Parallel Efforts in Project Management

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A new product development (NPD) effort can be successful, but unfortunate failures occur in many cases. We consider parallel NPD as a possible strategy for increasing the expected profit under uncertain NPD outcomes. Parallel NPD amounts to concurrent development of several alternatives for a single product. Such strategy is attractive when time to market is limited, profits from the developed products are uncertain, and it is feasible to conduct several parallel development efforts. We characterize the problem and find some of its structural properties that help to develop management policies. Using these policies one can decide on the number of parallel efforts to conduct, as well as on dynamic stop (continue) development decisions. We model the trade-off between outcomes and costs, when costs and durations are non-identical between the efforts. And finally, we present the results of a numerical study and quantify the benefits from applying the suggested policies compared to other common management policies.