KICKOFF – 9AM

Introductions: Went around the table

RADM Korka: Painted a picture from the Navy's perspective. Cold war standing up 600 ship Navy with 100 bases to protect the homeland; up until 1989 when wall came down, then lull, until Global War On Terror (GWOT), and now going to 355 ships and 71 bases. Global threats expanding; China controls 80 percent of the trade through the South China Sea and has militarized that area. New great power competition.

National Defense Strategy (NDS) and Chief of Naval Operations' Maritime Design are focused on Great Power (China and Russia) competition, moving away from the focus on counterinsurgencies of the recent past. Our adversaries are reducing our competitive advantage and in some areas leading the U.S. and our allies. We need to pick up the pace, and must partner with industry to assist us moving forward.

Lots of construction in our future: Facilities to support new submarine and Joint Strike Fighter (JSF) platforms; Recapitalization of Shipyards (SIOP); Fleet Readiness Command (FRC) Depots. Our Military Construction (MILCON) process is not at the pace of our competitors. How can we deliver faster? We need to deepen our industry relationships and have uncomfortable conversations as needed to change the way we deliver facilities and infrastructure. Work faster in order to close out projects/ programs and get to next delivery.

RADM Korka: Ground Rules -- Looking for frank discussions and open discussion, but no project specifics and no trade secrets. Goals-- Look at industry trends, adopt as feasible, and develop better partnerships.

AM SESSION: PART I—9:30AM

1. QUESTION: WHAT DOES SUCCESS LOOK LIKE?

Industry (IND): 20 years ago Design-Build (DB) and schedule compression were promoted, but we have been getting away from that recently. That dynamic is not aligned. Recommends (in lieu of DB)- Integrated Design Delivery options: Construction Manager at Risk; Progressive DB. Both identify/reduce risks, reduce time, identify conditions, within budgets, with a contract method that rewards that success. Needs a designer, owner, construction, and Operations & Maintenance (O&M). Owner will have some off-ramps in case the project doesn't work out. Must include the O&M piece in the beginning; consider life-cycle costs.

In progressive DB, single contract (KT), sometimes a designer-led, sometimes construction contractor (KTR)-led. Single KT between owner, designer, and KTR. Mechanism for retiring risk as project progresses. Collective accountability for budget and schedule. Integrated Progressive Design (IPD) KT model.

Recommends Early Contractor Involvement (ECI) or Guaranteed Maximum Price (GMP) which is used in the Original Equipment Manufacturer (OEM) industry (also CM at Risk)

Railroad industry uses IPD Construction Manager as General Contractor (CMGC) – Contractor w/Owner; Designer w/Owner

Always keep the end in mind; collaboration; mechanism to engage the KTR earlier. For scope, design solution, and cost;

Other agencies pre-selected three General Contractors (GCs) (retained with small fee); GC does "constructability reviews" and cost checks; Qualifications-based process; Price the risk; Someone owns every risk (whether they know it or not); Speed to market (schedule, Estimated Cost of Constructions (ECC)); Need risks to be transparent (open book process).

Public Private Partnership (PPP) allocates risk to the right person; What are the risks? Subcontractors willing to take risk, but GC really owns. Conflict is generated in federal projects because there's risk which is not known, then people de-risk by throwing it to other parties. Risk allocation and risk costing are important topics. Acquisition methodologies suggested earlier all try to put risk on the person who can mitigate the risk. When you dump risk, you pay for it later.

Share risk, manage affairs; spend time understanding where the risks are up front.

Develop Risk Register immediately; maintain risk log; set contingency—if risk goes away, contingency goes back to Government (GOVT). At the beginning of the project, validate the design, and then develop a risk register, which is tied to the project contingency. Validation phase is "charrette phase" or "preliminary design."

- GOVT: *WHAT IMPACTS COSTS?* Errors and Omissions (E&O); Unforeseen Site Conditions (UNFO); Construction Market Conditions (commodity cost conditions); Customer Requested Changes (CREQ)

Government previously tried ECI and had difficulties in execution.

Industry: *WHAT DO YOU FEAR?* Black box design; liquidated damages; ways to alleviate risk/ fears-schedules; E&O and UNFO are simply the two risks that you see. All the KTRs and subs have either identified and mitigated the risk, or dumped it on subs. If E&O is something the GOVT fears, then let's get into the details and figure out how to alleviate that fear. There are ways to do this (table for details, etc).

- GOVT (RADM Korka): Let's talk about Design-Build (DB) to include discussions on risk; *DOES INDUSTRY HAVE ANY RECOMMENDED CHANGES TO THE REQUIREMENTS PIECE (OF DB)?*

Industry: Preliminary Design Authority (PDA) = Customer Concept Document in the private industry; Owners, AE1, and KTR needs to get together at the PDA level. 1391 step important to set the project on a path for success.

We haven't worked on a job in the last decade where all the requirements are known! GOVT is more hands-on. Private side runs faster, but they fail all the time.

DB; Market-driven examples

Entrepreneurial- incentivize success (California Health Care System);

- GOVT: *COULD INCENTIVE BE FOLLOW ON / FUTURE PROJECTS?*

Industry: Yes! (Guarantee of future projects would work for AEs)

Industry: Incentives… a guaranteed next job would be highly desirable. Need an incentive for shared risk. In the private sector, every project has different Key Performance Indicators (KPIs), then there's an incentive pool for sharing at the end if the KPIs are hit.

In IPD, everyone's 100 percent profit goes into the pool, and if we hit it, then we all get the distribution out of the pool. There are sometimes individual pools at the next level down tied to KPIs.

Industry: We don't have time, nor are we paid to produce a set of KT docs with zero errors; in a traditional DB arrangement, the KTR is under a zero defect condition. They'll push as much risk as they can to other parties in the arrangement, including the AEs. KT models must depend on the asset class. (acquisition strategy). Right now GOVT is not pushing risk on AEs. GOVT experiences a loss of scope when there is risk for the AEs.

Industry: IPD – 100 percent of profit in profit pool; added ICL – layer just below; allowable profit

On DB there is NO sharing of profits between AE2 and KTR; Shared pool works well (KTR solves; AE prevents)

[9:50am Mr. McAndrew arrives]

Various Acquisition (AQ) options

- GOVT- We rarely prosecute AEs for E&O; GOVT always maintains risk; On DB projects, when risk increases (costs) government loses scope.

Industry: "Go slow to go fast"; Spend more time up front (i.e. planning); share the risk; currently DB uses a "criteria designer" to put together the Request for Proposal (RFP); DB does not provide a more streamlined delivery schedule (i.e. quicker Beneficial Occupancy Date) than Design, Bid, Build (DBB) in the construction phase. Suggested using "Draft RFPs"; Planner One, Planner Two is where the problems lie; late stakeholder change requests (CREQs)—these are big problems. When you get the team up front with shared responsibility, risk is massively reduced. The handoffs are killers. You can get good case studies from state and local too. Eliminate AE1 and Planner One, with KTR early involvement, early quals-based DB team, down-select to three, issue fairly large retainers (approximately $300,000 for a $200 million project) to all three teams, then you get much better proposals for the project.

RADM Korka: Not here to change the past, here to frame the future.

Industry: Suggest you do DB differently; AE1 does all of it. Similar to University of California system —select three DB teams (approximately $300,000 stipend); reduce handoffs; On big jobs, one model is a university, they hired an AE, then issued package contract awards for foundation, structure, curtain wall, elevators, etc… got cost certainty by awarding these, then the subs helped to finish the 100 percent designs. KTRs are working w/ designer at the shop drawing level. Entire design team and builder were required to collocate w/ the owner. IPD w/ guaranteed maximum.

Another private tool used by AEs is set-based design, take the design to the last responsible step, then make a decision. Or pull planning, which is working backwards from the time mark, and will determine whether or not we have a real schedule. Common collaboration between all parties on the schedule is now an industry standard.

Lots of different acquisition strategies in the private sector. Need to dig in at the working group level.

- GOVT: Latest NAVFAC Statement of Architectural and Engineering Services (SAES) for PDA efforts, negotiate PDAs w/option for Final Solicitation Document Design Authority (FSDDA) (streamlines); there are two primary risk classes… risk to award and risk to complete.

Industry: DB Lite with Guarantees; University hires AE (AE1) who works with In-House Planner team; "Design Assist" – working w/GC teams to do shop drawings; Contingency goes back to University

DB task order; Profit on construction; Open Book; Negotiated fixed price task order, planning, programming, design, and construction; CM at Risk- done on Heating, Ventilation, and Air Conditioning (HVAC) projects; Highly-Qualified based; Rates for engineers and laborers not under Brooks Act since DB (unit prices agreed). Single Order Task

NAVFAC schedules are not achievable to allow reviews and quality; DB lite allows schedule reviews; pull plans; RFP sets timeline; Interview w/entire team; review rates and costs

[AM BREAK 10:20-10:40AM]

AM SESSION: PART II—10:40AM

2. COST ESTIMATING- developed by AEs; modeling; analytics; *WHO IS RESPONSIBLE FOR THE QUALITY OF THE COST ESTIMATES? HOW ARE YOU USING MODELLING OR ANALYTICS TO DO YOUR ESTIMATES?*

Industry: Monte Carlo Analysis results in probability estimates—some are good, some are not; Senior and junior estimators with junior cutting teeth on these; They do have economists on staff, but only used for Program Work (when estimating for years later). Economist only used for programming.

Estimators in trades; database tools, but inform; no crystal ball; Recommendation is to share bid information (help to better estimate in future); Currently bid information- data is not shared; Navy versus commercial is completely different; 25 percent higher inside fence; establish a database of similar projects and complexity; government is sitting on a gold mine of data. "Gold" is the data on costs- makes good estimates and estimators. At 95 percent construction complete, gather everything.

3. QUESTION: WHO OWNS THE RISK OF THE ESTIMATES?

Industry: We have an economist on staff but we typically don't use them on federal work. On program-level work, on private work, we use the economist to generate confidence levels for future markets. Those are identified as risks and accounted for by Monte Carlo sims.

The more info you can get about the ground (geotechnical soil borings) is better. What else is hitting the job market at the time the project goes out to bid?

To improve, if we could more collaboratively share bid data? If we could see that, if we could assist in evaluating award decisions, then that would help with future projects. Not just the top-line, but by the Construction Specifications Institute (CSI) section. We would look at past project bid breakdowns for similar type work.

- GOVT: Gives bottom-line price? Must be called out in RFP. you'd have to disclose distro to any construction contractors. We normally don't get a breakdown. No legal problem on projects going forward, just put the data use clause in.

4. QUESTION: DO YOU HAVE A CERTAIN CERTIFICATION YOU UTILIZE FOR COST ESTIMATORS?

Industry: They have about five different industry certs. You need to have both a market segment understanding and the certification. We have small stable of estimators who we get to know. We use a continuous cost estimating, not milestones… in a model where we have contractor engagement.

Generally, the AE redesigns for free until we get to the allowable cost. In private industry.

Sometimes they require/ request certification, but really need to know the market and trades.

They use a small stable of estimators; Construction KTRs have models from previous projects.

5. GOVT: PRESIDENT'S BUDGET IS SET TWO YEARS OUT. ANY ADVICE IN GETTING OUR PROGRAMMATIC ESTIMATES BETTER? WHAT WOULD YOU CHANGE?

Industry: Every project would have a project risk assessment. Concentrate on the fundamentals, build the estimate in stride in with the planning so the estimates aren't done as an afterthought.

We don't get back to the AE enough. Data analytics won't work unless you're closing the learning loop.

Sometimes you have contractual and/or voluntary firewalls. Fidelity of data is directly correlated with the quality of estimates. GOVT is in a unique position because you own all the data.

Tools make a difference in estimate quality. M2 is something that we are currently required to give to the Navy, but that's not the estimating software that we use on the private side.

Industry: Project Risk Assessment; perhaps utilizing economists; Monte Carlo models/simulations; Fundamentals- more rigor could fix and tighten up estimates. NAVFAC has a treasure chest of data.

- GOVT: Give AEs a "design for budget"; Design to 70 percent with bid options;

Industry: Data analytics; Improve planning deliverables; better predictions of market conditions

Contractual or voluntary firewalls on estimates? Fidelity of estimates to tap into GOVT databases

M2 cost estimates are required on GOVT jobs

Good cost estimating is an art.

6. SUGGESTIONS / IDEAS:

> (a) Indefinite Delivery, Indefinite Quantity Contract (IDIQ), AE1 meet with five DB Multiple Award Construction Contract (MACC) KTRs (AE2) ~ get engaged in pre-award; all the DB MACC holders, GOVT facilitates, do a workshop and create the interface to refine a cost estimate.
>
> (b) ECI- select 3 AE1s on quals, then award AE1, select DB KTRs on quals, award construction to KTR, set up AE1 as the AE2, arrange a marriage.
>
> (c) Multiple Single Award Task Order Contracts (SATOCs)- options to three to five AEs selected by qualifications; Standard Form 330s updated yearly; guarantee multiple awards.
>
> (d) AE MACC- *write-up and send in

Industry: Be flexible by asset class (commercial world does this well); Lump sum work with full risk; Contract with AE and KTR and incentive both design and construction. At every project, you should

have a step at the end, ensure all data, Lessons Learned (LL), and why answers get captured. Someone needs to be responsible for this.

- GOVT: Would incentive "two for one" work? Execute one military construction well and get another. Yes

7. QUESTION: HOW LONG DOES IT TAKE TO GET A DESIGN DONE? WHAT METRICS DO YOU HAVE FOR DESIGN PROGRESS?

Industry: Earned value estimates; Cost to complete; Resource-loaded work plans (i.e. Microsoft Project with hours by discipline per task); Projected versus "True Up"; Scope changes throw all estimates off; Historical database on how long it has taken to complete. We look at cost to complete constantly. Monthly we do a true-up meeting with owner, design, KTR.

Example: Recent $150 million project- for large, complex project they used an independent team of designers called "Red Team Review" (have a separate designer team review). [Atlantic used to conduct similar "Quality Design Reviews" (QDR) for complex projects.]

Junior designers are cheaper; collaborative during reviews (30/60/90); constantly updating model; They do waterfall reporting at the Company, from high-level to low (bottom line, project, down to discipline level). Goal is to see problems early. Analytics can sometimes turn into simply a process, check the box. Often we get trapped into meeting the mail for a 30/60/90 benchmarks. Don't believe that 30/60/90 is still a good way to do business. Stretch the early phases, get multiple stakeholder buy-in, and the compress the latter stage.

- GOVT: What about component/system reviews?

Industry: Lack of skilled workers in construction industry; problem with security access (risks); lack of bidders increases costs

LUNCH—11:30AM

PM SESSION—12:30PM

Industry: Even though the morning session was spent discussing DB and alternate delivery methods, want to go on record that the AEs are not fans of DB solutions and would prefer traditional DBB; DBB risk on GOVT; The heart of the issue is the relationship that exists in a DB contract. KTR wants it better, faster, cheaper, or they move to an AE that will. AEs prefer the GOVT to hold the contract vs the DB firm holding it. Guaranteed Maximum Price arrangements might work to solve this.

What is next best thing? AEs do not like Low Price Technically Acceptable (LPTA); Prefer Best Value (BV) on Design; Doesn't like seam between AE1 and AE2; like Guaranteed Maximum Price (GMP); Nobody likes LPTA; vigorous agreement. BV on the design and also on the qualification. BV factors shouldn't be limited to just those things in a set of bridging docs.

Misalignment of priorities for DB; DB pushes risk to AE; DB does not drive collaboration; No innovation; GOVT likes DB because there's only one contract involved. DB contract vehicles don't allow for AEs to provide best service to the Navy. No innovation. To KTRs, innovation means "cheap."

- GOVT: What can fix relationship? Partnering?
- GOVT: Perhaps we should mandate specific systems

Industry: Progressive DB – white paper* (obtain an electronic copy)

8. *QUESTION: SHOULD THE GOV'T BE IN THE BUSINESS OF PROVIDING QUALITY CONTROL (QC) ON AE DESIGNS?*

Industry: No! The deliverable should be rejected. That's not your job, that's our job.

- GOVT: We're masking the problem, putting ourselves into the design in order to fix the short-term issue. But it allows a long-term design QC problem to persist.

Industry: Modern DB is not faster than DBB. If you get less prescriptive, it would be faster.

- GOVT: But quality is going in the wrong way.

Industry: Then change the contracting vehicle. Bring the whole team together early. There's no way you'll have an RFP to be prescriptive enough to get everything you want. Open books. LPTA drives everything to cheap. If you want to get long-term quality, you can't use LPTA.

- GOVT: Intend to a follow-up AE event this year (six months from now); due outs for review

RFP Development- No creativity; Cut and paste;

DB is not any faster with Navy; Go performance-based over prescription; How to fix? Reassess; How to prevent cheapness?

Integrated delivery- talk early enough to include quality selections; Designer brought in at zero to five percent of project based on program; KTR brought in at 15 to 30 percent.

Anticipating usage changes

Building commissioning- What about Cyber Commissioning? AEs have small efforts underway, just now beginning.

9. *QUESTION: HOW DO WE COLLECTIVELY GET BETTER HVAC DESIGNS AND SYSTEMS?*

Industry: Need commonality; Beat Environmental Protection Agency Act 2005 by 20 percent; Cannot maintain in field; Not optimizing performance; Third party commissioning agent during design phase and acceptance testing; You have to have a good third party commissioning agent during the design phase. Even the acceptance teams need to be involved in the design phase. Get rid of the hodgepodge of equipment types. Get sensors on equipment, monitor, deal with root causes versus doing prescriptive maintenance on a schedule. Do virtual maintenance studies before AE starts. Come up with an HVAC modelling tool to do digital models.

Guiding Principles equate to Leadership in Energy and Environmental Design (LEED) Silver

- GOVT: Business Case Analysis to limit system manufacturer per base; Predictive condition-based; virtual modeling tool; We are prescriptive based on historical issues (we add on); Policy "add on" makes prescriptive (compliance-based approach).

Recommendation- Have a conversation with systems acquisition folks (Big A); i.e. Weapons Systems; They are awarding services contracts on the BV basis to win. The evaluation community is really doing it right.

10. *QUESTIONS: HOW DO WE GET BETTER AT RFPS? ARE CUSTOMERS INVOLVED?*

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Industry: Depends on team and customer; Lazy man's RFP ("cut and paste" efforts) need to be improved;

Are stipends in fashion? No

Schedules and involvement of all clients/users. If the lessons about what the clients want are clear, even if they're hard, then the AEs can adapt. Commercial clients are not shy about telling you something is wrong. Get a stipend to develop a BV proposal, otherwise there's too much effort, too much risk, not worth it. Make sure you're getting interface with the actual users (supported command end users).

- GOVT: Who owns the requirement(s)? Commanding Officers (COs) and Assistant Regional Engineers (AREs); raise your level of visibility to the CO of the command. Know who the right decision-maker is on the GOVT side. We need an escalation process when they're not getting to the right answer with the local Point of Contact (POC). We see the train wrecks in slow motion, but if our POCs can't fix it, there's nowhere to go.

Metrics on when project are going south? Need performance indicator; Who is the decision maker on customer side? Shared goals and escalation process; speed decision-making (timing, partnering, etc)

Industry: Hopefully we can improve on delivery models (Progressive DB). Recommend a technical small group forum, so we can bring in some folks… like HVAC, Mechanical Engineers, commissioning agents, etc. Helpful to hear what your pain points are. Good to build a relationship outside the formal contracting process. We should have more of these. Let's remember that the AQ method can have a HUGE impact on the outcomes. Owners see one level of the process, but the AQ method has effects that the owners don't see (i.e. AE/KTR relationship). Looking forward to an actionable plan coming from out of these forums. Recommends technical small group forum (with Subject Matter Experts)- similar to Discipline Working Group (DWG) workshops used by Department of Defense (DoD) Criteria, where both industry and NAVFAC's (and the other services) technical discipline leaders collaborate; Potential roundtable with KTRs and AEs present.

- GOVT – Honesty in the system. I know there are some perverse incentives in the system, but honesty helps us identify problems so we can resolve them. Don't be shy. Offer for NAVFAC Capital Improvements (CI)-led working groups. Please let us know if we're doing something that can be changed. We're trying to make working with industry the norm. We're trying to get closer to how industry works, not bring industry to us. The leadership here in DoD is pretty unified. Believes in industry outreach and utilizing their best practices. Our RFPs seem to be growing- Challenge: Can we reduce (RFP) in size and improve quality?

RADM Korka – Performance metrics- need dates; lot of factors; how fast to award contracts; success – 30 percent; will be transparent; RFP success; How fast we can adjust course will be interesting to watch. If you can turn the battleship half a degree, it's a success. Please thank your staffs. Appreciates everyone's interest; How to expedite? Art of possible.