

Session 9: *Delivery Systems*

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Session 9: *Delivery Systems*

Today's session will deal with global strategic planning and two closely related issues, alternate project delivery systems and concessions.

1. **Introduction and Comments by Dr. Firouz Vakil**

Dr. Vakil is the former Minister of Planning and Budgeting for the Government of Iran. He is an MIT graduate and an internationally recognized figure in the development planning and project finance fields.

2. **Alternate Delivery Systems**

A number of your other courses have dealt quite well with both traditional and newer project delivery systems. In this session we will focus on the application and opportunities of introducing these systems in the international arena, with the caveat that a number of the systems such as design/build and BOT (build/own/transfer) were actually initially developed outside of the U.S.

A good deal has been written about “delivery systems” - the way we “deliver or undertake” a project - and much of it in response to the new global wave of privatization and concessions. But, remember, privatization and concessions are not delivery systems. Most project delivery systems can be used for public, private and hybrid projects, though typically, some are better suited and more frequently adopted by the public sector, while others more often by the private sector.

a. The Project Cycle

International and domestic projects can, according to Charles Thomsen, the former President of 3DI and an outstanding expert in the field, be divided into three distinct phases - Definition, Design and Construction. These phases (and their sub-phases) can overlap, be subdivided or regrouped, but none can be eliminated and if one phase is poorly executed, the subsequent phases may be impaired.

All delivery systems cover some planning, as well as the design and construction phases, while some may go beyond and also include finance, commissioning, ownership, leasing or outsourcing, maintenance and operation.

Planning includes:

- Discovery: The identification, analysis and definition of project requirements, constraints, including potential “fatal flaws” and establishment of priorities.
- Integration: Establishment of probable project scale, parameters, possible variations and the implementation plan or plans (including initial estimates of costs and schedule).
- Evaluation: The economic, financial, technical, legal and environmental reviews and analysis, including optimal timing (staging), network or linkage impact if any, sizing and appropriate scale and selection of the most attractive alternate(s).
- Preconstruction Activities: Legal, financial, site acquisition, permitting, public outreach, etc.

Design was divided into four phases by Thomsen (remember he is an architect) including:

- Schematic Design: The basic concept, plan and design criteria and parameters.
- Design Development: An evolution of design that defines the functional and aesthetic aspects of the project and, equally important, the building systems that best satisfy them.
- Construction Drawings and Specifications: The details of project assembly and construction.
- Construction Costs, Estimates and Constructability/Value Engineering Analysis: The project cost estimates and assessments of the practicality of the designs.

Construction typically is divided into at least six activities:

- Contractor Selection: Preparation of tender documents; and/or evaluation and prequalification of bidders; evaluation of offers; negotiation; and award of contracts to construct the project.
- Procurement: Purchase of components, equipment and off-site assemblies.
- Shop Drawings: The final fabrication drawings for construction components and systems.

- Fabrication, Delivery and Assembly which includes:
 - Site Construction: The labor-intensive field construction which one typically associates with construction, installation of components, systems and equipment and provision of construction management or supervision, QA/QC, environmental monitoring and site safety procedures.
 - Warranties, Guarantees, Commissioning and Project Closeouts – Increasingly critical components especially in modern mega-projects, often including certification, start-up and commissioning. This phase may also include an extended testing operations/maintenance or turnkey period.

b. Delivery Systems

Early in the project cycle, an owner must select an appropriate project delivery system for design, construction and increasingly, commissioning, maintenance and operation. A client typically has a number of available options. In addition to the traditional design/bid/build process, a client can select design/build, fast-track, multiple primes or a variety of hybrids. Alternate pricing includes Guaranteed Maximum Price (GMP), cost-plus, target-price and fixed-price. Each of these has advantages and disadvantages and the best choice is governed by the specific requirements, complexity and urgency of the project and the owner/client's technical knowledge and available managerial resources.

There are today, a growing number of systems and procedures available to deliver these services including:

- The Traditional Planning/Design/Bid/Build: This is still the most appropriate for repetitive, recurrent commodity types of construction such as roads, earth-moving and the like, as well as most public buildings and medium-sized projects.
- Fast-Track: Where some of the design, procurement and construction phases are executed in parallel, but in contrast to design/build independently, to reduce total delivery time. This is often used to expedite construction or where investors/owners anticipate a quick return, e.g., during a real estate boom, or where high-value, short life-cycle products such as computer chips (Intel), require specialized facilities which are often only a small percentage of total product costs.

- Multiple Primes: A variation of either design/bid/build or design/build where an owner divides the project or program into discrete subprojects and selects contractors to independently and often simultaneously construct these. The system can reduce costs and the risk of reliance on a single contractor by bidding smaller packages but requires a highly knowledgeable and skilled owner or program manager to coordinate and supervise the activities of a number of primes and avoid job site and scheduling conflicts and confusion. Multiple primes are widely used by the U.S. Departments of Defense, state transportation agencies and airport authorities including Massport in the United States.
- Design/Build: Already predominant in Europe and many parts of Asia, it eliminates the separate responsibilities for the designer and the contractor, since the designer is either a partner, subcontractor or employee of the contractor.
- Turnkey: “Turnkey,” often called EPC, is really design/build plus operation start-up to ensure the provision of a properly working facility. In widespread use in the chemical, petrochemical, and power sectors where long lead time equipment procurement is often a critical component to construction, it has recently expanded to water and sewage treatment works, and specialized buildings such as laboratories, manufacturing plants, prisons and hospitals.
- Build/Operate/Transfer (BOT): This system similar to turnkey, couples design/build with an operating period. In recent years, it has been adopted, often together with independent project financing (structural financing), for complex infrastructure such as mass transit, airports, pipelines and power.
- Super Turnkey: A recent variation of turnkey construction where a company designs and constructs a facility to meet often demanding performance specifications and/or parameters defined by the client and initially operates the facility under contract. Super turnkey development places increased technical and financial risk on the contractor and typically requires additional expertise often accompanied by proprietary technology.
- Build/Transfer/Operate (BTO): A private developer finances and builds a facility and, upon completion, transfers legal ownership to the sponsoring government agency. The owner then leases the facility back to the developer under a long-term lease, during which the developer operates the facility and has the opportunity to recover the investment and a reasonable profit. This arrangement is similar

to the BOT model described above, but can avoid some of the legal, regulatory, and tort liability issues that can arise from private ownership and, in the U.S. and Israel and a number of other countries, offers favorable tax treatment (tax free bond finance). The California Department of Transportation employed the BTO model in its partnerships with private toll road operators.

- Build/Own/Operate/Transfer (BOOT): In effect, a concession that at the completion of the concession period, is “returned” to the original owner, either at an agreed-upon price, or as payment for the concession.
- Design/Build/Operate/Maintain (DBOM): A variation of BOOT, designed to take advantage of governments’ (especially in the U.S.) access to lower cost or “tax free” funding, but is also increasingly popular as a legal way to “lease” government-owned/government-built facilities to a concessionaire for a fixed time period.
- Wraparound Addition: A private developer finances and constructs an addition at an existing public facility. The private developer then operates both the existing facility and the addition for either a set period of time, or until the developer recovers costs plus a reasonable return on investment. The SR91 highway project in California in which private toll lanes were added to a congested freeway, and many bridge dualizations in the UK are examples of the wraparound addition model.
- Lease/Develop/Operate (LDO): A developer is given a long-term lease to operate and expand an existing facility. The developer agrees to invest in facility improvements, and can recover the investment plus a reasonable return over the term of the lease under the lease/develop/operate model. Johnson Controls has operated Teterboro Airport in New Jersey under an LDO, and many ferry and rail terminals with attractive real estate sites, lend themselves to LDOs.
- Build/Own/Operate (BOO): The classic concession where a private developer finances, builds, owns, and operates a facility in perpetuity. The developer/owner may be subject to regulatory constraints on operations, toll and service levels, etc. The long-term right to operate the facility ideally provides the developer with sufficient financial incentive to maintain and improve it.

- Buy/Build/Operate (BBO): An existing facility, often public, is sold or transferred to a new owner who renovates or expands the facility, and then continues to own and operate the facility in perpetuity.
- Operate and Maintain: A company operates a public facility under contract with the sponsoring government or private owner (computer and electronic data processing services, toll collection, water and sewage plant operation, port stevedoring and janitorial services, etc). Operation of a facility under such arrangements, typically termed “outsourcing,” can result, as noted in the VMS program, in improved service and efficiency and are commonly used by local government to provide municipal services such as solid waste removal.

As you will note, we have identified 15 different project delivery systems. But, there are as many variations as fertile minds of marketers and financiers can conceive. Remember, however, all are designed to address three critical issues:

- Do you want to separate the design and construction functions?
- Do you want to have a short operations or commissioning period prior to project delivery to ensure the facility is acceptable, and/or
- Do you want to establish extended and/or permanent independent operations?

All of the delivery systems we discussed are variations of the above three modified in order to meet specific concerns, industrial or infrastructure practices, or encourage concessions.

c. International Practice

In many countries, the Design/Build approach to project implementations has long been popular. The approach has existed for centuries, for example, the Toryoh (Master Carpenter) of Japan who drew his designs on a wooden board and then, based on personal experience, managed and performed the construction work by himself. The master builders of medieval European cathedrals followed similar design/build practices. Yet today, surprisingly, the design/build approach and its many mutations are discussed by some, especially in the U.S., as if it were the newest in engineering and construction concepts, and is often adopted for project implementation without proper understanding of how it should best be used, and when. In the May/June 2003 issue of the *American Council of Engineering Companies, Engineering Inc.*, ACEC reports FIDIC, the umbrella organization of the world’s consulting

engineering community, in its First Edition* of “Conditions of Contract for Design/Build/Turnkey” published in 1996 suggested that,

“under this form of contract, design is the responsibility of the construction organization. This arrangement reduces the problems which may, on occasion, arise from the division of responsibility between designer and construction.”

But, noted,

“For the most part, however, it would be wrong to categorize design/build as a routine way of doing business. Some owners, engineers and construction companies frequently confess to being unsure when and how to work within the design/build framework.”

But, certainly “customer demand” for this approach clearly exists in the marketplace. In addition to FIDIC, the Engineering Advancement Association of Japan model form international contract for process plant construction published in 1986, has proved sufficiently popular to merit a revision in 1992; also in 1992, the ICE (Institution of Civil Engineers of the U.K.) published for the first time its “Design and Construct Conditions of Contract,” which enjoyed sponsorship by two other U.K. organizations, The Association of Consulting Engineers and the Federation of Civil Engineering Contractors.

As noted, the rise in popularity of design/build and its variants has been attributed to a number of perceived or actual advantages over design/bid/build, including:

- Shorter schedules
- More cost effective solutions
- Single source responsibility
- Fewer disputes or legal problems
- Simplified owner administration

3. **International Concessions**

As we discussed in earlier sessions, the goal of privatization, typically, is to encourage governments to do what they do best – guide, supervise and regulate

* A subsequent edition was published in September 1999.

private markets to efficiently allocate capital and construct, manage and operate facilities, etc., while conserving and leveraging increasingly scarce public funds. This may take the form of transferring, selling or leasing an existing publicly owned facility or transferring a public authority or right to a private owner to construct or improve, maintain, and operate it for a pre-agreed period of time. Examples abound such as Aerolineas de Argentina (now partly owned by another public, not private, entity - Iberia of Spain); rail systems in Argentina, Great Britain, the U.S. and Japan; airports and terminals (JFK, Lima, Santiago, Buenos Aires, Phnom Penh, Ankara, etc.); as well as solid waste collection; highways; telephone, power and water delivery worldwide.

Another form of "privatization" relates to outsourcing arrangements such as Virginia Maintenance Services (VMS) which we reviewed in the Session 8 notes, where the "public sector" enables a private group through legislation, permitting or other means to provide services that had been traditionally deemed the prerogative of the public entity, or the government (e.g., highway maintenance outsourcing in Virginia, Texas, Massachusetts, Florida, Oklahoma; airline terminals in New York, Boston, Indianapolis, Pittsburgh; and water systems management in Indianapolis, Manila, Buenos Aires, etc.).

None of these are recent phenomena. Historic examples include the Suez Canal, the initial Panama Canal investors, the transcontinental railways and canals in the U.S., foreign-owned rail systems in Turkey, Iran, Argentina, and telcom and power facilities throughout the world.

But, such programs must overcome a number of challenges, especially in developing countries. These include:

- Inadequate Profit Returns: Some concessions can generate sufficient income once the projects are complete and are bankable by themselves. Examples include bridges, airports, power plants, railroad and transit lines in densely populated areas such as Hong Kong, which generate sufficient income by collecting fees, tolls and/or fares, and renting, leasing and/or selling sites or properties. Because of the high demand when accompanied by attractive tolls or off-take agreements, such projects can be funded by "project or structural" finance often without other guarantees.

But, to achieve adequate rates of return for investments that can't generate sufficient profit, investors often need to seek additional compensation such as subsidies in the form of land grants, cash contributions, guaranteed off-takes, etc., from the host countries central or local governments to cover so-called "ramp-up" deficits.

- Toll-Tariff Rate Adjustments: To avoid the problem of inadequate toll rates or tariffs, investors should ensure flexible and adjustable toll-rate or off-take plans. But, as noted, tariff and off-take levels and periodic revisions are often politically sensitive.
- Currency Convertibility: Basically, investments made by foreign investors in developing countries, often encouraged by the host country government to reduce both domestic capital requirements and foreign currency shortfalls, are foreign loans. But, since the revenue streams produced by these investments are typically in local currencies (aviation, pipeline, ports and some telecom, may be exceptions), while the investments made by the foreign investors are usually in a foreign currency, currency conversion is essential for loan service and capital and profit repatriation.
- Currency Depreciation: For international investors, inflation beyond the need to adjust tolls, presents a myriad of concerns and risks, including:
 - The risk that internal inflation may not move in tandem with currency devaluations.
 - The tendency to block or restrict currency conversion during periods of rapid inflation, constraining vendor and loan repayments, licensing, royalties and profit repatriation, etc.
- Lack of Full Operational Rights: Many host country central or local governments are reluctant to transfer full operational rights to foreign investors. Fears of foreign control, of losing a “national” patrimony (e.g., flag carrier airlines, telecom), creating private monopolies, a return to colonialism, and the fact that foreign companies involved in infrastructure projects in third world countries have, traditionally, been viewed as playing supporting roles, make many developing nation governments cautious in transferring full operational rights to private companies.
- Lack of an Adequate Regulatory Framework: Some nation’s tendering and negotiating periods for a BOT or concession scheme are unnecessarily long, demanding and costly. Investors may have to deal with a number of different investors and authorities, go through complex negotiations and risk becoming political pawns. In a developing country, a project financed and constructed by foreign investors can easily become hostage to domestic political struggles. ENRON’s 2,450 MW Dabhol Power Project in India is an excellent example. This project, which we will discuss in Session 10, became a

“cause celebre” in the international engineering and investment communities since negotiations first began in 1992.

- Sharing Risks and Cost: All too often, government officials underestimate the risks and costs associated with concession-type schemes, and are unwilling to take the necessary initiatives to pass laws that facilitate their formation, shorten the approval process, accelerate procurement and importation of materials and equipment needed to build the facilities and once built, quickly address regulatory issues and concerns (Costa Rica).
- Differing Standards and Practices: Standards, specifications, practices and methods used in engineering and construction vary from country to country and planners, design engineers, architects and constructors tend to interpret designs and contract terms differently.
- Cultural and Social Barriers: Even in a world of growing globalization and at least in the finance and construction fields - an increasingly shared monoculture - cultural and social barriers remain. For example, freedom often is associated by many Americans and Western Europeans, with laissez-faire or open societies while, to many others, it means freedom from want (basic human needs), etc. Thus, successful project implementation, as we will see with ENRON, often requires major attitude shifts to accommodate different traditions and expectations.

What is the solution to these barriers? A large part of the solution rests in the hands of the host country. On the other hand, foreign investors and firms attracted by the profit potential of concessions in developing economies need to understand and be sensitive to the cultures of the countries in which they invest, and need to forge alliances with the appropriate companies and institutions in the host country.

4. **Planning**

Planning, always an important component of most successful companies becomes increasingly important in trying to fathom and navigate rapidly changing and increasingly complex global markets. A number of enterprises over the years have achieved significant success in using strategic and tactical planning tools to further corporate objectives. Typically, these enterprises recognize that successful corporate planning is not something you leave to a hired consultant or recruit or appoint a newly minted vice president for planning to do. Rather, it must draw on an understanding of the strengths, weaknesses, capacity, goals and appetite for risk of your specific enterprise or

organization. All too often, strategic planning exercises first look outward at the markets, opportunities and competition when, in fact, it should first look inward at the enterprise.

Here it is also important to understand the distinctions so often missed between the terms “Vision Statement,” “Strategic Plan” and “Tactical Plan.” All too often, companies start with a Vision Statement which defines noble and ambitious goals in terms like “likely growth in earnings, revenues, markets,” and broad statements such as “nothing is more important than our employees,” “our employees are our most valuable resource,” “integrity is the key to our success,” which the company’s historic and future activities often belie.*

a. Strategic Planning

So, I believe, in the global market, a Strategic Plan, not the Vision Statement, must come first and the Strategic Plan must draw initially on the historic performance of the company; an understanding of its past successes and mistakes, and its current strengths and weaknesses, including all warts. Although often painful, the plan must reflect a broad understanding and consensus on such strengths and weaknesses among the major operating entities and divisions rather than prepared solely by the CEO or a CFO’s strategic planning office. This analysis should draw on lessons learned in the past as to what areas the company has been able to succeed in and those that it has repeatedly tripped over. In this regard, a number of companies – Ebasco, Kaiser, Morrison Knudsen, McKesson-Robbins, General Motors are good examples - continually repeat the same errors because of an inability to learn from the past, properly evaluate their strengths and weaknesses, or worse yet, live by company myths that were not really based on fact.†

The analysis of strengths and weaknesses should be followed by a careful review of the historic successes of the company, its true return on equity, e.g., why do companies often claim they require a 15-20% return on investment as a threshold when, in fact, their recent real returns were much more modest, e.g., General Motors, AT+T, Eastman Kodak, Xerox.

This should be followed by an analysis of where the company is likely to go based on current trends. This, then, should be carefully compared with competitors as, all too frequently, companies dream they can outperform their

* Ironically, many such Vision Statements and even Strategic Plans were used in recent investigations of CEOs and companies such as mutual funds, with damaging results. In cases where the activity itself may not have been illegal at the time, e.g., after-hours trading, a company’s Vision Statement or Strategic Plan, claiming that such activities would not be tolerated, became the basis for prosecution.

† Current Sony executives believe Sony invented the Trinitron TV, Walkman and video tape when, in fact, they only commercialized these opportunities.

sector (e.g., WorldCom, Sunbeam, Krispy Kreme), usually resulting in serious medium-term problems, following often early, highly heralded successes.

Based on this analysis, a company must establish sound reasons why it can outperform its sector or sectors as a whole. Did it outperform the sector or sectors in the past? Is it the lowest cost provider? Does it possess the most attractive brand? In other words, avoid wishful thinking. Define what in the past has allowed it or a competitor to outperform the sector; what is the sector's forecast trend line growth and performance over the next planning horizon and what can the company specifically do differently to enhance its current performance.

This, then, leads to one of the very critical elements of sound strategic planning and one that takes great courage and is accompanied by considerable risk. Should an enterprise continue following its trend line and sector, fine-tuning and trying to better position itself vis-a-vis its competitors, e.g., lower costs, better design, quality and/or service, etc., or should it transit to an entirely new sector or area? Such actions truly separate the men from the boys in strategic planning since the enterprise's ability to innovate and execute becomes critical, e.g., Xerox long recognized the advantages of PCs and local and wide area networks; DEC, the internet; to say nothing of the powerful Prodigy joint venture of IBM, CBS and Sears Roebuck. But, so what! They couldn't execute or they were too early.

There is nothing I admire more than the few firms or individuals who successfully exit a prosperous but increasingly commoditized field while positioning themselves in one with higher growth or a more promising future. Most firms that try to accomplish this, for understandable reasons, try to keep feet in both camps. But, that strategy typically is not an optimizing one, whereas those firms who cross the Rubicon gambling their entire enterprise truly gain my admiration, but it is not easy. Many enterprises stumble or fail (Monsanto, Seagrams, Harris) either because they do it half-hearted by keeping one foot in either camp or don't know enough about their company to truly reposition it. Sadly, in many cases, they or the analysts underestimate the time it takes to fully and properly execute such strategies. So, there must be great elation when one succeeds, as Ralph Roberts felt, when he exited the belt business and created Comcast and Kimberly-Clark when they took on Procter and Gamble.

b. Tactical Planning

The world frequently views new strategies as 90% inspiration and 10% perspiration. But, in fact, as successful firms have demonstrated over and over again, it is quite the reverse. All too often, the broad vision statements and strategic and five-year plans are not accompanied by practical, implementable and doable tactical plans.

Tactical plans, which typically can be prepared for two-year periods in six-month-to-one-year increments, serve in the first instance to test the broad assumptions, analyses and goals of the strategic plan against practical realities such as available human and financial resources, scheduling and timing, the ability of the enterprise to properly mesh its research, development, advertising/marketing and deliverables, etc. For example, some of the best thought-out strategic plans frequently lead headquarters to overstaffing and premature commitment of office and IT support facilities because of timing problems, including difficulties in recruiting, training and redeployment of field staff and plants and integrating strategic acquisitions.

More importantly, well-prepared tactical plans serve as a key link between an enterprise's monthly and quarterly financial reports and the grand strategic plan and are the key tools for adjusting these plans to the realities of the market, issues of timing, scheduling, changing economic and financial conditions, shortage of staff resources, etc.

The danger for many AEC companies adopting a grand strategic plan without suitable and detailed tactical plans is that the failure to meet the initial strategic plan targets can easily be explained by the fact that it is a five year plan and one will catch up. This has proved a serious pitfall for many AEC enterprises, especially when accompanied by a release of reserves to cover the early shortfalls, with the hope that future earnings will bail the firm out.

So, what is a tactical plan? For most enterprises it should, as noted, be the bridge between their monthly/quarterly financial statements and the strategic plan. The tactical plan should spell out with appropriate metrics, ratios, etc., how the strategies must be implemented by addressing such critical issues as: staff and funding needs; marketing and sales targets; plant capacity and operating costs; cash flow at the enterprise's reporting division, affiliate and subsidiary levels. To achieve the strategic plans and goals, the exercise may also expose seams between the strategic plan and the enterprise's current organization and operations since the tactical plan is forced to either deal with the company as it is organized or encourage a reorganization of the enterprise, often one of the most painful experiences in the exercise.

Tactical planning also protects an enterprise from broad gloss-overs. The enterprise may well have a global strategic plan where the average target growth rates are reached but the growth rates of individual divisions vary widely from target. Many companies accept this as a given, but a well-prepared tactical plan forces managers to address such anomalies and to focus on whether the broad vision statement and strategy picked up only a trend or was actually a useful business exercise.

The best way to execute a tactical plan is, in fact, to organize it in the same manner as the enterprise's monthly or quarterly reporting but perhaps in less detail. Modern information systems, fortunately, lend themselves to this approach and one can also incorporate sophisticated multi-level marketing programs in such tactical plans.[‡]

The typical matrix of revenues, direct and indirect labor, other direct and indirect costs, etc., found in monthly financial statements and described in the Session 10 notes, is ideal for tactical planning.

As we discussed earlier, there is, however, a quantum leap in complexity when an AEC firm is considering a paradigm shift in their business model or strategies. Here, all the tactical issues discussed above increase in complexity because prior reporting data and procedures cannot as readily provide guidance and planning inputs given the paradigm shift. A great deal of time has to be given to developing new procedures and formats for the tactical plan, though such shifts provide excellent opportunities to look at what competitors who have made comparable successful shifts are doing.

Another key component of both the strategic and the tactical plan, especially if an enterprise is making a major shift in strategy and/or focus, is to avoid the tendency to widely distribute investment funds. Each enterprise has its own unique culture but many larger ones share with political systems, a difficulty in saying no. Thus, while the Boston Corp. and other consulting firms have long espoused the theory of turning mature operations into "cash cows" to fund investments with higher growth opportunities, it is easier said than done. It often means telling some of the companies' historically most successful divisions that they are going to be starved for new investments while committing investments to chancy or questionable but theoretically more promising opportunities. This, to begin with, is a problem for all organizations, especially some of the best-run. Furthermore, such businesses are often "quasi"-feudal organizations where large fiefdoms are profitably run by managers with considerable independence and a traditional right to invest a large amount of the cash flow under their control, despite return on investment thresholds and other tools used to discourage the hoarding of cash. It is difficult to say no to such successful managers and hence, the tendency in all but the most tightly run enterprises, to spread investment capital around.

Here, tactical planning is both an advantage and disadvantage. The advantage is that one can closely monitor such activities. The disadvantage is that such planning also closely monitors new initiatives, frequently providing

[‡] Too often many AEC firms confuse sales and marketing. Sales are the actual interface with the customers and clients and the effort to find and close orders. Marketing not only involves broad strategies but guiding and monitoring of the sales force to ensure its effectiveness and efficiency and here, the interface with tactical plan can prove quite useful.

ammunition, maybe correctly, to the successful line managers' claims that their hard-earned funds are being wasted in a harebrained scheme when, in fact, it may not be a harebrained scheme but an initiative or paradigm shift that is taking more time to develop than originally anticipated. These are the moments that try and test even the best CEOs and CFOs.

5. **Marketing New Project Delivery Systems and Concessions Internationally**

a. Current Structure

As noted, the international construction marketplace is heavily slanted towards design/build, turnkey, BOT, or other variants where the lead is usually provided by the constructor. In industries such as chemical, petrochemical, refining and power where the U.S. has a strong tradition and capability in EPC and turnkey delivery systems, the U.S. firms can be, and often are, very competitive. In other areas such as public works, as noted, at least until recently, the U.S. tradition of design/bid/build is often at odds with international practice and preferences. There the Europeans, Japanese and Koreans are leading the pack.

The Japanese, and to a lesser extent the Koreans, have taken that approach to another plateau. They often compete in trading company (Japan)- or Chaebol (Korea)-sponsored consortiums, where they can readily include most project components -- engineering, construction, equipment, supplies, materials and financing -- and by leveraging their purchasing and bartering power, can be exceedingly competitive. Until the U.S./UK and other less integrated contractors learn how to become integral members of "total delivery" teams, they could be at a competitive disadvantage. But, such large consortiums can also prove expensive, cumbersome and even more important, inefficient bidders, e.g., equipment vendors may push uneconomic bids or access to overly sympathetic financing may encourage reckless bids (Korea, Spain, Germany).

b. The Future Structure

In addition, given the current financial difficulties, many major international contractors are facing, we are also witnessing a restructuring and enlarging of these "delivery teams," especially when pursuing privatization initiatives and concessions. These new teams, as we discussed in Session 4, increasingly include alliances with non-traditional team members including:

- Finance: Banks (private, public, multi-national), insurance companies, public or private pension funds, infrastructure and hedge

- funds, venture and private investment funds, investors and developers, etc.
- Operators: Firms that provide operations and maintenance services in such fields as:
 - Airports: Heathrow, ADP, Hochtief, Vancouver, Vienna, Milan and Lufthansa
 - Water and Sewage: Vivendi, Dragados, American Water Services, Resources, Earth Tech, YTL, American Waterworks, Thames Water, United Water, U.S. Filter, MWH, etc.
 - Ports and Shippers: Rotterdam, Folkestone, Dubai, Singapore, Hamburg, SSA, Maersk, Evergreen, etc.
 - Solid Waste: BFI, Dragados
 - Toll Roads and Bridges: EGIS, Cofiroute, VMS, Ferrovial, Cintra, Brisa, ACESA, Autostrade, Transurban
 - Energy: Électricité de France, Endesa, Hydro Quebec, RWE, AES
 - Rail and Transit: Systra and SNCF (France), D.B. (Germany), MRTA (Hong Kong), etc.
 - Suppliers/Manufacturers/Vendors:
 - Rail and Transit: Siemens, Bombardier, Hitachi, Sumitomo and Rotem
 - Power Generation: General Electric, ABB, Cummings, Mitsubishi, Hitachi, Toshiba
 - Materials and Suppliers:
 - Steel Companies: Posco, Nippon Steel
 - Cement Manufacturers : LaFarge
 - Fabricators: American Bridge

6. **Class Discussion**

a. Empresas ICA and the Mexican Road Privatization Program

- What was ICA's early business model?
- What led it to changes?
- What are the risks in Mexican BOTs?
- Why (p. 7) do you suppose most "Concessionaires were typically affiliated with a Mexican construction firm?
- What strategy would you adopt in preparing a BOT bid?
- What were the benefits of toll roads? To whom: How would you measure it?
- What are the implications and risks in general and for foreign financing for BOTs in particular?
- If you were ICA's Vice President for Planning, what would be your plans and recommendations?
- How would you try to manage the anticipated risk?

b. What does Friedman mean by:

- *Winner takes all* – Is it fair and equitable?
- Will the inequities encourage a counter-reaction?
- Will the world homogenize?
- What can turtles do?
- What will the turtles do?
- Is Grameen Bank part of the solution?

7. **Session 10**

In our next session, we will discuss in more detail targeting and evaluating appropriate markets, and strategies for entering a foreign market. A suggested

outline for the preparation of your written and verbal report to the “Board of Directors” for establishing an engineering/architectural/construction initiative, concession or investment in your target country will be presented and discussed in this session.

During Session 10, we will also discuss the article “ENRON’s Eight-Year Power Struggle in India.” Everything about ENRON was always larger than life and ENRON’s experience in India was no exception.

Be prepared to discuss:

- What India’s concerns in the power field were;
- The actions the government took;
- What the problems were;
- Why the off-take price from ENRON was so high;
- The World Bank’s view of DPC;
- Whether the dispute has been resolved and if so, how.