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| **Table Number: CDR Facilitator Name: Amber Gilbert** | |
| **Session 1 Part 1: Implementing Digital SETRs** | |
| For SETR processes in general, please use the space below to answer the following questions. If continuing your answers on a different page, please use the question number, e.g. 1.c, to indicate what you are responding to. | |
| **Overall SETR Process**   1. What are the current overall challenges to preparing, documenting, executing, and reviewing SETRs?   Waste of time and paper—often not reused.  Info often stale by time of review.  Massive amount of information with insufficient time to review it + limited traceability across documents (traceability needs to be at a useful level, not too much OR too little)—this problem is increasing as complexity increases across systems of systems.  Schedule & payment typically take precedence over actual content and quality, so CDR ends up being a checkbox activity without being actually meaningful.   1. What approaches (digital or otherwise) have you found successful in accelerating the SETR process while increasing (or maintaining) the efficacy of the review?   Mini-CDRs: Made CDR more iterative and/or segmented it for only portions of the system at a time.  Pre-CDR held with only the technical team for detailed technical content review to ensure the design is ready prior to official CDR with PMs and other non-technical team members.  Govt team had ongoing access into contractors’ digital environment(s).   1. What digital tools, platforms, or methods have you used in your SETR processes? Have these been sufficient? Expand on successes, failures or gaps.   Shared collaborative environment with program data  Auto-generated metrics (e.g. in DOORS)   1. What are the lessons learned from the approaches you've tried or participated in?   Need to define and understand quality metrics.  If there’s lots of design churn leading up to CDR, this indicates and should be used to identify risk or ill-defined requirements.   1. a 2. (optional) What specific cultural attributes need to change to successfully implement the approaches identified above? Are their risks or impediments, and how would you mitigate or overcome them?   CDR isn’t for wordsmithing—it’s for confirming appropriate technical baseline.  Even if the contractor creates and shares good models, can the government team use and understand them?  Real demonstrations are better than static understanding, even in models.  Government needs to articulate in RFP what they expect in model-based reviews.  Modeling your processes, including review processes, would help highlight differences, gaps, etc. in govt approach vs. contractor approach (maybe a digitally modeled SEMP would help?). | |
| **Session 1 Part 2: Implementing Digital SETRs** | |
| For your designated SETR event, please use the space below to answer the following questions. If continuing your answers on a different page, please use the question number, e.g. 1.c, to indicate what you are responding to. | |
| **Circle your table’s designated SETR Event** | |
| 1. Systems Requirements Review (SRR)  2. Systems Functional Review (SFR)  3. Preliminary Design Review (PDR)  4. Critical Design Review (CDR) | 5. Test Readiness Review (TRR)  6. System Verification Review/Functional Configuration Audit  7. Production Readiness Review (PRR)  8. Physical Configuration Audit (PCA) |
| **Specific Digital SETR Gate Criteria (as specified by your table marker)**  For the Digital Engineering criteria proposed for your selected SETR event in the provided “Digital SETR Gate Criteria” document,   1. Do the listed digital engineering criteria make sense for your selected SETR event?   Language is too vague—you could drive a truck through it.  SEMPs need to be better and define how govt and contractor are supposed to collaborate digitally to do systems engineering.  Need to specify what the digital thread is and what requirements are being referenced.   1. Are there any criteria you would add, change, or remove? (Annotate the Gate Criteria doc if helpful)   Specific access into the contractor’s shared environment for real-time collaboration.  CDRLs need to be revamped.  Need demonstration deliverables—be concerned with the actual design, don’t just call for a box-checking artifact that ends up being shelfware.  Models need to integrate-able and usable on the government side, not just delivered by the contractor.   1. Do the listed criteria represent a reasonable digital maturity for the SETR event?   Need more than MBSE requirements.  Need requirements for non-engineering portions of CDR requirements (e.g. logistics concerns like sparing postures, updates to technical orders, lifecycle sustainment plan, etc.).  Design needs to be understandable to the whole team, not just your systems engineers.  Clarify which models will be included in CDR, including things like manufacturability, testability, etc. | |

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| **Session 2: Future State of Technical Reviews** |
| Under the premise that we are now in 2045 where DMM has been actualized, what would the process of technical reviews be?   1. How would you change / eliminate / redesign the technical reviews in this new world?   Probably do still need some level of technical review process, because our contracts need governance and validated designs.   * Doesn’t have to be one big-bang event, though. Better option would be iterative reviews of smaller increments, then rolling up into system perspective of design and risk. * Clearly define what critical design requirements are for each increment—need insight on feasibility of the design in ALL functional areas (again, not just systems engineering). * Limit attendance to decision-makers. * Include design review plan and criteria up-front—plan how your increments/subsystems will be driven toward convergence. * Test environment needs to be understood/available from the start to validate testability and model integration as you go. * Automate as much as possible. * Review tradespace of options with defined impacts to cost, schedule, performance, logistics, etc. for each risk item, then make determinations based on which risks the govt is willing to take on & how (rather than “here’s the risk and here’s the single mitigation plan”). * Govt team needs to understand how to perform these reviews. There needs to be a predefined approach which teams on both sides have agreed to regarding how they’ll do reviews. * Have tailorable review processes defined for other contracting approaches that teams can pick from. * Use AI/ML to assist with analysis, traceability review, etc. * Use “Digital Twins” to really assess and validate designs. (Meaning detailed 3D, physics-based models) * Use AI to walk through reviews, document them, query the outputs later. Use AI to determine if even ready for a review before deciding to have one (need clearly defined criteria, and have the tool identify areas where we’re not yet ready, if that’s the case). Will need AI personas based on the different functional areas to make this assessment. * There should be no document-based criteria—criteria are based on the design components being reviewed. * Include test & operations early and throughout the design review process so they can confirm the design and models will meet their needs/requirements.  1. Map out the new technical reviews process to make it a reality   This process applies to iterative, mini-CDRs—but those mini-CDRs always need to include information on how their risks and impacts roll up to the systems level. |
| **Additional Comments/Feedback** |
| Please provide any additional comments or suggestions on SETRs, Digital Transformation, or other areas you would like to express to the Air Force Material Command.  Please also include on feedback on the workshop, or recommendations for workshops or events you would like to participate in the future.  People at this table:   |  |  |  | | --- | --- | --- | | Name | Organization | Email Address | | Amber Gilbert | DAF DTO | [Amber.gilbert.1@us.af.mil](mailto:Amber.gilbert.1@us.af.mil) | | Jonathan Sham | Northrop Grumman | [Jonathan.sham@ngc.com](mailto:Jonathan.sham@ngc.com) | | Vicky O’Sullivan | MITRE | [vosullivan@mitre.org](mailto:vosullivan@mitre.org) | | Hema Manivannan | DSPO | [Hema.manivannan@dla.mil](mailto:Hema.manivannan@dla.mil) | | Robin Yeman | Carnegie Mellon SEI | [ryeman@sei.cmu.edu](mailto:ryeman@sei.cmu.edu) | | Mike Shearin | GTRI | [Mike.shearin@gtri.gatech.edu](mailto:Mike.shearin@gtri.gatech.edu) | | Chris Schreiber | Lockheed Martin | [Chris.schreiber@lmco.com](mailto:Chris.schreiber@lmco.com) | | Jerome Hugues | CMU/SEI | [jjhugues@sei.cmu.edu](mailto:jjhugues@sei.cmu.edu) | | Nathaniel Crews | Caltech CTME | [Ncrews.btcs@gmail.com](mailto:Ncrews.btcs@gmail.com) | | Kelli Houston | Lockheed Martin | [Kelli.a.houston@lmco.com](mailto:Kelli.a.houston@lmco.com) | |