

Managing Projects in Research and Development

By Ron Basu

(A book review by R. Max Wideman, FPMI)

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Introduction

It is very refreshing to be able to review a book dedicated to project management in Research and Development, an Area of Application that is not typically covered. That is in spite of the fact that the pharmaceutical industry, for example, has been represented in the Project Management Institute's annual seminar/symposium as far back as I can remember (circa 1974). But in this book, author Ron Basu is clearly passionate about bringing more project management to today's world of the research and development industry.

Indeed, Ron's very first chapter is dedicated to explaining *Why Project Management is Essential in Research and Development*. This is not an easy sell. That's because the objectives of traditional project management and the goals of research and development (R&D) appear to be so far apart to the point of some degree of antipathy between the two. But as Ron says:¹

"Research and Development is the vehicle by which organizations and economies create opportunity, innovation and a secure stream of future products and services. These outcomes are the driving force of a value chain, and are all critically important sources of sustainability in a world that is changing faster than most companies can keep up with. The challenge behind them is the fundamental unpredictability of R&D; which is why project management is so important."

Ron Basu's book: *Managing Projects in Research and Development* explains how and why project management can provide a means of helping to plan, organize and control multi-disciplinary research activities *without stifling innovation*.²

The author's primary target audience is obviously those engaged in the R&D industry, as well as those in project management associated, or contemplating association, with that industry. Nevertheless, the book can command a wider audience for those in project management who are willing to look past the traditional view of "on time, under budget" and tailor a broader view suited to other similar areas of application.

About the author

Ron Basu is Director of Performance Excellence Limited and a Visiting Fellow at Henley Business School, England. He is also a Visiting Professor at SKEMA Business School, France. He specializes in operational excellence and supply chain management, and has research interests in performance management and project management.

After graduating in Manufacturing Engineering from UMIST, Manchester, Ron obtained an MSc in Operational Research from Strathclyde University, Glasgow. He has also completed a PhD at Reading University. He is a Fellow of the Institution of Mechanical Engineers, the Institute of Business Consultancy, the Association for Project Management, and the Chartered Quality Institute.

Book Structure

The contents of this book are set out in eleven chapters and an Appendix as follows:

1. Why Project Management is Essential in Research and Development
 2. Current Thinking in Managing R&D Projects
 3. Fundamentals of Project Management
 4. R&D Project Life Cycle
 5. Managing Cost, Time and Quality in R&D
 6. Managing Risks in R&D
 7. Managing R&D Portfolios
 8. R&D Project Success Criteria and Success Factors
 9. Operational Excellence Concepts in R&D Projects
 10. Case Studies of R&D Projects
 11. Making it Happen
- Appendix: MSc R&D Project Management — Course Outline
Glossary
Bibliography

This book has a total of 244 pages and, as listed, includes a Glossary of terms relevant to the discussion of project management and R&D, including the many acronyms used in the book. It is also well illustrated with 61 figures and 34 tables. Each chapter concludes with a "Summary and Learning Points".

In reviewing a pre-print copy, Jay Mitra, University of Essex, UK, had this to say:

"Few books are able to grasp the critical elements of the complex R&D process, especially in the corporate context, and it is very pleasing to see Ron Basu's book tackling this subject with rigor and precision. The chapters are well organized and cover the essential practicalities of the project management and R&D processes, enabling an understanding of the latter to be firmly embedded in the realities of project management.

This book addresses key issues directly, illustrating the arguments with some interesting examples of corporate activity in this sphere. The book will be very useful for project managers and senior executives designing meaningful strategies for corporate projects, as well as government agencies looking at new ways to facilitate local and global projects.

I also see this book as being particularly valuable for graduate students of management in general and project management in particular."³

These are observations with which we heartily concur. In all, we think the book provides sound and realistic advice.

What we liked

According to author Ron Basu, before writing this book he found that the subject of integration of R&D and project management specific to R&D was widely dispersed amongst a variety of sources such as different books, publications and manuals. Consequently, he felt that it was time to produce "a comprehensive, use-friendly and hands-on book which could be a single-source reference for project management tools and processes appropriate to R&D for all researchers, practitioners and students of R&D projects."⁴

To set that stage, Ron first describes in Chapter 1 the differences between typical project management, research, development and Business as Usual (BaU) together with their respective backgrounds. For example, Research implies the acquisition of new knowledge, while Development implies the initiation of a new product. In these contexts, Project Management must be appropriately flexible by adopting a relevant set of tools and techniques — especially given the wide range of sponsors and their primary requirements in the world of BaU.⁵

At the end of Chapter 1, Ron posits four questions (paraphrased):⁶

1. What are the core concepts, challenges and opportunities related to R&D in BaU organizations?
2. What are the processes, tools and techniques of PM that are relevant to R&D?
3. How can a PM focus the talent of R&D people to deliver successful R&D projects?
4. What is the way forward for contributing to the success of R&D initiatives, using relevant PM tools, techniques and success factors?

The book then sets out to answer these questions in considerable detail and depth in the chapters that follow.⁷ At the same time, the application of other project management functions, such as scope, quality, time, cost, risk and so on, as well as success, software, and R&D projects in particular, are also discussed in some detail. Chapter 10 presents four real-life case studies, complete with discussion questions at the end of each. Chapter 11 concludes the book with eleven recommended steps for *Making it Happen*.

One chapter we found of particular interest is Chapter 4, on the subject of R&D Project Life Cycle. In this chapter, Ron Basu presents a number of such "cycles" that we would much prefer to call more accurately as **Product Life Spans**. Examples include Archibald's six-phase comprehensive top-level project life cycle model; a Stage-gate New Product Development funnel; Product life cycle; a Research and Discovery project life cycle; a Product Design and Development life cycle for a pharmaceutical product, and so on.

The life spans of all of these so-called "cycles" proceed through time in one direction only. They are all different to some degree, and they all reflect the management and control requirements of the **technical** management of the evolving product or outcome. That is to say, reflecting the major technology of the intended product through their various stages of evolution. These are not the same as the control requirements of project management's project life cycle [span]. However, the **stages** of a product's technical life span must fit comfortably within the **phases** of a project life span, for the whole to work together for maximum effect and efficiency. Although not explicitly stated, we think the author has done a good job in making this relationship clear in all the cases discussed.

Downside

The essential theme behind Ron Basu's book is to bring together R&D and project management in such a way as to enhance the relationship between the two. Ron notes that R&D is vehicle by which organizations and economies create opportunities and innovation designed to secure a steady stream of future products and services, the lifeblood of a thriving economy. That is why R&D is so important for the sustainable growth of both businesses and the national economies contributing to human wellbeing.⁸

However, Ron also records that: "Project management is the discipline of organizing and managing resources in such a way that these resources deliver all the work required to complete a project within

defined scope, time and cost constraints."⁹ The problem is, of course, that in R&D you don't know with any degree of certainty what you will find when you look (scope). Nor how long it will take (time), nor how much "resources" you will consume, and hence how much it will cost (cost). As an aside, by the foregoing description and the general discussion of project management in Chapter 3, Ron is clearly thinking in terms of single project management (SPM).¹⁰

The driving force behind a project manager's work to reach success is moving towards completion by strict control of time and cost (i.e. project efficiency) and, sometimes, by throttling back on scope and product quality to meet mandated time and cost targets. In contrast, a researcher is inspired by personal curiosity and creativity and, by implication, will take as long as it takes.¹¹ No wonder there is an inherent tension between the two parties, and a clash of business cultures where each looks at the other with suspicion!

But why are we so bent on applying SPM to R&D in the first place? Clearly it is the wrong discipline! We suggest that the "right" discipline, still within the project management profession, is the ***application of Program Management***. Program Management (PgM) recognizes the difficulty encountered in many areas of project management application where there is such uncertainty, but in which an appropriate degree of organizational management control can still be exercised. This is obviously not the place for us to give an explanation of the benefits of PgM over SPM under the circumstances of R&D, so perhaps author Ron Basu could elaborate on this in his next book?

In general, the book is well written with clarity of thought. However, the text is tightly packed into the pages in a relatively small sans-serif font and with numerous long paragraphs, some of which also contain long sentences of up to 50 words. All of this means very limited white space. That not only makes it a challenge to the eye of the reader, but also leaves little room for the reader to flag, annotate or comment on sections of particular interest. As a consequence, we found that some sections are more difficult to digest than necessary.¹²

This is a pity, because the purpose of a textbook is to assemble and convey information to its readership. And, in this day and age of a fast paced world, the transfer of information should be made as easy as possible. Otherwise, readers skip or abandon text, often essential, and consequently the writer's efforts could be correspondingly wasted. In our opinion, sad to say, all of this makes the book heavy reading for all those who are other than academics with the time and determination to digest every word.

Having said all of that, we should add that this practice seems not unusual in British publications.

Conclusion

In this book, Ron Basu has combined practical examples with his own research and experience from a career that has included blue chip organizations such as GSK, GlaxoWelcome and Unilever. Thus Ron has provided a rigorous guide to the fundamentals of R&D as well as project management. Included under the latter heading are project life span management, risk management, cost, time and other success measures as well as the keys to operational excellence in this complicated world.¹³

Along the way, through his diagrams and case study examples, Ron has shed light on some interesting R&D statistics. Just one such example: Out of around 10,000 potential opportunities, through say 6 stages, over 10 years, an R&D company has a reasonable probability of ending up with just one successful product. But the attraction is that if they do, you can be sure that they will win big.

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¹ Basu, R., *Managing Projects in Research and Development*, Gower Publishing Ltd., Surrey, England, 2015, text from back cover.

² Ibid

³ Ibid, Forewords.

⁴ Ibid, Preface.

⁵ Ibid, pp 2-3.

⁶ Ibid, pp 21-22.

⁷ Potential readers might like to know that succinct answers to all four questions are provided under the heading *Final Comments* at the end of Chapter 11, pp 201-203

⁸ Ibid, Extracted from the Introduction on p1

⁹ Ibid, p1

¹⁰ See discussion of "SPM" here: <http://www.maxwideman.com/papers/potential/expansion.htm>

¹¹ Basu, R., *Managing Projects in Research and Development*, p13

¹² Ibid, see examples on pages 55, 63, 147 . . .

¹³ Ibid, Extracted from the back cover.