

Addenda A: People (Up-Front, Development, Operations, Close-Out) - consolidated 11, 21, 31, 41

Tagline	Theme & Tags	Presenter	Abstract	Find It Here	Index
Recognize that architectural decisions have political consequences	System Architecture Analysis - Politics	Doug Stanley	It is a HQ function to have an ESAS-type team of experts that keep setting the agency's direction and program architecture, to get around the NASA centers' politics.	ESAS Video; Time marker: 11:00	11
Assume positive intent	People Success	Jonathan Krezel	Lesson number one is assume positive intent. Assume that everyone on that team, while their perspective may be different than yours, is ultimately committed to the success of the entire endeavor. When you're in a knock-down-drag-out fight with someone over an issue which you feel passionately about and which, obviously, this person on the other side of table feels passionately about its very easy to forget that they are as interested in success as you are. They just have a different take on success. You have to step back and really make a conscious effort to put yourself in their shoes. Assume positive intent.	Space Shuttle Transition and Retirement Lessons CLIP 8 Top Three Takeaways: Time Marker 5:03	11

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Build relationships and trust right from the start on a multi-Center project team.	Ares 1-X Project Management - Teambuilding	Carol Scott	When you're bringing a team that comes together from multiple centers and multiple organizations you've got to start off with building relationships and trust. It takes a good year to eighteen months to get there.	Ares 1-X Clip: Culture Shock!!	11
Build relationships with face-to-face interaction opportunities	Ares 1-X Communication	Jim Bolton	Email is the illusion of inclusion. A mechanism to get people to talk, to really talk to each other, is important.	ARES 1-X Clip: Communicate, Communicate, Communicate!	11
Communicate with increased frequency the harder the project	People, Communication	Joel Kerns	we found it was really important in such a complex task that affected so many different organizations that we had to communicate frequently about what we knew and what we didn't know, day-to-day, week-to-week and month-to-month.	Space Shuttle Transition and Retirement Lessons Learned; Clip: Time Marker 1:30	11

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Develop clearly defined training objectives up-front	Design / People / Training / Concept of Operations	Ginger Kerrick	For exploration, while it is a noble goal to have everything in place (the hardware, the software, the ops concepts) ready to go so that you can implement your training plan, in reality it is very difficult to achieve. So my advice to you would be to have very clearly defined training objectives and you may choose to meet those objectives differently for the first flight than you would once you have a better understanding of the operations and you're at a more mature level, but you need to make sure to understand the objectives up front.	ISS Video Dashboard Ginger Kerrick Clip 5, 1:17	11
Establish relationships upfront to enable information flow.	Ares 1-X Teambuilding	Jonathan Cruz	Communication was key. If there was important information that someone had that didn't get where it needed to, that impacted the striving schedule. So some face-to-face meetings, travel at least up front to meet the people, established a lot of those relationships where we were able to call up if you had a question or you had some information that you needed.	ARES 1-X Clip: Communicate, Communicate, Communicate!	11

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Get the right people "on the bus"	Ares 1-X Project Management - Organization	Marshall Smith	Get quality people and trust them, so you don't have to revisit their answers and look at yet another option. We're done. It's time to move on.	Ares 1-X Clip: Systems Engineering and Integration	11
Involve hardware owners in the decision making process	Improved Communication, Problem solving	Alvaro Rodriguez	It is important to involve the hardware owners as part of the team structure. Having them involved in decision making decisions informed the team and helped to answer questions that came up quickly.	11934 - On-Orbit Reinforced Carbon-Carbon Repair - Organization and teamwork	11
Recognize and address Center-to-Center cultural and terminology differences	Ares 1-X Project Management - Teambuilding	Robert Ess	The hardest things was to take all these different people and all these different cultures, using all those words together and making sure we ended up on the same page. Do not underestimate the lingo that we use. I would suggest that we speak in examples so we talk about not terms and definitions and acronyms but actually go down two or three or four levels deeper than you think you need to at day one of the project.	Ares 1-X Lessons Learned: Clip: Culture Shock!	11

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Recognize and manage Center-Center politics / ensure program-level integration	System Architecture Analysis - Politics and Communication	Doug Stanley	In ESMD, center politics are getting in the way and they are not sharing data with each other. That is unacceptable. You need some top-down system that rewards people for cooperating and sharing data. This is a HQ function, maybe a Directorate Integration Office (DOI) function.	ESAS Video; Time marker: 35:30	11
Silence the rumors	People, Communication	Joel Kerns	Go out as the leadership and brief people on what it is we knew, what we thought was going to happen, what decisions we thought were coming up, or even what we didn't know, that rumors and uncertainty would creep into everyone's activities and just cause a lot of disruption.	Time Marker: 1:55	11
Take your time to select the right people for the right task at the start	Personality dynamics Right skills for the job	Kathy Owen	Make sure you put the right people, with the right skills, and the right personality in the job, because even if they've got the right skills, and they don't have the right personality, it really can be a detriment.	11496 Integrated Vehicle Ground Vibration Testing last clip	11

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Build confidence through technical conversations	People, Trust and Confidence	Alvaro Rodriguez	One of the big lessons I learned through going through the repair project and seeing it to success, was the value we had in the team members and learning how to divvy up the roles. We had to learn to, especially for mission support, how do we work with each other and how do we trust and rely on each other to all come together to ultimately make a recommendation to the project. A lot of that was building trust with each other in terms of our technical discussions. Even personal relationships that we had built up; those were invaluable.	KBR 11934 Clip Context; On-Orbit Reinforced Carbon-Carbon Repair	21
Change people out in demanding programs to avoid over-pushing people.	Ares 1-X Workforce Stress & Health	Jonathan Cruz	With such a fast-paced, demanding program it's important not to over-push people and to be able to be flexible enough to change out people even just temporarily when needed.	Ares 1-X Clip: The Human Element	21

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Co-locate design engineering in launch-site integration	Ares 1-X Project management - Co-location	Stephan Davis	Most of us moved to the Cape for the last eight or nine months. That made a huge difference as we stepped through the integration and testing	Ares 1-X Clip: The Importance of Co-location	21
Communicate and discuss changes in standard roles and responsibilities with all stakeholders, especially external ones	Ares 1-X Organizational roles and responsibilities	Ed Mango	If you're going to have different, non-standard roles and responsibilities for major decision-makers, such as the launch director, start discussing that early on, especially with external stakeholders such as the engineering and safety tech authority.	Ares 1-X Clip: Roles and Responsibilities	21
Design ways to communicate efficiently in a complex matrix test program	Ares 1-X Communication	Robert Ess	The fact is that you can't educate everyone on your team because your team within NASA is never just a team of people that you see. There also is the matrix support team back at the institutions and directorates. Those are the ones that are really going to have a lot of influence on what happens and so it's a challenge, it's a daily challenge, every day.	Ares 1-X Clip: Better is the Enemy of Good Enough	21

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Don't glance over minority opinions, lean on experts	Minority opinion, expert knowledge	Mike Fowler	And so my lesson learned from that is that while you should be listening to all of the minority opinions, you should also respect the expert's opinions on what is and isn't a valid concern. So I think that it's good to listen to other people. It's good to listen to, you know often times there's negative information or questions that are asked that are good to, that no one had thought about. But there are also times that there are things that should not be pursued as vigorously or spending as much time trying to pursue	KBR 11938 Clip: Context; Minority Opinion-Time marker: 0:00	21
Function as a single integrated team	Ares 1-X Project Management - Organization	Robert Ess	We banned the use of phrases like level 2, level 3, level 4. We were all part of an integrated team.	Ares 1-X Clip: Organizational Structure	21

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<p>Keep work and family life in a healthy balance in these fast-paced projects.</p>	<p>Ares 1-X Workforce Stress & Health</p>	<p>Carol Scott</p>	<p>We tend to jump into these special projects and run them at a sprint race. Don't forget about your family and friends.</p>	<p>Ares 1-X Clip: The Human Element</p>	<p>21</p>
<p>Maintain a focus on communication and information sharing</p>	<p>Ares 1-X Project Management - Communication</p>	<p>Dan Mullane</p>	<p>The Mission Manager always stressed that we were one team, breaking down barriers and silos of information that can exist between levels and centers. If you want to move fast in an efficient way, communication flow and the sharing of information is extremely important and while Ares I-X wasn't perfect, I thought it was the best example that I have experienced in my 20 year NASA career.</p>	<p>Ares 1-X Clip: Safety and Mission Assurance</p>	<p>21</p>
<p>Pay attention to your employees in fast-paced projects and watch for stress buildup.</p>	<p>Ares 1-X Workforce Stress & Health</p>	<p>Jon Cowart</p>	<p>As managers in particular you have to look and see how folks are doing and pay particular attention to them during stressful times.</p>	<p>Ares 1-X Clip: The Human Element</p>	<p>21</p>

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Realize the challenges with virtual teaming	Ares 1-X Virtual team dynamics	Vince Bilardo	Operating with those five centers in that virtual project environment was very much a challenge.	Ares 1-X Clip: The Importance of Co-location	21
Recognize the team building and team training dimension of flight test projects	Ares 1-X Project Management - Teambuilding	Dan Dumbacher	One of the main take-ways was that the analyst, designers, system integrators and the operators all learned what needed to be done on this flight test, and what didn't need to be done, in addition to the technical take-away by getting the data we needed to inform the development program for Ares and Constellation.	Ares 1-X Clip: Senior Leadership Part Two	21
Staff the SE&I function fully	Ares 1-X Systems Engineering	Jon Cowart	System Engineering & Integration (SE&I) has a huge role. They have to be a real technical authority on the whole rocket. Staff them properly and give them a little more resources than they think they need.	Ares 1-X Clip: Roles and Responsibilities	21

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The project manager must be present at the center of gravity	Ares 1-X Project management - Co-location	Robert Ess	As project managers consider where the center gravity of the project is at any stage and find a way to get close to that. Forge relationships with those people and I think you'll have a much better understanding of what's really happening with your project if you do it that way.	Ares 1-X: Clip: The Importance of Co-location	21
"We knew we had to change the culture"	MMT Process Improvement - Decision forum culture	Wayne Hale	We had a number of senior managers that had been brought up through the NASA human space flight system that had very hierarchical points of view and we knew that we needed to change that culture.	KBR 11937 Clip: Mitigation; Time marker: 00:40	31
Develop an inclusive decision making culture	MMT Process Improvement - Decision Making	Wayne Hale	Clearly, The Mission Management Team (MMT) was a place where senior managers and NASA could come together and review the progress of the mission, but the decisions were all made by the chair.	11937 - Mission Management Team Changes Post Columbia Clip: Context; Time marker: 00:45	31

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Engage your people		John Olson	You've got to have the best people you can, engaged through that communication and through that plan. But you've got to put trust and responsibility and hold your people accountable, and then they will just amaze you.	Space Shuttle Transition and Retirement Lessons CLIP 9 Top Three Lessons Learned : Time Marker 1:21	31
Form a strong bond between team members	Dedicated workersTeamwork	Ben Greene	By forming a cohesive team for the RCC repair task, even after some members left the team or moved on to other tasks, as repairs were required we always had members come back to help out with the repair when needed. This was a team across multiple disciplines in the community that worked well together and it showed in the high quality of the work.	11934 – on orbit RCC repair – Organization and teamwork	31
Implement training in interpersonal interaction - II	MMT Process Improvement - Decision forum participant training	Wayne Hale	We had a Behavioral Sciences organization come in and sit in our meetings and watch our behaviors and then give us feedback. You had to say "please and thank you" and be polite. Some of the old-line managers had a real problem with that attitude change because coming from an almost military, hierarchical, we're "all about the facts" and "we don't suffer fools gladly" type of organization, it was difficult to sit and listen.	KBR 11937 Clip: Mitigation; Time marker: 04:10	31

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Implement training in interpersonal interaction - IV	MMT Process Improvement - Decision forum participant training	Wayne Hale	Part of the training was this culture change and that we're going to speak up; we're going to poll everybody. We're not going to throw people out of the room.	KBR 11937 Clip: Mitigation; Time marker: 06:00	31
Implement training in interpersonal interaction - III	MMT Process Improvement - Decision forum participant training	Wayne Hale	We developed a plan to train people [to be on the MMT] where they had to actually read some material, they had to observe some MMT's doing what we call "on-the-job training", they had to take some class work to be prepared and then they had to be formally certified.	KBR 11937 Clip: Mitigation; Time marker: 05:30	31
Leverage external experts	People Success	Karen Lucht	The second really important piece is realizing that you don't have to do it all yourself. So about 6 months into it we started to realize hey there are experts out and I think it's a NASA Shuttle culture that we manage the program so we want to do it ourselves, but realizing there were many experts out there that we were able to leverage their knowledge that they already had there.	Space Shuttle Transition and Retirement Lessons CLIP 2 Roles and Responsibilities: Time Marker 3:31	31

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<p>Minimize crew training template. Cover the critical systems, then supplement with JIT</p>	<p>People / Just-in-time training / operations</p>	<p>Ginger Kerrick</p>	<p>We create dedicated packets of review information that we would send up to the crew prior to executing a specialist-type task. This would include PowerPoint presentations and videos and things of that nature as if you were sitting in a classroom environment down on the ground except they'd be performing that training on-orbit. So we call this "just in time" training and that is a concept that we are now looking at implementing and expanding the use of onboard ISS and we think it would be a very good starting base for training for exploration as well.</p>	<p>ISS Video Dashboard Ginger Kerrick Clip 4, 4:00</p>	<p>31</p>
<p>Provide crew with hands-on electrical and mechanical skill development training</p>	<p>Training / People / Skill-set</p>	<p>Don Pettit</p>	<p>Something that occurred to me after my last mission is probably 80% of what we do on orbit could fall under the realm of mechanical or electrical skills for repair and maintenance ... so I would say that sending astronauts to emersion training on the T38 aircraft with a certified mechanic and spend a week in the avionics shop a week in the hydraulics and engine shops and then we will spend time on the hanger floor doing maintenance on the airplanes and then the three weeks of training you get more mechanical training than you would get for years of training for a ISS mission ...</p>	<p>ISS Video Dashboard Don Petit Clip 4</p>	<p>31</p>

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Provide high fidelity training and simulation mockups	Training / People / Skill-set	Don Pettit	For the space shuttle,.... we had outstanding simulators and that was a well-oiled mechanism, but if you look at ISS in a six month period the configuration of ISS can change because rack and pipes and plumbing can be changed – its ever changing which is good but it makes it hard for the simulators on the ground.	ISS Video Dashboard Don Petit Clip 5	31
Recognize and critically assess the dynamics in mission critical decion forums - Intimidating Forum?	MMT Process Improvement - Decision forum dynamics	Wayne Hale	They were typically large meetings held in a big room and the culture was if you are not an expert in the particular topic that was being discussed, you didn't participate; you didn't speak up, you didn't ask questions.	KBR 11937 Clip: Context; Time marker: 02:20	31
Recognize and critically assess the dynamics in mission critical decion forums - Stilted? / Heirarchal?	MMT Process Improvement - Decision forum dynamics	Wayne Hale	It was a very strange and stilted culture that was going on, very hierarchical; not much discussion. It clearly did not allow for input of many, what we would call dissenting points of view. There were other avenues and certainly people use the social network and those sorts of things to talk about these issues outside the meeting, but the meetings were stilted and formal and hierarchical.	KBR 11937 Clip: Context; Time marker: 03:15	31

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Recognize and critically assess the dynamics in mission critical decision forums - Little Give and Take	MMT Process Improvement - Decision Making	Wayne Hale	In fact, the Mission Management Team is almost exactly the same team that participates in the flight readiness reviews and the other pre-launch reviews the ET, SRB made and the orbiter made reviews that lead up to the flight readiness review. Effectively the same people doing effectively the same things, and those processes I had known for some time, and anybody who participated, knew for some time that they were troublesome. There was a lack of "give and take" in those meetings.	KBR 11937 Clip: Context; Time marker: 02:00	31
Recognize social dynamics within the decision forum	MMT Process Improvement - Social Dynamics	Wayne Hale	As a manager, a leader or whatever in an organization you need to understand social skills and you need to be proficient in them because they are equally important with the technical skills. You will not make good technical decisions if you are a poor people manager and you don't understand how to communicate and engage and motivate and really relate to people and hear what they're having to say.	KBR 11937 Clip: Lessons Learned - Culture Change; Time marker: 03:50	31

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Recognize the developmental training embedded in flight test experience you test the hardware	Ares 1-X Training the team	Steve Davis	The flight test itself, beyond the fact that you learn so much about the vehicle, which is the reason why we really did it, just training the team and training the personnel was incredibly beneficial. That was as beneficial, in my mind, as actually learning about the systems.	Ares 1-X: Clip: The Importance of Flight Testing	31
Select and train crews to have broad basic skill-sets then provide just-in-time training for specific tasks	Training / People / Skill-set	Don Pettit	First of all you have to have a good skill set. Maybe you don't know how to use a special microscope but you know how to use a standard microscope, you can take your knowledge and skills and apply it to the new event. You don't need to have a class on how to use the special microscope in order to figure out how to use it, but you do need just in time training – watch a video or read a background paper after that you can jump right in and use it. With good background skills and just in time training you can get it done expertly.	ISS Video Dashboard Don Petit Clip 3	31

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Take the time to communicate effectively.	MMT Process Improvement	Wayne Hale	Communication is the key element in that and it is a human, not a technical, it is a human interaction thing and you have to take the time to develop the networks and have the rapport and listen more than you talk to have good communication	KBR 11937 7th Clip: Communication	31
Benchmark external organizations - develop credibility	Program Transition Workforce Retention Closeout, People, 41	Sue Leibert	I think just the fact that we did benchmarking helped us an awful lot with our internal customers and our external customers. It gave us a lot more credibility with people to be able to say "these are some things that Titan did that helped make them successful...or NAVAIR or NAVSEA, and this is why we want to do the same things.	KBR 11797: Clip: Identification of Risk; Time marker: 06:45	41

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Communicate in multiple ways	Program Transition Workforce RetentionCloseout, People, 41	John Shannon	One thing we did was surveys, to which we got a very good response back and it helped to point out areas of communication that we needed to focus on and make sure that the managers were talking to the team. You have to realize this was grief; this was a grieving process. People knew that something they loved was going to end and communication cannot be overstated; the importance of it and how you have to do that in many different ways. You can't just talk to people at a staff meeting; you also have to do emails, you have to websites, you have to make sure they have the ability to respond to surveys, that you're available for brown-bags and Q&A because not one thing will catch everybody. But if you do multiple, many different communications efforts then you're going to get most of the people and that was very important.	KBR 11797 Clip: Mitigation of Risk 1; Time marker: 11:40	41
Communicate the details, Discuss the details, Build Trust	Program Transition Workforce RetentionCloseout, People, 41	John Shannon	They needed assurance from me that we were on a plan, we were going to execute that plan, we all understood it, we understood when people would be let go, what the retention incentives were going to be. It was just a lot of discussion and we built a lot of trust between the civil servants and the contractor leadership to make sure that we had discussed that, the importance, and that they were really committed.	KBR 11797Clip: Mitigation of Risk 1; Time marker: 14:10	41

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Communicate, Communicate, Communicate	Program Transition Workforce Retention Closeout, Process,41	Sue Leibert	What were the lessons learned? The big one was, I think, communication. We did that well, I think, in that we got the contractors and the civil servants and the agency and the program and the projects all together, and I would encourage whoever would do this in the future, to do that.	KBR 11797Clip: Lessons Learned; Time marker: 03:10	41
During transition communicate aggressively using all available modalities	Planning / Communication / People	John Olson	...we used every tool underneath the sun. We used traditional mechanisms like PowerPoint and Word to capture things. We also used social media wikis, and we used our ICE, Integrated Collaborative Environment, ...we used a variety of newsletters; we used regular communications; we spoke and did public speaking events regularly. We spoke not only in large groups but small groups, tailored employee groups, to the Union, and to so many different constituents and stakeholders, ... having such a constant and pervasive and consistent level of communication that used all those modalities plus all the existing constructs and the new ones that we added in order to amp up this specific communication, we again tackled that "tell them what you know, tell them what you don't know and how you're working to get that".	Space Shuttle T&R, Olson Clip 4	41

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Focus on team skills, team capability and process streamlining	People, team skills and capability, planning	Dorothy Rasco	My big takeaways: maintaining the critical skills ... reviewing processes, and you need to streamline communication and picking you're right team	Space Shuttle T&R, Rasco Clip 6	41
Manage transition with retention incentives	Program Transition Workforce Retention Closeout, People, 41	Sue Leibert	That there's a sense of loss at the end of the program, and that we can't underestimate what that will do. And that there's a sense of distraction, and that things like monetary and support services are important in helping the workforce not feel so distracted.	KBR 11797: Clip: Identification of Risk; Time marker: 06:15	41
Plan thoroughly, get the right people on the team and communicate continuously	Planning, communication. people	John Olson	First you got to have a plan. A rigorous, well thought out, well researched, flexible plan is vitally important. And this plan has got to be a systems engineering approach; It's got to be a risk-based plan,...Number two, you've got to have communication: communication up, down, in and out, vertically throughout the organization and all levels, leveraging all the tools available, traditional ones, new ones, ... the third thing, and perhaps the absolute most important thing of the three, is you've got to have (the right) people.	Space Shuttle T&R, Olson Clip 7	41