Practical Schedule Risk Analysis

DAVID T. HULETT, PhD

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Preface

One secret of success is to know people who know more than you do. I've been working in risk management for over twenty-five years, and I've learned a lot in that time. I've developed my own specialist areas of expertise, including management of positive upside risk or opportunity, understanding the influence of risk attitude on decision-making, and the role of risk in society. But when it comes to quantitative risk analysis I know where to turn. Dr David Hulett is internationally recognized as a world authority on the subject, and there is no-one better than him to explain its intricacies and subtleties. I'm pleased to count David as a friend and colleague and we've worked closely together over the years, so it's easy for me to tap into his wealth of knowledge and practical expertise whenever I have a question about quantitative risk analysis. But not everyone is as privileged to have personal access to their own risk guru—which is why this book is so welcome.

There are hundreds of books about risk management, covering almost every conceivable aspect of this fascinating topic. There are even a few that deal with quantitative risk analysis in projects. What has been lacking is a comprehensive treatment of how to actually apply the statistical techniques of Monte Carlo analysis in a way that combines intellectual rigour with practical realism. Knowing his undoubted expertise in this area, David's friends have long encouraged him to fill the gap with his own book, and at last he's acceded to the demand. This first book addresses a perennial problem faced by anyone working with projects: How can we know how long the project will take? Advances in estimating techniques have helped, as have developments on the software front. But still the question remains about how to deal with uncertainty in the project schedule, arising from ambiguity in the requirement, variability in the base estimates, and the possibility of unplanned events and circumstances (risks). This is the realm of schedule risk analysis, and the topic of this important book.

The value of quantitative risk analysis has been undermined in the past by poor practice in this area. People have performed inadequate analyses on unreliable baseline schedules using suspect input data, and then complained that the results are unrealistic. Those of us who know the power of quantitative risk analysis find this intensely frustrating! If you don't do it properly then of course the results will be of little use, and they are likely to be misleading. But the answer to misuse is not non-use, it is proper use. As befits a book intended for both the novice and the experienced practitioner, David starts at the beginning and emphasizes the importance of a good baseline project schedule. There is of course no point in trying to model the effects of ambiguity, variability and risk on a plan in which we have little confidence.

After establishing this prerequisite, David moves on to one of his favourite topics: data quality. This has always been one of David's hobby-horses, and some feel he over-emphasises this aspect. I disagree, since ensuring high-quality data is the only way to counter the first half of the infamous GIGO problem. Garbage In Gospel Out describes the all-too-common situation where people pay insufficient attention to the inputs of their risk models, and then they give too much credibility to the outputs. Instead we must

use the best available data, and still be prepared to ask whether the results make sense. Recognising this problem, David provides practical guidance to the risk analyst to help him or her obtain the best possible data that properly reflect the uncertainty inherent in the schedule as well as the associated risks that might affect it. This is informed by a clear exposition of the various psychological factors that influence good estimating, including heuristics, motivational and cognitive biases.

Another unique aspect of this book is the inclusion of a novel way to take account of risks in schedule risk analysis models. David calls this the 'Risk Driver' method, and he presents it as a powerful way of mapping risks to activities. He and I have debated the extent to which this is truly new, since it has always been possible to implement this type of approach in risk models. But there is no doubt that the 'Risk Driver' method will certainly be new to most readers, and it offers a powerful way to ensure that risk is properly reflected in the risk model, as well as overcoming some potential limitations in the traditional approach to quantitative schedule risk analysis.

Other parts of this book cover parts of the analytical challenge which are essential components of any good risk model, including dealing with merge bias, and the use of stochastic branches and correlation. Most risk specialists agree that risk models cannot be realistic without incorporating such features, but they are rarely used in practice. As in the rest of the book, David's guidance in these areas is clear and helpful, explaining both why they are important and how to use them.

Like many others, I've been waiting for this book for years. I know readers will benefit from David's technical insights and practical wisdom in applying quantitative risk analysis to project schedules, and we all look forward to reading more from David in future.

Dr David Hillson, The Risk Doctor
Petersfield, Hampshire, UK