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Project Assessment Framework through Design (PAFTD) - a project assessment framework in support of strategic decision making

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Abstract

Research and development organizations that push the innovation edge of technology frequently encounter challenges when attempting to identify an investment strategy and to accurately forecast the cost and schedule performance of selected projects. Fast moving and complex environments require managers to quickly analyze and diagnose the value of returns on investment versus allocated resources. Our Project Assessment Framework through Design (PAFTD) tool facilitates decision making for NASA senior leadership to enable more strategic and consistent technology development investment analysis, beginning at implementation and continuing through the project life cycle. The framework takes an integrated approach by leveraging design principles of useability, feasibility, and viability and aligns them with methods employed by NASA's Independent Program Assessment Office for project performance assessment. The need exists to periodically revisit the justification and prioritization of technology development investments as changes occur over project life cycles. The framework informs management rapidly and comprehensively about diagnosed internal and external root causes of project performance.

PAFTD offers a means to measure and quantify key aspects of different projects to consistently enable comparisons between projects in a loosely coupled investment portfolio. The model allows senior

leadership to quickly diagnose project performance strengths and weaknesses to further justify their investment decisions. The framework has been employed to assess system level technology development investments across the mid to high technology readiness levels of the NASA Space Technology Mission Directorate. It has been robust enough for assessment of investment efforts at NASA centers, federally funded research and development centers (FFRDCs), and industry.

PAFTD can also be tailored depending on the strategy and the success parameters of the assessed entity. Specifically, it can be customized to any organization that invests in technology development projects and which could benefit from an easy to use, integrated means of analyzing the relevance of investments with technical and cost performance. In this paper we provide an overview of the framework, its capabilities, and its utility as demonstrated through a few example cases at NASA.