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SPACE RESEARCH PROJECT MANAGEMENT CAN BENEFIT FROM ENGINEERING TECHNOLOGY SELECTION METHODS

Abstract

Many engineering methods have been developed to help management select technology for a system design or further research. The simplest way to compare technologies is to use a checklist containing all the more or less important selection criteria, so that nothing is overlooked. The criteria usually include mass and power, safety, reliability and maintainability, and potential problems such as noise, contamination, and microgravity sensitivity. The next step typically is to weight and score all the criteria, and to combine them in an overall figure of merit. Unless one technology scores much better than the others, the final number may not be very useful since key discriminators may be obscured. However, the process of weighting and scoring is helpful in bringing out different priorities and reaching a shared point of view. Sophisticated group technology selection methods are designed to highlight initial disagreements and produce a shared consensus. Often a frank discussion led by management rather than decision tool experts can be more effective. The final selection depends on management as well as engineering judgment and may include programmatic and organizational factors that are rarely captured in a list of engineering criteria. The objective of engineering technology selection methods is to provide engineering information to assist management in making sound decisions.