

Preface

The book addresses two groups of readers

- A specific group, comprising anybody contemplating, or already engaged in, a doctorate in engineering or one of the physical sciences
- A wider group, comprising anybody who is interested in topics such as the ethics of research, student–supervisor interactions, managing success, setting goals, achieving an appropriate work–life balance or recovering from injustice.

Parts I and II cover topics associated with doing a doctorate. Although the material is principally directed at students in engineering or the physical sciences, many of the ideas apply more broadly to doctoral students in any faculty or discipline. The material may also interest teachers, counsellors and parents of young people contemplating this career choice.

Parts III and IV focus on issues that you will face as your career progresses into ever more responsible positions. Much of the material applies to a wide group of readers. In particular, Part IV is aimed at anybody moving into a senior position whether or not they hold a doctoral qualification.

This is not a technical book about your field of study. Rather, it is a resource to motivate and galvanize your decision-making as you manage your studies and subsequently build your career.

The book aims to support you all the way from your graduate studies, when you contemplate whether to pursue a doctorate, through to completing your degree and your career beyond. By “beyond” we refer to your postgraduate career from junior to more senior stages, whether you devote them to the academic, private or government sectors of society.

We strive to inspire your decision-making by both highlighting important questions and by providing guidance in finding your answers. We deliberately call them “your” answers rather than simply “answers” because there are no ready-made answers that suit everybody, particularly not in a rapidly changing world.

The book is structured into the following four parts.



Fig. 1 “Research can be an ultimate expression of ‘self’, similar to painting or performing and composing music”—see Sect. 1.2.3

Part I: Contemplating Whether to Pursue a Doctorate

We believe that becoming aware of and contemplating questions such as:

- Should you do a doctorate?
- How do you choose where to do your doctorate?
- How do you choose a supervisor?
- How and where could you use your doctorate if you obtain one?

Will aid your decision whether or not to enrol for a doctorate. It will also help you consider options that will broaden your spectrum of choice.

Part II: During Your Doctorate Studies

Questions that seek to help and guide you while writing a doctoral thesis are addressed in Part II. They include:

- What outcomes will be expected?
- How to establish good student–supervisor interactions?
- What are the benefits of networking?
- What tools are needed to undertake doctoral studies?
- What ethical issues arise?
- How do you write a doctoral thesis?

Part III: Once You Have a Doctorate and Are Embarking on Your Early Career

This group of readers is addressed in Part III of the book. Here we inspire by reflecting on questions such as:

- What career opportunities exist in the academic and private sectors?
- How does one move between sectors?
- What is the difference between administration, management, leadership and entrepreneurship?
- How does one mentor young colleagues?
- How does one obtain funding?
- How does one kick start a cycle of success?

Part IV: Once You Have Been Working for Some Time and are About to Move into a More Senior Role

Part IV of the book is concerned with more senior career phases. Most of this material applies more broadly than is suggested by the title of the book and is relevant whether or not you hold a doctorate.

- How to continue growing your cycle of success?
- How to deliver a great public speech?
- How to prepare for, and recover from, injustice?
- How to deal with the media?

- How to achieve a work–life balance that is right for you?
- How to keep the bigger picture in mind?

These questions, and more, are addressed in Part IV.

When to Read the Different Parts of the Book?

Whilst each part of the book addresses a different phase of your career, we strongly advocate that you visit different parts of the book on multiple occasions. Reading later parts will inform you of broader issues and provide stretch information.¹ Reading earlier parts will remind you how to advise younger people who are passing through that stage.

Each chapter contains an overview and a comprehensive summary that are meant to aid previewing “stretch information” or as a quick review of earlier career phases when you are mentoring junior colleagues.

A Changing World

We live in a rapidly changing world. One thing is for certain: there will be significant changes during the time span of your career. Therefore this guide focuses on principles that will remain relevant during the next decades of your life. As we discuss the principles, we also add specifics and examples to make our points more tangible. However, as you consult the book, try to focus on the more timeless principles and adapt the specifics to emerging technologies and contemporary best practice during your career.

We quickly illustrate with three examples.

1. Networking and reputation: The means and technologies you use to network will keep changing; but the importance of networking will always remain high. Similarly, aspects that build a good reputation may change—but having a good reputation will always remain crucial. Reputations are hard to build and easy to destroy.
2. Technologies and required skills: Of course these will change and evolve. However, their central importance will remain. The book is not intended to teach the current state of the art of technology. Indeed, if it did so, it would quickly become obsolete. Rather we point to the role technology takes as you manage your studies and career.

¹“Stretch information,” i.e. information that stretches beyond the reader’s present situation.

3. Leadership paradigms: These will also shift over time. Thus we will concern ourselves less with covering details than we will with conveying how being conscious and mindful of your leadership style is a core success factor.

While the specifics of these three principles will clearly change over time, their importance will remain. It is always true that poor leadership, mediocre skills or a destroyed reputation will work against you. Yet, if you look around you, or read the news, you will see that these errors occur all the time. On the other hand, you will observe that successful people continuously hone their leadership style, keep their skills up to date and fervently protect their reputation.

We believe that becoming conscious and mindful of these principles is of paramount importance, and we believe that this book will help you achieve these goals.

Sources

In writing the book we have mainly drawn upon our personal experiences. These experiences were shaped, shared and created by a large number of colleagues, students, mentors and professionals drawn from a broad spectrum of society including academia and the private sector.

We quote many of these experiences directly. Others are reflected indirectly by virtue of the fact that they have left a mark on us and influenced our views.

Since it is personal interactions that we have benefitted most from, we have chosen an equally personal and anecdotal tone for the book rather than aiming for a research-orientted style.

Consequently, we have abstained from scientific style referencing. We do offer selected sources that you may care to consult for further reading. However, neither the style nor scope are as comprehensive as they would be in a research treatise. We address topics as wide-ranging as leadership, job interviewing techniques, ethics, work–life balance, writing grant applications and delivering conference presentations. Volumes have been written about each of these topics in their own right.

All of the above topics will play crucial roles during the various phases of your career. The objective of the book is to bring all of the core ideas together in one place and to put them into perspective. To learn more about the specifics and current “state-of-the-art” thinking in any of the component topics, we refer you to contemporary sources.

Book Website

There is also a book website: www.ADoctorateAndBeyond.com.

This website is under continuous development and will provide up-to-date information on certain topics of relevance to the book.

Times of “Luck”, Times of “Hardship”

All that we have mentioned so far refers to your active role in pursuing your degree and your subsequent career. However, in life, there are always forces beyond our control, some work for us, some against us. For the sake of simplicity we refer to the former simply as “luck”, the latter as “hardship”. In reality, the complexities of life are rarely that cleanly cut. However, the book will support you during either of these times.

If you talk to successful people in any field you will find that some have, more or less, stumbled into their careers, taking opportunities that opened up along the way and discovering skills and talents as they went along. Others chose careers as they followed someone else. Others have started out wanting to prove that “they can do it”.

To what extent you “plan” and to what extent you “leave things to chance” is a matter of personal preference and can change depending upon the circumstances. We aim to support you both during times when you choose to plan and times when things evolve by chance. Experience suggests that you will always encounter coincidences and unforeseen opportunities along the way.

Times of planning, times of luck, times of hardship: we hope to provide you with a resource of inspiration.

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Building a Career in Engineering and the Physical
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