# Analyzing the Relationship Between the Systems Decisions Process and Artificial Intelligence: A Machine Vision Case Study

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**Abstract:** The system decision process (SDP), developed by the United States Military Academy, is a four-stage process that outlines how systems engineers should address complex problem solving by emphasizing collaboration, iteration, and value-focused thinking. With the advent and rapid expansion of artificial intelligence (AI), systems engineers must face the challenge of leveraging AI systems to solve complex problems. This paper analyzes the integration of systems engineering and the SDP with AI and discusses how AI systems meet the requirements of the SDP. The author argues that effective AI systems fulfill the SDP, thus validating the SDP's objective, value-focused foundation, and flexibility of application to the AI field. The author demonstrates this by developing a machine vision mobile application that can classify weapons to augment the decision-making role of an Army subject matter expert. This end-to-end practical application highlights how AI systems passively or actively embody systems engineering principles. Conclusions made in this paper could redefine how systems engineers design and implement AI systems using the SDP.

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