# William Gerstenmaier Video Interview

**Be Prepared for the Unexpected: Programmatic**

Hi. My name is Bill Gerstenmaier. I'm currently the Associate Administrator of Human Exploration and Operations Mission Directorate here at Headquarters. During the Space Station program, I was the Deputy Program Manager for a period of time and also Program Manager for the International Space Station down at Houston prior to coming up here to Washington.

What I would like to do now is just talk about some of my experiences on the Station Program and one of them that comes to mind is really be prepared for the unexpected and I'll kind of give you two short stories on both of those. One is more programmatic in nature and the other one is more technical in nature, and the first one I'll start off with was the programmatic side. We were just really starting to ramp up assembly. Things were going well from an EVA standpoint. We were actually hitting the mark with shuttle flights early on in assembly, putting things together and things were going extremely well and we were putting together our budgets amid and we were asked by Headquarters to essentially pull out all the unknowns in the program, all the risk. There was going to be administration change. This was a chance for us to kind of true up things and get our budget in sync with the program we're executing. So we were asked to go out and kind of take all the risks that were sitting out there and quantify those into real dollars and bring those forward as part of the budget process and bring it forward to Headquarters so they could essentially true-up the budget with the program. So we went out and we found all the issues in the program. Anything that was questionable, we were spring-loaded to go put into budgets so we put all that together and then we compiled all the numbers and we sent them up to Headquarters and roughly the program was on the order of five billion or so over what the current baseline is for the program. We thought that would all be fine and things were doing really good. We've never really had been doing better from a technical standpoint in terms of execution so we thought things were going to be great and things were fine. Well as soon as that got up here, headlines read "Program five billion dollars over budget." They bring in independent assessors and everything, and before we could even say that that five billion really wasn't a true five billion, it was maybe two billion of true over guide. We never even got to have that discussion. We were immediately guilty. The program is out of control. Let's end the program. Investigators were coming in. We had the Tom Young Commission got started and

started looking at us from a program standpoint and it was really a traumatic point in the whole history of the program because everything we had worked so hard to put together we saw just really coming apart. So it didn't matter how well we were performing technically. It didn't matter how well assembly was going on orbit. That was totally discounted. It was looked at why are you over budget and then how do things come together. The other thing that became really obvious was that, internal to the program, we knew what we were doing, we knew what hardware we were building, but our documentation had gotten old and our requirements documents weren't updated recently. We had some modules that didn't exist anymore. We made some changes that weren't correct. So the auditors come in and they don't know any better. They're looking for requirements. They pull the requirements out and we're nowhere near those requirements. So, not only do they see this huge budget disconnect, but they see this whole requirements disconnect, which was just disastrous to the program. So then we quickly decided that we needed to put together a cost accounting requirements document, a CARD document. It's something that's typically done on the DoD side where we just essentially annotate all our requirements in a way that can be easily seen by auditors. They could come and examine the requirements and see what's being met and not being met. It's obvious to them and we don't have to justify the program, but that was hugely important. So, kind of the lesson learned are when things are really going well and everything seems perfectly fine and you're really hitting your stride and you really got confidence that things are going, you need to be prepared for that unexpected and it was the fact that we thought for sure we'd get a little budget increase. In fact, we got the opposite. We got modules removed. We got hardware content cut out. We were shown as a dysfunctional program and we're actually doing really good things. We knew what we were doing because we couldn't find an audible, traceable path back. So one lesson learned there is make sure you keep your requirements up to date and also make sure that you don't overstate or understate your financial risk and just keep actual tabs moving forward, and it turned out we came out of that pretty good overall. We were able to deliver all the modules. We didn't have to cut hardly anything out of the program. Then we took them temporarily out of the program to get back into budget and then we kind of held that as a challenge. Could we eventually save enough funds to add those components back in? So we were able to add back in Node 3 in the Cupola. Many of the things that were cut out initially to get us back in budget we were able to add in back later again and I believe we also got a better cost accounting system put

together. We got a better set of requirements. So we really learned from this experience, but it was unbelievably traumatic to go through this. I also learned a lot. They brought in some DoD cost estimators to go look at our program. I learned a lot from them. They showed me in an operational program where we could control how many software drops we do per year. We can control how many anomaly reports we resolve each year. So we could kind of dial in and dial out some of those operational things because they're just essentially funding items that occur throughout the entire year. They're not like a development project that needs to be completed at a certain point. I have flexibility. So you can use those things to moderate the operational side to moderate your overall budget. The other thing we learned was also when work came to a conclusion to actually remove the contractor off the task. So as we completed a trust element, and this will become more evident as I talk to you about the technical challenge, but we had the Columbia tragedy. We had to stop assembly, but I didn't stop trust development and trust of manufacturing down in Florida. We would take it to conclusion. We would stop and then I would stop all changes on that particular element even though our natural tendency would be to keep the entire organization up and running working that trust. I pulled them off of that trust element. They went onto the next trust element to go work and that was a way to, again, hold our cost down. So this traumatic event really helped the program overall improve our programmatic performance by first having good, stable requirements and really understanding our budget as we go forward. So, again, when you think things are going smooth and you're all comfortable and everything is doing really good, that's when you really need to be hypersensitive and watch out for these other little subtle cues that hey something else is coming up on the horizon.