Space Innovation through Cross-Pollination: One Challenge of a Virtual Era

Amir S. Gohardani

Pending the final economic impact assessment of the COVID-19 pandemic, a recent estimation by the University of Southern California suggests that the pandemic bears a net loss in the range of 3-5 Trillion over two years. By comparison, in 2019, U.S. aerospace and defense sales amounted to $909 Billion, with exports valued at $148 Billion, as reported by the Aerospace Industries Association. In 2021, however, the pandemic recovery is likely to differ for the commercial aerospace domain and the defense domain. This probability mainly stems from the defense budgets slated to remain stable globally, but air passenger traffic still picking up from lower levels, resulting in a slower rebound process. In pursuit of a steeper rebound trajectory curve and maintained business continuity, an increasing number of aerospace and defense companies are currently adopting a business strategy to replace physical onsite footprints with a virtual environment presence. While this strategy, at times, might seem like the best path forward, it is not necessarily a one-size-fits-all solution. In essence, any strategy adoption in this regard without microscopic scrutiny can spell disaster. Principally, with a flexible organizational structure that adapts to necessary changes, alignment of corporate objectives and missions can become possible. Nonetheless, in regulated industries such as aerospace and defense, that type of flexibility might not be accessible.

Virtual work settings and meetings are indeed cost-saving measures available to corporations. But there is much more at play that at times even entails a choice between competing factors. Currently, many corporations opt to slash business travel expenses for lower-cost virtual meetings and working environments. On one hand, scaling virtual activities can drive a reduced corporate real estate footprint. But on the other hand, work from anywhere is not a readily applicable solution for all aerospace and defense entities. In an exemplary case, organizations hosting Sensitive Compartmented Information Facilities – SCIFs – need to secure classified information without the risk of eavesdropping or spying.

For space companies, team building in a virtual environment also brings significant challenges, in part, because the technical feasibility of virtual teams does not necessarily nourish team cohesiveness. To make matters more intricate, the presence of subject matter experts also brings about silos. Thus, unless interdependence is injected into the team milieu in recognition of Bruce Tuckman's five-stage development process consisting of forming, storming, norming, performing, and adjourning, team performance can lag or remain idle. A common misconception in team building, particularly within a virtual environment, is that the team is at the center of the performance stage from the get-go. Virtual teams or geographically dispersed teams commonly face occasional challenges with conflict management or resolution due to cultural effects or the absence of co-location.

As aerospace and defense entities search for new ways for creating value propositions, calls for innovation are prevalent. Along the same train of thought, team performance is essential to drive innovation. One specific approach in this regard is to introduce cross-pollination in innovation, which generally draws associations and connections between seemingly unrelated ideas or concepts to break new ground. However, as illustrated earlier, leading cross-functional innovation teams with perfectly chiseled cross-pollination techniques falls short in absence of team

cohesiveness and performance. Therefore, deliberate attempts need to be made to address these aspects.

Working virtually as part of manufacturing operations within the aerospace and defense industry is also a debatable topic. Industry 4.0 which includes four foundational technologies applied to the value chain - including connectivity, automation, advanced manufacturing technologies, and advanced analytics - has indeed been instrumental in transforming manufacturing operations during the pandemic. Contemplating transitions to virtual settings, aerospace and defense entities gain benefits by revisiting lessons learned repositories. For virtual work environments, research by Harvard University scholar, Raj Choudhury - whose expertise lies in the future of work - in part, points to widening productivity gaps, employee feelings of exclusion in virtual settings, and warnings about undesired strategic outcomes due to incorrect management approaches.

Likely future aerospace and defense winners in the virtual setting are those entities that take great interest in employing agile methods for engagement, monitoring, and management of their employees, and enable an alignment of corporate objectives with the market demands. Such entities need to have established organizational infrastructures that are susceptible to change.