

Advancing the Technology Landscape: Insights from Frank Konieczny, Chief Technology Officer, U.S. Department of the Air Force

By Michael J. Keegan




The U.S. Air Force flies, fights, and wins in air, space, and cyberspace. Cyberspace is a key component of its operating environment, which is dynamic and requires technological innovation. The Air Force continues to shift from primarily building, protecting, and defending the network

to a convergence of integrated efforts in, through, and from cyberspace in order to execute its core missions. Airmen at every level need timely and accurate information to make decisions and act upon them. The ways of accessing and sharing information have evolved through innovation and technology.

What is the U.S. Air Force's technology strategy? How is it identifying new technologies and promoting innovation? Frank Konieczny, Chief Technology Officer, U.S. Air Force, joined me on *The Business of Government Hour* to share his insights on these topics and more. The following is an edited excerpt of our discussion, complemented with additional research.


Would you describe the mission of your office and your role as chief technology officer?

 The mission of the CTO is to inject new technology innovation across the entire Air Force enterprise. The CTO sits within the Air Force's Office of Information Dominance and Chief Information Officer, SAF/CIO A6, which means we have an operational and policy guidance role. My primary responsibility is to advance the technology landscape of the Air Force, focused on developing the technical target baseline, mobile enterprise solutions, data management, cyber and

technology innovation pathfinders, and advancing the Joint Information Environment. I also advise the Air Force CIO on cyberspace/IT emerging technology, enterprise architecture, enterprise infrastructure, and strategy including identifying short- and long-term goals of department-wide cyberspace/IT initiatives.

I do this by keeping abreast of technology advances in industry and by determining how these technologies can best be applied across the Air Force. I meet often with vendors to provide insights into specific capabilities/requirements that are emerging from our target baseline. I also discuss current vendor development roadmaps as to where technology appears to be going. We do deep dives into specific technologies to acquire and provide target baseline insights.

How challenging is it to coordinate your efforts across the Air Force enterprise?

 Coordinating the advancement of innovative technology across the Air Force is a challenge. We develop a target baseline, which is future-oriented and looks out two to five years. We find that that is close enough to being reality, because everything changes in six months in the IT industry. We want to push the technology agenda that will better position the Air Force to meet its mission more effectively. Whether it is data management, mobility, navigation, or artificial intelligence technologies, we need to determine the toolset that the Air Force may need in the future. We are tasked with saying, Here are the technologies we need to go forward—and then ask, How are we going to manage new requirements and funding to make it happen?



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You have worked both in the private sector and the public sector. With that as a backdrop, what makes one an effective leader?



An effective leader must listen to their people. It is an essential characteristic. An effective leader recognizes they don't have all the answers. Engage your team and when necessary argue divergent points to identify the best path forward. A good leader considers perspectives from their team. An effective leader, especially in my role, is also an educator. I am here to share with the Air Force my knowledge of technological advances that they may be unaware of and may help them be more effective in their work.

What is the target baseline?



In crafting a strategic technology vision, we are always mission focused. The target baseline specifies the standards, protocols, guidelines, and implementation constraints for the future state of IT. It is used to inform the development of the implementation baseline. It is thoroughly documented and continually updated based upon emerging industry standards. We base the target baseline on use cases and scenarios, focusing on specific questions/issues that currently exist in the enterprise (e.g., How do I...) and new capabilities that are needed. We take that information, figure out the capabilities the field may need, and identify potential solutions.

Usually what happens is we come up with something in the target baseline and two years later everybody says, Hey, that's a great idea. For example, two years ago the target baseline underscored the importance of data as a strategic asset. Two years later, the chief data office role is established.

Some of your business and mission systems are running on legacy systems. They've been out there, fielded, successful, sustained, and fulfilling a mission requirement. We know you have started a series of cloud migration initiatives across the Air Force. Can you tell us more about your efforts in migrating to the cloud?



We are using the cloud. The idea is to move to multiple clouds and pursue software as a service, which we now have for one of our military personnel applications. Our multiple cloud approach includes Department of Defense (DoD) clouds, commercial clouds, and clouds on bases.

The Air Force philosophy is that we fight from the base, with all mission critical applications run on the base. Some may not appreciate this new approach. For example, the fuel management application cannot be centralized because it

must operate from the base. We also have legacy systems that are difficult to migrate to the cloud. In this instance, we explore what mobile applications can be put on top of the legacy systems and make them look like they're in the cloud.

There are two ways to look at modernization—migrate old applications and generate new applications. For the old ones, we talked about auto provisioning out to the clouds. We fielded some of those capabilities already, and we're going to field some more. The new side is DevOps (development and operations). What can we do for DevOps for new systems? We're talking about doing a process to get most ATO (Authority to Operate) credentials done and ready for the RMF (risk management framework). We have a process currently that can actually do that. It's ATO in a day, where we can actually field an application within a day.

You have to take an enterprise viewpoint—that's the key. People get wrapped up in a new technology. But we are always asking how will we be using this new technology in five years. We are constantly tracking where we think new technology is going, how we can leverage it, and when is the most opportune time to just that. Our focus is to look into the future and to push the target baseline from an enterprise point of view. This involves many meetings and continued collaboration across the Air Force as well as with the DoD.

What constitutes true disruptive change versus simple evolutionary improvement?



One could assert that if it upsets people, then it's true disruptive change. On some level, it depends on one's perspective. What is disruptive to you? What is evolutionary improvement? For some people, network and enterprise IT as a service is disruptive. For others, it's a total change in business operation and how they actually work. For those in industry, it's probably evolutionary, since they've been talking about it for years. On another level, evolutionary improvements are bound to result in disruptive changes. So in the end, disruptive and evolutionary innovation is driven by context.

Would you tell us more about data, analytics, and the establishment of the Air Force's chief data officer?



The real challenge is that everybody is doing some form of data analytics across the Air Force. We have pockets out there that are doing this right now and making decisions based upon it. The real issue centers on the question of authoritative data. Is the data being used to inform decision-making authoritative data? We need to coordinate these efforts and

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provide the requisite toolset to support them, Making sure they are using the most authoritative data is critically important.

Several years ago, I established the Air Force data panel because we had trouble finding a reliable source of PM (project management) training data. We couldn't find who had the data. The data panel was established as a better way of doing things. From this effort flowed the establishment of a chief data officer (CDO), whose job is to help us get a better handle on data issues. There is no doubt data is a strategic asset for the Air Force. The CDO plays a critical role in making sure our data is authoritative and access to it is guarded accordingly.


I talk to my guests about the importance of collaboration and partnerships in achieving mission outcomes. How do you leverage the benefits of partnership and collaboration to do the work that you do?

 Government cannot do everything. We work with industry and on some level rely on industry, because much of what they do is on the cutting edge. We have many meetings with them. We explain our problem space and ask them to come up with new great solutions that help us. Through this process, we identify how industry innovations can better fit our needs. As I mentioned earlier, we collaborate and engage across the Air Force and also externally with the other military services and DoD proper. Collaborating and partnering is key, and it's especially important when as a chief technology you have a future-oriented focus.

How is the CTO a trusted advisor across the enterprise?

 We are purposely a small office. I am not here to build a CTO kingdom. I am here to help. We are not here to take away resources. We're trying to provide things like insight as well as make connections. We offer a trusted point of view on technology and innovations that can help our colleagues better execute their mission sets. An effective CTO must always have an enterprise viewpoint and recognize they are here to support the mission.

How important are emerging technologies to ensuring resiliency?

 Migrating to the cloud is obvious, but it's not simply cloud. It's the virtualization of applications for resiliency. On some level, the resiliency aspect is more important than the cost savings associated with the move to cloud. There are a host of other impactful technologies such as AI, machine learning, the neutral net, automation, and quantum computing. We'll play with them and see what will work best for executing various missions.

To learn more about the U.S. Air Force chief technology office, go to safcioa6.af.mil/



To hear *The Business of Government Hour* interview with Frank Konieczny, go to businessofgovernment.org.



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To read the full transcript of *The Business of Government Hour* interview with Frank Konieczny, go to businessofgovernment.org.