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OUR FUTURE: Projections of Work and Life

Helen Harkness, Guest Editor

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Chapter 7

CRISIS of HUMAN CAPITAL in AEROSPACE: It's All About the STEM

By Deborah Westphal

Today's organizations are grappling with complex problems in a world of accelerating change. Aerospace organizations in particular – and the people who work there – must cope with the extra complexity of keeping up with shifts in international security and rapid advances in technology. At the same time, however, like any other company, Aerospace organizations must continuously find ways to differentiate themselves from their competition and meet the evolving needs of their customers. Unfortunately, over the last decade, evidence suggests that even as the industry has strived to stay competitive with its customers, Aerospace as a whole has fallen behind in tending to one of its own most valuable resources: its people. As a result, the industry is facing a crisis of human capital: Aerospace has a problem with STEM. STEM, a catchy acronym for Science, Technology, Engineering, and Mathematics, has become part of our common lexicon – both in this country and abroad – amidst an ongoing debate about whether or not there is a lack of technical talent in the U.S. and if there is, how it is impacting future economic growth. Whether you buy in to the notion of a STEM shortage or not, however, one thing is certain: today's top technical talent is not lining up for jobs with Aerospace and Defense (A&D) companies. Instead, technically trained workers are taking their talents to the likes of Google, Apple, Twitter, and clean energy producers. When it comes to STEM, A&D firms and related government agencies – once known as dynamic bastions of engineering geniuses, rocket scientists, and developers of “James Bond-style” tech gadgets – are out. Glamorous, cutting edge firms are in.

Why? Because in the last decade, A&D giants have allowed their organizational dynamics to languish against the backdrop of a rapidly changing world. Seeming to stand still in time, these businesses and agencies have become vast, hierarchic bureaucracies with aging workforces and mounting legacy costs. Not exactly the kind of place likely to attract the best and brightest – especially when competing with firms like the ones mentioned above.

What do the best attracters of today's STEM talent have that A&D entities don't? While you could argue they are more prestigious and impressive – even “sexier” – these are elusive qualities. What specifically makes them more appealing? It all boils down to one word: agility. From a human capital perspective, agility means more than staffing to satisfy the changing demands of an organization's customers. Agility is also about creating an environment in which people love coming to work, give their best every day, and feel empowered to champion and carry ideas to fruition. It is about creating an environment in which leadership does not dictate every initiative, but instead is primarily concerned with determining and promoting an organization-wide vision and empowering each employee to fulfill it as he or she sees fit.

The ever-changing demands of the Aerospace and Defense market – as well as the constant churn of technological innovation and obsolescence – require a workforce that is adaptive to new challenges and opportunities. But the organizational dynamics must create and support this agility. There are no step-by-step instructions for becoming an agile organization, particularly when existing dynamics and processes are deep-rooted and engrained. Instead, only through radical transformation can an organization’s culture truly shift. And only then will today’s – and tomorrow’s – best and brightest STEM talent be eager to play a central role in the future of the Aerospace and Defense industry. A&D firms and agencies must turn a new leaf. They must:

- Ease bureaucracy and needless levels of approval by reducing hierarchy and flattening the organization.
- Overcome bias by challenging old notions of what Aerospace and Defense is; create an exciting vision for a future that incorporates the explosion of technology and the blurring of boundaries surrounding both customer and capability.
- Develop a robust leadership pipeline and fill it with the right people. Identify leaders by focusing more on attributes than skills. Celebrate diverse qualities like the ability to: challenge assumptions; sense, probe, and identify problems; imagine; collaborate in real-time; be culturally intuitive; take a multidisciplinary approach; engage in anticipatory risk-taking.
- Incentivize and encourage attrition of long-tenured members of the workforce who cannot – or will not -- keep up with the changing face of A&D.
- Look outside the traditional Aerospace and Defense industry to find the right talent that can increase business capability and technology know-how.
- Appeal to today’s globally conscious talent pool by embracing “sexier” practices like campaigns for green energy and social responsibility.
- Assertively recruit millennials by understanding and actively addressing what they want and need from their careers. Acknowledge and support, for example, their expectation of transparency; bring them in on what’s going on with the business. Grant them the flexibility they crave – in dress code, in work hours, in opportunities to make connections outside the workplace that may enhance their professional and private life. Treat them as they want to be treated: like equals.
- Develop and promote the study of STEM amongst women and minorities by engaging them when they’re young – as early as K-12 or college. Introduce mentors and coaches who model that being smart is “in.”
- Build competence in the face of rapid change by encouraging a culture of innovation that embraces ongoing change.
- Foster collaborative behavior in the workplace by creating a neutral space in which people with diverse expertise and experiences can work together.

In short, A&D leaders must acknowledge and accept that tomorrow’s A&D is not – and cannot be – their father’s A&D. A generation ago, A&D organizations were leaders at the forefront of technology. Today, however, they are followers, just barely keeping pace with the demands of their market and customers. With timeworn organizational structures, processes, dynamics, and physical spaces, they have become dinosaurs – dusty old relics of an age trying desperately to be forgotten. It is time A&D leaders rethink the definition of A&D and transform their industry. They can start by transforming the workforce to attract the best and brightest. And the rest will follow. The lessons learned from studying today’s human capital crisis in the Aerospace and Defense industry can be applied to any organization, in any line of business, and any market. The

underlying truth is that the world is changing at an acceleratingly rapid pace. A holistic, multi-disciplined approach to understanding, planning, and adapting to the future – across all aspects of a business – is key to any organization’s ongoing success in the face of such change.

About the author



Deborah Westphal is Managing Director of Toffler Associates, Inc. She has served on the boards of directors of several nonprofit organizations. She served as a civilian in the U.S. Air Force for 13 years, and was the deputy director of Development Planning for the Space and Missile Systems Center. She has experience in a wide range of other sectors including materials, transportation, security, hospitality, and telecommunications. She was recently selected as a member of a congressionally directed study focused on National Security Space Defense and Protection. She moderated in April 2015 a panel during the 31st Space Foundation Space Symposium. The panel "Prospects and Issues for Small Businesses," focused on opportunities for small businesses in a rapidly changing space market. She was appointed in August 2014 to the Air Force Studies Board (AFSB). AFSB collaborates with Air Force leadership to develop in-depth studies that are carried out by the National Research Council (NRC). Recent topics addressed include fuel efficiency, acquisition processes, and assuring the future scientific and technical qualification of Air Force Personnel. She earned the BS in electrical engineering at the University of New Mexico and a master’s degree in business administration at Webster University. Contact her as follows:

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About Toffler Associates

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