Theory

1. **Introduction**
   * On this chapter the basics, that will be explained more on the detail on the next chapters, are mentioned briefly. It starts by mentioning the purpose of the book, which is “to supplement the PMBOK® Guide with knowledge and practices that can improve the efficiency and effectiveness of software project managers, their management teams, and their project members.” Then it explains what a project is, continuing with what project management is and why it is so challenging. On the 4th and 5th subchapters the authors describe relationships between different PM entities. On the 4th is described the one between projects, programs, and portfolios, meanwhile on the 5th the one among project management, operations management, and organizational strategy. The subchapter 1.6 introduces the concept of “Business Value”, and the 1.7 explains the role of a project manager. The 8th subchapter explains what this book, namely PMBOK is and is not. Quality management is mentioned briefly on 1.9 as it will be gone more on detail on a whole chapter, the 8th one. The same is done on the 1.10 with “Project Life Cycles and Agile Methods” as they also have a designated chapter, namely the second one. The last subchapter of the first chapter explains software extension processes, i.e. inputs, tools and techniques, and outputs for each project management process.
2. **Project Life Cycle and Organization**
   * The second chapter analyzes how an organization and its structure influences a project and also the tools and techniques that are used for it. The first subchapter describes the organizational influences on project management and the information provided is divided in five further sections: Organizational Cultures and Styles, Organizational Communications, Organizational Structures, Organizational Process Assets and the last one is the section named “Enterprise Environmental Factors”. The second chapter gives concisely information about project stakeholders and governance. Even though, the matter is described shortly, its essence is explained certainly well. The third subchapter is called “Project Team”, and like the name suggests, it introduces the team entity of a project and all the different structures that it can take dependently on its members. While the first two subchapters provided information about the organization, the last one introduces the project life cycles as a concept. On its two sections it goes more into detail about its characteristics and phases respectively.
3. **Project Management Processes for a Project**
   * On this third chapter each of the five project management process groups (Initiating, Planning, Executing, Monitoring and Controlling, and Closing) has its designated subchapter where it is explained how they are incorporated into the management of software projects. The starting subchapter makes the distinction between process groups vs project phases and also the coexistence and interaction between the process groups mentioned above, hence the chapter name “Common Project Management Process Interactions”. The second one describes all the process groups graphically together, while also simultaneously describing the dependencies between them. The first process group, namely “Initiating Process Group”, starts the series of subchapters that go in detail about each one of them with 3.3. The other ones, i.e. Planning, Executing, Monitoring and Controlling, and Closing are explained relatively more in detail on subchapters 4,5,6,7 respectively. The subchapter “Project Information” describes the three types it is divided into, i.e. work performance data, work performance information, and work performance reports. The 47 identified project management processes from PMBOK(the original book, not this one: software edition) are mapped into 10 categories. Each one of them has its own chapter starting from the next one, namely chapter 4. They describe the inputs, tools and techniques, and outputs for most software projects.
4. **Project Integration Management**
   * The chapter is started by providing the definition of PIM on the PMBOK book. It is defined as the knowledge area that “processes and activities needed to identify, define, combine, unify, and coordinate the various processes and project management activities within the Project Management Process Groups”. To differentiate it, it doesn’t mean how software components are integrated in a system, but the integration of processes and activities on a project. The first step of Integration Management and hence the name of the first subchapter is “Develop Project Charter”. It allows the management entity to allocate enterprise resources to the (software) project. The second subchapter is “Develop Project Management Plan” where the whole project is divided on subprojects, for each of those is developed a plan with all inputs, outputs, tools and techniques , and lastly all of these plans are pieced together into a master plan. The following four chapters, simultaneously steps of PIM are: “Direct and Manage Project Work, Monitor and Control Project Work, Perform Integrated Change Control and Close Project or Phase”. For each of these sections the inputs, outputs, tools and techniques are to be written.
5. **Project Scope Management**
   * Scope Management is defined on PMBOK as the entity that “includes the processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully.” The same definition can be used also for this extension, i.e. the software PM. Then the authors differentiate between product scope and project scope, and their bidirectional dependency. As is the custom of each of the 10 categories of the project management processes, every step of a category gets its own subchapter where the inputs, outputs, tools and techniques for every one of them are also to be written. The first section is the “Plan Scope Management” which is defined as the “process of planning for, defining, and documenting stakeholder needs to meet the project objectives”. The other step is called “Collect Requirements”, a very well-known step to developers, also known as “Requirements Elicitation”. It is very important that the requirements are clear and well understood, even though as it is known on software world : “change is the only constant”, and the they will very likely change during a projects lifetime. After this process is accomplished, the team creates a detailed description of project and product, a step known by the name “Define Scope”. On the section 5.4 of PMBOK, the original one but also on the software extension, the Work Breakdown Structures, also known by the abbreviation WBS, are introduced. The next section is concerned with validating the scope. It starts by differentiating between validation and verification, and then like usual the inputs, outputs, tools and techniques are mentioned. The last step is called “Control Scope”, monitors, like the name suggests, the “status of the project and product scope and managing changes to the scope baseline”.
6. **Project Time Management**
   * As mentioned, on the previous sections(reference here), a lot of project are often delayed and one of the main reasons of project failures is time management.(Write also something about timeframe estimation, the additional resources that are required with all these delays etc.) It can be aggregated to seven processes, and for each one of them the authors have devised a chapter. The first one, on the same fashion as in scope management, starts with the planning, and is called “Plan Schedule Management”. All the activities that are going to produce the deliverables are defined on the second subchapter. The on the previous section defined activities and their dependencies, now are identified and documented on the third section, known by the name “Sequence Activities”. Like mentioned, an enterprise allocates resources to a project. The mapping of resources to activities is done on the 4th step of PTM. Determining the duration of each activity is an art form on itself. Even though two projects can be compared in terms of magnitude, complexity etc. that ratio does not manifest itself on the duration. On section 6.5 this subject is discussed. The 6th section, namely “Develop Schedule” hints how to create it, by always keeping in mind that the requirements will change, and flexibility should be the essence of it. The last step is as usual the controlling, which is not always that easy, especially on projects that don’t use the waterfall model, or any linear one for that matter. The “How To ” is given briefly on this closing subchapter.
7. **Project Cost Management**
   * This is one of the most important disciplines of project management. Managers don’t want to repeat the “NHS Connecting for Health”, which cost the United Kingdom taxpayers an estimated £12bn from an original cost estimation of £2.3bn or other sister projects failed[[1]](#footnote-1). If this could be somehow tolerated by a government or a big enterprise, for a small to medium sized company, a failure can mean total shutdown. The first step, as usual, is to plan the management of costs. It includes the foundation costs, the ones during the development and eventually the one for maintenance after the delivery. After each type of cost is defined the next step is to estimate the each and every one of them. This one is done on the second step of PCM, obviously called “Estimate Costs”. After this step, the management allocates a budget to the project, a procedure described on the third subchapter, with all the respective inputs, outputs, tools and techniques. Costs control is the final step, in which, keeping in mind that the requirements are always changing, they don’t initiate out of scope costs, or at least, if arisen, to keep them at a minimum.
8. **Project Quality Management**
   * As introduced on PMBOK PQM “ …includes the processes and activities of the performing organization that determine quality policies, objectives, and responsibilities so that the project will satisfy the needs for which it was undertaken.” It is divided in three sections: “Plan Quality Management, Perform Quality Assurance and Control Quality”. Each one of them gets a subchapter. The first step, as mentioned, is to plan quality management. It is defined as “The process of identifying quality requirements and/or standards for the project and its deliverables and documenting how the project will demonstrate compliance with quality requirements.” It defines a baseline array of quality requirements that a deliverable must have, and plays the fine art of balancing the tradeoffs between features, schedule and cost amongst others. The following step is “Perform Quality Assurance”. On it the appropriate standards and milestones are defined, that every partaking process has to accomplish. The next and final step, works with the mantra “measure, control, and report”. In it is evaluated if these standards are met and then these assessments are documented. Even though some standards may be more powerful than some others on their global definition, to a project is very important that the quality conforms the client’s expectations.
9. **Project Human Resource Management**
10. **Project Communications Management**
11. **Project Risk Management**
12. **Project Procurement Management**
13. **Project Stakeholder Management**

**NOTES: Maybe insert the graphs for each one of the 10**

1. https://en.wikipedia.org/wiki/List\_of\_failed\_and\_overbudget\_custom\_software\_projects [↑](#footnote-ref-1)