

Systems Engineering Implications of Neuroscience Discoveries

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Abstract. Systems engineering practices and heuristics generally reflect implicit assumptions that participants in the systems engineering process behave rationally, and that communications between stakeholders work effectively. Sometimes these assumptions prove accurate, and the systems engineering process is successful. But many times the systems engineering process does not obtain the intended results, even though practitioners and stakeholders have good intentions, extensive knowledge, and impressive skills. Developments in cognitive neuroscience and behavioral economics over recent decades offer insights into how and why humans may behave irrationally, and why human communication may not work as intended. The purpose of this paper is to highlight some interesting discoveries in cognitive neuroscience and behavioral economics, and discuss their implications for systems engineering.