



## Slow but certain

In every era of innovation, disruptive technologies have had their disbelievers who resisted adopting new concepts. They call themselves skeptics, but their frustrated colleagues are more likely to consider them roadblocks. Conflicts over rate of progress, resistance to change, fear of technology, and debates about leaving “well enough alone” hamper many industries. Aerospace and defense (A&D) is no exception.

Although breakthrough technology advances in aviation, space exploration, and weaponry are hallmarks of this industry, the same pioneering attitude doesn't always show up in the internal IT departments. In an ironic twist, the companies that manufacture, supply, and service some of the most remarkable high tech equipment in the world often heavily rely on outdated IT systems to run their own internal processes.

Evidence of this slow-adopter syndrome can be seen in several benchmark statistics, from the average age of the ERP system (7 to 15 years old) to lingering reliance on manual systems. In some A&D companies complex compliance mandates are being managed by spreadsheets.<sup>1</sup>

The technology gap spills over into deployment methods. The A&D industry has been notoriously reluctant to adopt cloud solutions. It is difficult to be certain if this is due to a conservative market's fundamental reluctance to change, slow moving corporate bureaucracy, a desire to protect the delicate balance of pleasing customers, or if a more incongruous issue is to blame. Could it be that an industry with high achieving scholars and beyond-brilliant innovators could be misinformed on the facts?

Is it possible the A&D industry didn't get the message: Cloud solutions are safe?

Unfortunately, it's not that simple. The obstacles are more subtle and, therefore, harder to counteract. The overwhelming growth—and success—the cloud industry has seen is certainly helping to turn the tide and change perceptions—even in the highly cautious A&D industry. Cloud computing services are becoming the norm in business, with the total size of the industry more than tripling in the last five years.

In 2008, the industry was estimated to have a value of about \$46 billion, and in 2014 cloud services are estimated to be worth more than \$150 billion.<sup>2</sup>

While the numbers supporting growth of cloud solutions are impressive, the statistics around A&D budget cuts are equally worrisome. In a September, 2013, article “The New Face of the A&D industry: Victors, Victims and Survivors” a consultant at A.T. Kearney describes the impact of the budget cuts:

The most conservative estimates place the cuts at about \$260 billion over the next five years and nearly \$500 billion over the next decade. The failure of the U.S. Congress to pass an agreement to cut an additional \$1.2 trillion from the budget deficit will invoke Budget Control Act II, which requires an additional \$600 billion in defense cuts, \$42 billion of which has already been lopped from the 2013 budget. Budget Control Act II calls for across-the-board cuts in the first year, but beyond that, it's uncertain where cuts will occur. Regardless, we do know this much: If we assume \$1 trillion in budget cuts over a 10-year period, average annual reductions in defense spending could total \$140 billion.<sup>3</sup>

Just as the defense outlook is bleak, the commercial aviation sector is looking up. The Deloitte Touche Tohmatsu Limited Global Manufacturing Industry group released its 2014 Global Aerospace and Defense Industry outlook in January, 2014. It predicts revenue growth in the 5% range for the overall industry in 2014, thanks to record growth from the commercial sector.<sup>4</sup>

No wonder, then, A&D companies are in a quandary. It is a confusing time. Even the companies that focus on commercial aviation and MRO are affected, as the large Department of Defense (DoD) suppliers shift focus and try to move into the commercial aviation market. All business is up for grabs in a fiercely competitive battle. The low-cost bid often wins.

1 Kevin Prouty, “ERP in Aerospace and Defense Manufacturing,” Aberdeen Group, February, 2012.

2 Jason Lurcott, “Cloud Computing Growth,” Awesome Cloud, August 8, 2013.

3 A.T. Kearney, “New face of the A&D industry: Victors, Victims and Survivors,” (www.atkearney.com).

4 “Global Aerospace and Defense Industry outlook,” The Deloitte Touche Tohmatsu Limited Global Manufacturing Industry group, January, 2014.

## Reexamining IT infrastructure

The cost savings that come with cloud solutions are gaining the attention of cash-strapped A&D companies. Now, as the industry is in the midst of a major upheaval, a new emphasis on infrastructure and cost control is driving many decisions, including deployment options.

The severe budget cuts, almost eliminating a market segment for A&D companies, are forcing manufacturers, suppliers, and contractors in the A&D industry to reexamine their entire IT infrastructure, looking for ways to control costs and curb spending. Companies also are shifting focus, finding new revenue streams, adding services, and turning to commercial aviation for contracts to replace waning DoD business.

Pursuing new business models means new IT solutions and new IT investments. Capital investments, in this challenging economic state, can be difficult to absorb. This is one of the reasons cloud computing is starting to look more appealing to cost-conscious companies that know they want to upgrade their systems, but don't have the money to make a major investment.

Still, it's been difficult for A&D companies to make the move to the cloud. For some companies, the early reluctance may have been born out of security fears. After all, the A&D industry deals with valuable data, managing propriety specifications of exclusive technology, guarding industrial and federal secrets, and securing the safety of individuals and entire regions. These are not systems that can be vulnerable to attack by hackers.

Again, necessity has entered the picture. The IT industry has stepped up to the challenge and met the demand for the most secure and strict technology solutions to protect data—even when it is hosted in a cloud environment.

## Cloud computing is safe

When the Department of Defense calls for the use of cloud solutions as part of its plan for modernization of IT systems, even skeptics can see that cloud solutions are part of the future of A&D.

Teri Takai, CIO of the Department of Defense, recognizes the importance. In July 2012, she published the "DoD Cloud Computing Strategy."

In this report, she outlined the importance of establishing and standardizing security criteria so that the federal agencies could fully leverage this important technology.

More recently, Takai published "The CIO's 10-Point Plan for IT Modernization," (available for download from the department's website.) Here, Takai stresses the critical role the cloud will play in delivering cost-effective solutions. In her plan, Takai states these goals:

- Develop and execute a strategy and standards for a cyber-secure DoD cloud environment
- Leverage commercial clouds that meet cyber security requirements.<sup>5</sup>

This is playing out on many fronts, as the DoD is creating standards and serving as a broker to help federal agencies secure cloud vendors and services. In the Jan. 10, 2014 issue of C4ISR & Networks, Nicole Blake Johnson reported that a panel of senior military leaders approved a pilot program to test standards for the Department of Defense cloud security program.<sup>6</sup>

This means the DoD is one step closer to taking advantage of commercial cloud-based hosting for controlled, unclassified data. The pilot program will test DoD-specific standards—called "impact levels" and formulate practical means the private sector and DoD can use to implement the standards. The panel, chaired by Rear Adm. Marshall Lytle, chief information officer for U.S. Cyber Command, has some serious clout behind it.

Such standards have been a long time in coming. Various federal agencies have already recognized the potential savings that could be obtained by cloud deployment and have been petitioning for formalized plans.

In the Aug 7, 2013 issue of DefenseNews, Barry Rosenberg published his interview with the director of the Defense Information Systems Agency (DISA) Director, Lt. Gen. Ronnie Hawkins Jr. The article discusses how Hawkins plans to meet Vice Adm. Harnitchek's goal of a 20% reduction in IT spending. DISA is working with agencies like the Defense Logistics Agency (DLA) to consolidate programs, control expenditures, and collaborate on use of resources.

<sup>5</sup> Teri Takai, "The CIO's 10-Point Plan for IT Modernization," (<http://dodcio.defense.gov/>).

<sup>6</sup> Nicole Blake Johnson, "The DOD moves closer to developing Cloud standards," ([www.C4ISR&Networks.com](http://www.C4ISR&Networks.com)), January 12, 2014.

When asked where he expected to find “low hanging fruit” to help DOD agencies to get to the 20% reduction goal, Hawkins pointed to cloud computing as one of the critical steps. “It’s in their applications and virtualizing those in our hosted environment. It’s moving capabilities into the cloud, be it a private or public cloud, and working with our customers to do that smartly. Those are the low-hanging fruit we have with everyone,” he said.<sup>7</sup>

The IT industry is responding to the need—and the concerns, working to bring industry-specific advanced ERP solutions to the industry—as well as highly secure cloud deployment options.

When The American Institute of Aeronautics and Astronautics (AIAA) held their Aviation 2013 event, in August, 2013, cyber security and cloud deployment solutions were the hot topic. The AIAA Framework for Aviation Cyber security was presented, calling for ongoing investment in security research and development in order to keep pace with the industry’s high demands.

Continuing advancement is certainly the priority of ERP vendors and hosting companies, which have built a reputation around offering unimpeachable security. Access to data—but in a controlled fashion—is what modern ERP solutions are all about and exactly what the emerging A&D industry desperately needs.

## Advantages of cloud deployment for the A&D industry

In an August, 2013 article in Forbes, Louis Columbus identified “Ten Ways Cloud Computing Is Revolutionizing Aerospace and Defense.” His summary provides a concise, objective view of where the industry is heading, largely thanks to the new opportunities cloud deployment offers companies that are reinventing the way they approach operations, workflows, and information sharing. Some of the benefits highlighted by Columbus include:

- The movement of mobile device management (MDM) beyond dashboard support for smartphones and tablets to being integral for product design and managing production
- The higher priority being placed on virtualized applications across the DoD, including data centers with cloud-ready infrastructure supporting secured applications

- That automating maintenance, repair, and overhaul (MRO) workflows using cloud-based systems that include mobility support is leading to a reduction in inventory levels, while service levels increase

In addition, Columbus summarizes the “stuck in the past” rut that undoubtedly contributed to the slow adoption of cloud concepts among A&D companies. “Resistance to change is very strong in many A&D companies, and often the systems running production can be decades old,” he wrote. “CIOs and their staffs fall into a rut of being caretakers of legacy systems when what’s best for their careers is to push themselves past that role and into being strategists.”<sup>8</sup>

As A&D companies set their sights on higher objectives and aim for new markets, efficiency and cost savings are two important factors—factors that will contribute to the new, more resilient A&D industry.

## Are you on board?

Where does your company sit in this continually evolving spectrum of adoption of disruptive technologies, including cloud deployment of IT solutions? Are you in the forefront of progress and seizing new opportunities or lagging behind—falling victim to indecision and a paralyzing wait-and-see attitude? Here are some steps you can take to help you make sound decisions concerning your deployment options.

**1. Educate yourself on the facts.** Don’t settle for anecdotal tales.

**2. Make sure the research you collect is current.**

Outdated information is still out there. This is a fast changing industry with fast changing issues and even faster changing solutions. Look for dates on the materials you read.

**3. Seek relevance.** There are many verticals and micro-verticals in this industry. Look for examples that are relevant to you. Do you design nuclear submarines or supply parts to the people who design nuclear submarines? Both are important. Each has unique needs. Depending on your niche in the A&D industry, your ERP system—and cloud security needs—may differ greatly.

<sup>7</sup> Barry Rosenberg, “Interview with DISA Director Lt. General Ronnie Hawkins Jr.,” ([www.DefenseNews.com](http://www.DefenseNews.com)), August 7, 2013.

<sup>8</sup> Louis Columbus, “Ten Ways Cloud Computing Is Revolutionizing Aerospace and Defense,” Forbes, August, 2013.

**4. Be flexible.** Understand that IT solutions have changed substantially in recent years. What you thought you wanted may no longer be the best option. Be open to following where your research leads, even if it leads in a totally new direction.

**5. Allow time.** Don't let a compressed schedule force you into making hasty decisions. Take the time to research your options thoroughly.

**6. Involve a team.** Choosing new IT solutions—and deployment options—is a major undertaking. Bring in team members to share the workload and to share ideas. Team selection projects also lead to streamlined adoption and implementation. Buy-in is important.

**7. See the complete picture.** Consider many factors, including the total cost of ownership, flexibility, and functionality. Consider long-term growth as well as short-term needs.

**8. Choose suppliers with A&D expertise.** Your industry is complex. Work with vendors who understand it, inside and out. An experienced A&D enterprise software partner will offer community, as well as private cloud offerings.

**9. Be prepared for the unknown.** No one truly knows what the next disruptive technology will be. Innovations in IT happen at an astounding rate. Your best option is to choose solutions that are flexible and vendors who are forward-thinking and investing in product innovation.

**10. Move.** Delaying action is a mistake. Indecision costs money—and may cost you your position within the market. Your competition is hungry and eager. They are waiting. If you are slow to react to the changing market pressures hitting A&D today, you run the risk of being left in the dust.

## Welcome to the cloud

Venturing into new spheres certainly beats being left behind as the industry soars by to achieve higher levels of profits and efficiency. For many in the industry, the view from the cloud seems pretty clear; it is the logical choice for A&D companies looking to reinvent their processes, target new markets and better use their limited resources.

The cloud is cost-efficient, safe, and effective. Isn't it time you explored cloud deployment options?

Infor® can help. Infor has more than 20 years of experience helping manufacturers, suppliers, and contractors like you. In fact, 19 of the top 20 A&D companies worldwide rely on Infor solutions to manage their business.

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