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Hold the Drones: Fostering the Development of Big Data Paradigms through Regulatory Frameworks

Full-Text PDF XML 832 Views  
DOI:10.17265/1548-7709/2015.03.006

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ABSTRACT

This paper explores the effect of policy for civil unmanned aircraft systems on the development of national capabilities to conduct pervasive remote sensing in a Big Data Paradigm. We employ historical hindcasting of trends for comparably transformative technologies to gain insights into the role of regulation in the growth of strategic capabilities. In the context of these historical lessons, we trace the proliferation of unmanned aircraft, from their early use in military operations, to the wide variety of contemporary civil uses that have emerged. Most generally speaking, we analyze a sampling of the complex dynamics impacting the development of regulations for UAS (unmanned aircraft system) operations and explore how the optimized integration of these systems can bolster economic prosperity, national security, and individual resilience. We find that while such systems have tremendous potential for enhancing collective well-being and driving innovation in various scientific research, public service, and commercial endeavors, challenges associated with building comprehensive regulatory frameworks and public policies for their use has been a significant blind spot introducing brittleness and reducing opportunities for decision maximization.

KEYWORDS

Big data, complexity, pervasive remote sensing, resilience, unmanned aircraft system

Cite this paper

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