT PROFESSIONALS IN CONSTRUCTION



"Can't we all just sing from the same sheet of music?"

What owner says about CM?

The real question here is “What do CM’s do?”

❑ Many Owners have asked this **question over the years** and the best answer we can give is **short and sweet**:

“We help you, the Owner, do your job and help others on the team do theirs.”

❖ At which point the Owners think we are trying to avoid the answer, but the reality is that

there is **no debate, no overlap**

who will be taking the meeting minutes and of course we have an opinion of who that should be!



What is the responsibility of CM?

- ❑ There is sometimes a question of responsibility or liability for **what each party is responsible...right?**

The next Section reviews

1. *Team member **roles and responsibilities** and*
2. ***Why** a CM is needed.*

Since there is a diverse number of consultants required from both the Owner side as well as the vendor/consultant side the bottom line is the need for the right leader/translator to head up each particular project or program.

"We help you do your job..."

Another Section identifies how a CM adds value, but if there is one thing to take away from reading this book it is that a *CM is the Owner's Advocate*. Essentially, we represent the Owner and are a trusted professional added to the Owner's staff to control and lead the team in delivering complex project(s).

"...and help others do theirs"

Architects vs. Contractors vs. CMs

- ❑ **Architects** **design** the project and are responsible to **ensure** that the **design intent** is carried through.
- ❑ **Contractors** **build** the project and are responsible to **ensure** that what the architect **designs gets built correctly** through occupancy and beyond, **based on contract** provisions for **warranty and commissioning** responsibilities.
- ❑ As the **Owner's representative**, the CM's role is to **lead the team** to ensure all **stakeholders perform** their individual duties successfully in order to **ensure overall project success**.

Where this is important?



Owner should advocate!

Where this is important?

Where things become *less clear* is when delivery moves away from traditional methods.

❑ The variety of options for delivering projects makes

1. Life a bit more interesting and sometimes roles
2. Responsibilities can become confusing.

What happens to each party when different delivery system used?

Architect's responsibilities

What happens to each party when different delivery system used?

- ❑ If the architect is designing the project, no matter which delivery method is employed,

at a **minimum** the architect's responsibility during construction (otherwise known as **Construction Administration services** in the traditional sense) includes:

- Review and approval of project submittals to ensure manufacturers' details are in sync with the design.
- Preparation of Request for Information (RFI) responses to clarify and resolve plan discrepancies which may be followed by change orders.
- Preparation of change orders to address changed conditions requiring engineering and/or design which includes bulletins or Architectural Supplemental Instructions (ASI).



Architect's responsibilities

What happens to each party when different delivery system used?

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at a **minimum** the architect's responsibility during construction (otherwise known as **Construction Administration services** in the traditional sense) includes:

- Review and approval of project submittals to ensure manufacturers' details are in sync with the design.
- Preparation of Request for Information (RFI) responses to clarify and resolve plan discrepancies which may be followed by change orders.
- Preparation of change orders to address changed conditions requiring engineering and/or design which includes bulletins or Architectural Supplemental Instructions (ASI).
- Participation in job site meetings and site field visits to review progress and quality of the installations including final walks to prepare punchlists of any incomplete or necessary corrective work.
- Review of plan updates and owner operation and maintenance manuals in conformance with contract documents to ensure that what was installed is properly recorded for future reference in maintaining or planning any future work.

Architect's responsibilities

What happens to each party when different delivery system used?

❑ Keep in mind that **alternative delivery methods** such as **Design Build**

begin to **blur** the **lines of accountability**.

❖ In a **traditional Design/Bid/Build model** Owner is the client.

❖ In the **Design Build model**, When the architect is working under the direction of the contractor, now the contractor is the client and

so the **traditional Construction Administration** role changes.

*Under **Design Build***

who reviews submittals and quality of installed work with the Owner's best interests in mind?



Contractor's responsibilities

What happens to each party when different delivery system used?

❑ If the **Contractor** is building the project, at a minimum he is required to:

- Issue project submittals from the manufacturers who bid the project to get approval of what is to be installed before purchasing.
- Prepare Requests for Information (RFI) when plans are unclear so as not to misinterpret intent.
- Issue Change Order Requests (CORs) when changed conditions occur and follow up with cost proposals to either increase or decrease approved contract value.



Contractor's responsibilities

What happens to each party when different delivery system used?

❑ If the **Contractor** is building the project, at a **minimum** he is required to:

- Issue project submittals from the manufacturers who bid the project to get approval of what is to be installed before purchasing.
- Prepare Requests for Information (RFI) when plans are unclear so as not to misinterpret intent.
- Issue Change Order Requests (CORs) when changed conditions occur and follow up with cost proposals to either increase or decrease approved contract value.
- Participate in Owner meetings in addition to internal trade contractor meetings to review progress and seek answers on issues impacting progress including final walks to prepare punch lists of any incomplete or necessary corrective work.
- Prepare as-built conditions of the plans and issue owner operation and maintenance manuals in conformance with contract documents.

Contractor's responsibilities

What happens to each party when different delivery system used?

❑ Again, keep in mind that when the architect is part of the contractor's team as in

Design Build,

❖ RFI's are **now internal** and **not issued** to the client unless

1. *Design intent clarification is needed or*
2. *There is an **unforeseen changed condition**,*
same with change orders.

So now the **architect's allegiance** is to the **contractor and visa versa**, and
not the Owner.

And what happens when the contractor switches roles from CM as Agent to CM @ Risk?

So, the **first step** is to see how variations in project delivery impact **relationships**

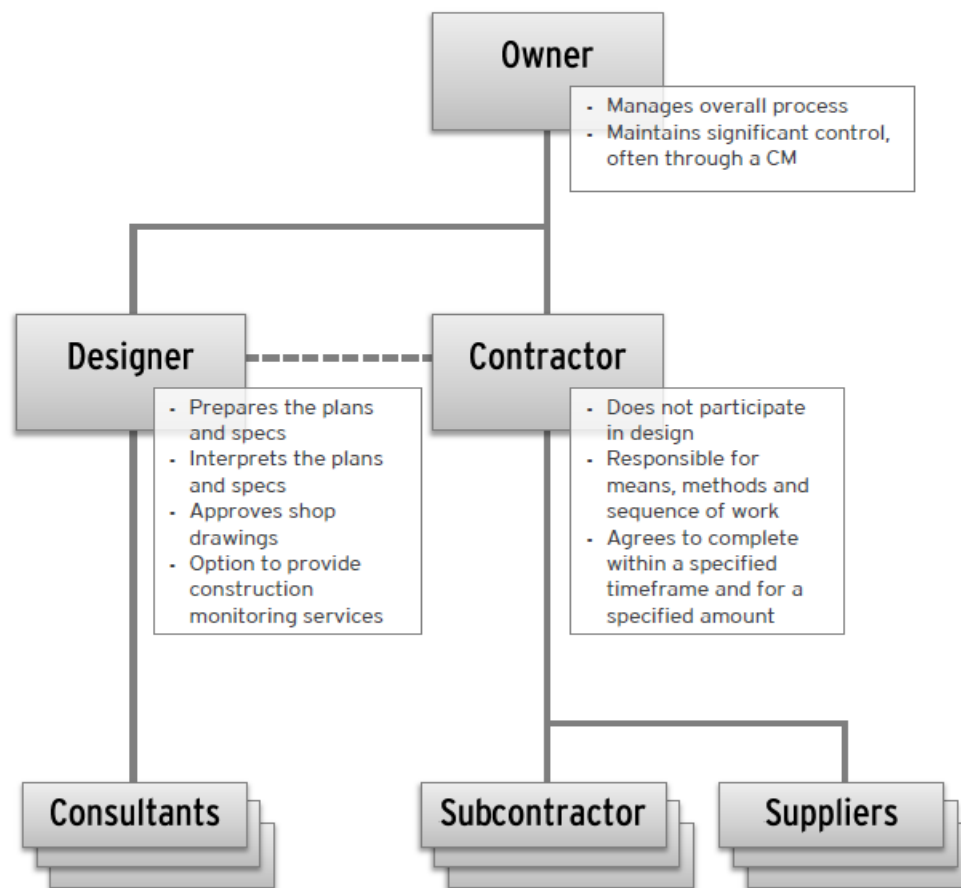
What Do CMs Do?

(Alternative Delivery Systems)

Traditional DESIGN-BID-BUILD (DBB)

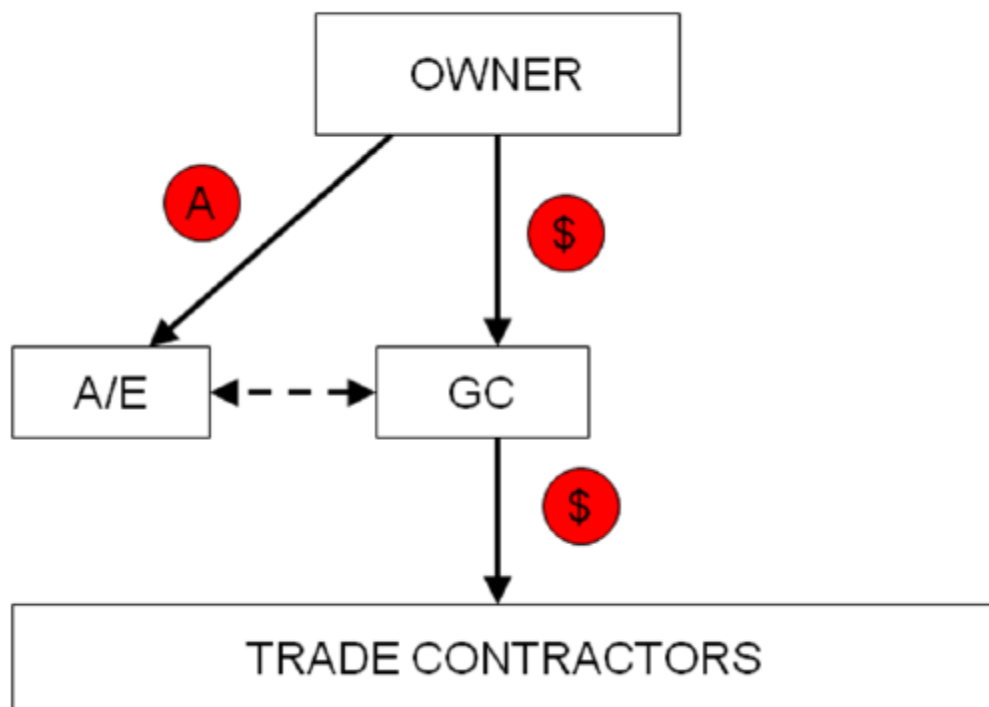
THE TRADITIONAL APPROACH

- Phases are linear
- Construction documents are usually complete
- Contract may be negotiated or competitively bid
- Any number of subcontractors

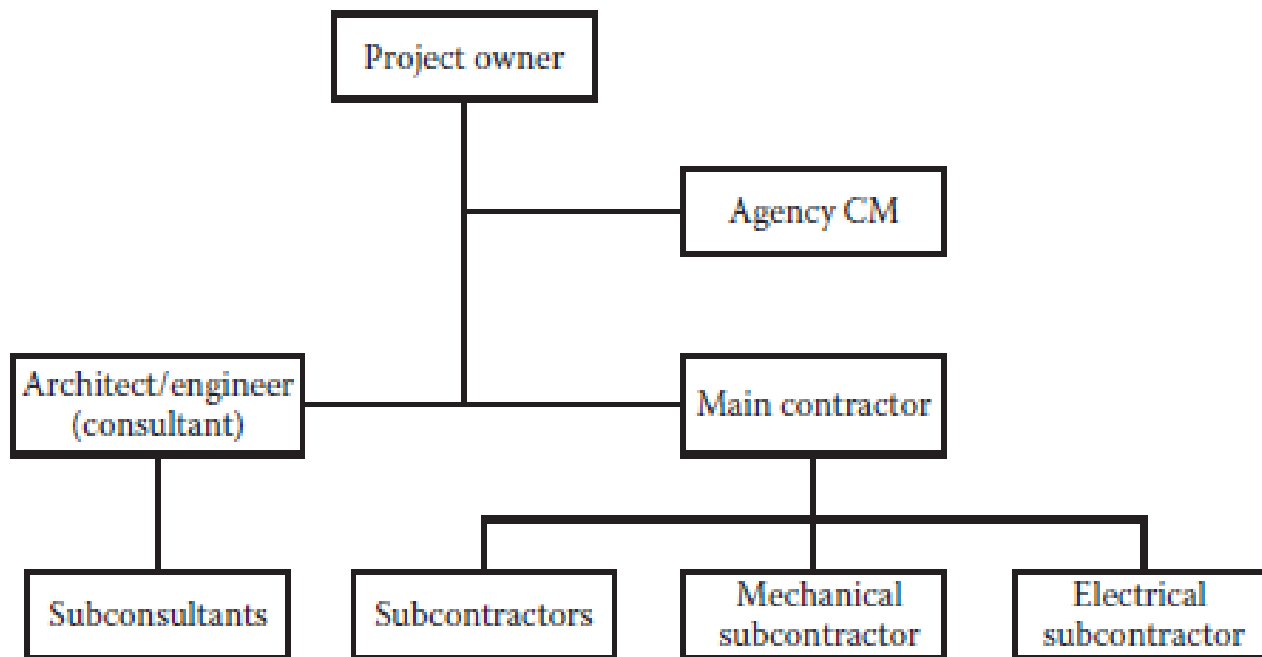


Traditional DESIGN-BID-BUILD (DBB)

TRADITIONAL PROJECT DELIVERY SYSTEM



Traditional DESIGN-BID-BUILD (DBB) with Agency CM

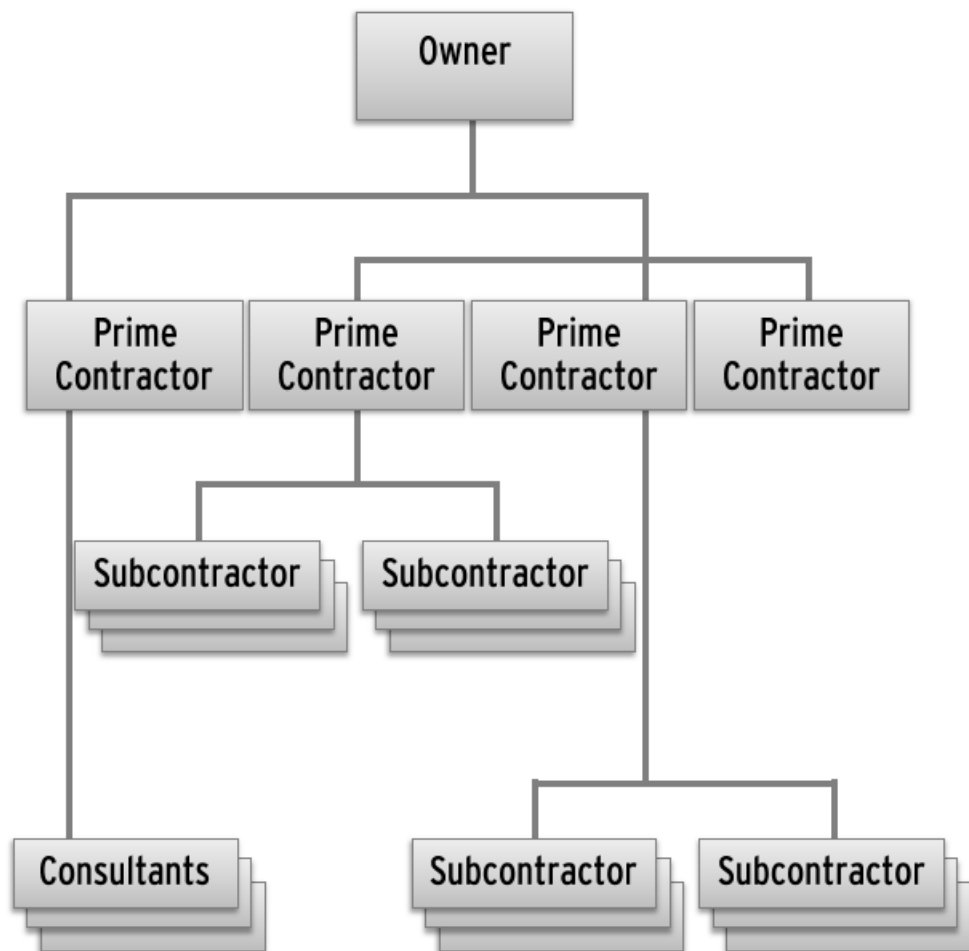


Design-bid-build with agency CM.

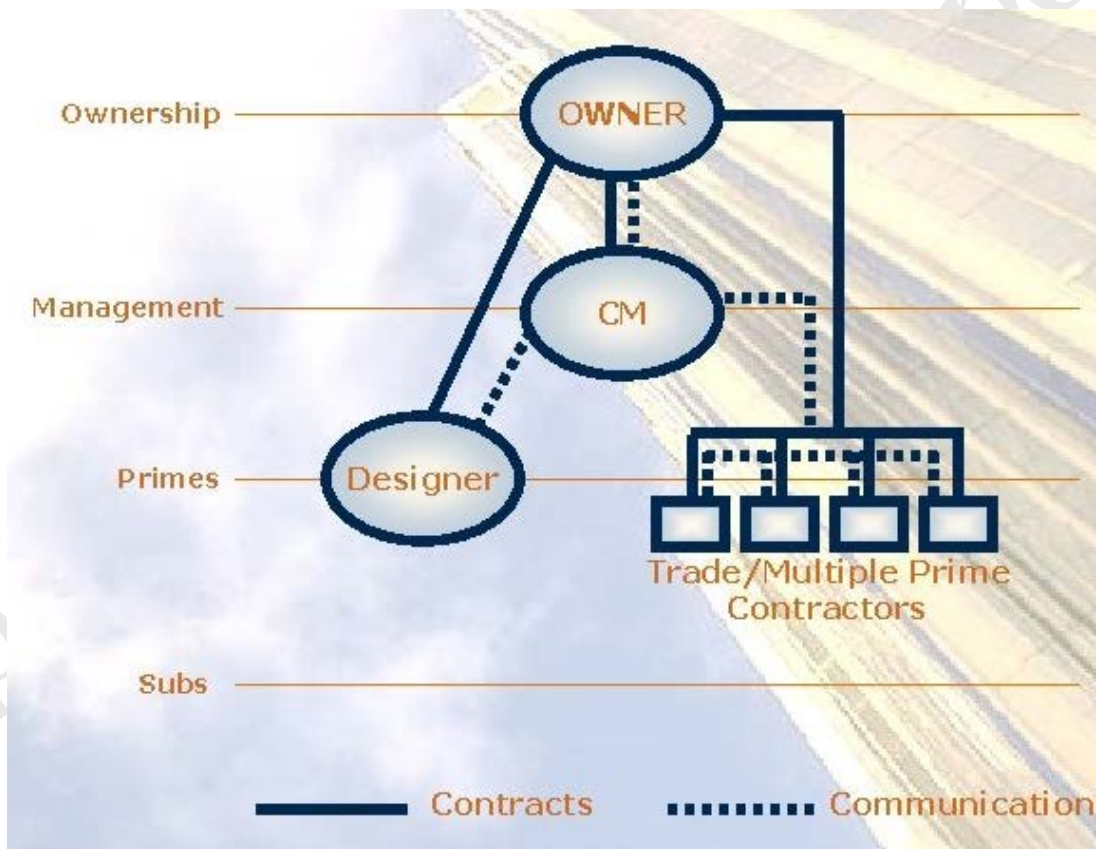
Multiple Prime Approach

THE MULTIPLE PRIME APPROACH

- Owner contracts with multiple entities
- Owner maintains coordination role, often via CM
- Prime contracts are broken up by trade or divided by law
- Allows for phased or fast-tracked construction

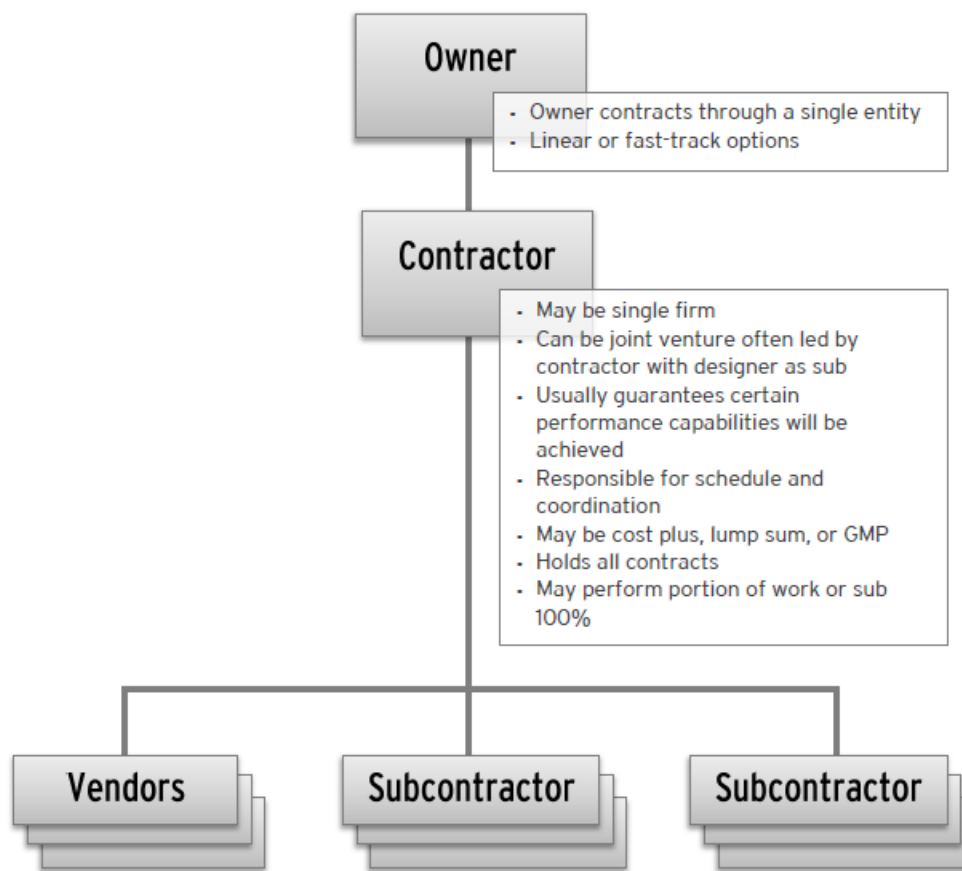


Multiple Prime Approach with Agency CM



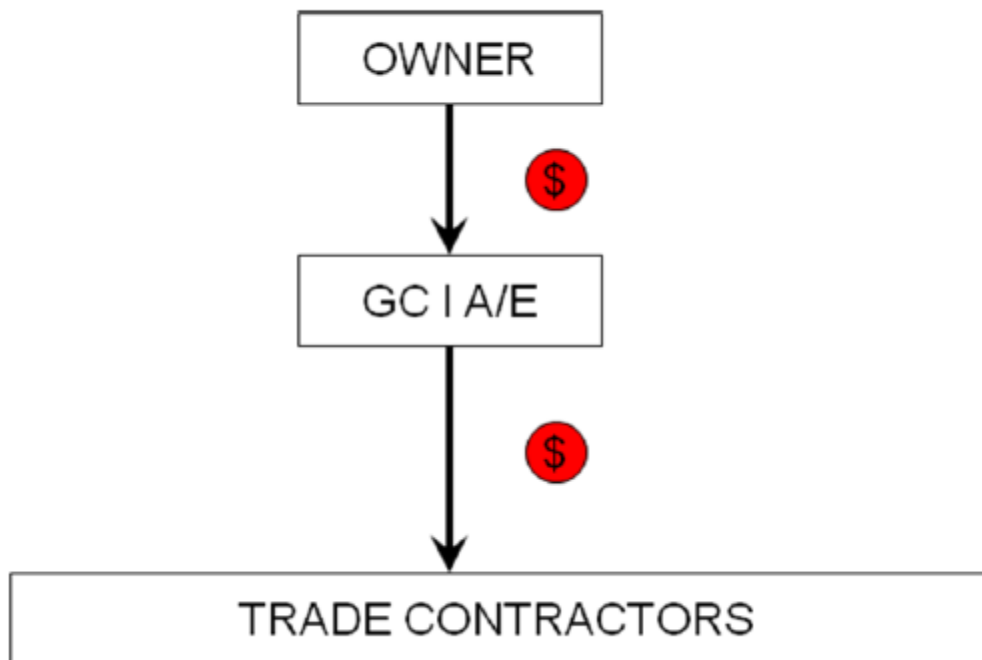
DESIGN-BUILD (DB)

THE DESIGN-BUILD APPROACH

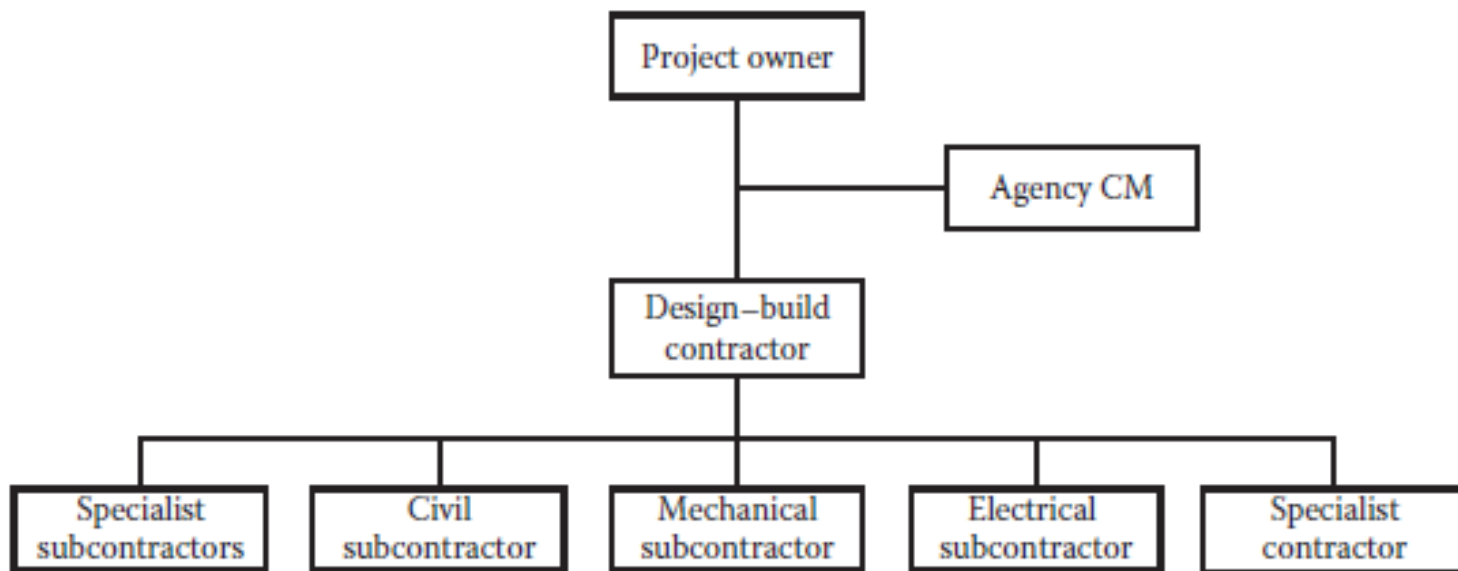


DESIGN-BUILD (DB)

DESIGN/BUILD PROJECT DELIVERY SYSTEM

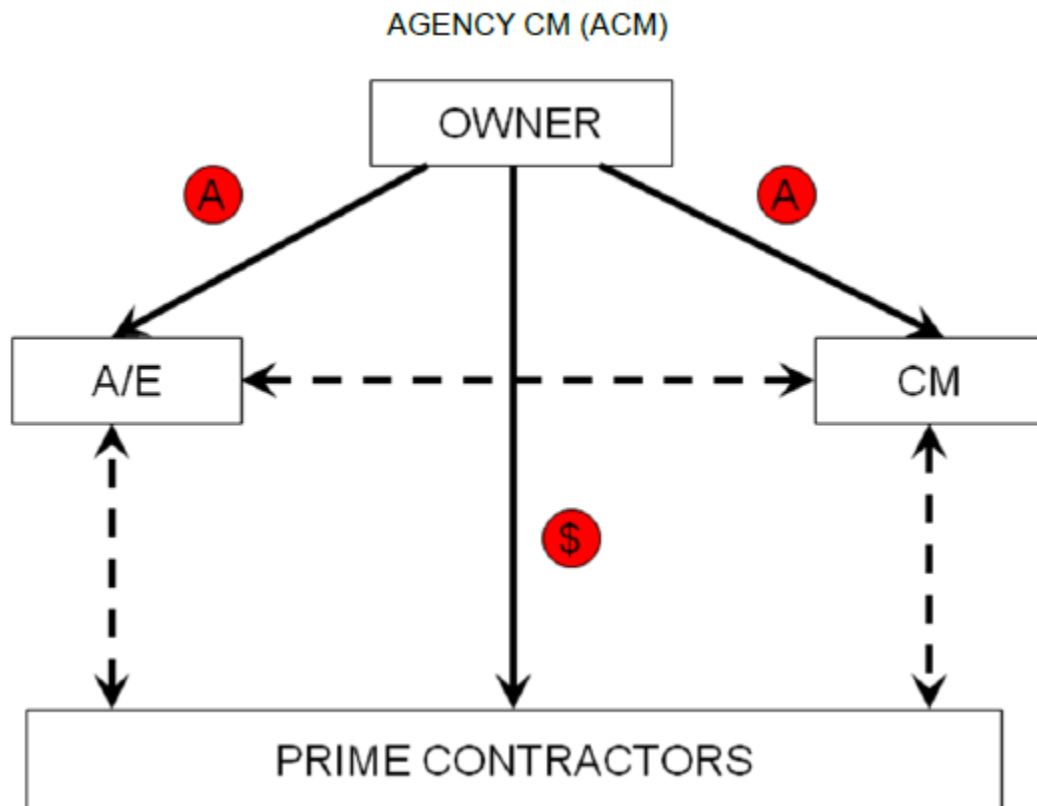


DESIGN-BUILD (DB) with Agency CM



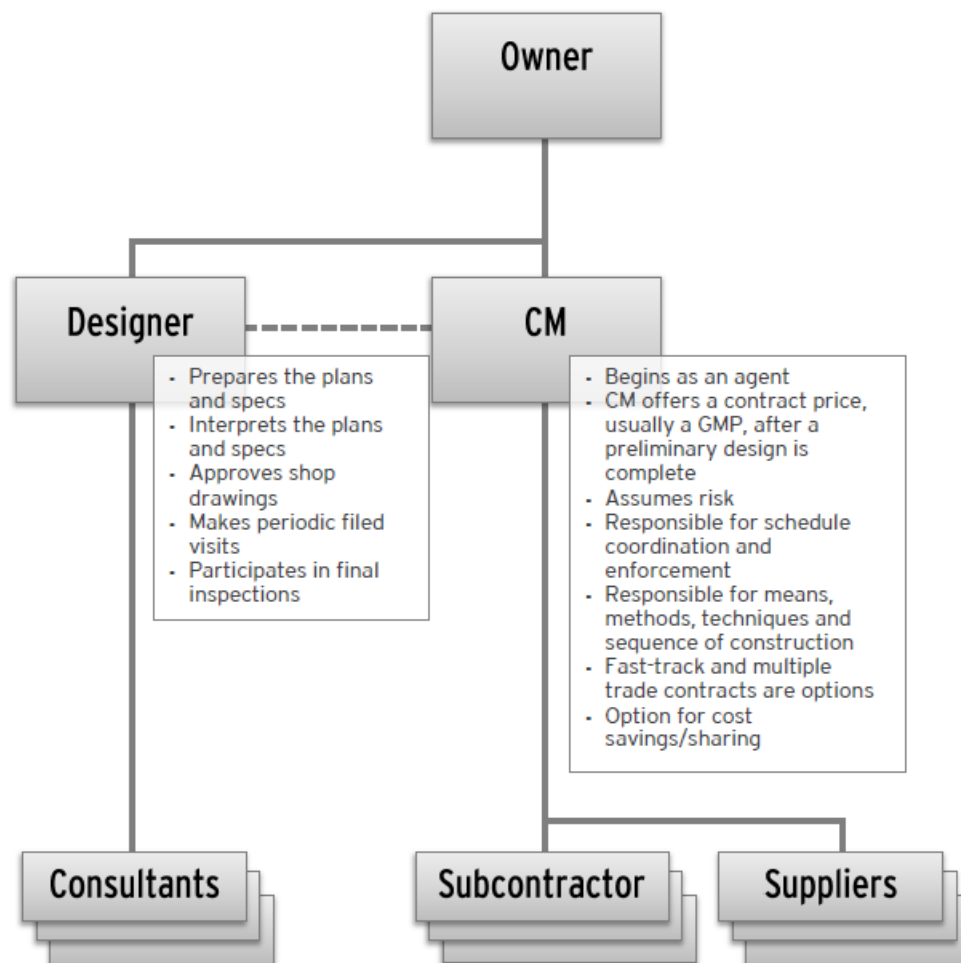
Design-build-delivery system with agency CM.

Agency CM (ACM) (CM-for-free)

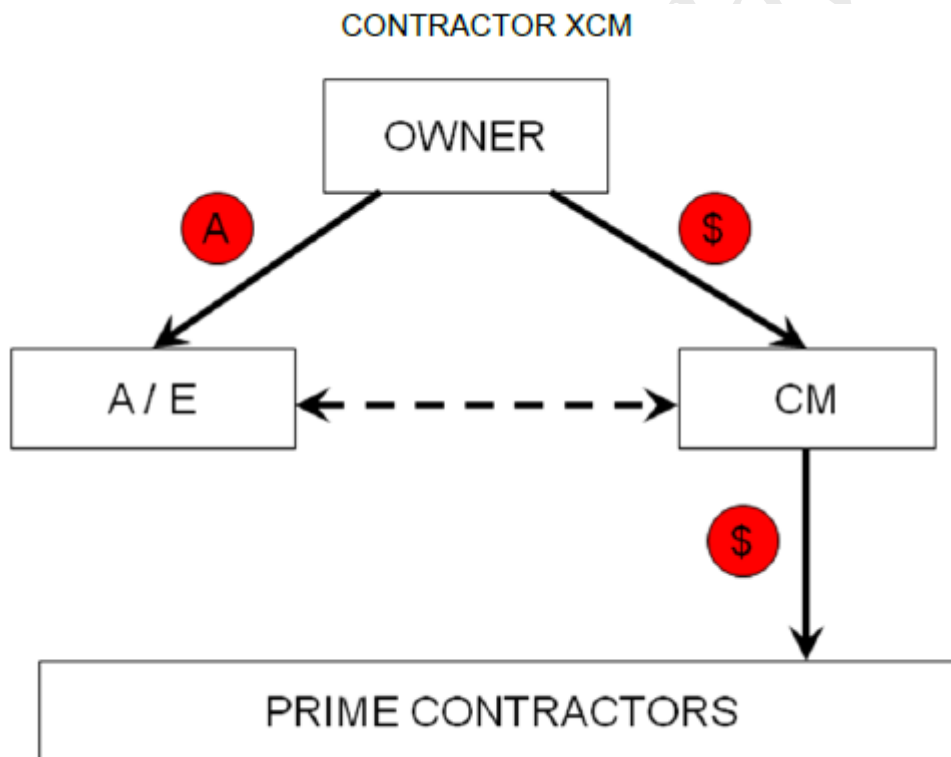


CM-AT-RISK APPROACH

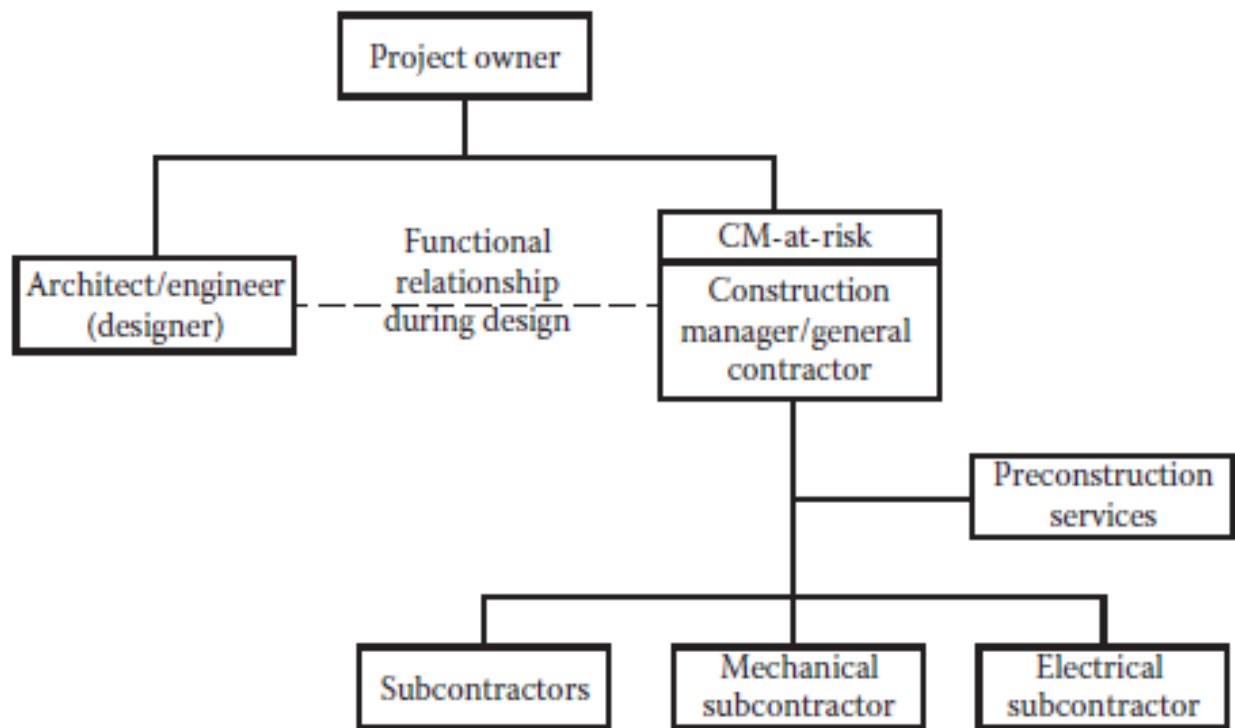
- Similar to the traditional approach
- Trade contract may involve competitive bids or negotiated contracts
- Trade contracts may be with owner or CM
- CM may perform portions of the work



Contractor XCM (CM-at-Risk)

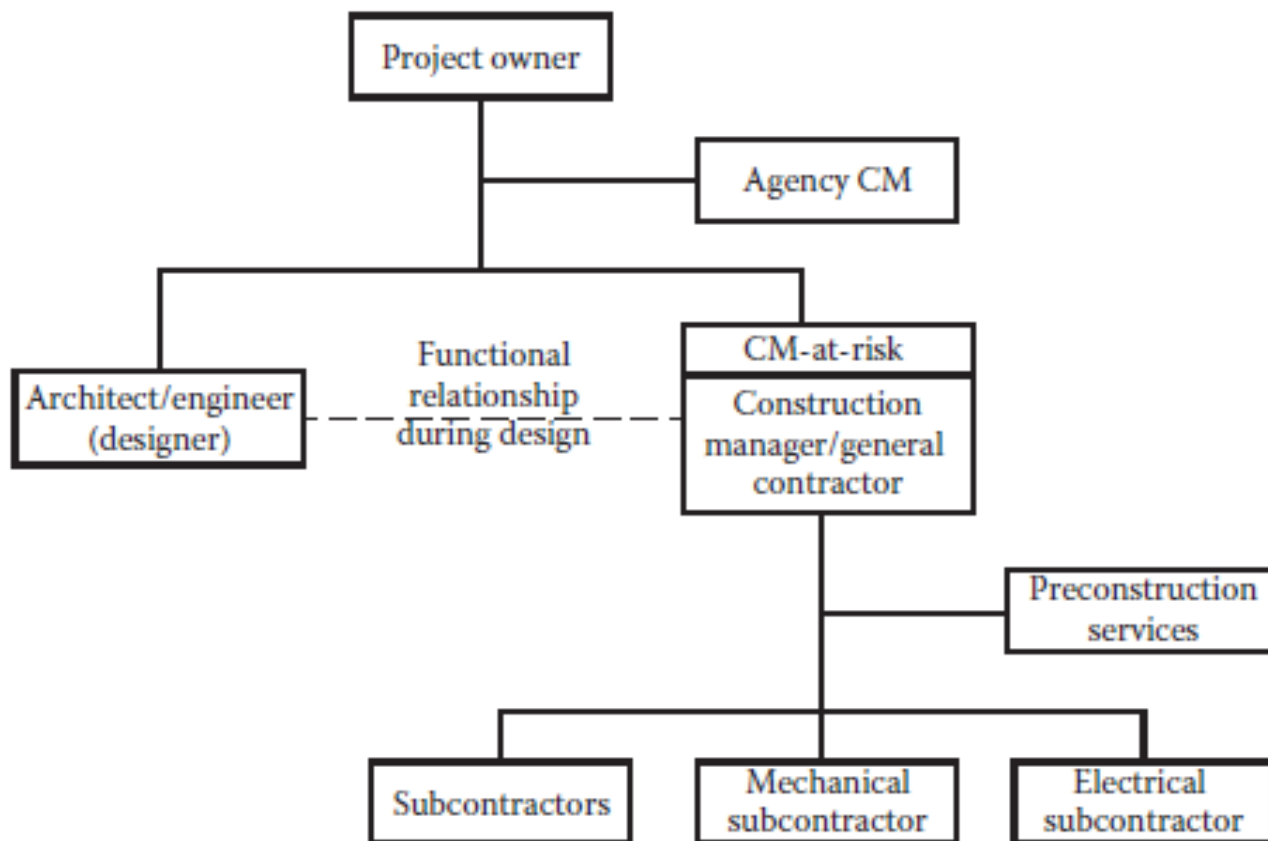


Contractor XCM (CM-at-Risk)



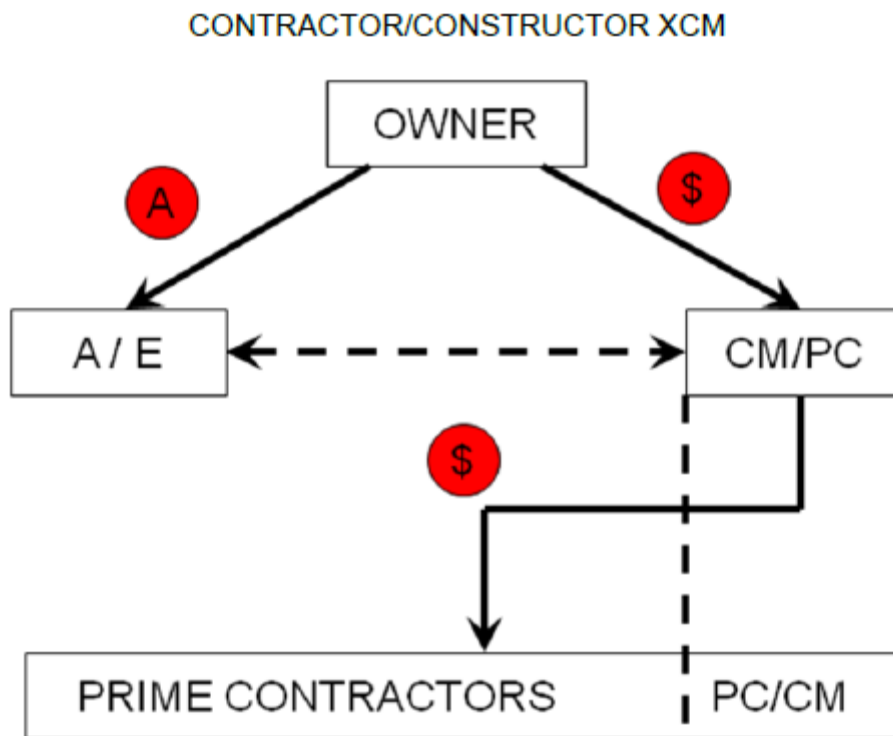
Construction management contractual relationship (CM-at-risk).

Contractor XCM (CM-at-Risk) with Agency CM

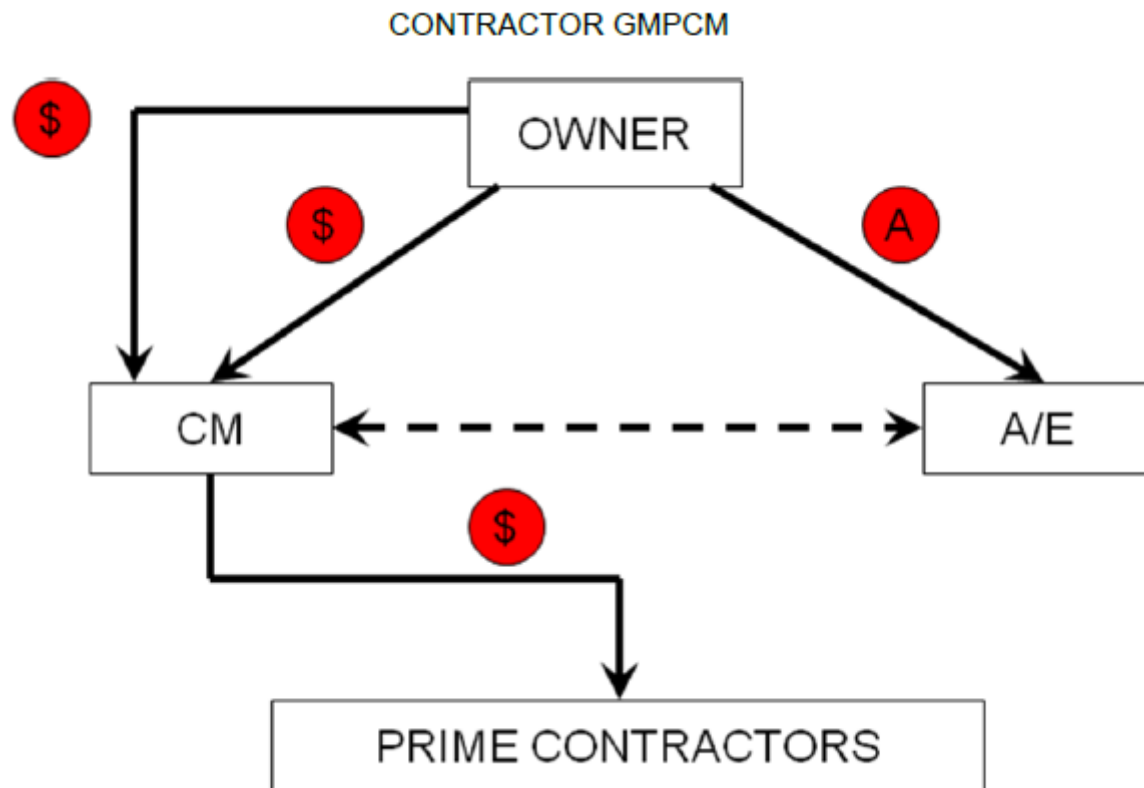


Construction management-at-risk (CM-at-risk) with agency CM.

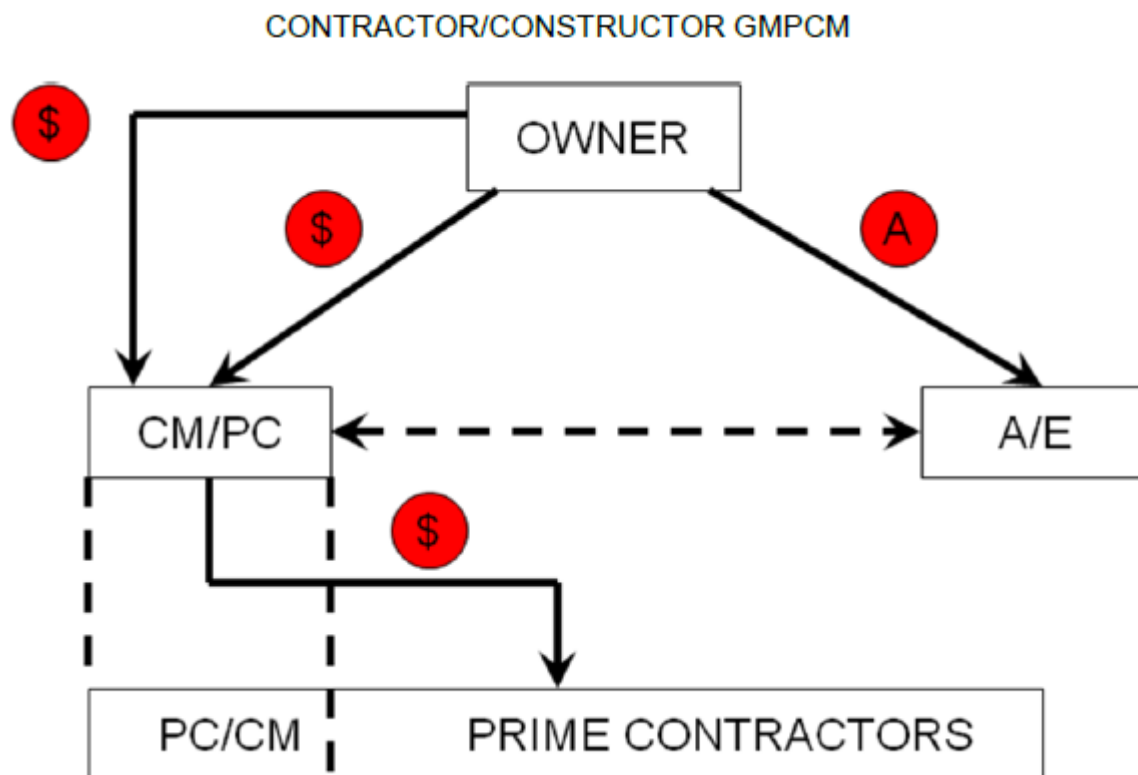
CONTRACTOR/CONSTRUCTOR XCM



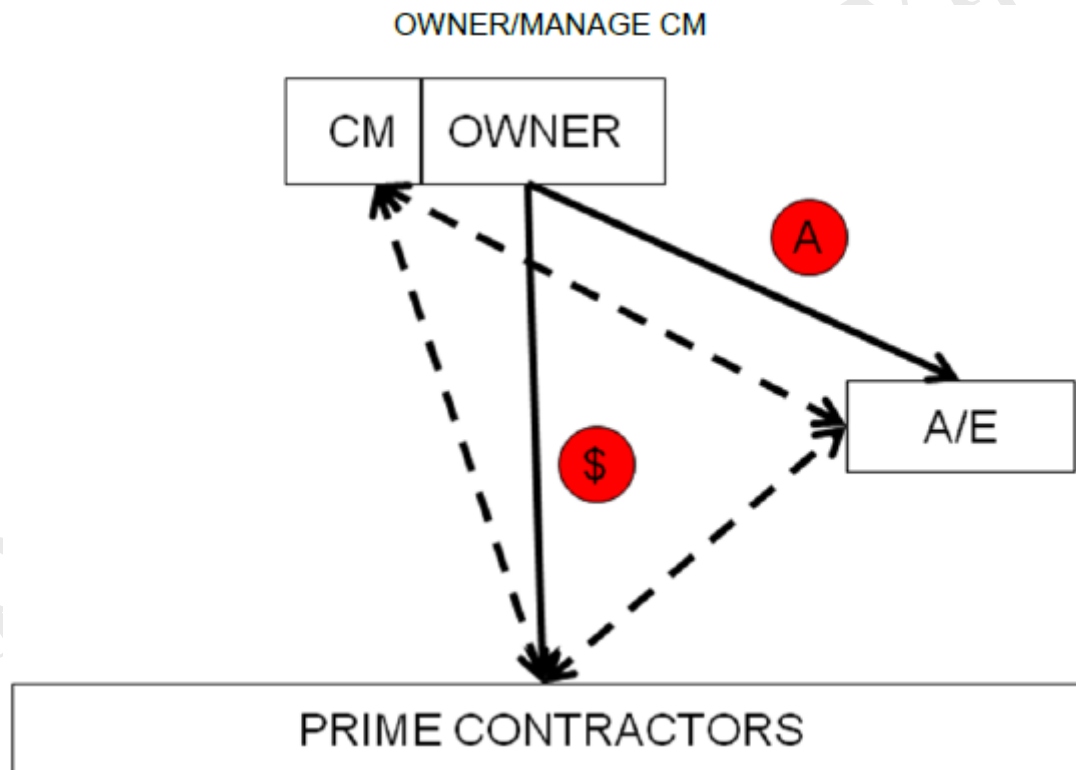
CONTRACTOR GMPCM



CONTRACTOR/CONSTRUCTOR GMPCM

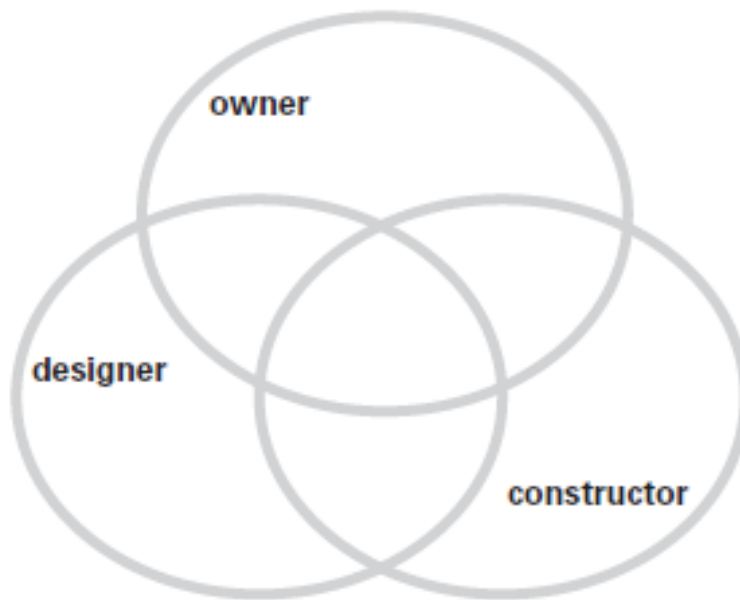


OWNER/MANAGE CM (IN-HOUSE CM)



Integrated Project Delivery (IPD)

Multi-Party



Is it CM as Agent or Agency CM?

What is the difference between these two terms?

Is it CM as agent or Agency CM?

Is it CM as Agent or Agency CM? What is the difference between these two terms?

❑ This is not to be **confused with CM @ Risk**,

where the CM starts off as the **Owner's agent** during the design phase and
then shifts over to become the **contractor** during construction.

Just remember that the term **Agency CM** is not exclusive to any delivery model.

Who owns the risk?

Who owns the risk?

- ❑ Perhaps you are now beginning to see how variations in project delivery **impact** relationships from the point of view of accountability.
- ❑ At the end of the day, **He Who Owns the Risk** has the most control over the delivery of the project.



Who Owns the Risk?

Whatever option is ultimately selected

Owner always needs *advocacy*.

Who owns the risk?

- ❑ A team **delivers** a project for the **Owner**.
- ❑ Someone **needs to lead the team** and **ensure timely flow** of information, fair and reasonable pricing, and clear communication.
- ❑ Delivery options are **alternatives to the Traditional Design/Bid/Build** model which has generated a **lot of claims** and **problems** over the years for **public sector clients** who want options to the **low bid environment**.

So why is there a need to have **alternative delivery systems**, and **alternative to what?**



Who Owns the Risk?

Why we need alternative delivery systems?

❑ In evaluating the **pros and cons of each Delivery Method** remember to **consider**

❖ *Who owns the risk? Don't forget Risk = \$\$\$.*

✓ if the **Owner** claims they **don't want any** of the risk,

○ Is he or she then paying a **premium**?

○ Can these **costs be controlled** through the **Owner's efforts**?

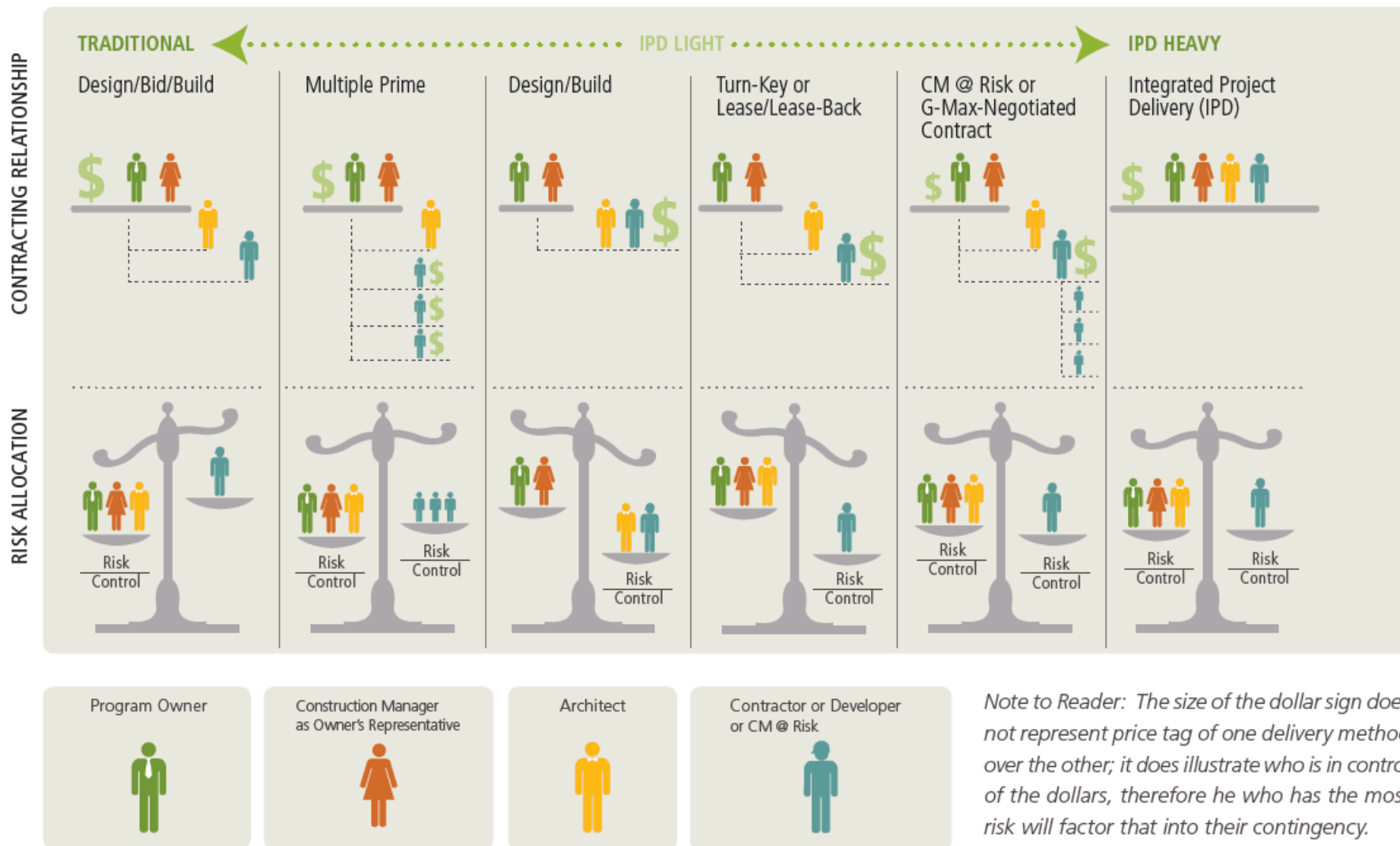
○ Is the **never ending search** for the **ideal project delivery system** or
"Garden of Eden" a **way to shift risk**?

○ At **which point** are you really **willing to give away control**?



Wishing for the Garden of Eden? Be careful what you wish for.

Spectrum of delivery systems: Who owns the risk?



Spectrum of delivery systems: Who owns the risk?

Why are there so many delivery systems or models to consider for both public and private sector owners?

1. Increased regulatory mandates
2. Litigation
3. Economic constraints

have **forced Owners** to **seek alternative methods** to deliver projects.

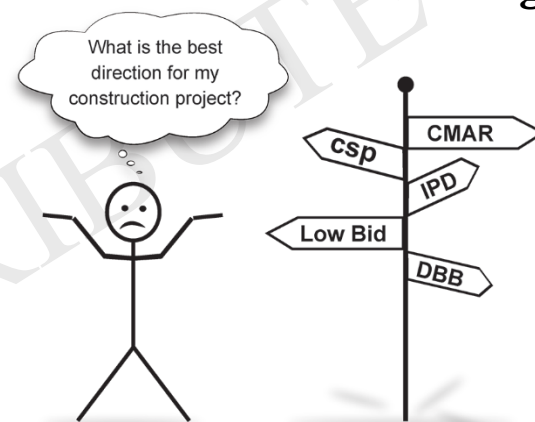
Evaluate owner's philosophical position relative to risk

1. Will selection be primarily based on lowest cost or highest qualification?

❑ Don't confuse contracting method with delivery model.

❖ **Each delivery model** can accommodate any **combination of contracting methods** such as:

1. Lump sum,
2. Time and material (T&M),
3. Guaranteed maximum (GMAX) or
4. Unit pricing



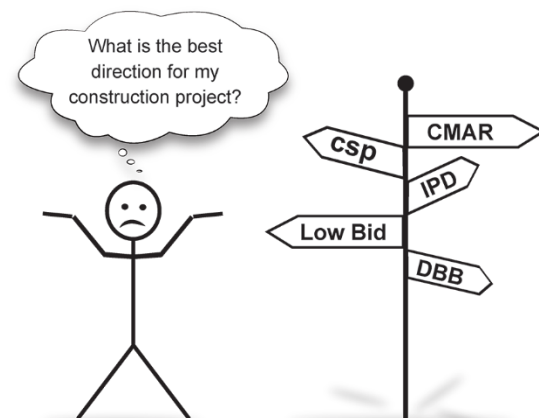
Evaluate owner's philosophical position relative to risk

2. What phase of the project lifecycle the owner is willing to put the most effort?

❑ Keep in mind that the earlier management effort is expended,

higher the ability to control costs,

thereby **achieving better balance** on the risk/control scale.



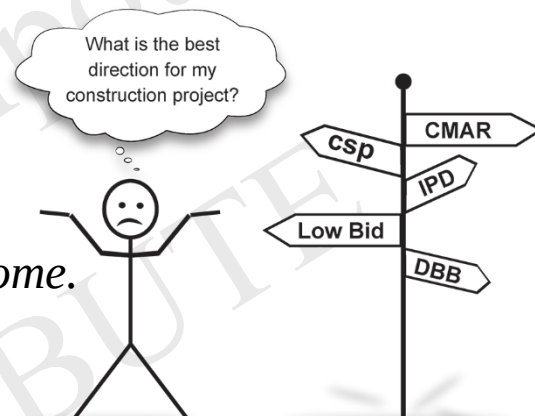
Evaluate owner's philosophical position relative to risk

3. Who owns the risk?

❑ **Remember** that risk = \$\$\$

❑ **Don't forget** to weigh Risk vs Reward.

Whoever owns the risk best controls the outcome.



❑ If the Owner claims they do not want any of the risk (DBB),

he or she may be paying a **premium** and

by giving up control, may not be satisfied with the end product.

1. How can the shift towards IPD help to **balance these risks**?
2. Is it workable for **all project types**?
3. Can it be successful in the **public sector**?

Which delivery method should be adopted?



"Which Delivery Model is this?"

Which delivery method should be adopted?

❑ Each delivery model and contracts can be **adapted to suit the model** as long as

- ❖ Method of payment
- ❖ Any damages and rewards
- ❖ Responsibilities
- ❖ Time line expectations

are clear, defined, and identified.



"Which Delivery Model is this?"

Do Alternative Delivery Systems **assure** delivery of a successful project?

Do Alternative Delivery Systems assure delivery of a successful project?

❑ Alternative Delivery Systems do not assure delivery of a successful project in and of themselves.



1. These systems focus on **contracting relationships**,
not human relationships, built on trust, cooperation and flexibility.
2. While **movement towards a more collaborative approach earlier** in the process is **desirable**,
without the ability to aggregate a proven team from project inception comprised of Owner, Designer and Builder,
there is
 1. Neither assurance of **best value**
 2. Nor **high performance**

How to minimize risk of aggregating proven team?

How to minimize risk of aggregating proven team?

❑ The best way to minimize risk is to

establish **performance measurement of the team** to

control the outcome of a project through the **selection process**.

How Project Manager Competency assessed?

Wow! We have a **magic** here!



Project Manager
Competency Assessment
Tool
IR 306-2

Next

Print

New Evaluation



Let's take a look and hope you enjoy!



How Project Manager Competency assessed? – Overview

- ❑ This user guide (IR 306-2) for the **Project Manager Competency Assessment Tool** (PM CAT) **explains** its **purpose** and gives **step-by-step instructions** for its use.
- ❑ The **PM CAT** is a **user-friendly tool** that
 1. Quantitatively assesses and
 2. Scores project manager (PM) competencies
- ❑ The tool should be **completed by**
 1. **Direct supervisor of the PM** being evaluated, or
 2. Used by **PMs for self-assessment**

How Project Manager Competency assessed? – Overview

❑ The questions in the PM CAT focus on the **competencies that a PM** should possess to **successfully lead, manage, and execute** a project.

❖ The **tool output** compares

1. PM's score
2. Industry standards established by Research Team (RT) 306



How Project Manager Competency assessed? – Overview

❑ The tool:

1. **Compares** evaluated **PMs** with **PMs ranked** as either **excellent** or **average** in the team's research
2. **Identifies** the PM's areas of **strength** and any **opportunities** for **improvement** (i.e., Competency gaps).

How the tool has been developed?



How Project Manager Competency assessed? – Tool development

❑ RT 306

1. Identified,
2. Tested, and
3. Weighted for

significance a battery of **necessary**

1. Skills,
2. Attributes,
3. Knowledge, and
4. Characteristics

required to **succeed as a PM** on an engineering, procurement, and construction **(EPC) project**, and

What happened next?

used them as the **framework for the PM CAT.**

How Project Manager Competency assessed? – Tool development

❑ After developing this MS Excel®-based tool,

research team then tested and validated it on **PMs on EPC projects**.

❖ The team also made it **adaptable** for use by **different EPC stakeholders, e.g., owners, contractors, and architects**.

I - KNOWLEDGE/EXPERIENCE						
In the first section, we will ask about the PM's knowledge and experience to effectively lead and enable team members to work efficiently.						
	Not at All	Slightly	Somewhat	Very	Extremely	N/A
A. Awareness of and Knowledge to Use State of the Art Technology						
In the past year, how well did this PM...						
... understand available information technologies provided by the company?						
... make use of available information technologies provided by the company?						
... embrace available information technologies provided by the company?						
... encourage others to use available information technologies provided by the company?						
B. Business/Financial Acumen						
In the past year, how well did this PM...						
... understand the business side of the project?						
... understand the financial side of the project?						
C. Certification/Training						
In the past, did this PM...						
... meet the level of certification required by the company?						
... obtain or pursue additional certifications?						
D. Continuously Monitors and is Aware of Similar EPC Projects						
In the past year, how well did this PM...						
... understand the methods and means to implement relevant knowledge and information into his or her own project?						
... leverage relationships with key players in the business?						
E. Disciplinary Understanding of all Phases of Project Delivery and their Inter-relationship						
In the past year...						
...how knowledgeable was this PM regarding all of the phases of project delivery and their inter-relationships?						
F. Disciplinary Understanding of a PM Job						
In the past year, how well did PM maintain an up-to-date understanding of the following?						
Technical functions						
Project management						
Construction functions						

How Project Manager Competency assessed? – Introduction and copyright

☐ Project and evaluator

Reset
Information

PROJECT AND EVALUATOR INFORMATION

Please fill out the table below.

Project Manager Name:
Official Job Title:
Company/Division Name:
Evaluation Date:
Evaluator Name:
Title:
Telephone:
Email:

How Project Manager Competency assessed? – Introduction and copyright

❑ Project and evaluator

Answer choices are the following: *Not at All, Slightly, Somewhat, Very, and Extremely*. Some organizations may prefer to characterize responses differently.
If this is the case, edit the answer choices below. They will automatically be updated throughout the document.

		Enter Desired Name Below
<u>Low Score</u>	1	Not at All
	2	Slightly
	3	Somewhat
	4	Very
<u>High Score</u>	5	Extremely

	N/A	N/A
--	-----	-----

Reset
Answer

How Project Manager Competency assessed? – Introduction and copyright

□ Copyright

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How Project Manager Competency assessed? – List of PM competencies

Knowledge/Experience

The knowledge, skills, and relevant management experience that a PM needs to lead a team effectively and to empower team members to work efficiently in an EPC environment.

To achieve this success, a PM must be up to date on state-of-the-art technology, and has to demonstrate knowledge across multiple technical, project, management, and construction disciplines.

Management

The ability to plan, organize, execute, and follow up on (control) the processes, procedures, and best practices of the organization.

Successful PMs possess the management competencies necessary to successfully achieving the organization's strategic purpose/goals.

Cognitive (& Attributes)

The intellectual abilities that enable a PM to be adaptive to processes, to listen to and communicate information with people on the project, and to propose and provide solutions.

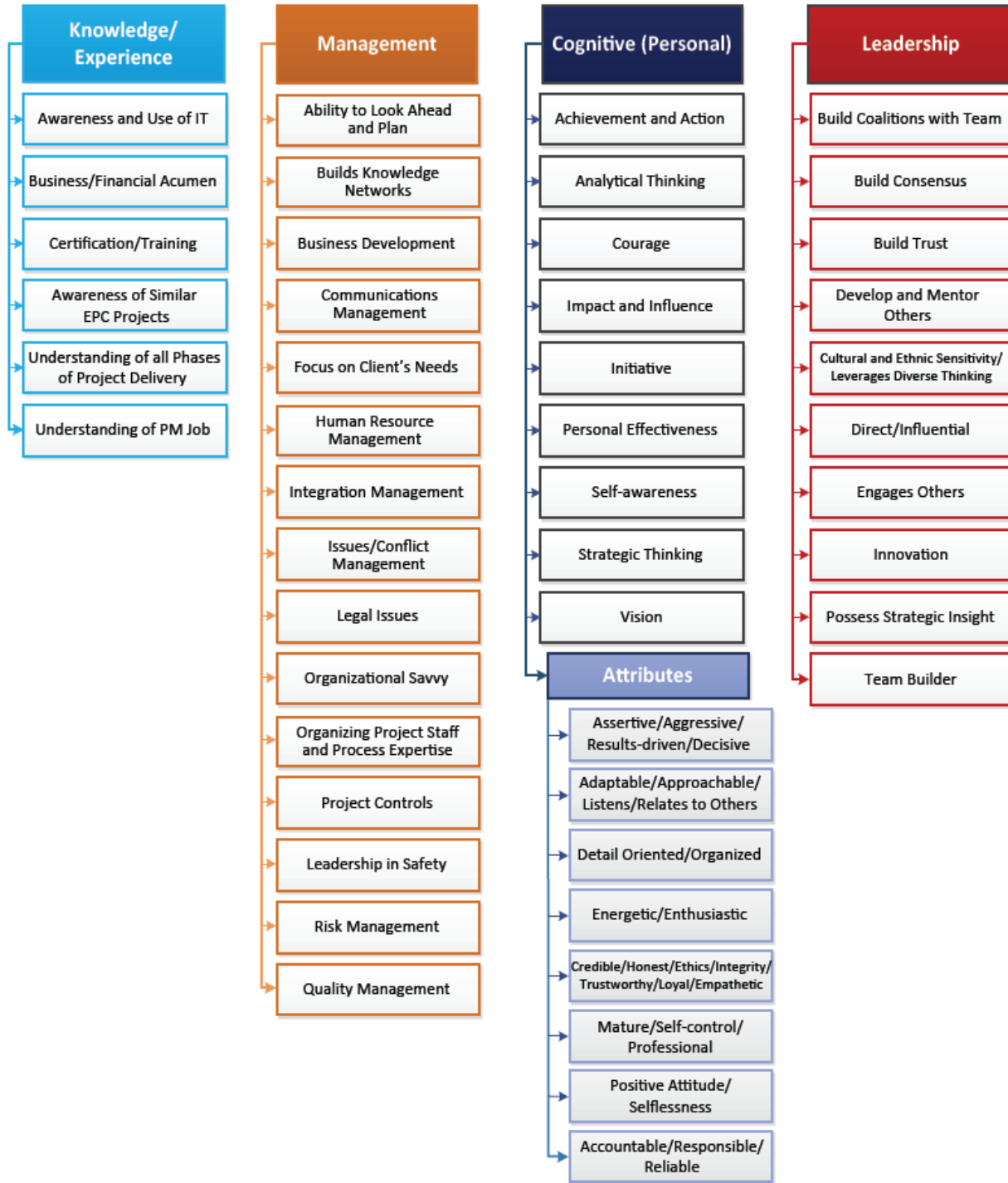
In addition to these basic competencies, a PM should be able to think conceptually, analytically, and critically about problems and issues.

Leadership

Traits that a PM possesses or has learned that align, motivate, and inspire a team to act in harmony and achieve project objectives.

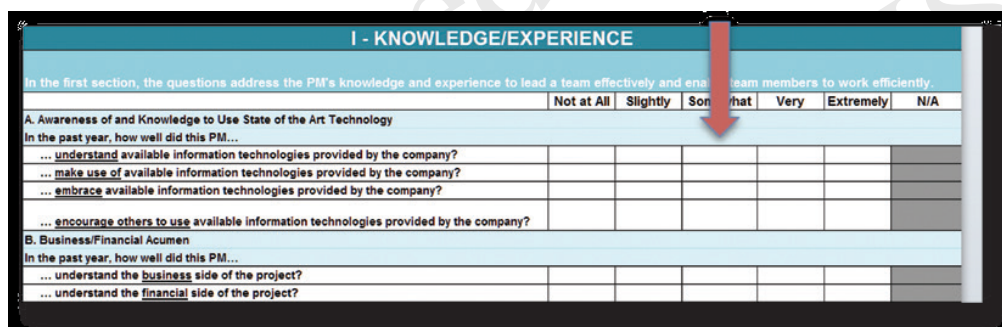
How Project Manager Competency assessed? – List of PM competencies

روژه



How Project Manager Competency assessed? – Input PM rating page

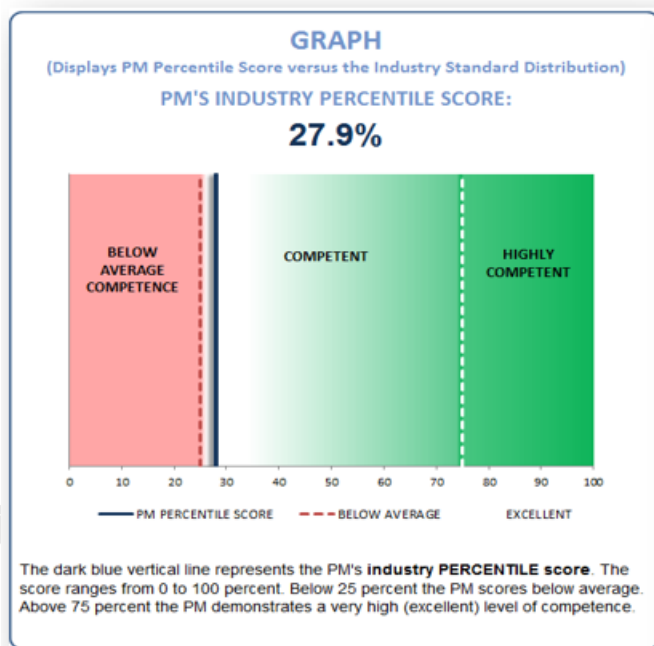
- ❑ There are a **total of 131 questions** for the **49 competencies**.
- ❑ The **“N/A” response** should **only be selected**
 1. If **competency** queried is **not applicable to the company**, or
 2. If the **user** is **uncertain** whether the **PM has the competency**.
- ❖ It should **not be confused** with the **“Not at All” response**,
which means the **PM does not possess** the competency.



Enter Desired Name Below		
Low Score	1	Not at All
	2	Slightly
	3	Somewhat
	4	Very
High Score	5	Extremely
	N/A	N/A

How Project Manager Competency assessed? – Output report page

- ❑ For example, a score of 60 percent would mean that the PM is more competent than 60 percent of PMs and less competent than 40 percent of PMs.



DETAILED RESULTS

This section delineates how the PM performs for each of the four categories: 1) Knowledge and Experience, 2) Management, 3) Cognitive, and 4) Leadership. Red means below average, Light striped green means competent in that area, and Green means highly competent (excellent). The competencies for which the PM scored exceptionally high or low are the listed below. Competencies with low scores are highlighted for development purposes. Competencies listed under "EXCELS IN THE FOLLOWING" are areas in which the PM demonstrates a high level of competence. Competencies listed under "BELOW AVERAGE" identify opportunities for development. Find a full list of competencies and definitions below.

I - KNOWLEDGE AND EXPERIENCE

EXCELS IN THE FOLLOWING:

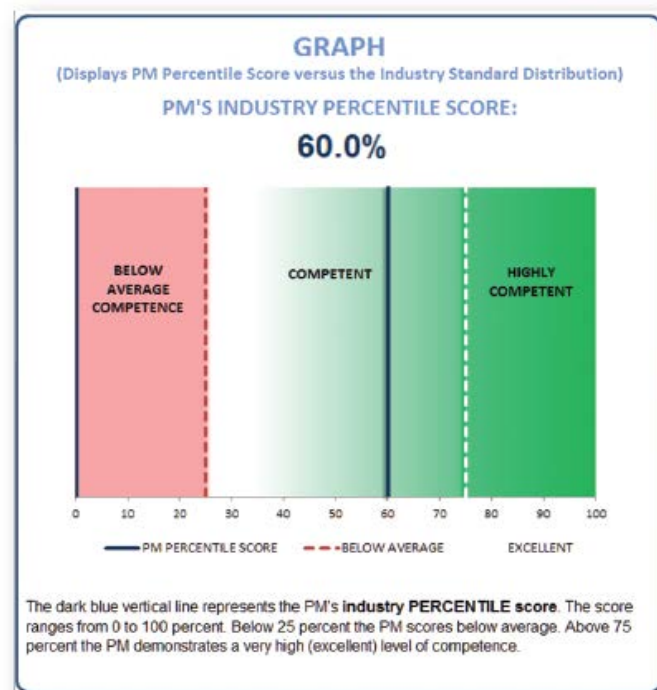
IS BELOW AVERAGE IN THE FOLLOWING:

II- MANAGEMENT

EXCELS IN THE FOLLOWING:

How Project Manager Competency assessed? – Output report page

- ❑ The **graph's dark blue vertical line** represents the **PM's percentile score**, showing how it compares to other PMs:
 - **Below 25 percent** (in the red zone on the left-hand side), the PM scores below average.
 - **Between 25-75 percent** (in the light green zone) indicates a competent PM.
 - **Above 75 percent** (in the dark green zone on the right-hand side), the PM demonstrates an exceptionally high (excellent) level of competence.



How Project Manager Competency assessed? – Output report page

- ❑ The next section in the output report delineates **how the PM performs** for each of the **four competency categories**:

- 1) Knowledge and Experience,
- 2) Management,
- 3) Cognitive, and
- 4) Leadership

- ❑ Colors next to each section have the following meanings:

1. **Red means** below average competence.
2. **Light green** stripes mean competent in that area.
3. **Dark green** means highly competent (excellent).

DETAILED RESULTS	
This section delineates how the PM performs for each of the four categories: 1) Knowledge and Experience, 2) Management, 3) Cognitive, and 4) Leadership. Red means below average, Light striped green means competent in that area, and Green means highly competent (excellent). The competencies for which the PM scored exceptionally high or low are the listed below. Competencies with low scores are highlighted for development purposes. Competencies listed under "EXCELS IN THE FOLLOWING" are areas in which the PM demonstrates a high level of competence. Competencies listed under "BELOW AVERAGE" identify opportunities for development. Find a full list of competencies and definitions below.	
I - KNOWLEDGE AND EXPERIENCE	
EXCELS IN THE FOLLOWING:	
Awareness of and knowledge to use of state of the art technology	
Disciplinary Understanding of all Phases of EPC Projects and their Interrelationship	
IS BELOW AVERAGE IN THE FOLLOWING:	
Certification/Training	
Disciplinary Understanding of a PM Job	
II- MANAGEMENT	
EXCELS IN THE FOLLOWING:	
Ability to Look Ahead and Plan	
Build Knowledge Network	
Business Developments/Ability to Sell	
Human Resource Management	
Issues Management/Conflict Resolution	

How Project Manager Competency assessed? – Output report page

- ☐ EXCELS IN THE FOLLOWING
- ☐ BELOW AVERAGE

DETAILED RESULTS	
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How Project Manager Competency assessed? – TEST



1. Download and answer the survey (file PMCAT_)
2. Save the file with your name (e.g., PMCAT_Alavipour)
3. Email it to ralavipour@gmail.com (**MUST be sent in a week**)
 - ❖ Tell me in the email if you want the **explanatory analysis** that will be sent to **TELEGRAM Group** about you
4. We analyze the results **in a week** and send you back the results to your email
 - ❖ I will send a voice to the telegram group if you **requested in email**

How to minimize risk of aggregating proven team?

Once selected

performance measurement must be **continuous** through an internal quality check system,

described in more detail in the next section, to

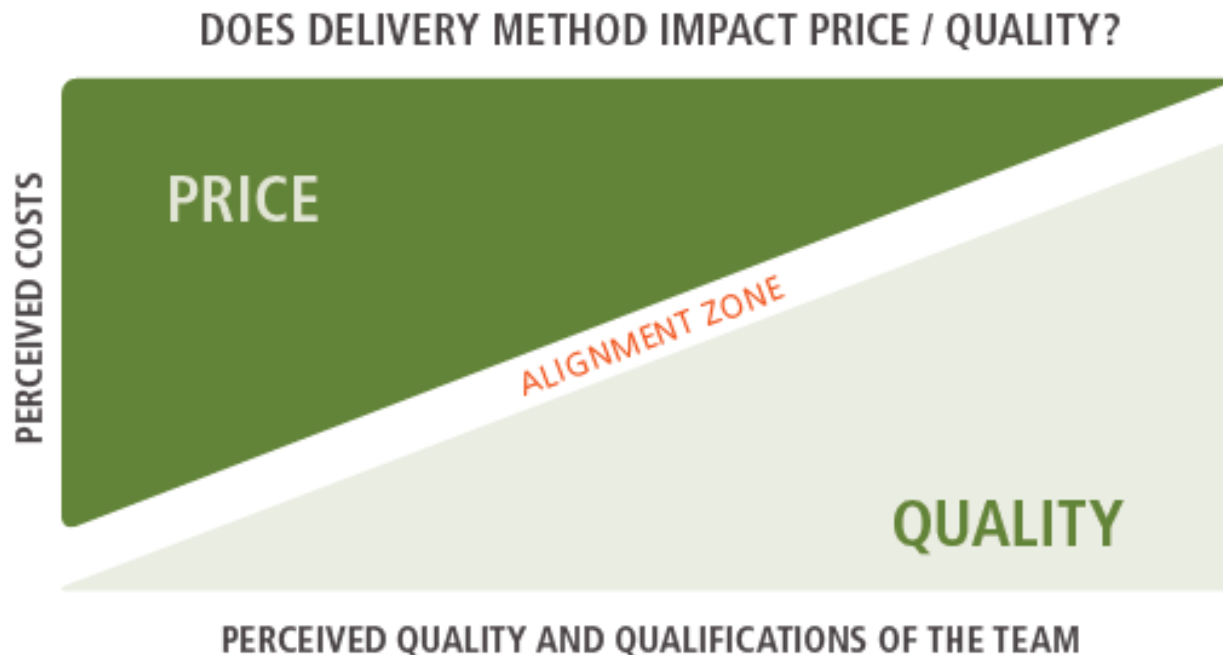
ensure all team members are meeting **expectations**.

DON'T FORGET TO MEASURE
PERFORMANCE!

IQ

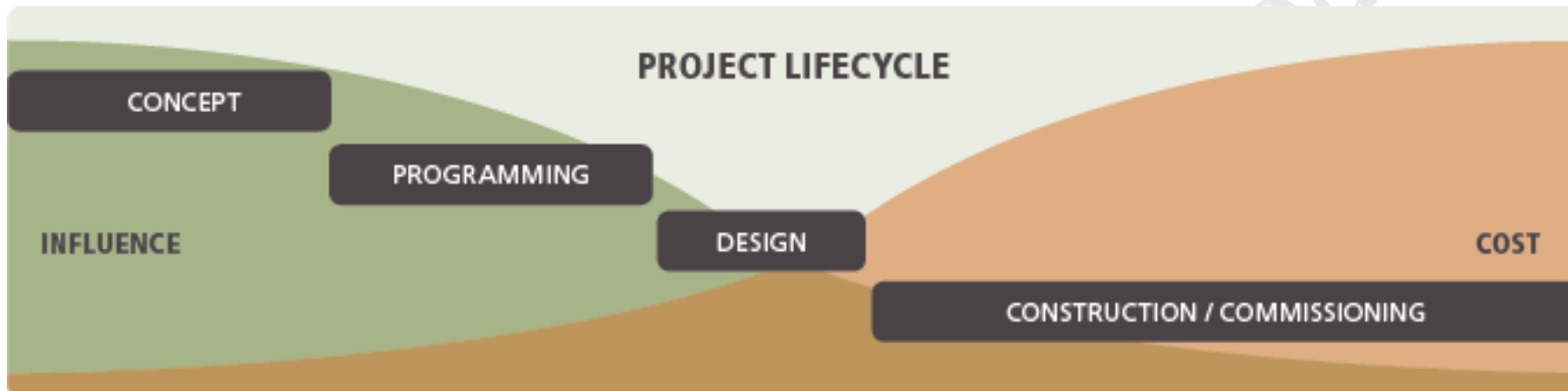
How do procurement and delivery options impact **price/quality**?

How do procurement and delivery options impact price/quality?



Note to Reader: With IPD (Light to Heavy), in most cases the Owner has the ability to select the most qualified team directly based on qualifications vs price.

How does effort impact risk during the project lifecycle?



What are some of the pros-strengths/opportunities

vs.

cons-weaknesses/threats of each from an **owner's perspective**?

Design/Bid/Build

PROS

- ⊕ Greatest control over design
- ⊕ Lowest initial construction cost
- ⊕ Clearly defined roles
- ⊕ Case law in the event of disputes
- ⊕ Competitive pricing
- ⊕ Flexible enough for all project types



CONS

- ⊗ Requires heavy Design oversight
- ⊗ No Contractor input in Pre-construction
- ⊗ Longest duration from start to finish
- ⊗ Subject to market conditions
- ⊗ Lowest level of QA/QC
- ⊗ Change leads to adversarial relationships

Traditional Design/Bid/Build (DBB) is the best known delivery method and the most prescriptive relative to defining design requirements by the Architect and Engineering Team (AE). As a result, it is the longest in overall duration. DBB is primarily used in the public sector by statute. It most clearly defines scope expectations and allows for selection of the General Contractor (GC) at the lowest price to the most responsive and responsible bidder.

PRE-CONSTRUCTION

Development

Design & Approvals
by AE

Procurement
of GC/Trades
at Lowest Cost

CONSTRUCTION

One Prime GC
under contract
with Owner

POST-CONSTRUCTION

Project Closeout

Move Management

Multiple prime or CM not at risk

PROS

- ⊕ Control over product
- ⊕ Opportunity to fast track schedule
- ⊕ Control over Scope and Cost
- ⊕ Direct control over trades
- ⊕ Can result in lowest cost
- ⊕ No markup on Subcontractors



CONS

- ⊗ Extensive design and construction management oversight required
- ⊗ Complete responsibility for all costs especially Scope gap
- ⊗ More potential for finger pointing

Multiple Prime is used by many public sector clients as an alternative to DBB because it enables Owners to select a contract professional or CM not at risk based on qualifications while still competitively bidding work allowed by statute. He/She is then the one responsible for bidding on behalf of the Owner directly to the trades vs. through the GC. A Multiple Prime delivery method requires individual trade packaging by the CM, and the Owner then holds the individual contracts with each trade, instead of a GC aka Prime General Contractor relationship with each subcontractor. Now the Owner has a direct relationship with each trade also referred to as Multiple Primes, with the CM acting as the Owner's Agent.

PRE-CONSTRUCTION

Development

Design & Approvals by AE w/ multiple bid packages prepared by CM

Procurement of CM in lieu of GC is Performance Based, Trades at Lowest Cost

CONSTRUCTION

Multiple Primes each under contract with Owner

POST-CONSTRUCTION

Project Closeout

Move Management

Design/Build

PROS

- ⊕ Single point of contact
- ⊕ Shorter overall project duration
- ⊕ Early establishment of Project Cost and Schedule
- ⊕ More Constructability, Cost and Schedule input
- ⊕ Less exposure to costs of Errors & Omissions Insurance



CONS

- ⊗ Less control over end product
- ⊗ More complex process procurement
- ⊗ Less competition by key trades
- ⊗ No designer and contractor checks and balances
- ⊗ Architect is no longer Owner Advocate

Design Build (DB) is used as an alternative to more traditional delivery methods to expedite the design process and shifts responsibility for design and construction to one entity known as the Design Build Entity (DBE). Selection can be based on best value expanding selection options to owners, with a more complex multi-step procurement selection process. Keep in mind that there is still a need to define project needs and what is better known as Performance Based Criteria vs. Prescriptive Specifications used in traditional DBB. Performance criteria sometimes referred to as Bridging Documents need to be sufficiently detailed to describe project scope without stifling creativity.

PRE-CONSTRUCTION

Development of Performance Criteria and bridging documents

Multi-Step Procurement at a minimum. Prequal RFQ and Procurement RFP of DBE is Performance Based

CONSTRUCTION

Design/Approvals/ Construction by DBE under Contract with Owner

POST-CONSTRUCTION

Project Closeout

Move Management

Turn-key or lease-leaseback or developer manager or Maybe even design/build/operate and transfer

PROS

- ⊕ One stop shopping
- ⊕ Quickest procurement method
- ⊕ Does not tie up debt capacity
- ⊕ Finance option



CONS

- ⊗ Potential for higher costs of capital
- ⊗ Requires Owner oversight to ensure end product
- ⊗ Hardest to litigate due to ambiguities in "performance specs"
- ⊗ Still subject to scope driven change orders
- ⊗ Hidden costs may be difficult to capture

Lease-Lease Back (LLB) or Developer Agreements sometimes referred to as Turn-Key, is used as an alternative to more traditional delivery methods to address financing. This delivery model allows Owners to procure the property and then execute a lease of the property to the developer who then develops and constructs the facility. The Owner then leases the property back and at the end of the lease owns the project.

LLB can also follow a Design Build model relative to design responsibility, or a more traditional model where the design consultants are retained by the Owner as represented in the graphic.

This model can also apply to Public Private Partnerships aka P3s, P3, or PPP. Stay tuned for more developments on this delivery model as economic conditions demand more innovative finance solutions for Public Owners.

PRE-CONSTRUCTION

- | | |
|--------------------------------------|--|
| Development | Design & Approvals by AE Procurement of Developer Performance Based, to Trades a limited pool |
| *Development of Performance Criteria | *Multi-step Procurement at a minimum. Prequalification RFQ and Procurement RFP of Developer is Performance Based |

CONSTRUCTION

- Developer-Contractor
- *Design/ Approvals/ Construction by Developer-Contractor

POST-CONSTRUCTION

- | | |
|------------------|-----------------|
| Project Closeout | Move Management |
|------------------|-----------------|

*Design Build Model

CM @Risk or CMAR or CMR

PROS

- ⊕ More Constructability, Cost and Schedule input
- ⊕ Earlier integration of team
- ⊕ A set max price allows for incentives
- ⊕ Potential for same trade competition as Design / Bid/Build
- ⊕ Not subject to lowest bid



CONS

- ✗ Requires more Owner advocacy
- ✗ CM is not an advocate for the Owner, essentially a Contractor at time of GMP establishment

Negotiated contracts are used in the private sector only. However for the public sector the closest form of that model is CM @ Risk. In both instances, the contractor is involved early in the process. The primary difference is that in the CM @ Risk model the CM is the Owner's advocate in the pre-construction phase, and then once bids are awarded the CM shifts to the GC role. In a negotiated contract scenario the GC is never the Owner's advocate.

PRE-CONSTRUCTION

Development

Design & Approvals by AE w/
Multiple packages prepared by CM
and Procurement Performance Based,
to trades generally a limited pool

CONSTRUCTION

One Prime CM or GC

POST-CONSTRUCTION

Project Closeout

Move Management

Integrated project delivery (Co-Evolved with lean construction)

PROS

- ⊕ Integrated Team at outset by contract
- ⊕ Opportunity for fast-tracking
- ⊕ Constructability, cost and schedule input
- ⊕ Design/Construction are equal partners
- ⊕ Greater cooperation and less adversarial relationships
- ⊕ All parties can enjoy the construction and schedule savings



CONS

- ⊗ Greater need for third party oversight or team facilitation
- ⊗ All parties may be responsible for mistakes (Cost and Schedule)
- ⊗ Premium cost for less aggressive approach
- ⊗ Needs sophisticated Owner

Integrated Project Delivery (IPD), in its ideal form, is not yet available to public clients by statute, however, creative contracts have been drafted to match intent. The difference between IPD and DB is that there is no subcontracting or teaming arrangement between the GC and AE. In true IPD, one contract is held between the Owner, GC and AE, and may include key trades as well, all of whom have a financial stake in the project outcome. IPD is a method to achieve collaboration among stakeholders including the principles of LEAN Construction, which started in manufacturing, maximizing value and minimizing waste.

LEAN is similar to IPD in terms of collapsing the design process with construction to reduce needless duplication and repetition of tasks using Building Information Modeling (BIM) and early involvement of the tradesmen who perform the work.

PRE-CONSTRUCTION

Development (separate or with IPD Team)

Multi-step Procurement of AE and GC at a minimum. Prequal RFQ and Procurement RFP of AE and GC is Performance Based

CONSTRUCTION

One Prime 3 way Agreement between Owner, GC and AE

POST-CONSTRUCTION

Project Closeout

Move Management

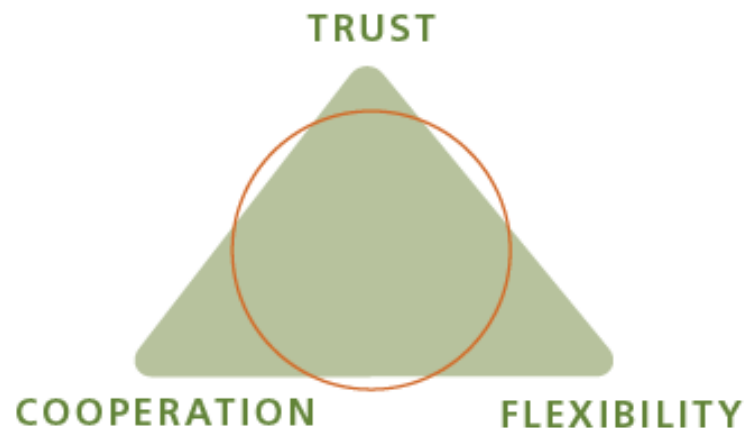
Decision – Making

How to succeed in the project?

Decision – Making

How to succeed in the project?

PROJECT SUCCESS
THE RIGHT TEAM +
THE APPROPRIATE
DELIVERY SYSTEM



*There is **no perfect system** and **no one model** is right for every project.*

*Owners must evaluate **each project** on a case by case basis.*

Decision – Making

How to succeed in the project?

*As you evaluate the **contracting relationships***

under each delivery model

think through

- 1. **Differing perspectives** of each participant*
- 2. **What is driving their motivation** or incentive to perform the work.*

Owners need to think through alternatives carefully, evaluate the internal team and determine the level of external expertise required to support the team to ensure the project's success before launching out on a Safari adventure.



استفاده از ضریب هوشی (IQ)، هوش هیجانی (EQ) و هوش ارزشی (VQ) در مدیریت پروژه

فصل اول: استفاده از بهره هوشی (IQ) در مدیریت پروژه
بخش چهارم: بررسی دلایل وجود مدیر پروژه در فازهای مختلف پروژه

ارائه دهنده:

سید محمدرضا علوی پور

(PhD, PMP, CMIT)

موسسه مهندسی و مدیریت ساخت علوی پور (ACEMI)

دفتر آموزش

تهران، بلوار فردوس شرق، مجتمع آبگینه، طبقه سوم اداری، واحد C42



+۹۸ ۲۱ ۴۶ ۱۰۰ ۴۴۵



+۹۸ ۲۱ ۴۶ ۱۰۰ ۴۵۰



info@dralavipour.com



www.dralavipour.com



@alavipour_pm



@acemi_social



@alavipour_pm



@IRANACEMI

