Preface

A proposal to edit a book on project risk management came out of thin air in mid-2015 as quite a surprise. I did not plan any publishing activities that time. I was just done with writing and publishing of my own book on the subject with John Wiley & Sons (Raydugin, 2013) and was quite busy working on several capital mega projects. However, the initial surprise ‘inflicted’ by IGI Global was rather quickly replaced by curiosity and excitement and ultimately by great satisfaction.

Project Risk Management (PRM) is a relatively new and immature discipline. Several competing and often contradicting methods and techniques are used by PRM practitioners. Involvement in this publishing project allowed me take a broader view on the PRM landscape, re-think and re-evaluate various deterministic and probabilistic methodologies, better understand requirements and value of PRM integration with other adjacent disciplines, and clearly recognize several PRM hotspots where practitioners and academics still debate on most efficient and adequate PRM techniques.

Namely, I would point out following three PRM hotspots that are covered exhaustively in this book.

- Integrated probabilistic (Monte Carlo) cost and schedule risk analysis (CSRA),
- Complexity theory’s implications for project management,
- Psychological aspects including psychological bias as a systematic error to PRM.

Six chapters of this book out of 21 are devoted to probabilistic (Monte Carlo) risk analysis. Dr. David Hulett reiterates his classical CSRA methodology that was introduced initially in his excellent book (Hulett, 2011). Colin Cropley who branched out to PRM from planning and scheduling puts forward his alternative vision of CSRA in his fundamental chapter. Two superior chapters on probabilistic risk analysis are developed by John Hollmann. A detailed description of his approach could be found in his recent book (Hollmann, 2016). John being a prominent member of AACE International branched out to PRM from estimating. So it is intriguing to observe ‘birthmarks’ of scheduling and estimating in Colin’s and John’s methodologies, correspondingly. A chapter by Ruchi Agarwal and Lev Virine is an excellent addition to the discussion proposing a balancing view on probabilistics in PRM. It covers both modeling fundamentals and advanced concepts such as chain events and conditional branching.

It would be worthwhile to mention that a direct debate between David, Colin and John takes place not only in this book. It took face-to-face format at the recent annual AACE conference in Toronto. It was a very fruitful and professional discussion that should eventually reconcile various CSRA methodologies though a sort of ‘great unification’. Actually a probabilistic CSRA methodology described in my book (Raydugin, 2013) is part of this discussion indirectly too. I believe though that all discussed methodologies are identical to a certain degree. They are comparable like two versions of ‘The Gambler’
by Dostoyevsky in Russian and in English. Needless to say that translation alters the novel to a certain degree which becomes clear though only if one is comfortable with both languages. In any case, major differences among the discussed methodologies seem to stem from different languages related to

- Sets of risk categories adopted for risk identification (risk breakdown structure categories),
- Risk types (uncertain events, general uncertainties, issues) involved in CSRA modeling,
- ‘Distances to reality’ of developed probabilistic models.

The last point is well-known in Physics but often overlooked elsewhere. Namely, if a probabilistic model is too simple (low level of detail or quality of involved project base estimate, schedule or risk register, no correlations among uncertainties, missed risk categories or types, etc.) meaning its long distance to reality, it is inadequate and useless. If a model is of high level of detail (too detailed estimate, schedule, or risk register, exhausting correlations among uncertainties, etc.) presuming its short distance to reality, it is impractical. (By the way, the latter would have much bigger room for errors and its distance to reality might be actually quite long too.) Only ‘a golden distance-to-reality middle’ can make a probabilistic model both informative enough and practically valuable. Any project practitioner or decision maker that works under severe time crunch would certainly understand what I mean.

A business case on how probabilistic PRM methodology is practically used by one of the major chemical companies is introduced by Mohamed Malik. This could be treated as an illustration on how industry utilises probabilistic methodology for the time being.

Three chapters of the book are devoted to the second PRM hotspot: implications of complexity theory. Along with CSRA this topic seems to represent modern PRM frontier. Kathleen Hass recaps her groundbreaking methodology to diagnose and handle project complexity that is fully described in her famous book (Hass, 2011). A chapter by Dr. Saleem Gul and Prof. Perry Williams overviews an alternative approach to manage project complexity (Williams, 2002). It has a great literature review for further reading and several absolutely brilliant insights about complexity of projects vs. complexity in projects. It is clearly in indirect discussion with Kathleen’s approach. A well-thought chapter by Dr. Robert Chapman balances and complements these two viewpoints in an elegant way (Chapman, 2014). (One of John Hollmann’s chapters mentioned above has also a link with project complexity: it describes how project complexity could be taken into account in probabilistic CSRA models.)

A topic on psychological aspects of PRM and decision making which is the third hotspot is almost perfectly overlooked in practice and in various national and international risk management standards. Psychological and organizational bias understood as a systematic error in identification, assessment and addressing of risks might have huge impact on PRM activities as well as on their value, credibility and success. No doubts that PRM practitioners should be well familiar with this topic. Being an enthusiastic amateur in psychology I am fascinated by this topic, understand its practical PRM significance and highly appreciate contribution of three intriguing chapters written by Geoff Trickey, Kailan Shang and Dr. Manoj Kumar. (The chapter written by Dr. Manoj Kumar is also linked with making decisions in projects.)

Besides chapters pertaining to these three PRM hotspots there are four chapters devoted to project decision making including shaping of project scopes and selecting of project alternatives using PRM methods. An insightful chapter by Roy Nersesian introduces a probabilistic simulation methodology to define optimal scopes of energy projects (Nersesian, 2016). This has also a direct link with Monte Carlo methodology. One of my chapters promotes an integrated risk-based and economic-based decision-tree methodology for project alternative’s selection in early project phases. This methodology has been suc-
Preface

cessfully used in several major and mega projects in Canada and the Middle East. Tom Townley offers additional practical insights on project decision making in his practically precious chapter that covers strategic bidding, estimating, scheduling, project controls, etc. A chapter contributed by Dr. John Chop-tiany introduces a powerful and proven method to de-risk and scope carbon capture and storage (CCS) projects. This methodology has been already successfully applied to several major CCS projects.

Another important topic outlines importance of proper integration of PRM with other disciplines. Four chapters are devoted to this. As a case in point, a chapter by Richard Plumery promotes a revolutionary risk-centric project performance measurement methodology for project controls. Lev Virine and Ruchi Agarwal provide insightful overview of PRM and Enterprise Risk Management (ERM) integration. Lachlan Dreher and Mark Jarman accentuate an importance of healthy balance and trade-offs between project execution and operations. Valuable insights are provided by Stefan Hartlieb and Prof. Gilbert Silvius in their chapter on comparison of PRM with business development.

As mentioned above, PRM is a relatively new and immature discipline. It is still influenced and shaped by other more mature knowledge areas from engineering, estimating and scheduling to safety, security and intelligence. Various methodologies and techniques are borrowed to address particular PRM challenges. In many cases such enrichment is very fruitful but not in all cases. My second chapter describes a dozen PRM fallacies and several overlooked but powerful best PRM practices. This overview chapter that may be considered by some people quite controversial if not contrarian covers multiple topics discussed in the other chapters of this book. I reckon that some of its points would become eye-openers to many PRM practitioners and academics.

It would be worthwhile to conclude this Preface by description of the author’s team at large. The chapter authors live in ten countries (Australia, Austria, Canada, Great Britain, India, the Netherlands, Pakistan, Saudi Arabia, South Africa, and the United States). Two authors work for major industry companies (SABIC, Saudi Arabia, and AECOM, USA). Several authors are affiliated with major universities and research centres as follows.

- Dalhausie University, Canada,
- Institute of Management Studies, Pakistan,
- LOI University of Applied Sciences, the Netherlands,
- Monmouth University, USA,
- University of Edinburgh Business School, Great Britain,
- University of Johannesburg, South Africa,
- University of Hull, Great Britain,
- WV Vienna University of Economics & Business, Austria.

The other authors represent following consulting companies.

- Dr. Chapman and Associates, Great Britain,
- Hulett & Associates, USA,
- Intaver Institute, Canada,
- International Engineering Services, India,
- Kathleen Hass and Associates, USA,
- Psychological Consulting Ltd., Great Britain,
- R4Risk, Australia,
Preface

- Risk Integration Management Pty Ltd., Australia,
- Risk Services & Solutions Inc., Canada,
- TEAM Consulting, USA,
- Validation Estimating LLC, USA.

Diversity of author's backgrounds and almost equal blend of practical and academia viewpoints on PRM make overall coverage of topics in this book perfectly balanced and multi-dimensional. A reader may find some chapters looking like typical research papers with extensive literature reviews, hypotheses, research method statements, results, discussions, etc. Some chapters are absolutely practical with minimal (or no) literature reviews but with tons of practical insights. The other chapters may be positioned somewhere in between zeroing in on general overviews of particular topics from both academic and practical angles. This gives me hope that any project management practitioner or academic not to mention PRM practitioners and academics would find this book appealing and informative. Moreover this book could serve as a ‘Yellow Book’ of PRM services that could be looked up every time when a particular project needs high-quality PRM support.

Although I met only few authors in person previously, good working relations have been established with all of them in the course of the book’s development. I am grateful to all authors for their great efforts and contribution. I hope to stay in touch and work with them on some projects in future. I’m also grateful to many chapter reviewers who volunteered to provide authors with precious comments and recommendations to improve their chapters. Special thanks to IGI Global Editors Katie Shearer and Marianne Caesar for practical advices and active support.

Yuri Raydugin
Risk Services & Solutions Inc., Canada
July 2016

REFERENCES


xx