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# Prince 2: a methodology of project management

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## **Abstract**

This report have been written for the software engineering module, in CIT<sup>1</sup>. The goal of this report is to present PRINCE 2 , a methodology of project management. It is organized in three chapters. The first chapter is here to introduce the methodology by explaining the main principles. In the two following chapters, are explored the main points of project management: planning and scheduling, reporting, control, quality management, and risk management.

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# Introduction

PRINCE means *PRojects IN Controlled Environments*. It is a methodology of project management, promoted by the UK government. From PRINCE, another project management methodology, PRINCE 2 (the second version) has been built.

We will see in that report the different main aspects of this methodology. After a quick overview in a first chapter, we will focus in a second chapter on all that concerns planning and reporting. So we will see problematics as schedule, reporting process during the project, and control that is made, with decisions taken. And in a second chapter, we will see all the other important aspects of project management, like the management of quality and the risk management. In the conclusion of the report, summarizing the main points of the report, we will see why PRINCE 2 is interesting for software-centric projects, and which openings can be done.

# Chapter 1

## Quick overview

### 1.1 The origins

PRINCE comes from the proprietary management methodology PROMPT II, developed by Simpact Systems. It has been placed in the public domain in 1989 [6].

PRINCE 2 was introduced by the UK government Central Computer and Telecommunications Agency (CCTA) in October 1996. It is a methodology of project management which is adapted for any project kind and size. It covers the management, control and organization of projects. It is *de facto* a standard, very used by the UK government. It is also a recognized methodology, in the private sector.

Now, several governments recommend its use (the Netherlands, Germany, Denmark. . . ), and some 250,000 project managers are certified PRINCE 2 world-wide [8].

### 1.2 Prince 2 architecture

#### 1.2.1 Overview of the main elements

PRINCE 2 contains:

- 8 processes (described in the subsection 1.2.2);
- 8 components (which are business case, organization, plans, controls, management of risks, quality in a project environment, configuration management and change control);
- 3 techniques (which are product based planning, change control and quality reviews);
- product outlines, roles descriptions (such as project manager, project support officer, senior user, senior supplier. . . [10]) and checklists.

## 1.2.2 The process

PRINCE 2 is organized around five *key features* [4] [6], which are:

- focus on business justification;
- a structure for the project management team;
- a product-based approach;
- project division into controllable stages;
- a flexibility to the project level.

PRINCE 2 is a process-driven method. It is organized into eight *processes*, which are divided into 45 subprocesses. The processes are the following ones [11] [3]:

**Starting Up a Project (SU)** First and pre-project process. To initialize, actions are realized, such as ensure information is available, design the project team, or create the initialization plan.

**Planning (PL)** Process to make planning to the project, and manage the exception plans. Cf. section 2.1 about planning (page 5).

**Initiating a Project (IP)** Phase with some objectives, like agree if project proceeding is justified, establish a stable management, agree to resource commitment. . .

**Directing a Project (DP)** this runs during all the project. This is for the project board. It contains four main areas, like initiation of the project, or stage boundaries (commitment of more resources if needed).

**Controlling a Stage (CS)** Describes the control and monitoring activities for the project. Cf. section 2.2 about the reporting (page 6).

**Managing Product Delivery (MP)** This is to ensure that the deliveries are actually produced, and on time.

**Managing Stage Boundaries (MSB)** This point aim is to provide the project board with information about continuing or not the project. Cf. section 2.3 about control (page 7).

**Closing a Project (CP)** Process which aim is to ensure a good closure at the end of the project, in particular checking that requirements of the PID<sup>1</sup> have been met.

See the figure A.1 on appendix A, page I, and [3], for more information.

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<sup>1</sup>Project Initialization Document

## 1.3 Advantages and drawbacks

**Advantages** There are several advantages to use PRINCE 2 method. We can distinguish the advantages claimed by PRINCE 2 reference book, and advantages from the point of view of other sources.

From the PRINCE 2 reference book point of view<sup>2</sup>, PRINCE 2 is really interesting, because it is repeatable, teachable, built on experience, ensuring that everyone knows what to expect, able to warn early of problems, and rather proactive.

According to other sources, we can show other advantages. PRINCE 2 provides a defined process, with a clear framework. It is useful for any project, whatever its size and its domain (computing, civil engineering, ...). Moreover, there are activities clearly defined, with inputs, outputs and goals. Besides, PRINCE 2 provides some process there are not elsewhere, typically like the actual pre-process to prepare the project (process SU<sup>3</sup>), which is not in the PMBook (reference book of the PMI<sup>4</sup>) [5]. Finally, it has been improved, as it is in the second version. And we can observe that there are a lot of foundations / companies which provide training and certificates of this method (it can be found easily on the Internet).

**Drawbacks** PRINCE 2 can be difficult to adapt to very small projects [11]. Moreover, there are a lot of projects which use PINO (Prince In Name Only), not really applying PRINCE 2 concepts, resulting in bad project management. For example: no product description, PID are only “cut-and-paste” from last projects, ... [8]. Besides, PRINCE 2 is highly document-centric, so it makes that in certain enterprises, documents become ends in themselves. Finally, PRINCE 2 doesn't provide explicit requirement analysis, as it is an implementation methodology [1].

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<sup>2</sup>cf. [2], pages 2 and 3, section 1.2

<sup>3</sup>“StartUp a project”

<sup>4</sup>Project Management Institute

## Chapter 2

# Planning, scheduling, reporting

## 2.1 Plans and planning

### 2.1.1 Place of planning in Prince 2

For PRINCE 2 planning is very important [9]. Indeed, there is one process, PL (Planning) process, which is made for that. Moreover, it is one of the eight processes that runs all along the project. The planning process describes all what has to be done, including the format of the plans [11].

### 2.1.2 Planning process in Prince 2

The planning in PRINCE 2 has multiple sides. First, it is required to define the levels of plans needed for the projects (like to know how far the Work Breakdown Structure will be built).

Then, it is required to chose the planing tools and the estimated methods. For the planning tools, we can cite three examples: Microsoft Project, Open Workbench, and Gantt Projects (to make Gantt diagrams for example). For the estimated methods, some exist, like to ask experts to make estimations, explain their estimations, and repeat the process until convergence.

Then, it is necessary to clearly identify the deliverables of the projects, the design and implementation of which have to be planned. And first about that, the products that have to be done. Indeed, if you don't know what you have to do, it is impossible to plan it. So this is an important phase in the planning initiation.

Once you know clearly the products you have to do, you have then to isolate the activities needed to realize these products. With the activities, it is mandatory to actually define the relationships between these activities. With that, for each activity, an estimation of the needed effort has also to be done.

When that has been done, it is possible to enter the data into the chosen tools, in order to build a schedule effort-based. A first baseline can be extracted from that scheduling. Then, the allocation of needed resources on each activity has to be done.

Finally, there are some other things to do, as risk analysis inherent to the done plan (risk analysis will be developed in section 3.2), and adding a consistent document that explains the plan [7] (that is discussed in the chapter Project Integration Management of PRINCE 2 reference documentation).

### 2.1.3 The actual subprocesses

With that explanation of how PRINCE 2 addresses plans and planning, we see that it matches with the subprocesses which are part of the PL process, which are: PL1 (Designing a Plan), PL2 (Defining and analyzing products), PL3 (Identifying activities and dependencies), PL4 (Estimating), PL5 (Scheduling), PL6 (Analyzing risks), and PL7 (Completing a plan).

### 2.1.4 The product-based planning technique

We saw in the subsection 1.2.1 (on page 2) that there are in PRINCE 2 not only processes, but also techniques. One of the PRINCE 2 techniques is the “product-based planning”. That reinforces the idea that PRINCE 2 focuses a lot on plans and planning. This consist in managing an actual product break-down structure (PBS). Several PBS can be done: PBS at management level (level 1 of the PBS will be business care, plans, reports, control, quality. . . ), or PBS at technical level (level 1 of the PBS will be analysis, design, implementation, testing. . . ). Product flow diagrams can also be done, to cut a process in stages, so as it would be more clear to do during implementation [7].

## 2.2 Reporting progress

Contrary to plans and planning concern, which is clearly defined in PRINCE 2 through a whole process and a technique, reporting is not as clearly installed into a process or a significant part of the picture. Nevertheless, it is still present in the process, and consequently important. Reporting is rather present in some parts of the processes, under the form of sub-processes, or taking part of sub-processes. We can see reporting in three different processes: PL, CS and MBS.

For PL (Planning), we can infer that reporting takes part in it, as planning is a continuous process, occurring during all the project duration, and as it is impossible to make planning and schedule evolving if there is no feed-back on what is happening in the project. So, for planning, it seems mandatory to have reporting in preliminary.

In CS (Controlling a Stage), the sixth subprocess, *reporting highlights*, says explicitly that reporting is done. The CS process applies at each stage, for each work-packages. Its subprocesses depict the steps each work-package has to do: be authorized, assessing process, capturing and examining issues, make

reviews, report highlights, take corrective actions... It is clear that here, reporting is done, for each work-package.

Finally, there is also kind of reporting that is done in MBS (Managing Stage Boundaries), as the fifth subprocess is actually “reporting stage end”. So in every stage of the project, some reporting has to be done, with the updates of the other elements (business cases, risks...).

Consequently, reporting is rather present in PRINCE 2 methodology.

## 2.3 Exercising control

**Control in processes and project lifecycle** Control is present from the beginning of the project. Indeed, in the process IP (Initiating a project), the fourth sub-process asks to set up “project controls”, as it seems necessary to set up, at the start of every project, the structures which will enable to make correct control and decision making.

After that, during project development, one process is strongly related to control: CS (Controlling a Stage). This process exists to ensure that work-packages are validated and authorized by project managers, to assess the progress of the work-packages, report the issues, and take decisions about corrective actions that can be taken in function of out-coming events [7]. So the control in PRINCE 2 is mainly exercised through the control and assessment of work-packages<sup>1</sup> (in particular in end-stage, highlight and exception reports).

Finally, control is also obviously made in project closure (is everything properly delivered? What do we have learned?).

**The control component** We can also add that a component deals also with exercising control: the “control” component. It is here to ensure that the right projects are produced in the right time, and stays viable, considering the business cases. There are several types of controls, such as exception assessment, end stage assessment, project closure... [1]

**The technique of change control** This goes along with one of the techniques proposed by PRINCE 2 : “change control”. In PRINCE 2 changes are treated as project issues, are of the responsibility of the project manager, and are recorded in logs. Change control in PRINCE 2 includes the assessment of potential changes, their importance, cost, and a decision to know if they have to be included or not<sup>2</sup>. The change control approach includes a prioritization, an impact analysis, and an authorization<sup>3</sup>. There are 3 types of change control: request for change, off specification and query. The project board has to approve changes [1].

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<sup>1</sup>Cf. [9] page 8

<sup>2</sup>Cf. [2], section 20.1, page 271.

<sup>3</sup>Cf. [2], chapter 23, pages 295 to 298.

## Chapter 3

# Project management

In that chapter, we will see other important elements, but which are not related with planning, reporting, controlling. So we see here the quality management, and the risk management.

### 3.1 Managing quality

Quality management is probably one of the major parts of PRINCE 2 framework, as it is present in nearly every kind of the framework elements: processes, components, techniques, and even external helps (like ISO).

PRINCE 2 takes the definition of risk provided by ISO 8402<sup>1</sup>, which is:

totality of characteristics of an entity which bear on its ability to satisfy stated and implied needs

**Processes** Quality is very present within PRINCE 2 process, even from the beginning of each project. Indeed, it is needed in the IP (Initiating a project) process, to define quality responsibilities, quality methods, and all the tools which will be used to manage quality during the project. The first subprocess of IP is “planning quality”. All this is documented by a “quality plan”.

During the project development, quality stays strongly a important problematic. Indeed, one of the MPD (Managing Product Delivery) process aim is to keep the manager informed about quality information.

**Components** There are also some components related to quality. In particular, the compliance with ISO 8402 [7], which is here to provide conformance to requirements and fitness for purpose. Thanks to this help of ISO, quality control is ensured in work-packages, registered in a quality log, that will help for reporting on quality problematics, so as to have a good quality assurance.

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<sup>1</sup>Cf. [2], section 18.2, page 253.

**Techniques** We can also note that in PRINCE 2 techniques, there is one related to quality: quality reviews. This is a procedure that enables to assess products, in order to decide if the product is suitable for its purpose, and compliant with the requirements.

We can see some points, more precisely, about how quality review technique is defined. In the definition of quality review technique, different roles are defined, like the chairperson, the producer, the reviewers, the project manager, the project support officer. It is divided into 3 parts that are preparation, actual meeting, and follow-up, afterwards.

This technique helps to see errors in products, but does not correct the errors. That will rather be a mission of the “control” part of the framework. We can note that it is also possible to use tolerances [7] on parts of the assessments (that probably makes a gain in flexibility and adaptability).

## 3.2 Managing risks

**Risk management** Risk management, another important point of project management, is present in the framework as well. According to PRINCE 2 reference book [2], risk can be defined as “uncertainty of outcome”<sup>2</sup>. The goal of risk management is to manage the exposure to risk. For that, the project board has to promote risk management, build up adapted policies, and assess projects status related to their risks.

**In the Prince 2 process** In the processes, it is present from the start: in the IP (Initiating a project) process, it is one of the subprocesses (the third), which is named “Refining the business case and risks”. This insists on the importance to assess risks from the start of the project.

Then, in PL (Planning) process, there is also a subprocess (the sixth) which is related to risk management. It claims that each planning process is called, risk analysis has to be led, to see whether or not the new plan is compliant with project constraints, and identified risks, without changing the criticality, the priority, the importance, or the action plan taken to avoid the risk. Furthermore, all the process, and the parts where is risk management is described in section 17.6 of PRINCE 2 reference book [2].

Finally, there are also some other interesting tools defined around risk management, among which are:

**a risk management circle** which is describes the process which that has to be done when dealing with risks<sup>3</sup>: risk has to be identified, then evaluated, then a response has to be found, and selected / validated. Then planing and reporting has to be made on the risk.

<sup>2</sup>Cf. [2], section 17.1, page 239

<sup>3</sup>Cf. [2], figure 17.2, page 242

a **risk assessment matrix** which rates the risks and helps to decide which importance giving to the risk, considering impact and probability<sup>4</sup>.

So risk management is clearly taken in account, at each important stage of the project (and at least, every time the plan is modified).

**Other elements of risk management in Prince 2** In PRINCE 2 there are other elements that deal with risk management. For example, there is a part related to risk tolerance, also named “risk appetite”. It is said that this tolerance varies according to the perceived importance of the considered risks, and depends in other factors too, like cost of product, quality of product, scope of the project.

There is also risk responsibility that is taken in account. For example, it is the project board responsibility to warn the project manager that a new risk has emerged, to contribute to propositions so as to solve the risks. . . For that, communication is very important.

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<sup>4</sup>Cf. [2], figure 17.5, page 247

# Conclusion

After what we saw in that report, we can make some conclusions about software-centric projects.

About plans and planning, we saw that it is important in PRINCE 2 to define a clear planning, based on products, on effort estimations of the products, and on resource allocations. That is very important in IT projects, as the products are not physic and palpable things. About reporting, we saw that it is very present, even if not structured in one single process. So it is a good thing for software projects, as problems are not necessarily always visible, or as the impact is not always obvious.

The same thing can be remarked in the control exercising. It is well defined in PRINCE 2 methodology, so combined with the exception approach, it is rather interesting for software projects. Indeed, in general, software projects fail or are late, because there are some problems, which can be the absence of reactivity when a problem is detected, or a lack of clear decision and control to handle these problems.

For quality management, the fact that a quality process be actually included in the entire process is rather a good thing, because it obliges not to avoid this part, which is very important. In software projects, this has to be particularly taken in account, as software quality is something difficult to imagine, and to ensure.

Finally, risks management is also a very important domain, but here there is not a particular advantage for software projects, as risk management is very important in every kind of projects.

We can bring a nuance to that, adding that PRINCE 2 is defined rather generically, so it may be less adapted than specific methodologies for software development processes.

So PRINCE 2 is rather interesting for software-centric projects, as we have seen. It is not surprising, as PRINCE 2 has already become a *de facto* standard in UK government projects. Then, it could be interesting to see how it could be interestingly completed by other quality and capability certifications, like ISO or CMMI. But already, some comparisons has been done with some reference books, like the PMBook (reference book of PMI<sup>5</sup>) [5] [9].

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<sup>5</sup>Project Management Institute

# Appendix A

## Prince 2 processes

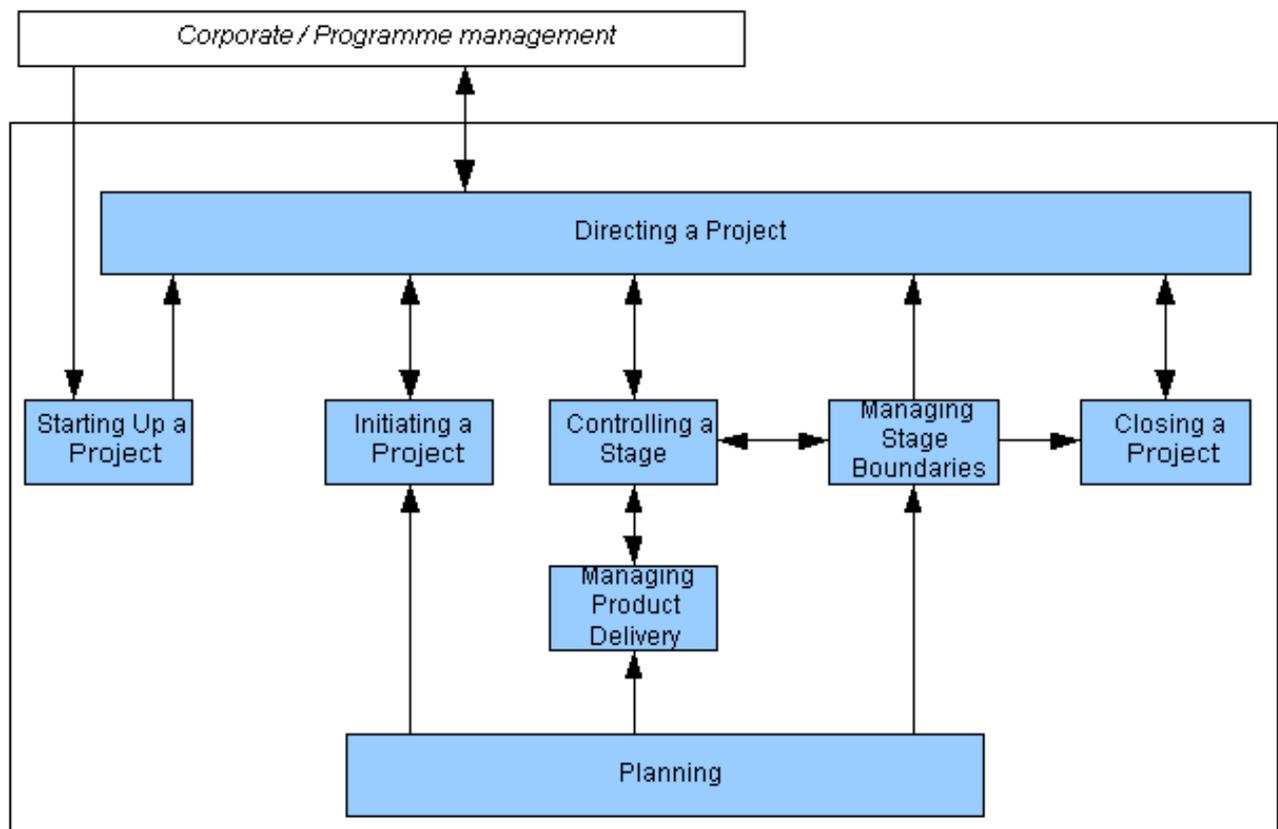


Figure A.1: The eight processes

# Bibliography

- [1] Bamboo Web Dictionary. PRINCE 2. <http://www.bambooweb.com/articles/p/r/PRINCE2.html>, Consultation: nov 2008.
- [2] Office of Government Commerce (OCG), editor. *PRINCE2*. Crown copyright, 2002. isbn: 0 11 330891 4.
- [3] Prince2.com. PRINCE2 processes - the PRINCE2 process model. <http://www.prince2.com/prince2-process-model.asp>, Consultation: nov 2008.
- [4] Prince2.com. What is PRINCE2? - PRINCE2 definition. <http://www.prince2.com/what-is-prince2.asp>, Consultation: nov 2008.
- [5] *No author*. A comparison of prince2 against pmbok. <http://www.aipm.com.au/resource/A%20comparison%20of%20Prince%202%20vs%20PMBOK.pdf>, January, 24<sup>th</sup> 2002.
- [6] FRAME. Project management methodology. <http://www.framegroup.com.au/Portals/0/Documents/Capability%20Sheets/Level%202%20sheets/Frame%20Project%20Management%20Methodology.pdf>, 2008.
- [7] Bernd FRIEDRICH. PRojects IN Controlled Environments – PRINCE2. <http://www.emacao.gov.mo/documents/14/09/seminar9b.pdf>, April, 25<sup>th</sup> 2005.
- [8] OUTPERFORM. Everything you wanted to know about PRINCE2<sup>TM</sup> in less than one thousand words! [http://www.best-management-practice.com/gempdf/PRINCE2\\_White\\_Paper\\_v3.pdf](http://www.best-management-practice.com/gempdf/PRINCE2_White_Paper_v3.pdf), March 2007. White paper.
- [9] R. Max WIDEMAN. Comparing PRINCE2 with PMBoK. <http://www.maxwideman.com/papers/comparing/comparing.pdf>, 2002. AEW Services, Vancouver, BC, Canada.
- [10] R. Max WIDEMAN. PRINCE2, 2005 edition – part 2 – office of government commerce, uk. <http://www.maxwideman.com/papers/prince2-05/prince2b-05.pdf>, August 2006.
- [11] Wikipedia-en. Prince2. <http://en.wikipedia.org/wiki/PRINCE2>, November 2008.