

## Project Management for PhDs



# **Project Management for PhDs**

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# Foreword

Fifteen years ago we started organising our first PhD courses. At that time, the working climate had already changed considerably since we had been working at the university ourselves. When in former days writing a dissertation was an enterprise an assistant professor undertook for any number of years with hardly any time pressure and on the basis of his or her expertise, this practise changed considerably in the Netherlands with the introduction of the AIO system. Now, relatively young and inexperienced researchers were expected to write and defend a dissertation within the limited timeframe of four years. That most of them didn't succeed on time was, in the beginning, not regarded as a major problem.

We entered the scene when it was becoming clear that only 10 per cent of the PhD students finished their work on time. There were hardly any procedures or training programs in place to help to improve that number.

Furthermore, we found that PhD students (and maybe their supervisors alike) wholeheartedly loathed the idea of planning the writing of their thesis which, in their minds, could still cover many different angles, become a standard work and might take forever to complete.

And we could not blame them. There is beauty in being so driven to do research and create a masterpiece. And how can you plan research when you're still at the beginning, when many factors are unknown and there are no results yet to describe?

We think that we have developed an effective method to help PhD students get a more realistic idea of what can be achieved in four years' time and how much can already be planned even when there are no results available yet. We think that by using our planning system, students can learn to get an overview of all the tasks involved in doing research in an academic setting. Furthermore, they will learn to apply project management principles to their research project, regardless of their scientific discipline.

For more than ten years now PhD students and supervisors have used our system in our training programs on project management and have used the accompanying website and this book to plan and discuss their projects. We are happy that both parties always have been very enthusiastic about the contribution this way of planning has made to their work.

We hope to help you as well in carrying out or supervising the PhD project. Being able to plan the various activities, to handle the time pressure better and to discuss a planning together makes for a more efficient and happier trajectory for both PhD students and supervisors.

This book describes all the information we use in our training programs and much more. Many readers have enjoyed the first edition. In this second edition we have added more activities to plan, introduced some new interviewees and updated facts and figures. We hope this book will assist you in writing or supervising an excellent dissertation.

Wishing you a successful and happy time!

Jeanine de Bruin and Brigitte Hertz  
June, 2017

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# Introduction

Writing a PhD thesis is a highly exceptional activity, usually only occurring once in a lifetime and, nowadays, often at an early age. It is a complex project that requires considerable effort, not least because you must complete it within a certain time frame: usually four, sometimes three years.

In this book we show how a PhD project, no matter how complex and unique, can be planned well using the basic principles of project management. In the course of the training courses we provide, we have met supervisors and PhD students from all disciplines who want to learn how to work more systematically. They are academics who, while they want to chiefly occupy themselves with the content of their research, also want to improve their project management skills. For these researchers, we have developed a Planning System for PhDs that makes planning your thesis simpler and more transparent. The many enthusiastic responses we have received from our participants have convinced us that this knowledge ought to be shared with a larger group of researchers. That is why we have written this book. Because maybe you, too, are wondering: a project management approach to academic research, is that really possible? And how do you do that?

## *Target group*

This book is useful for many kinds of PhD students. In the Netherlands the 'standard' PhD entails a full-time program that leads to a PhD in four years. Some PhD-students do a three-year project in which they continue with the subject of their research master.

Alongside your research you usually have a small teaching load. But sometimes it is also possible to pursue a PhD in a part-time program, which involves working four days, then you complete the PhD in five years. Some faculties offer an appointment as a junior lecturer. Then you have a substantial teaching load throughout your PhD program and take six years to get your PhD. At medical schools, doctors who want to specialize further often combine a PhD with their daily clinical work as an MD-PhD. In the Netherlands teachers at the Universities of Applied Sciences are now also being encouraged to do PhD research. They are released from their teaching obligations for two or three days during the week. Some universities are discussing the possibility of changing the position of the PhD students. They would not be employees anymore, and would receive a scholarship instead of a salary. Finally, there are the so-called external PhD students. They have no position at a university, but have, for example, a different job or their own company, or may have retired and now be pursuing a PhD in their own time.

For the project management approach it does not matter if you are following a standard PhD program or one of the other variants. This book describes a number of basic principles and also shows in which instances you can and need to make your own choices. We think this book can also be useful for supervisors of PhD students, because then their guidance can be tailored to suit the individual needs and problems of the student more fully. Ideally the student and supervisor would discuss the various topics that are presented in this book together.

#### *How to use it*

In this book we will discuss project management on three different time scales:

- 1 The short term (time management): How do you plan your workday and your working week? How can you make sure that you are primarily carrying out activities relevant to your thesis and that you do not waste too much time on small jobs?
- 2 The medium term of the project (project management): How do you bring the four-year project to a successful conclusion within the required time frame? And how do you make the best use of people, resources and time?
- 3 The long term of your career (career planning): how best to orient yourself during your PhD project with respect to goals and activities that will be important to you in the longer term.

We will also explore the writing process in more depth, as it is one of the key elements involved in delays. How do you prevent writer's block and how do you keep yourself going? Finally, we show the importance of working together and we present ways to involve the people around you with your project. We conclude with a practical step-by-step plan for a PhD project.

The book also contains a number of interviews relating first-hand experiences. They are primarily intended to present the ideas and experiences of real-life PhD students and supervisors. They are likely to be a source of much recognition.

You do not necessarily have to read this book in one sitting. Maybe you want to start with the chapter that is most topical for you at the moment and read another chapter later. At the end of each chapter there are practical exercises that you can use to experience how to make the different principles work for you.

Reading about project management is very helpful. By putting it into practice and experiencing how it works in your case, you learn even more. On the website [www.projectmanagementforphds.com](http://www.projectmanagementforphds.com) you will find a Planning System for PhD projects.

We aim to help you manage your PhD project more systematically, so that you can focus even better on the actual content of your research. We do not believe that the two are mutually exclusive, but, on the contrary, mutually reinforcing. We seek above all to help PhD students retain their enthusiasm for their work. Because it is of great benefit to scholarship when researchers can work from their passion and are given the space they need to do what they do best.



# Academic research and project management

# 1

In this section we briefly discuss why it benefits your PhD program to work according to a schedule and to manage your research as a project. We realize that such an approach seems to go against the very grain of what makes science so valuable: taking the time to investigate something that has never been researched before in elaborate detail. However, we want to show you that by using a schedule, you can prepare a far more workable and enjoyable PhD path for yourself. Approaching it as a project is also in line with a larger social trend. Research conducted at universities needs to be completed within a predetermined time period.

Finally we will show you how to apply general principles of project management in your PhD project and how to work with the model of the Project Creation.

## 1.1 Social developments

In recent decades, two important developments took place: the introduction of the new two-phase structure at universities in the Netherlands and the advent of the second and third money flow. These developments have brought about a paradigm shift in academic research. Instead of being primarily quality driven, time and often money have now also become determining factors.

### *Introducing the two-phase structure*

The introduction of the two-phase structure in 1982, and the detailing of the second phase in the following years, signaled the end of the era of PhD programs without deadlines. Until that time, graduates were given a permanent position as a researcher/teacher and it was common to start on a PhD after a number of years and then to take plenty of time to finish it. Some scholars regarded the PhD as a life's work. Since the introduction of the two-phase structure, however, a PhD is increasingly seen as a training position, a kind of extension of your study: you learn about how to do research and in four years you have to be done. Only PhDs have a chance to get a permanent position, moreover, usually only after a temporary appointment as a postdoc.

The standard time allowed for a PhD research project is four years. Practice proves less agreeable. Almost no one manages to finish their PhD within four years. In 2005, some twenty years after the introduction of the new PhD structure, the Ministry of Education, Culture and Science (OCW) and the Dutch Association of Universities (VSNU) sounded the alarm: only 6 to 7 per cent was reaching the finish line within four years and after five years it was around 26 per cent. Even after more than twelve years still only 70 per cent completed their PhD. Until some years ago, making use of a reduced pay scheme for the fifth year offered some respite, but this is now no longer an option. In 2016 still the average PhD project lasts five years and one month (VSNU, 2016). In 2003 the Research Master was introduced in the Dutch higher education system. Approximately ten years later this had an impact on the presumed length of the PhD project: Master students would be able to accomplish the first year of their thesis within their research master. Therefore NWO (Organization for Scientific Research) diminished the funding per PhD project from four to three years. But in reality most PhD students start with a subject that is not related (at all) to their master thesis; they still have to finish their PhD thesis in three years.

The drop-out rate is also cause for concern. Officially, the drop-out rate is around 8 per cent, but approximately 30 per cent of PhD students are undecided whether they will ever complete their PhD or if they have actually stopped (Berger & De Jonge, 2005). Table 1.1 displays the number of PhDs that managed to finish their thesis within four, five, six or seven years.

Table 1.1    Output of employed PhDs in the years 2001-2016

		Employed PhDs				
	<i>Group size</i>	<i>&lt; = 4 years</i>	<i>&lt; = 5 years</i>	<i>&lt; = 6 years</i>	<i>&lt; = 7 years</i>	<i>Total (including &gt; years)</i>
2001	1 494	8%	39%	60%	68%	78%
2002	1 597	6%	38%	59%	67%	76%
2003	1 776	8%	40%	60%	69%	77%
2004	1 898	9%	40%	61%	71%	79%
2005	2 053	8%	39%	58%	67%	74%
2006	2 017	8%	41%	59%	68%	75%
2007	2 228	11%	41%	61%	70%	76%
2008	2 745	12%	46%	65%	73%	76%
2009	2 948	12%	44%	63%	67%	67%
2010	2 986	14%	47%	57%		57%
2011	3 245	12%	30%			30%
2012	2 805	8%				8%

Source: VSNU PhD student numbers per year 2015 (publication date September 2016)  
Without Erasmus University (2001 and 2002) University of Utrecht (2001-2007) and Open University

In other words, the introduction of a time-limited appointment for the writing of a thesis has not automatically led to PhD students also successfully finishing their thesis within that time period.

We think it would be better if the PhD program were planned according to a more project-based approach than it has been so far. We shall return to that point later in this chapter. First, we will discuss another trend that calls for a more project-based approach to PhD programs: the rise of the second and third funding flow.

*Rise of the second and third funding flow, including EU funding*

University research in the Netherlands is financed through three financial flows. The first funding is government funding that comes from the Ministry of OCW and is made available to the universities in its entirety and the university is free to make its own decisions about how the funding is spent. The second flow is from the Netherlands Organization for Scientific Research (NWO), which provides (top-level) researchers at universities and institutes with project-based funding. The third financial flow comes from companies, ministries such as Economic Affairs; Health, Welfare and Sport; and Housing, Spatial Planning and the Environment; from the EU and various charity funds, such as the Dutch Asthma Foundation and the Dutch Cancer Society (KWF Kankerbestrijding). Again, this concerns project-based funding. In 2004, the second and third financial flows combined to make up 40 per cent of the total research budget. The third financial flow for research increased between 1993 and 2014 from €563 million to nearly €1.7 billion (VSNU, 2014). Remarkably, the share from national government is decreasing and the share coming from industry is increasing. Since the beginning of this century Dutch universities are receiving more money through companies than via (semi) government institutions (NOWT, 2005). Financiers from the second and third cash flow in particular have determined that the research they fund must be completed within the estimated budget and within a set time frame. Most researchers have thus become dependent on a funding system that requires them to deliver high quality research in a predetermined time period. The percentages in table 1.1 show that this has proven difficult to realize. When an external financier or the PhD system requires a study with a specific budget to be completed within a certain time, we think it's safe to say that requires a project-oriented way of working. Our experience, however, is that this way of working is met with resistance, at least by some PhD students.

## 1.2 Reluctance to plan ahead

PhD students sometimes may feel a certain reluctance to making plans in their work. We will discuss the various reasons here.

An important reason for many PhD students to do a PhD project was made because they want to apply themselves freely and with full attention to a research topic of their choice, and working according to plans feels like the exact opposite.

Students have problems planning their PhD project because it is often unclear in advance what the research goal is going to be and they do not want to commit prematurely to any particular course of research. They want to respond spontaneously, not be subject to any pressure and to keep various options open. In other words, they often tend to put off difficult decisions until later. When you try to work according to strict plans though, you are limiting your options to make new and spontaneous decisions later in the project.

Moreover, they realize quite rightly that they cannot determine the course of the study on their own. And that is precisely one of the strong suits of managing your work as a project. You consider in advance how much time you have for the various parts of the research and have discussions with all the stakeholders specifying how much time you want to spend on what part. At the same time, and this is essential for managing your project, you reserve time to deal with any setbacks that may occur, as well as time for evaluation with your supervisors. You also think of alternatives for dealing with any unforeseen circumstances. The one thing that does not change is the time that you can spend on each part of your project. In chapter 4 we discuss in detail all the different components that can be planned in the course of a PhD project.

PhD students (and sometimes their supervisors as well) still feel that they, as tradition has it, are producing a life's work. While the reality today is that the work needs to be completed in two (MD-PhD) three, or four years, many PhD students are still hoping to write a groundbreaking thesis. They feel that this is quite possible since four years seems like a very long time. It is often their first job, and they feel that they will be able to achieve huge things in those years. They have not yet become acquainted with all the tasks required of them in addition to the research and the small incremental steps with which the research progresses. Moreover, they usually have no experience with project management. Then there is the idea that research is a matter of inspiration: once the good ideas come, then the research will find a new direction or the conclusion can be written. If these good ideas don't come quickly, it takes more time.

Let's consider this line of thought. First, there are other professional groups in which the quality of the finished product is considered more important than the production time. Writers, painters and actors also rely on the chemistry of a moment. And one moment things work out better than another. But even in these disciplines experts are increasingly becoming convinced that creating a



work of art entails of ‘ninety per cent perspiration and ten per cent inspiration’. One example: the famous Dutch author Harry Mulisch kept a diary over the period he wrote his bestseller *The Discovery of Heaven*. The diary shows that he set himself the goal to spend a certain amount of time every day producing text. He always wrote at the same time and in the same location. In other words, his unique and brilliant book was achieved through strict discipline and routine. One last objection to project management and the planning of the PhD project is that the research is an autonomous project that is difficult to predict. If, for instance, an experiment fails or when it is difficult to find the required respondents, then the research will just take a little longer, and this, the argument goes, makes planning impossible.

How can it be that we as outsiders have such a different viewpoint? We think there is a high degree of nearsightedness. In your own project you are blinded by all the details and it is difficult to take sufficient distance. This distance is essential to be able to oversee the four-year project and to predict how a decision you make today can influence activities one or more years down the line. Furthermore, this is perhaps the first large project you are working on. You do not yet have a frame of reference and have no previous experiences to compare it with, which makes everything seem even less predictable.

In short, the current method of appointment of PhD students and research funding cause students to complete their PhD work within a predetermined time period. In academic circles it is still not common to work in a project-based style. Most PhD students, as some of their supervisors don’t master the skills to plan their work.

Due to the time constraints and because we believe that a project-management approach is the best way to conduct PhD research and maintain pleasure in doing it, we have written this book to explain how to manage PhD work as a project.

### 1.3 Plan every last detail?

Of course not everything can be planned, simply because not everything is predictable. In everyone’s life, events occur which we could not have anticipated or that we had hoped to avoid. Many PhD students are in a hectic stage of life. They are settling down with a partner for the first time, maybe getting married, some are wondering whether and when they want children and many are looking for a (better) home. Such ‘life events’ cost time and energy and while they can be planned in theory, in practice they are less predictable. And then there are the unpredictable situations involving illnesses of yourself or your loved ones. Unpredictable situations sometimes also occur in the workplace, such as a prolonged absence of a supervisor or a reorganization of the department. What can you do?

Many important events can be anticipated or you may suspect that there is a chance that they will arise. An important part of project management is therefore to undertake a risk assessment. When the risk is high, you have to think of an alternative beforehand.

Determining the decision point in advance and then systematically addressing the risk component throughout the PhD program ensures less delay. In section 1.6 we discuss a tool for risk analysis and show you some examples.

## 1.4 Project management for PhDs

The essence of project management is to work towards a predefined goal of satisfactory quality within a fixed time period and budget. So the first step is to set your goal and your deadline. Your project has never been carried out in exactly this way before and the team working on it has been specifically put together for this project. But while the content and the team are different each time, the way of working on a project basis is more universal.

By managing the PhD as a project you increase the chances of a reliable and high-quality end result. Because you have determined in advance where you want to end up and when, you can systematically work towards the end result. You can establish interim milestones, build evaluation moments into the schedule and determine if your expectations are matching the actual progress on a regular basis. If that is not the case, you can adjust your schedule by mutual agreement. You need to predict where the risks lie beforehand, and consider ways to prepare for them (see also section 1.4).

Perhaps the main advantage of project management is that it helps you make everyday decisions. Should you take on a new assignment or not? Should you really put everything on hold this week to make your paper ready to submit, or can it wait?

Of course arguments can also be made against such a project-based approach. For instance, it may make you feel that everything is fixed and that there is little room to experiment or make mistakes. To be honest, it shouldn't have that effect. On the contrary, a good project-based approach actually provides a framework of routine that leaves room for relaxation and creativity. Some PhD students experience more freedom within the planned environment. It makes it easier to guard the balance between work and private life, and possible to attend to other duties more effectively. For concrete examples of how to take this approach see chapters 2, 3 and 4.

You may have the feeling that most project management tools do not apply to research projects. And in fact you are right. Widely used project management programs like PRINCE 2 Project are specifically focused on managing large long-term projects with dozens or even hundreds of employees. In these projects, the trick is to achieve a final product that matches the predefined

specifications as much as possible. Often, billions of (government) euros are involved and there are strong political interests at stake. Think of the construction of the Amsterdam *Noord-Zuid* underground train line, or the merger of two banks. However, some of the general principles of these tools can also be used for a PhD project. In the next section we introduce how they can be applied to PhD research. We then discuss the model of the Project Creation from the Kern Konsult consultancy, which we believe is a good complement because of the particular nature of an academic project. First, let's see what the general characteristics of a project are and formulate the specific characteristics of a PhD project in a nutshell.

## 1.5 Characteristics of a project

There are several definitions for the term project, but almost everyone agrees that the essential characteristics of a project are that:

- It is unique.
- It has a defined purpose.
- A certain level of quality is being pursued.
- It is temporary.
- The project team is formed specifically for this assignment.
- Time and resources are limited.

This description also fits a PhD project. This can be seen as a unique project because (almost) no one does exactly the same research twice. The thesis constitutes the defined purpose, though it is not always clear beforehand what information it will contain. It must be realized within a limited time span and a limited budget, and a special team is put together (consisting of at least a PhD student and a supervisor). But a PhD project also has other characteristics. A thesis is above all a knowledge-intensive project. The people involved are especially interested in a high level of quality and creative findings and are less motivated by saving or earning money or saving time. However, in some fields it is crucial to publish the results before the competition does. Unlike the large-scale projects we mentioned earlier, a PhD has less clear deadlines for the various parts of the project. Finally, in the course of the PhD it is also the express intention that the main subject, the PhD student, is developing (to be an independent researcher). In addition to the standard project features a PhD project has the following characteristics:

- It is highly quality driven.
- It is becoming increasingly competitive.
- It is knowledge intensive and creative.
- There are no clear deadlines.
- The development of the researcher is an important goal.