Chapter 9
The Changing Face of Airmanship and Safety Culture Operating Unmanned Aircraft Systems

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ABSTRACT

The notion of using drones for commercial purposes has evolved in the past 5 years from the initial “boom” of excitement around this, somewhat of a novelty and curiosity, to more calculated and sophisticated use of unmanned aircraft systems (UAS), or drones. In the hands of true professionals, drones can offer highly efficient and profitable solutions for industrial, and commercial inspections and other data capturing tasks. The appetite for safe and efficient collection of data is a changing face of safety cultures and how teams and individuals apply airmanship principles, and how inspection crew and UAS crew interact. UAS are no longer viewed as novelty or useful addition to the inspectors’ “toolbox,” but as an integrated part of safety critical system. While there is much to be learned from tradition manned aviation, UAS pilots are confronted with different task priorities in order to effectively “aviate,” and therefore, like the changing face of airmanship and safety culture, to “aviate” emerges has having different attributes when compared to manned aviation.

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THE COMMERCIAL DRONE BOOM OF 2013-2018: ITS VICTORIES AND CHALLENGES

Much of the small commercial Unmanned Aerial System (UAS) industry emerged out of the industrial inspection, information technology, photogrammetric survey, ‘big data’, and technical industry. However, some had their origins in the hobby and ‘modellers’ area. The emerging applications of small commercial UAS started to increase in prevalence in the public media following Federal Aviation Administration (FAA)’s approval of first commercial UAS flights over land in 2014 (FAA, 2014). The novel use of UAS has rapidly advanced to a variety of industry sectors around the world, and today, in 2018, the FAA has just recorded over 600,000 commercial UAS operators licensed under Code of Federal Regulations (CFR) Part 107, in the United States alone (Elwell, 2017).

Back in 2013, as awareness increased about the innovative uses, and benefits of using small UAS in practical applications, the commercial organizations became highly motivated to focus their attention on learning and capturing this novel and cost-effective way to bring value to their customers, to capture images of their assets, and more importantly, not to miss out on what appeared to be a competitive edge. The Association for Unmanned Vehicle Systems International (AUVSI)’s economic report of 2013 predicted that the small commercial UAS industry would be cumulatively worth USD 1.8 billion, between 2015-2015 (Jenkins & Vasigh, 2013). Today, in 2018, we recognize that those predictions were not conservative, considering the latest studies (e.g., Grand View Research, 2016) indicate that the small commercial UAS industry is expected to reach USD 2.07 billion by 2022.

In many cases prior to 2017, the procurement of small commercial UAS or ‘drone’ was not formal management or organisational decision, the C-suite was generally not informed of the acquisition of the ‘drone’, as it was viewed as another relatively low cost ‘tool’ or solution for day-to-day operations.

Specialised inspection personnel who recognized the value in the data collection ability viewed the UAS as something that would add value a capability to their tool box, usually after learning and reading about the latest technological advancements through blogs, social media, technical papers, and other industry peers to achieve efficient and effective completion of allocated tasks (Lamb, 2017).

The rapid advancement of UAS technology, including supportive platforms, software, First Person View (FPV), and other gadgets to improve performance, quickly became the focus of technical discussions and field stories1, among the professional community of inspectors. For these professionals, working in industries that rely on data monitoring and imagery to determine the condition of their high-value infrastructure and physical assets such as oil, gas, mining, utilities, rail and road. For these organizations and their stakeholders, the return on investment in utilizing
An Empirical View of Knowledge Management
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