MAP06

Addressing Material Obsolescence: An AI-enabled Risk Reduction Approach

Paul Hartman[1], Barry Humphrey[2], Shweta Kumar[3]

[1]RGBSI Aerospace & Defense, Fairborn, OH, USA. [2]Defense Logistics Agency, Research & Development, Manassas, Virginia, USA. [3]RGBSI Aerospace & Defense, Fairborn, Ohio, USA

Abstract

Material obsolescence is an evolutionary state condition, a state condition that evolves over some period of time until the final condition of obsolescence is observed. As a state condition, material obsolescence can be objectively modeled through the theoretical lens of survival analysis as applied using effectivity modeling via game theory. This research employs a mixed methods (qualitative and quantitative) AI / ML algorithmic modeling strategy to evaluate a portfolio of risk uncertainties that may be responsible for enabling the material obsolescence condition. The structural design, development, demonstration, delivery, and deployment of these cloud-based AI / ML capabilities is informed through the exhaustive examination of risk-based factors derived from U.S. industry-specific verticals – Automotive, Banking, Healthcare, Insurance, Industrial Manufacturing, Insurance, and Oil & Gas – where the focal industry firm is financially motivated to aggressively apply AI / ML methods designed to significantly increase shareholder value or significantly decrease strategic risks. These AI / ML methods are applied to specific perceived or actual risk conditions of uncertainty, including decision trade space boundary considerations of Customer, Contract, Financing, Manufacturing Standards, Material, or Policy implications. Other areas of risk qualification under uncertainty may include Economic Conditions, Government Regulation, and Human Resources.

Conference Track

Military Applications