

Optimal Contracts in Decentralized Projects

(or Why Boeing Paid Over \$5B in Penalty Fees on the B787)

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Abstract: A decentralized project is a project that is planned, organized, and funded by a client organization that contracts the work to independent subcontractors. Managing decentralized projects effectively is a critical issue today as projects have become increasingly complex, costly, and strategically important (especially IT and product development projects). In this talk, we analyze the relationship between a client and a single contractor in a decentralized project with stochastic duration. Following both previous research and practice, we assume that both the client and subcontractor incur an overhead/indirect cost, resource related direct costs, and possible penalty/delay costs. We consider a linear time-cost incentive contract and show that a simplified version of this contract is an optimal contract that maximizes the project value. Furthermore, we show how the client can negotiate this contract without knowing the contractor's private information. We compare this contract to a fixed price contract and show that the incentive contract dominates a fixed price contract with respect to the client's expected profit and make span.

Bio: Ted Klastorin is the Burlington Northern/Burlington Resources Professor of Operations Management in the Department of Information Systems and Operations Management (formerly Management Science), Michael G. Foster School of Business, and an Adjunct Professor of Industrial and System Engineering (College of Engineering) at the University of Washington (Seattle). Professor Klastorin is also a senior research fellow at the IC2 Institute, The University of Texas at Austin. He holds a B.S. degree from Carnegie-Mellon University and a Ph.D. from the University of Texas at Austin. Before joining the University of Washington, he taught at the Babcock Graduate School of Management, Wake Forest University (Winston-Salem, North Carolina). At the University of Washington, he was the founding chair of the Management Science Department and helped design and implement several new joint Foster Business School/COE programs. Professor Klastorin's current research includes the study of random disruptions on project and supply chain planning, new product development projects, and the design of optimal contracts in decentralized projects and supply chains. He is the author of numerous articles and publications as well as the forthcoming book *Managing Complex Projects: A Risk Management Approach* (co-authored with Gary Mitchell) that will be published by Sage Publications in 2020.