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All Rights Reserved The Complete Guide to Inputs, Tools, Techniques and Outputs. Whether you're just beginning your studies, or are well in to your journey to earning a Project Management Professional (PMP)® Certification, it's natural to feel a little insecure or intimidated by the seemingly endless PMP® ITTO that are diagrammed and discussed for each Project Management process. This one topic is probably responsible for more questions and anxiety for PMP® candidates than any other exam-related topic. I have good news for you: understanding PMP ITTO and their relationships are logical, easily done, and this complete guide will show you how to understand and make ITTO your ally when taking the Exam. I promise you that by the end of this article you will have learned everything there is to know about the various aspects, facets and features of Inputs, Tools, Techniques and Outputs you need for your exam success. We'll start this by putting ITTO into context, then move into the "What's" and "Why's" behind ITTO, and finish with "How's" of studying and using ITTO. Putting ITTO in context Inputs, Tools, Techniques, and Outputs are the foundation and infrastructure of the Project Management processes discussed in the PMBOK® Guide. Also read PMBOK® Guide 6th Edition Knowledge Areas for Project Management - Process Groups and Processes - The Complete Guide for more on the relationships between Knowledge Areas and Process Groups. I find putting things context helps me to understand them better; in this case, using an analogy of building a house works well. We all recognize there is a world of difference between a pile of building materials on plot of land and a finished house. The same location and materials are included in both; yet one is a pile of "things," the other can be a home that nurtures a family. This is where ITTO come in, they allow you to build the house (or, processes and projects in our case). To build a house you need Inputs (plans, specifications, permits, financing, building materials, etc.), then you proceed to construction by using Tools and Techniques (skilled labor and trades, concrete, framing, electrical, plumbing, finish work, etc.); when done, you have a house as your Output. To take the house building example even further, there is an order to constructing a house and relationships between construction actions and activities. For example, you can't frame the house until the foundation is constructed and you can't wire or plumb the house until it is framed. ITTO, and the Project Management Processes they support, have similar logical sequencing constraints and relationships. Finally, to understand how a house is built, it is more important to know and understand the interrelationships and sequencing of construction activities than it is fixating on variable details, such as out how many nails may be needed – the same is true for processes and this Complete Guide will show you why. What does ITTO stand for? Let's start with the basics and then work through the "why's" and "how's." I've already stated in this Guide that ITTO stands for Inputs, Tools, Techniques, and Outputs. But, how are these terms defined? The following definitions and examples are taken directly from the Glossary and/or text, respectively, of the PMBOK® Guide – Sixth Edition: Inputs Any item, whether internal or external to the project which is required by a process before that process proceeds. May be an output from a predecessor process . Examples include: Project charter Project schedule Resource calendars Approved change requests Enterprise Environmental Factors (EEF), such as government or industry standards, project management information system, organizational structure, culture, practices, and infrastructure, etc. Organizational Process Assets (OPA), such as standardized guidelines, work instructions, project management templates, project files from previous projects, and other historical information, etc. Tools Something tangible, such as a template or software program, used in performing an activity to produce a product or result. Examples include: Analytical techniques Project management information system(s) Benchmarking Product analysis Techniques A defined systematic procedure employed by a human resource to perform an activity to produce a product or result or deliver a service, and that may employ one or more tools. Examples include: Meetings Expert judgment Inspection Interviews Decomposition Outputs A product, result, or service generated by a process. May be an input to a successor process . Examples include: Work performance information Change requests Project management plan updates Organizational process assets updates Project documents updates These definitions are taken from the Glossary of Project Management Institute, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)– Sixth Edition, Project Management Institute Inc., 2017. You probably noticed that I placed emphasis on two statement above. Both say that Outputs from one process may be Inputs to another – this important fact will show up repeatedly in this complete guide. Why do I need to learn ITTO, it looks like a lot of work? I get asked this question all the time. You're quite right to question the "why;" understanding why ITTO are used and are important will greatly aid in your studying for the exam. Let's decompose these questions into smaller, more manageable pieces to look at the "why" behind ITTO (similar to what you'd do for a project's scope and/or deliverables). Why is the ITTO classification used? ITTO are the logical extension of the classification/standardization system used in the PMBOK® Guide. The PMBOK® Guide is divided into 10 Project Management Knowledge Areas, each of which is developed and supported by the 5 Project Management Process Groups, where applicable – this results in a total of around 50 processes. ITTO are a standardized means of systematically using the same method of developing and executing processes and projects. When you think about it, decomposing processes into ITTO reduces each to its most fundamental and basic components, and does so in a standardized manner that is equally applicable for all processes and projects. Understanding this allows you to build your project on a solid foundation from the ground up – like constructing a house. Why are there so many ITTO? There are many Project Management processes, and each of them have ITTO. The number of ITTOs associated with each process is proportional to the prerequisites (Inputs) necessary to start the process, the type(s) and level of effort necessary to do the process (Tools and Techniques), and the one or more things you produce from the process (Outputs). Are each Project Management process's ITTO unique? Some are; but, most aren't. By this I mean that there are some ITTO that show up only once (or even a handful of times). However, the majority of ITTO show up over and over – this is discussed in more detail below. Therefore, the number of ITTO you need to learn is actually far fewer than it first appears. Many ITTO look familiar, where have I seen them before? You're not imagining things, the majority of ITTO also show up as part of the vocabulary you need to be fluent in to pass the PMP exam. This allows you to double down on your studying by reinforcing vocabulary and ITTO at the same time. For more tips on studying for the PMP exam please review Creating Your PMP Study Plan - The Complete Guide. What are PMP ITTO? When project management practitioners refer to "PMP ITTO" they mean the global set of ITTO associated with all the Project Management processes detailed in the PMBOK® Guide, not ITTO related to one specific process. To understand how the ITTO are used, the PMBOK® Guide provides useful figures and tables that illustrate the interrelationships between Project Management processes that will greatly help your understanding of ITTO; the two most important are: Figure 3-3. Project Management Process Interactions (p. 53 - FIFTH EDITION), which provides a diagram with an overview, or "big picture" summary of project management process. This particular figure is taken from the FIFTH EDITION, because the Sixth Edition no longer includes it. And even though the details of the drawing are no longer accurate because many of the ITTOs have changed, the 'big idea' is still correct: ITTOs flow between processes and process groups in many ways. PMBOK® Guide - FIFTH EDITION Process Interactions Again, the figure above is from the PMBOK® Guide - FIFTH EDITION. Do not look at the details of the data flow. Instead look at the overall concept this figure is trying to get across: ITTOs and data flows between processes and process groups in many, many ways. Table 1-4. Project Management Process Group and Knowledge Area Mapping (p. 25), which is arguably the single most important summary of information in the PMBOK® Guide and something you should intimately know forwards and backwards. Process Group / Knowledge Area Mapping Studying and understanding the relationships of Knowledge Areas, Process Groups and processes, as shown in Table 1-4 are critical to your understanding of where ITTO are used and your ability to pass the exam. Can ITTO Outputs also be Inputs? Yes, they absolutely can (and frequently are). PMP ITTO and Project Management Processes in general are not "one and done" linear processes. Rather, like a project, ITTO form a circular system of relationships, feedback, and continuous improvement. And just to be absolutely clear, a system can be defined as: "A collection of parts that interact with each other to function as a whole." (James P. Lewis; Mastering Project Management, p. 90) or "a set of interacting or interdependent components forming an integrated whole" (Wikipedia). An everyday simple example of this type of system with outputs from one process becoming an input to another is baking a cake, which is made up of three processes: Inputs: flour, eggs, milk, baking powder, spices, etc. Tools and Techniques: mixing and combining wet and dry ingredients Output: cake batter Inputs: cake batter Tools and Techniques: cake pans and cooking process in oven Output: baked cake Inputs: baked cake, ingredients to make frosting/icing Tools and Techniques: make frosting/icing, cake stand, spatula, piping bag, ice the cake Outputs: Frosted/iced cake ready for serving Returning to PMP ITTO, not only can Outputs from one process be Inputs to one or more other processes, these Inputs/Outputs relationships can and do cross Project Management Knowledge Area and Process Group boundaries. For example, the Output of Develop Project Management Plan (i.e. the Project Management Plan) is an Input to the following Project Management Processes: So almost every single Project Management process has the Project Management Plan as an Input. It makes sense: all of these Processes are directly affected by, controlled, informed, or based on the Project Management Plan. How can I use the PMBOK® Guide to study ITTO? Now that we've touched on the "What" and "Why" of ITTO, we can move on to the "How." ITTO are clearly labeled and presented in multiple ways in the PMBOK® Guide. Additionally, the authors of the PMBOK® Guide recognize that not everyone finds reading information as the best way to learn. Therefore, in addition to text, they have included a series of figures and tables as aids to clarify processes and illustrate ITTO interrelationships. The PMBOK® Guide is very well organized and designed to make finding information as quick and painless as possible. It is presented in chapters based on Knowledge Areas, which are further separated into chapters for each process within that Knowledge Area, and for each process inputs, tools, techniques and outputs are described in detail. If you're a visual learner, the Table of Contents will simplify your study process, as it includes 11 pages of "List of Tables and Figures" that identifies each and every table and figure and on what page it is found. There are three types of figures that are presented for each of the Project Management Knowledge Areas and Process Groups that are particularly important to you for studying PMP tools and techniques and understanding ITTO: Knowledge Area Overview Figure At the beginning of each Knowledge Area chapter is a figure that illustrates its processes including a summary of inputs, tools and techniques and outputs. Project Integration Management Overview ITTO Figure Each of the processes is introduced with a figure that presents the ITTO for that process. Develop Project Charter ITTO Data Flow Diagram Each process is also illustrated as a data flow diagram presenting the relationships between Inputs needed to execute it as well as how the Output(s) of the process are used as Inputs for other processes. Develop Project Charter Data Flow Diagram Watch this video quick-tip to learn why it is so important to keep The PMBOK® Guide in mind during your PMP Exam: Should I Create My Own ITTO Chart? Yes. In addition to using the PMBOK® Guide to study ITTO, I highly recommend creating your own PMP ITTO chart (aka PMP ITTO spreadsheet) as a study exercise and tool. Many of the PMP® students I've coached have found the exercise of charting ITTO to be a good way to better understand ITTO, as well as a means to better understand the interrelationships of the processes. But, don't just take my word for it. William Zinsser, in his excellent 1993 book Writing to Learn, discusses how writing about a field of knowledge is the best way to immerse oneself it a subject, identify and understand not just the key points but the supporting details, and is a path to "owning" the subject. How you choose to create your own ITTO chart will be based on how you learn and what works best for you. However, most students tend to take the information that they find in the PMBOK® Guide and then organize it into a format that works for them. Click here for ITTO Spreadsheet Samples on Google... As you will see, the information needed to prepare these kind of charts is included in the PMBOK® Guide text, as well as in overview diagrams and the ITTO figure. The best approach is usually to take a very direct, simple format – use the name of the process and corresponding chapter/section number from the PMBOK® Guide as the title and ITTO are broken into Inputs, Tools and Techniques, and Outputs. Creating an this type of chart is more than a learning exercise, you will be creating a concise reference document to supplement your other study aids, as well as developing a quick reference guide that you'll find yourself using as your project management career progresses. What is the best way to learn ITTO for the PMP Exam? I'm often asked two similar but distinctly different questions: How to learn ITTO for the PMP exam? How to memorize ITTO for the PMP exam? One short answer will address both these questions: Study and learn what each ITTO is and learn why you need them in each process. Don't attempt to memorize them! While we all know people that are capable of memorizing all the ITTO, most of us can't. This is not a bad thing! It is more important to understand the how's, why's, and relationships between ITTO than it is to attempt to memorize all of them. Passing your PMP certification exam is best done by understanding and applying concepts, not memorizing facts. There are two great tools for learning and understanding ITTO that many of my successful PMP candidates have used in preparing for the exam. The first we have already discussed, preparing a PMP input/output chart to reinforce ITTO relationships. The second tool is just as simple and is very effective, buying or creating your own PMP ITTO flashcards to reinforce the details of Project Management Process Group-specific ITTO details. Both tools have repeatedly proven effective as study tools and both are great way to exercise "writing to learn." Studying ITTO presented in the PMBOK® Guide, creating your own ITTO chart, using flashcards, and understanding the system of relationships and interrelationships between ITTO will provide you with information, knowledge, and expertise that will sustain your project management career. Memorizing ITTO for the PMP exam will be a function of your short-term memory, which will soon be forgotten or "lost" when not used. After reading this Complete Guide to PMP ITTO you should be more comfortable and knowledgeable about the basic "What's," "Why's," and "How's" of studying and using ITTO. To recap what we've covered in this Guide: ITTO form the foundation and framework for the nearly fifty Project Management processes. Outputs from one process can be Inputs for another. For the most part, ITTO are not unique to a specific process and the number of ITTO you have to learn is much shorter than it first appears. It is better and more productive to understand ITTO and their interrelationships than it is to attempt to memorize all of them. There are excellent figures and tables in the PMBOK® Guide that will help you understand and study ITTO for the exam. Preparing a PMP ITTO chart (summary spreadsheet) and flashcards are two excellent ways to use "writing to learn" to bolster your preparation for the exam. Learning the PMP ITTO is a significant undertaking, but with a solid commitment to studying and learning, a study plan developed by you for your personal circumstances, and diligent effort, you will learn and understand ITTO. Additionally, your return on this investment of effort compounds with time – the same way that a house appreciates in value – being well prepared and passing the PMP exam increase your market value. © 2015-2023 OSP International LLC. All rights reserved. This copyrighted article may not be reproduced without express written consent of OSP International LLC. The Project Management Institute's PMBOK methodology is built around a set of five process groups and 10 knowledge areas. Within each process group, there are many processes, each with its own set of inputs, outputs, and tools. These processes have inputs, tools, and techniques, that are combined to execute a specific activity on a project and create a specific output. Every process has inputs, which are needed to start the process. Tools and techniques are things that help you to execute a process. Output is what you get out of the process. For your PMP exam, these are often referred to as ITTO, which is an acronym standing for input, tools and techniques, and output. There are however a set of common tools that are used many times throughout those process groups.In this article, I will be explaining to you the set of eight common tools that you will need to know in your PMP exam. First, here is a graphic showing how the five process groups and their 49 processes plus 10 knowledge areas interact with the PMBOK knowledge areas: Expert judgement is one of the most common tools in the planning process. Expert judgement includes hiring an expert or subject matter expert (SME), to help you plan a process or conduct a process. Experts can be people with specialised knowledge or training in a particular process, industry, or technology.For example, if you must develop a project charter, but you're not sure how to do it, then hire an expert who can help you with the creation of the project charter. Data gathering is a tool that is used to do exactly what the name says, gather data about a particular process that you're working on. On certain processes, you will need to gather additional data before coming up with an output for that process. For example, when developing a project charter, you might sit down with stakeholders and brainstorm what should and should not be included in the project. Brainstorming is part of data gathering. It is just the technique that is used to gather information in a particular process. Here are some of the techniques that you might be utilizing when using this tool. These techniques will be used on most of the processes that involve this tool, but there are other techniques that can be used. Brainstorming. Brainstorming is when you bring together a group of stakeholders to get ideas and analyse them. Brainstorming sessions are generally facilitated by the project manager Interviews. Anytime you want to gather data from a particular group of stakeholders, one of the best methods is to just interview them. Ask them a series of questions and talk with them about their thoughts and views Focus groups. A focus group is when you bring together subject matter experts to understand their perspectives and how they would go about solving problems Checklist. A checklist is generally created by the organisation and then given to potential stakeholders on a project for them to identify items they may or may not want on a project, and any success criteria they may have for the project Questionnaires and surveys. Questionnaires and surveys can be given to stakeholders to better understand what they may be looking for on a project and to better understand their needs Data analysis is used to analyze the data that has been gathered. During a process, a project manager and team collect different types of data and will then need to analyze that data in order to make decisions on the project. For example, in the process of "control schedule", you will gather data about the schedule, and then you will need to analyse the data to determine if the project is ahead or behind schedule. Here are some of the techniques that you might be doing when using this tool. These techniques will be used on most of the processes that involve this tool, but there are other techniques that can be used. Alternative analysis. Alternative analysis involves looking at different options or ways to accomplish something. For example, by looking at a change request and then determine a few different ways we can implement the change. An alternative analysis is the most popular option in the PMBOK Guide when it comes to doing data analysis Root cause analysis (RCA). A root cause analysis is used to identify the main underlying reason for a particular event. For example, if there were defects in a deliverable, a project manager would use this technique to identify the main cause Variance analysis. Variance analysis is used quite often to find the exact differences between different things. For example, a project manager will use variance analysis to identify if a project is on budget by looking at the variance between the planned budget and the actual costs Trend analysis. Trend analysis involves looking at data over a period to see if a particular trend is forming. For example, throughout the execution of the project, a project manager will be looking to see if the project his consistently on budget or over budget period Data representation is used throughout the PMBOK Guide to illustrate different ways that data could be shown to stakeholders. Methods generally include the use of charts, matrices, and different types of diagrams.Certain processes will have unique methods to represent their data. In many processes, you will gather a lot of data and then need to make a decision on what to do with that data. Decision-making is a tool that is used to come to a decision that can best serve the project. Here are some of the techniques that you might be executing when using this tool. These techniques will be used for most of the processes that have this tool, but there are other techniques that can be used: Voting. Voting is used by a group to determine whether to proceed, change, or reject something. Voting can be, majority wins, unanimity, where everyone agrees, or plurality, where a majority is not obtained, but the most popular decision is chosen Multi criteria decision analysis. This is when you make a table (matrix) that lists different types of criteria and then evaluate an idea based on those criteria. For example, a project manager would use different criteria when selecting a team member, such as their availability, experience, education, and costs – here, you can make a table listing these criteria and potential team members Autocratic decision-making. This is when one person decides for the entire team. Interpersonal and team skills. All project managers need to have good interpersonal and team skills in order to manage the different stakeholders that will be on the project. This is the most important tool in real life project management, and any project manager who does not have these skills is sure to have many problems on a project Here are some of the techniques that you might be executing when using this tool. These techniques will be used on most of the processes that have this tool, but there are other techniques that can be used: Active listening. Active listening is understanding, acknowledging, and clarifying what others are saying to you Conflict management. Anytime you bring a team together, you are bound to have conflicts on that team. A project manager or need to resolve these conflicts in order to move forward Facilitation. Facilitation is the art of managing a group. This can include bringing the group together, generating ideas, solving problems, and dissipating the team. This is generally the job of the project manager when it comes to the facilitation of a project team. This will be a key skill in real life project management, as you will have to facilitate groups of different stakeholders Meeting management. Most projects will have many meetings involving different types of stakeholders. A project manager needs to be able to manage these meetings to ensure they are productive and meaningful to the project. Meeting management generally includes having an agenda, inviting the right stakeholders, setting a time limit, and following up with meeting minutes and action items. The PMIS is an automated system that is used to help the project manager optimise the schedule or keep track of all the documents and the deliverables. It is usually a computer system that an organisation uses to manage its projects. It should include all the software and hardware tools that we need to manage the project from start to finish. The PMIS includes the work authorization system and the configuration management system. The work authorization system is used to ensure work gets done in the right order and at the right time. The purpose of the configuration management system is to ensure the product gets the right settings and configuration. The configuration management system includes the change management system which is used to ensure that changes to a project are documented, tracked, and authorised or denied. Meetings are used often in the 49 processes, and can be done face to face or virtually. Meetings frequently include all different types of stakeholders throughout the project, and here are some points to make meetings effective: have an agenda and distribute it to all attendees before the meeting meetings must be timed, including having set start and finish times for topics and the entire meeting make sure that the meeting always stays on topic and does not go off topic ensure that all attendees have input on the topics distribute detailed meeting minutes once the meeting is complete If you want to pass your PMP Exam at, first try, then get your hands on Projex Academy's PMP Masterclass teaching you the PMP PMBOK Exam Syllabus and exam containing 50% of agile questions: The Complete Guide to Inputs, Tools, Techniques and Outputs. Whether you're just beginning your studies, or are well in to your journey to earning a Project Management Professional (PMP)® Certification, it's natural to feel a little insecure or intimidated by the seemingly endless PMP® ITTO that are diagrammed and discussed for each Project Management process. This one topic is probably responsible for more questions and anxiety for PMP® candidates than any other exam-related topic. I have good news for you: understanding PMP ITTO and their relationships are logical, easily done, and this complete guide will show you how to understand and make ITTO your ally when taking the Exam. I promise you that by the end of this article you will have learned everything there is to know about the various aspects, facets and features of Inputs, Tools, Techniques and Outputs you need for your exam success. We'll start this by putting ITTO into context, then move into the "What's" and "Why's" behind ITTO, and finish with "How's" of studying and using ITTO. 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Examples include: Project charter Project schedule Resource calendars Approved change requests Enterprise Environmental Factors (EEF), such as government or industry standards, project management information system, organizational structure, culture, practices, and infrastructure, etc. Organizational Process Assets (OPA), such as standardized guidelines, work instructions, project management templates, project files from previous projects, and other historical information, etc. Tools Something tangible, such as a template or software program, used in performing an activity to produce a product or result. Examples include: Analytical techniques Project management information system(s) Benchmarking Product analysis Techniques A defined systematic procedure employed by a human resource to perform an activity to produce a product or result or deliver a service, and that may employ one or more tools. Examples include: Meetings Expert judgment Inspection Interviews Decomposition Outputs A product, result, or service generated by a process. May be an input to a successor process . Examples include: Work performance information Change requests Project management plan updates Organizational process assets updates Project documents updates These definitions are taken from the Glossary of Project Management Institute, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)– Sixth Edition, Project Management Institute Inc., 2017. You probably noticed that I placed emphasis on two statement above. Both say that Outputs from one process may be Inputs to another – this important fact will show up repeatedly in this complete guide. Why do I need to learn ITTO, it looks like a lot of work? I get asked this question all the time. You're quite right to question the "why;" understanding why ITTO are used and are important will greatly aid in your studying for the exam. Let's decompose these questions into smaller, more manageable pieces to look at the "why" behind ITTO (similar to what you'd do for a project's scope and/or deliverables). Why is the ITTO classification used? ITTO are the logical extension of the classification/standardization system used in the PMBOK® Guide. The PMBOK® Guide is divided into 10 Project Management Knowledge Areas, each of which is developed and supported by the 5 Project Management Process Groups, where applicable – this results in a total of around 50 processes. ITTO are a standardized means of systematically using the same method of developing and executing processes and projects. When you think about it, decomposing processes into ITTO reduces each to its most fundamental and basic components, and does so in a standardized manner that is equally applicable for all processes and projects. Understanding this allows you to build your project on a solid foundation from the ground up – like constructing a house. Why are there so many ITTO? There are many Project Management processes, and each of them have ITTO. The number of ITTOs associated with each process is proportional to the prerequisites (Inputs) necessary to start the process, the type(s) and level of effort necessary to do the process (Tools and Techniques), and the one or more things you produce from the process (Outputs). Are each Project Management process's ITTO unique? Some are; but, most aren't. By this I mean that there are some ITTO that show up only once (or even a handful of times). However, the majority of ITTO show up over and over – this is discussed in more detail below. Therefore, the number of ITTO you need to learn is actually far fewer than it first appears. Many ITTO look familiar, where have I seen them before? You're not imagining things, the majority of ITTO also show up as part of the vocabulary you need to be fluent in to pass the PMP exam. This allows you to double down on your studying by reinforcing vocabulary and ITTO at the same time. For more tips on studying for the PMP exam please review Creating Your PMP Study Plan - The Complete Guide. What are PMP ITTO? When project management practitioners refer to "PMP ITTO" they mean the global set of ITTO associated with all the Project Management processes detailed in the PMBOK® Guide, not ITTO related to one specific process. To understand how the ITTO are used, the PMBOK® Guide provides useful figures and tables that illustrate the interrelationships between Project Management processes that will greatly help your understanding of ITTO; the two most important are: Figure 3-3. Project Management Process Interactions (p. 53 - FIFTH EDITION), which provides a diagram with an overview, or "big picture" summary of project management process. This particular figure is taken from the FIFTH EDITION, because the Sixth Edition no longer includes it. And even though the details of the drawing are no longer accurate because many of the ITTOs have changed, the 'big idea' is still correct: ITTOs flow between processes and process groups in many ways. PMBOK® Guide - FIFTH EDITION Process Interactions Again, the figure above is from the PMBOK® Guide - FIFTH EDITION. Do not look at the details of the data flow. Instead look at the overall concept this figure is trying to get across: ITTOs and data flows between processes and process groups in many, many ways. Table 1-4. Project Management Process Group and Knowledge Area Mapping (p. 25), which is arguably the single most important summary of information in the PMBOK® Guide and something you should intimately know forwards and backwards. Process Group / Knowledge Area Mapping Studying and understanding the relationships of Knowledge Areas, Process Groups and processes, as shown in Table 1-4 are critical to your understanding of where ITTO are used and your ability to pass the exam. Can ITTO Outputs also be Inputs? Yes, they absolutely can (and frequently are). PMP ITTO and Project Management Processes in general are not "one and done" linear processes. Rather, like a project, ITTO form a circular system of relationships, feedback, and continuous improvement. And just to be absolutely clear, a system can be defined as: "A collection of parts that interact with each other to function as a whole." (James P. Lewis; Mastering Project Management, p. 90) or "a set of interacting or interdependent components forming an integrated whole" (Wikipedia). An everyday simple example of this type of system with outputs from one process becoming an input to another is baking a cake, which is made up of three processes: Inputs: flour, eggs, milk, baking powder, spices, etc. Tools and Techniques: mixing and combining wet and dry ingredients Output: cake batter Inputs: cake batter Tools and Techniques: cake pans and cooking process in oven Output: baked cake Inputs: baked cake, ingredients to make frosting/icing Tools and Techniques: make frosting/icing, cake stand, spatula, piping bag, ice the cake Outputs: Frosted/iced cake ready for serving Returning to PMP ITTO, not only can Outputs from one process be Inputs to one or more other processes, these Inputs/Outputs relationships can and do cross Project Management Knowledge Area and Process Group boundaries. For example, the Output of Develop Project Management Plan (i.e. the Project Management Plan) is an Input to the following Project Management Processes: So almost every single Project Management process has the Project Management Plan as an Input. It makes sense: all of these Processes are directly affected by, controlled, informed, or based on the Project Management Plan. How can I use the PMBOK® Guide to study ITTO? Now that we've touched on the "What" and "Why" of ITTO, we can move on to the "How." ITTO are clearly labeled and presented in multiple ways in the PMBOK® Guide. Additionally, the authors of the PMBOK® Guide recognize that not everyone finds reading information as the best way to learn. Therefore, in addition to text, they have included a series of figures and tables as aids to clarify processes and illustrate ITTO interrelationships. The PMBOK® Guide is very well organized and designed to make finding information as quick and painless as possible. It is presented in chapters based on Knowledge Areas, which are further separated into chapters for each process within that Knowledge Area, and for each process inputs, tools, techniques and outputs are described in detail. If you're a visual learner, the Table of Contents will simplify your study process, as it includes 11 pages of "List of Tables and Figures" that identifies each and every table and figure and on what page it is found. There are three types of figures that are presented for each of the Project Management Knowledge Areas and Process Groups that are particularly important to you for studying PMP tools and techniques and understanding ITTO: Knowledge Area Overview Figure At the beginning of each Knowledge Area chapter is a figure that illustrates its processes including a summary of inputs, tools and techniques and outputs. Project Integration Management Overview ITTO Figure Each of the processes is introduced with a figure that presents the ITTO for that process. Develop Project Charter ITTO Data Flow Diagram Each process is also illustrated as a data flow diagram presenting the relationships between Inputs needed to execute it as well as how the Output(s) of the process are used as Inputs for other processes. Develop Project Charter Data Flow Diagram Watch this video quick-tip to learn why it is so important to keep The PMBOK® Guide in mind during your PMP Exam: Should I Create My Own ITTO Chart? Yes. In addition to using the PMBOK® Guide to study ITTO, I highly recommend creating your own PMP ITTO chart (aka PMP ITTO spreadsheet) as a study exercise and tool. Many of the PMP® students I've coached have found the exercise of charting ITTO to be a good way to better understand ITTO, as well as a means to better understand the interrelationships of the processes. But, don't just take my word for it. William Zinsser, in his excellent 1993 book Writing to Learn, discusses how writing about a field of knowledge is the best way to immerse oneself it a subject, identify and understand not just the key points but the supporting details, and is a path to "owning" the subject. How you choose to create your own ITTO chart will be based on how you learn and what works best for you. However, most students tend to take the information that they find in the PMBOK® Guide and then organize it into a format that works for them. Click here for ITTO Spreadsheet Samples on Google... As you will see, the information needed to prepare these kind of charts is included in the PMBOK® Guide text, as well as in overview diagrams and the ITTO figure. The best approach is usually to take a very direct, simple format – use the name of the process and corresponding chapter/section number from the PMBOK® Guide as the title and ITTO are broken into Inputs, Tools and Techniques, and Outputs. Creating an this type of chart is more than a learning exercise, you will be creating a concise reference document to supplement your other study aids, as well as developing a quick reference guide that you'll find yourself using as your project management career progresses. What is the best way to learn ITTO for the PMP Exam? I'm often asked two similar but distinctly different questions: How to learn ITTO for the PMP exam? How to memorize ITTO for the PMP exam? One short answer will address both these questions: Study and learn what each ITTO is and learn why you need them in each process. Don't attempt to memorize them! While we all know people that are capable of memorizing all the ITTO, most of us can't. This is not a bad thing! It is more important to understand the how's, why's, and relationships between ITTO than it is to attempt to memorize all of them. Passing your PMP certification exam is best done by understanding and applying concepts, not memorizing facts. There are two great tools for learning and understanding ITTO that many of my successful PMP candidates have used in preparing for the exam. The first we have already discussed, preparing a PMP input/output chart to reinforce ITTO relationships. The second tool is just as simple and is very effective, buying or creating your own PMP ITTO flashcards to reinforce the details of Project Management Process Group-specific ITTO details. Both tools have repeatedly proven effective as study tools and both are great way to exercise "writing to learn." Studying ITTO presented in the PMBOK® Guide, creating your own ITTO chart, using flashcards, and understanding the system of relationships and interrelationships between ITTO will provide you with information, knowledge, and expertise that will sustain your project management career. Memorizing ITTO for the PMP exam will be a function of your short-term memory, which will soon be forgotten or "lost" when not used. After reading this Complete Guide to PMP ITTO you should be more comfortable and knowledgeable about the basic "What's," "Why's," and "How's" of studying and using ITTO. To recap what we've covered in this Guide: ITTO form the foundation and framework for the nearly fifty Project Management processes. Outputs from one process can be Inputs for another. For the most part, ITTO are not unique to a specific process and the number of ITTO you have to learn is much shorter than it first appears. It is better and more productive to understand ITTO and their interrelationships than it is to attempt to memorize all of them. There are excellent figures and tables in the PMBOK® Guide that will help you understand and study ITTO for the exam. Preparing a PMP ITTO chart (summary spreadsheet) and flashcards are two excellent ways to use "writing to learn" to bolster your preparation for the exam. Learning the PMP ITTO is a significant undertaking, but with a solid commitment to studying and learning, a study plan developed by you for your personal circumstances, and diligent effort, you will learn and understand ITTO. Additionally, your return on this investment of effort compounds with time – the same way that a house appreciates in value – being well prepared and passing the PMP exam increase your market value. © 2015-2023 OSP International LLC. All rights reserved. This copyrighted article may not be reproduced without express written consent of OSP International LLC. Imagine you are organizing an event. Let's see how ITTO comes into play. Inputs: Information such as the concert venue, budget, artist lineup, and expected audience size. Tools and Techniques: To organize the event, you use project management software, scheduling tools, and meetings with vendors, along with your team's expertise to book the stage, sound systems, and security. Outputs: The final concert plan, which includes the concert schedule, confirmed bookings, vendor contracts, and assigned responsibilities for your team. Now, what happens if any of the processes is missing? Let's suppose you skip (input) the venue and budget details. You might end up booking any space that is so small, or you will overspend on equipment. Or What if you skip using scheduling tools? You could miss crucial deadlines. This could delay the event. People might get upset and never attend a concert you organize in the future. The same happens in project management. If you skip any part of ITTO, you end up disrupting the entire project. So, understanding and following each step in ITTO is very crucial. In this blog, we will discuss ITTO in detail. Let's begin What is ITTO in Project Management? The complete form of ITTO is Input, Tools, Technology, and Output. This tool helps you find the resources needed to complete the task. This helps better plan to create a better plan and execute the process. This tool can help reduce uncertainties and increase the likelihood of a successful outcome. What are Inputs in Project Management? Inputs are the ingredients of the recipe, without which you cannot start cooking. Just like you need flour, eggs, and sugar to bake a cake, in project management, you need resources like people, materials, and information. Without these essential inputs, the process can't move forward. Some common inputs are necessary to pass the PMP exam. Let's discuss some crucial inputs for project management. 1. Project Charter It is a crucial input document because it provides clear direction for the project and ensures that everyone understands its purpose and goals. It acts as a foundation for all future project activities and decisions. It is an official authorization document to begin the project. This document has the project's objectives, key stakeholders, high-level requirements, and authorization of the project manager. This document also contains the project, scope, budget timeline, etc. 2. Project Budget The budget is the amount of money allocated to the project; it contains all the funds required to execute tasks, hire resources, and manage the project from start to end. Project managers ensure to stay within the budget and not overspend. 3. Scope Statement This document provides a clear understanding of what the project will achieve. It also prevents scope creep by defining what is included in the project and what is not included in the project. With the scope statement, the project manager navigates their team to deliver the project within the timeframe. Let's suppose the company is developing a new application; the scope statement includes the entire details of the app, such as user login, profile creation, and messaging abilities. It would also include the things that are not required, such as video calls, ensuring every team member is on the same page and should know the exact focus. 4. Stakeholders List Stakeholders are the people who have shown interest in the project. It is essential to identify the stakeholders and engage them to make sure the project is aligned with needs and expectations. 5. Project Timeline This timeline shows when the project will begin and end. As a result, the project stays on track and meets its deadlines. 6. Risk Register It's a document associated with the risks the project will have and the strategies to resolve them. This helps the project manager to manage risk effectively. Suppose you are managing a construction project. One of the identified risks would be delay due to bad weather. So, the risk register will record all the consequences of bad weather on the project and create a coping mechanism to deal with the particular issue. 7. Change Request Change requests often serve as input when managing changes during the project lifecycle. This could be changed to project scope, timelines, costs, or other essential elements. For example, if a stakeholder wants to add a new feature to the product, that request is documented as a change request. Various tools and techniques analyze this input to know the impact on the project and accordingly approve, reject, or defer the changes. If approved, the output might involve updating the project plan, budget, or schedule. The tools in ITTO can range from software application methodologies to systems that help manage many components of projects. With the tools, the project manager and team can organize work, track tasks, manage resources, and ensure the smooth execution of project processes. Let's discuss some crucial tools for project management. 1. Project Management Software It is a computer program that helps project managers' team members to plan, execute, monitor, and control various project activities. Let's discuss some essential functions of project management software: Scheduling tasks: Creating and managing deadlines for various tasks. Allocation of resources: Assigning tasks and managing people effectively. Project progress tracking: Monitoring task status and the progress of the project. Collaboration: Boost communication among team members through chats, file sharing, etc. Reporting: Generating reports on project performance, such as cost, schedule, and resource utilization. Some popular project management tools are Microsoft Project, Trello, Jira, Asana, and Monday.com. These tools ensure the project process is well-organized, efficient, and aligned with the project goals. 2. Risk Assessment Tool This tool helps to identify and evaluate potential risks related to the project. This includes a risk register, matrix, and assessment to help project managers identify, prioritize, and mitigate the risk. 3. Spreadsheet These software applications enable users to arrange and manage data in rows and columns. They are valuable tools for data analysis, report generation, and progress monitoring. Examples include the Responsibility and Assignment Matrix (RAM) and the probability and impact matrix. 4. Visuals These diagrams or visual representations of the data help in the analysis. Also, these visual diagrams help clarify complex information, illustrate relationships, and enhance collaboration among team members. Common types of visuals used as tools in project management are Gantt charts, flowcharts, Kanban boards, dashboards, and mind maps. 5. Quality Control Quality control is crucial for identifying defects and issues in the project outcome. It ensures that the output should align with the expectations of stakeholders. Imagine a company producing smartphones. During production, the quality control team checks each phone to ensure the screen, battery, and other components function correctly. If a phone fails to meet the set standards, it's sent for rework before being released to customers. This ensures only high-quality products reach the market. 6. Decision-Making Tools Project managers can make informed decisions using tools and processes such as cost-benefit analysis or decision trees. To make informed decisions, they can help analyze data and consider different options. What are Techniques in Project Management? These are the specific methods and approaches used to perform a specific task. Some of the most commonly used techniques are as follows; 1. Brainstorming This refers to meeting people and sharing ideas, suggestions, and solutions for a specific problem. The reason for this is to encourage creativity and gather a broad range of information without making any judgment or criticism during the process. 2. Stakeholder Analysis From this technique, the project manager prioritizes stakeholders based on their interests, expectations, and level of interest so that the project team can involve them during the entire project lifecycle. 4. SWOT Analysis This technique analyses strengths, weaknesses, opportunities, and threats related to the project. This technique is very useful when identifying the risk associated with the project. For example, when we launch any software product, a project manager often uses SWOT analysis to: A good development team identifies strengths. Consider limitations in marketing resources as a weakness. Spot opportunities like a growing market for similar software. Address threats when a competitor launches a product. By analyzing these factors, the project manager can develop strategies to leverage strengths, mitigate weaknesses, seize opportunities, and minimize the impact of threats. 5. Risk Assessment Tools This tool helps project managers identify and eliminate any risks associated with the project so project managers can take action accordingly. 6. Agile Methodologies Agile methodologies are important for executing agile frameworks like Scrum, kanban, and others, as agile methodologies focus on flexibility, collaboration, and customer feedback. Let's imagine you are developing a mobile application. You and your team are waiting for the entire app to be built and tested. By doing this, it will take a lot of time. So, with the help of Agile, you can release and test a small feature every few weeks—like the login screen. If something needs improvement, you can adjust immediately, ensuring a better final product. These are the results or deliverables that are produced after certain activities, processes, and tasks. Some of the most commonly used outputs are as follows; 1. Work Breakdown Structure(WBS) A work breakdown structure has a structure like a tree. The main goal starts from the top and breaks down till the end. It breaks down the task into smaller and more manageable tasks. This way, the project manager can plan and coordinate the project goals. 2. Gantt charts What happens when your team stucks improving customer service? Well, they gather and discuss everything openly, share ideas and brainstorm creative ways to solve problems. So, this technique is about how the team works and shares their ideas to solve a specific problem. 3. Status Report As the name says, it is about the status of the project. Status reports are the documents that provide regular updates about the project, such as how much of a task has been completed. How far are we from the milestone? How much budget is left? What are the potential risks? These reports help stakeholders be informed and make timely decisions to keep the project on track. 4. Approved Changes Suppose the client requests to add a feature to the software project. The team added the feature, which now affects the budget and time. The project team approves the change. Now, it has become an "approved change." Then, these changes are added to the project plan and execution. 5. Lesson Learned Whenever you take an exam and fail and then have another attempt, what do you do? You analyze the mistakes you made in the previous exam and learn from them to avoid repeating the same errors. The same applies to lessons learned in project management. These are the valuable insights a team gains during a project—what went wrong and what went well. Documenting lessons learned helps correct past mistakes and reinforces successful strategies for future projects. 6. Final Report Suppose you and your team have developed a new mobile app. The final report would include: An overview of the project goals (e.g., creating a user-friendly app). A comparison of planned vs. actual timelines (e.g., expected six months but completed in 7 months). Budget details (e.g., finished under budget or exceeded it). Outcomes (e.g., app features delivered). Lessons learned (e.g., challenges with user testing). The final report acts as a closure document so that the stakeholders have a complete understanding of the project results. 7. Completed Project It refers to the final product or result of all project activities It states that whatever the team had planned, delivered, and objectives had been done, and the project was now officially closed. This output is conducted by a formal project closure process, which includes recording the last outcomes, obtaining stakeholder approval, and releasing project resources. For example, if the government decides to build a park for children to play in, once the playground is completed, including all installations like swings, slides, and benches, the completed project output is a fully functional playground that the community can enjoy. At this stage, the team would conduct a final inspection, gather feedback from the community, and ensure that all project goals have been met before closing the project. All in all, learning ITTOs is essential when it comes to successfully implementing project management in its various certifications, such as the PMP exam. It is crucial to the project management process when specific Inputs, Tools, Techniques, and Outputs are well understood. There are ways in which the projects can be handled in a more cohesive manner, which will enhance the probability of success in the endeavor. It is also important to note that project management does not entail just implementing rules. Instead, these rules offer a basis for analysis, the resolution of issues, and the accomplishment of projects. Make sure that you concentrate on understanding these concepts, as you will stand a better chance of completing any projects presented to you. Enroll now in our PMP Certification Training and take the first step toward becoming a certified project management professional! Enroll Now! Frequently Asked Questions How often should I review project inputs and outputs? Regularly review inputs and outputs throughout the project to ensure alignment with goals and make necessary adjustments as challenges arise. How do project management processes help in meeting deadlines? By providing structured steps, clear inputs, and defined outputs, project management processes help teams stay organized and focused on timely delivery. What is the best way to prepare for the PMP exam related to project processes? Study the PMBOK guide, practice with sample questions, and review real-life project scenarios to understand how inputs, outputs, and tools are applied in practice. What are some common challenges in managing project inputs? Common challenges include unclear requirements, lack of stakeholder involvement, and insufficient resource availability, which can hinder project success. Sign up for Agilemania Newsletter Stay updated with the latest Agile & Scrum trends. Satyajit has broad and deep experience in Agile coaching at the strategic senior executive level while also coaching and uplifting the capability of teams and individuals. An Agile Coach and SAFe® Practice Consultant with more than 24 years of experience. WhatsApp Us Last updated on Jun 8, 202522235 PMP® exam is a tough examination which tests your knowledge and your ability to apply the concepts in real life scenarios. While preparing for the exam, you will need to study the processes of each knowledge area. You will also need to understand the inputs, tools, and techniques, and outputs (ITTO's) of each process to know how each process works. [Preparing for PMP®? Take this test to know where you stand!] As per PMBOK® Guide version 4, there are 9 knowledge areas, 42 processes and 516 ITTO's, that an aspirant must go through to prepare for the PMP® exam. PMP® aspirants taking up the exam after 31st July 2013, will have to study based on the changes made in the PMBOK® Guide version 5. As per PMBOK® Guide version 5, there are 47 processes and 10 knowledge areas which one must be prepared for the exam. There are some inputs, tools and techniques and outputs of processes, which are commonly referenced throughout the PMBOK® Guide and many PMP® certification training books. By understanding these commonly referenced ITTO's in the earlier stages of preparation, an aspirant can save a lot of time while working on the processes and the ITTO's in detail. In this article, therefore, we will take a look at some of the commonly referenced ITTO's of processes. Enterprise Environmental Factors Enterprise environmental factors are those factors which are not under the control of the project team and yet they influence, control or constrain the project. They are an input to many planning processes.Some common examples of enterprise environmental factors include - Stakeholder risk tolerances- Your company's organizational structure- Marketplace conditions- Government or industry standards (agency regulations, codes of conduct, quality standards etc)- Political climate- Your organization's infrastructure- Commercial Databases Organizational Process AssetsOrganizational process assets are plans, processes, procedures, knowledge bases and policies which are specific to and used by any organization and are used to successfully plan for any project. Organizational process assets can be successfully categorized into 1) Processes & procedures2) Corporate KnowledgeA few examples of organizational process assets are: - Templates for common project documents- Historical Information- Lessons Learned- Software Tools- Organizational policies, procedures, and guidelines in any area- Knowledge bases Special corporate competencies According to the experts in the profession, anything that can help you on your current or future project may be considered as an organizational process asset. You could keep contributing to these assets as and when possible.Project Management PlanThe project management plan is a culmination of all planning processes. It is, therefore, crucial for project management practitioners and PMP® aspirants to understand what it is, where it comes from and how it is used. The project management plan defines how a project is monitored, controlled, executed, and closed.According to the PMBOK® Guide, the Develop Project Management Plan is the process of defining, preparing, and coordinating all subsidiary plans and integrating them into a comprehensive project management plan. The project management plan could be documented at a summary level or may be very detailed.Some of the components of a project management plan are: - Scope Management Plan- Requirements Management Plan- Schedule Management Plan- Cost Management Plan- Quality Management Plan- Process improvement plan- Human resource plan- Communications Management Plan- Risk Management Plan- Procurement Management Plan- Schedule Baseline- Cost Performance Baseline Work Performance InformationAny valuable piece of information about the project that is a result of Direct and Manages Project Execution process could be considered work performance information. Work performance information provides a sound foundation for project decisions.Work performance information begins to flow as the actual work on the project is executed. Project stakeholders including team members and customers' needs to be informed regarding the status of the deliverables, how things are performing against cost and schedule goals, how project team is performing and how the product meets the quality standards.A few other examples of work performance information are implementation status for change requests and forecasted estimates to complete. Common Tools Project Management Information System (PMIS) The project management information system is an important concept to know for the exam.It provides access to tools such as scheduling tools, a work authorization system, a configuration management system, or interfaces to other online automated systems. The PMIS is sometimes considered to be an enterprise environmental factor since it is a part of the environment in which the project is performed.Expert JudgmentThis concept is used throughout the PMBOK® Guide. The expert judgment could be used from within the organization, from paid consultants or from any other person whenever project managers and team members don't have sufficient expertise. However, as PMP® aspirants, you would need to understand that this tool is highly favored and very commonly found on planning processes. Common Outputs Change RequestsAs work is performed on a project, it is quite common for changes to be requested. There could be many types of changes including a change request to increase or decrease a scope of the project, alter the quality standards, or increase

or decrease the budget.All changes are brought into the process of integrated change management control where they are evaluated for the impact on the project and ultimately approved or rejected. Approved change requests usually modify the project management plans including the baselines such as cost baselines etc.Change requests are usually related to defect repair, preventive action (changes made to avoid the occurrence of a problem), or corrective action (any change to bring future results in line with the plan).UpdatesUpdates are yet another concept that is commonly used throughout the PMBOK® Guide. Updates to plans come out of planning, executing, and monitoring and controlling processes. Updates in a project are a common occurrence. ConclusionPMP® aspirants should study the inputs, tools, and techniques, & outputs (ITTO's) of each process as they are an important study topic for the PMP® certification exam. Some of the ITTO's are referenced repeatedly throughout the PMBOK® Guide. Studying these commonly used ITTO's of various processes initially could help PMP® aspirants in reducing the time required to study the processes in each knowledge area. PMP and PMBOK are registered trademarks of the Project Management Institute, Inc. Reference:Book: PMP exam - How to pass your exam on your first try - By Andy CroweBook: PMP exam prep - By Rita Mulcahy   The Complete Guide to Inputs, Tools, Techniques and Outputs. Whether you're just beginning your studies, or are well in to your journey to earning a Project Management Professional (PMP)® Certification, it's natural to feel a little insecure or intimidated by the seemingly endless PMP® ITTO that are diagrammed and discussed for each Project Management process. This one topic is probably responsible for more questions and anxiety for PMP® candidates than any other exam-related topic. I have good news for you: understanding PMP ITTO and their relationships are logical, easily done, and this complete guide will show you how to understand and make ITTO your ally when taking the Exam. I promise you that by the end of this article you will have learned everything there is to know about the various aspects, facets and features of Inputs, Tools, Techniques and Outputs you need for your exam success. We'll start this by putting ITTO into context, then move into the "What's" and "Why's" behind ITTO, and finish with "How's" of studying and using ITTO. Putting ITTO in context Inputs, Tools, Techniques, and Outputs are the foundation and infrastructure of the Project Management processes discussed in the PMBOK® Guide. Also read PMBOK® Guide 6th Edition Knowledge Areas for Project Management - Process Groups and Processes - The Complete Guide for more on the relationships between Knowledge Areas and Process Groups. I find putting things context helps me to understand them better; in this case, using an analogy of building a house works well. We all recognize there is a world of difference between a pile of building materials on plot of land and a finished house. The same location and materials are included in both; yet one is a pile of "things," the other can be a home that nurtures a family. This is where ITTO come in, they allow you to build the house (or, processes and projects in our case). To build a house you need Inputs (plans, specifications, permits, financing, building materials, etc.), then you proceed to construction by using Tools and Techniques (skilled labor and trades, concrete, framing, electrical, plumbing, finish work, etc.); when done, you have a house as your Output. To take the house building example even further, there is an order to constructing a house and relationships between construction actions and activities. For example, you can't frame the house until the foundation is constructed and you can't wire or plumb the house until it is framed. ITTO, and the Project Management Processes they support, have similar logical sequencing constraints and relationships. Finally, to understand how a house is built, it is more important to know and understand the interrelationships and sequencing of construction activities than it is fixating on variable details, such as out how many nails may be needed – the same is true for processes and this Complete Guide will show you why. What does ITTO stand for? Let's start with the basics and then work through the "why's" and "how's." I've already stated in this Guide that ITTO stands for Inputs, Tools, Techniques, and Outputs. But, how are these terms defined? The following definitions and examples are taken directly from the Glossary and/or text, respectively, of the PMBOK® Guide – Sixth Edition: Inputs Any item, whether internal or external to the project which is required by a process before that process proceeds. May be an output from a predecessor process . Examples include: Project charter Project schedule Resource calendars Approved change requests Enterprise Environmental Factors (EEF), such as government or industry standards, project management information system, organizational structure, culture, practices, and infrastructure, etc. Organizational Process Assets (OPA), such as standardized guidelines, work instructions, project management templates, project files from previous projects, and other historical information, etc. Tools Something tangible, such as a template or software program, used in performing an activity to produce a product or result. Examples include: Analytical techniques Project management information system(s) Benchmarking Product analysis Techniques A defined systematic procedure employed by a human resource to perform an activity to produce a product or result or deliver a service, and that may employ one or more tools. Examples include: Meetings Expert judgment Inspection Interviews Decomposition Outputs A product, result, or service generated by a process. May be an input to a successor process . Examples include: Work performance information Change requests Project management plan updates Organizational process assets updates Project documents updates These definitions are taken from the Glossary of Project Management Institute, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)– Sixth Edition, Project Management Institute Inc., 2017. You probably noticed that I placed emphasis on two statement above. Both say that Outputs from one process may be Inputs to another – this important fact will show up repeatedly in this complete guide. Why do I need to learn ITTO, it looks like a lot of work? I get asked this question all the time. You're quite right to question the "why;" understanding why ITTO are used and are important will greatly aid in your studying for the exam. Let's decompose these questions into smaller, more manageable pieces to look at the "why" behind ITTO (similar to what you'd do for a project's scope and/or deliverables). Why is the ITTO classification used? ITTO are the logical extension of the classification/standardization system used in the PMBOK® Guide. The PMBOK® Guide is divided into 10 Project Management Knowledge Areas, each of which is developed and supported by the 5 Project Management Process Groups, where applicable – this results in a total of around 50 processes. ITTO are a standardized means of systematically using the same method of developing and executing processes and projects. When you think about it, decomposing processes into ITTO reduces each to its most fundamental and basic components, and does so in a standardized manner that is equally applicable for all processes and projects. Understanding this allows you to build your project on a solid foundation from the ground up – like constructing a house. Why are there so many ITTO? There are many Project Management processes, and each of them have ITTO. The number of ITTOs associated with each process is proportional to the prerequisites (Inputs) necessary to start the process, the type(s) and level of effort necessary to do the process (Tools and Techniques), and the one or more things you produce from the process (Outputs). Are each Project Management process's ITTO unique? Some are; but, most aren't. By this I mean that there are some ITTO that show up only once (or even a handful of times). However, the majority of ITTO show up over and over – this is discussed in more detail below. Therefore, the number of ITTO you need to learn is actually far fewer than it first appears. Many ITTO look familiar, where have I seen them before? You're not imagining things, the majority of ITTO also show up as part of the vocabulary you need to be fluent in to pass the PMP exam. This allows you to double down on your studying by reinforcing vocabulary and ITTO at the same time. For more tips on studying for the PMP exam please review Creating Your PMP Study Plan - The Complete Guide. What are PMP ITTO? When project management practitioners refer to "PMP ITTO" they mean the global set of ITTO associated with all the Project Management processes detailed in the PMBOK® Guide, not ITTO related to one specific process. To understand how the ITTO are used, the PMBOK® Guide provides useful figures and tables that illustrate the interrelationships between Project Management processes that will greatly help your understanding of ITTO; the two most important are: Figure 3-3. Project Management Process Interactions (p. 53 - FIFTH EDITION), which provides a diagram with an overview, or "big picture" summary of project management process. This particular figure is taken from the FIFTH EDITION, because the Sixth Edition no longer includes it. And even though the details of the drawing are no longer accurate because many of the ITTOs have changed, the 'big idea' is still correct: ITTOs flow between processes and process groups in many ways. PMBOK® Guide - FIFTH EDITION Process Interactions Again, the figure above is from the PMBOK® Guide - FIFTH EDITION. Do not look at the details of the data flow. Instead look at the overall concept this figure is trying to get across: ITTOs and data flows between processes and process groups in many, many ways. Table 1-4. Project Management Process Group and Knowledge Area Mapping (p. 25), which is arguably the single most important summary of information in the PMBOK® Guide and something you should intimately know forwards and backwards. Process Group / Knowledge Area Mapping Studying and understanding the relationships of Knowledge Areas, Process Groups and processes, as shown in Table 1-4 are critical to your understanding of where ITTO are used and your ability to pass the exam. Can ITTO Outputs also be Inputs? Yes, they absolutely can (and frequently are). PMP ITTO and Project Management Processes in general are not "one and done" linear processes. Rather, like a project, ITTO form a circular system of relationships, feedback, and continuous improvement. And just to be absolutely clear, a system can be defined as: "A collection of parts that interact with each other to function as a whole." (James P. Lewis; Mastering Project Management, p. 90) or "a set of interacting or interdependent components forming an integrated whole" (Wikipedia). An everyday simple example of this type of system with outputs from one process becoming an input to another is baking a cake, which is made up of three processes: Inputs: flour, eggs, milk, baking powder, spices, etc. Tools and Techniques: mixing and combining wet and dry ingredients Output: cake batter Inputs: cake batter Tools and Techniques: cake pans and cooking process in oven Output: baked cake Inputs: baked cake, ingredients to make frosting/icing Tools and Techniques: make frosting/icing, cake stand, spatula, piping bag, ice the cake Outputs: Frosted/iced cake ready for serving Returning to PMP ITTO, not only can Outputs from one process be Inputs to one or more other processes, these Inputs/Outputs relationships can and do cross Project Management Knowledge Area and Process Group boundaries. For example, the Output of Develop Project Management Plan (i.e. the Project Management Plan) is an Input to the following Project Management Processes: So almost every single Project Management process has the Project Management Plan as an Input. It makes sense: all of these Processes are directly affected by, controlled, informed, or based on the Project Management Plan. How can I use the PMBOK® Guide to study ITTO? Now that we've touched on the "What" and "Why" of ITTO, we can move on to the "How." ITTO are clearly labeled and presented in multiple ways in the PMBOK® Guide. Additionally, the authors of the PMBOK® Guide recognize that not everyone finds reading information as the best way to learn. Therefore, in addition to text, they have included a series of figures and tables as aids to clarify processes and illustrate ITTO interrelationships. The PMBOK® Guide is very well organized and designed to make finding information as quick and painless as possible. It is presented in chapters based on Knowledge Areas, which are further separated into chapters for each process within that Knowledge Area, and for each process inputs, tools, techniques and outputs are described in detail. If you're a visual learner, the Table of Contents will simplify your study process, as it includes 11 pages of "List of Tables and Figures" that identifies each and every table and figure and on what page it is found. There are three types of figures that are presented for each of the Project Management Knowledge Areas and Process Groups that are particularly important to you for studying PMP tools and techniques and understanding ITTO: Knowledge Area Overview Figure At the beginning of each Knowledge Area chapter is a figure that illustrates its processes including a summary of inputs, tools and techniques and outputs. Project Integration Management Overview ITTO Figure Each of the processes is introduced with a figure that presents the ITTO for that process. Develop Project Charter ITTO Data Flow Diagram Each process is also illustrated as a data flow diagram presenting the relationships between Inputs needed to execute it as well as how the Output(s) of the process are used as Inputs for other processes. Develop Project Charter Data Flow Diagram Watch this video quick-tip to learn why it is so important to keep The PMBOK® Guide in mind during your PMP Exam: Should I Create My Own ITTO Chart? Yes. In addition to using the PMBOK® Guide to study ITTO, I highly recommend creating your own PMP ITTO chart (aka PMP ITTO spreadsheet) as a study exercise and tool. Many of the PMP® students I've coached have found the exercise of charting ITTO to be a good way to better understand ITTO, as well as a means to better understand the interrelationships of the processes. But, don't just take my word for it. William Zinsser, in his excellent 1993 book Writing to Learn, discusses how writing about a field of knowledge is the best way to immerse oneself it a subject, identify and understand not just the key points but the supporting details, and is a path to "owning" the subject. How you choose to create your own ITTO chart will be based on how you learn and what works best for you. However, most students tend to take the information that they find in the PMBOK® Guide and then organize it into a format that works for them. Click here for ITTO Spreadsheet Samples on Google... As you will see, the information needed to prepare these kind of charts is included in the PMBOK® Guide text, as well as in overview diagrams and the ITTO figure. The best approach is usually to take a very direct, simple format – use the name of the process and corresponding chapter/section number from the PMBOK® Guide as the title and ITTO are broken into Inputs, Tools and Techniques, and Outputs. Creating an this type of chart is more than a learning exercise, you will be creating a concise reference document to supplement your other study aids, as well as developing a quick reference guide that you'll find yourself using as your project management career progresses. What is the best way to learn ITTO for the PMP Exam? I'm often asked two similar but distinctly different questions: How to learn ITTO for the PMP exam? How to memorize ITTO for the PMP exam? One short answer will address both these questions: Study and learn what each ITTO is and learn why you need them in each process. Don't attempt to memorize them! While we all know people that are capable of memorizing all the ITTO, most of us can't. This is not a bad thing! It is more important to understand the how's, why's, and relationships between ITTO than it is to attempt to memorize all of them. Passing your PMP certification exam is best done by understanding and applying concepts, not memorizing facts. There are two great tools for learning and understanding ITTO that many of my successful PMP candidates have used in preparing for the exam. The first we have already discussed, preparing a PMP input/output chart to reinforce ITTO relationships. The second tool is just as simple and is very effective, buying or creating your own PMP ITTO flashcards to reinforce the details of Project Management Process Group-specific ITTO details. Both tools have repeatedly proven effective as study tools and both are great way to exercise "writing to learn." Studying ITTO presented in the PMBOK® Guide, creating your own ITTO chart, using flashcards, and understanding the system of relationships and interrelationships between ITTO will provide you with information, knowledge, and expertise that will sustain your project management career. Memorizing ITTO for the PMP exam will be a function of your short-term memory, which will soon be forgotten or "lost" when not used. After reading this Complete Guide to PMP ITTO you should be more comfortable and knowledgeable about the basic "What's," "Why's," and "How's" of studying and using ITTO. To recap what we've covered in this Guide: ITTO form the foundation and framework for the nearly fifty Project Management processes. Outputs from one process can be Inputs for another. For the most part, ITTO are not unique to a specific process and the number of ITTO you have to learn is much shorter than it first appears. It is better and more productive to understand ITTO and their interrelationships than it is to attempt to memorize all of them. There are excellent figures and tables in the PMBOK® Guide that will help you understand and study ITTO for the exam. Preparing a PMP ITTO chart (summary spreadsheet) and flashcards are two excellent ways to use "writing to learn" to bolster your preparation for the exam. Learning the PMP ITTO is a significant undertaking, but with a solid commitment to studying and learning, a study plan developed by you for your personal circumstances, and diligent effort, you will learn and understand ITTO. Additionally, your return on this investment of effort compounds with time – the same way that a house appreciates in value – being well prepared and passing the PMP exam increase your market value. © 2015-2023 OSP International LLC. All rights reserved. This copyrighted article may not be reproduced without express written consent of OSP International LLC. ITTO stands for Inputs, Tools, Techniques, and Outputs. It is a framework used in project management to understand the connections between the resources, information, and plans used to create and implement a project plan. It refers to the inputs, tools, and techniques used to produce the outputs of each process in the project management life cycle. PMP ITTO helps ensure that project activities and tasks are clearly defined and that the necessary resources and approaches are available to complete them successfully. For your convenience, we have explained all the common inputs, techniques, tools and outputs that are used in this project management framework. Common Inputs in Project Management Inputs in Input-Tool-Technique-Output (ITTO) in project management refer to the resources, information, and documents necessary to complete a specific activity or task. Some common inputs used in PMP certification exam include: Project Charter This document outlines the scope, objectives, and stakeholders for the project. It serves as a high-level overview of the project and helps to define its boundaries. Scope statement This document defines the project's boundaries and identifies the specific deliverables that will be produced. It helps to ensure that the project stays on track and meets its objectives. Budget This is the allocated amount of money that will be used to fund the project. It is important to clearly understand the budget to make sure that the project stays within its financial constraints. Schedule This is a timeline that outlines the start and end dates for the project. It helps to ensure that the project stays on track and meets its deadlines. Stakeholder List This is a list of individuals or groups that are impacted by or have a vested interest in the project. It is important to identify and engage with stakeholders in order to ensure that the project is aligned with their needs and expectations. Risk Register This document identifies potential risks to the project and outlines strategies for mitigating them. It helps project managers manage risk and proactively ensure the project's success. Resource list This is a list of the people, equipment, and materials needed to complete the project. It is important to clearly understand the resources needed to plan and execute the project effectively. Change request This is a request to modify the project's scope, budget, or schedule. It is important to have a process for managing change requests to ensure that the project stays on track and meets its objectives. The specific inputs needed will depend on the nature of the project and its goals. It is important to carefully consider the inputs needed for each project in order to ensure that it is successful. Tools in Input-Tool-Technique-Output (ITTO) in project management refer to the processes, techniques, or software used to analyze, plan, or execute a specific activity or task. Some common tools used in ITTO are as follows: Project Management Software This computer program helps project managers plan, track, and control projects. It often includes task lists, Gantt charts, resource management, and risk management. Project management software is a useful tool that can help in organizing and coordinating the work of a project team and ensuring that the project stays on track. Risk Assessment Tools These are tools or processes used to identify and analyze potential risks to the project. They may include techniques such as risk registers, risk matrices, and risk assessments to help project managers identify, prioritize, and mitigate risks. Spreadsheets These computer programs allow users to organize and manipulate data in rows and columns. They are useful tools for analyzing data, creating reports, and tracking progress. Examples are Responsibility and Assignment Matrix (RAM) and probability and impact matrix. Diagrams These are visual representations that assist in analysis through data representation. Examples of diagrams are scatter plot, cause and effect diagram, control charts, pareto diagram, and affinity diagram. Quality Control Tools These are tools or processes used to ensure that the project meets the established quality standards and criteria. They may include techniques such as inspections, testing, and quality assurance methods to ensure that the final product or service meets the required standards. Decision-Making Tools These tools or processes help project managers make informed decisions, such as cost-benefit analysis or the decision tree. They can be useful for analyzing data and considering different options in order to make informed decisions. Communication Tools These are tools or processes used to facilitate communication within the project team, such as email, video conferencing, or project management software. The right tools can help to ensure that team members stay connected and informed. The specific tools used in ITTO will depend on the project's nature and its goals. It is important to choose the appropriate tools that are according to the needs and objectives of the project. By selecting the right tools and using them effectively, project managers can ensure they have the resources and support needed to complete the project successfully. Common Techniques in PMP ITTO Techniques in Input-Tool-Technique-Output (ITTO) in project management refer to the specific methods or approaches used to perform a specific activity or task. Some common techniques that appear on PMP exam are as follows: Brainstorming This group problem-solving technique involves generating ideas or solutions through free-flowing discussion and collaboration. It is a useful technique for generating different ideas quickly and can be used to identify creative solutions to problems. Stakeholder Analysis This technique identifies and prioritizes stakeholders based on their level of interest or influence on the project. It helps project managers understand stakeholders' needs and expectations and develop strategies for engaging with them. Expert Judgment This is the use of specialized knowledge or experience to make informed decisions or solve problems. It is often used when there is a need for more data or when the problem requires specialized expertise. Root Cause Analysis This technique is used to identify the underlying cause of a problem or issue rather than just treating the symptoms. It is a useful technique for identifying the root cause of a problem and implementing solutions that address the underlying issue. SWOT Analysis This technique identifies the strengths, weaknesses, opportunities, and threats of a project or organization. It is useful for assessing the current situation and identifying potential risks and opportunities. Risk Assessment This is the process of identifying, analyzing, and prioritizing potential risks to the project. It helps project managers proactively manage risk and ensure the project's success. Product Analysis (Quality Control) This is the process of ensuring that the project meets the established quality standards and criteria. It is a critical part of the project management process. It involves various techniques, such as inspections, testing, and reviews, to ensure that the final product or service meets the required standards. Agile Methodology Tools & Techniques Agile methodologies are flexible, iterative approaches to project management that focus on adaptability and continuous improvement. They involve frequent communication, collaboration, and feedback to ensure that the project meets the needs of the stakeholders. It is important to choose the appropriate techniques based on the needs and objectives of the project. It is also important to consider the skills and resources of the project team when selecting techniques, as some may require specialized training or expertise. Using various techniques, project managers can ensure that they have the tools and approaches needed to complete the project successfully. Common Outputs in Project Management Outputs in Input-Tool-Technique-Output (ITTO) in project management refer to the results or deliverables produced due to a specific activity, process, or task. Following are some of the common outputs in ITTO: Gantt Charts This group problem-solving technique involves generating ideas or solutions through free-flowing discussion and collaboration. It is a useful technique for generating different ideas quickly and can be used to identify creative solutions to problems. Work Breakdown Structure (WBS) This hierarchical representation of a project's scope breaks down the work into smaller, manageable chunks. It helps project managers understand the project's scope and plan and coordinate the work. Project Deliverables This is the use of specialized knowledge or experience to make informed decisions or solve problems. It is often used when there is a need for more data or when the problem requires specialized expertise. Status Reports These are updates on the project's progress, including any issues or risks encountered. They help project managers track the project's progress and identify any potential problems that need to be addressed. Approved Changes These are changes that were approved and involve requests to modify the project's scope, budget, or schedule. It is essential to have a process in place to manage and approve or reject change requests. Lessons Learned These documents outline the project's successes and challenges and suggest ways to improve future projects. They help project managers to learn from their experiences and apply those lessons to future projects. Final Report This is a document that summarizes the results of the project and includes any recommendations for future work. It helps stakeholders understand the project's outcomes and how it has impacted the organization. Completed project This is the final product or result of the project, such as a new product or service. It is the project's end goal and should be clearly defined at the beginning to guide the work and measure its success. The specific outputs needed will depend on the nature of the project and its goals. It is important to clearly define the outputs at the beginning of the project so they can be used to plan the project and measure its performance. Process Groups in Project Management In Input-Tool-Technique-Output (ITTO) in project management, the process groups refer to the phases or stages of a project. The Guide to the Project Management Body of Knowledge (PMBOK Guide®) identifies five process groups in project management: initiating, planning, executing, monitoring and controlling, and closing. Initiating Process Group The inputs might include documents such as the project charter and stakeholder list in the initiating process group. The tools might include techniques such as an expert judgment or stakeholder analysis. The techniques used in this process group include brainstorming or root cause analysis to identify the scope and objectives of the project, and the outputs include the project charter and stakeholder list. Planning Process Group In this group, the inputs might include the project charter and work breakdown structure. The tools include project management software or decision-making tools. The techniques used in this process group include risk assessment or quality planning tools to define the scope and objectives of the project, develop the quality management plan, and the outputs include the project plan and risk register. Executing Process Group In this process group, the inputs might include the project plan and resources, and the tools might include project management software or communication tools. The techniques used in this process group include agile methodologies or collaboration to coordinate the project team's work, and the outputs include the deliverables or interim reports. Monitoring and Controlling Process Group In this process group, the inputs might include the project plan and performance data, and the tools might include project management software or quality control tools. The techniques used in this process group include risk assessment or quality control to track the project's progress and identify and address any issues. The outputs might include updated project plans or risk registers. Closing Process Group The inputs in this process group might include the final deliverables and acceptance criteria, and the tools might include communication tools or document management systems. The techniques used in this process group include acceptance testing, or lessons learned review to complete the project and document the results. The outputs might include the final report and project closure document. These process groups provide a framework for organizing and managing the work of a project systematically and effectively. By using the appropriate inputs, tools, techniques, and outputs for each process group, project managers can ensure that they have the resources and approaches needed to complete the project successfully. Examples to Illustrate ITTO in Action For your convenience, we have shared some examples that can help in understanding ITTO in PMP in a better way. Example 1 Imagine you are a project manager tasked with organizing a company retreat. Inputs Project charter: This document outlines the scope, objectives, and stakeholders of the project, as well as the authority and responsibility of the project manager. Budget: This is the amount of money allocated for the retreat. Venue requirements include the venue's capacity, amenities, and location. Participant list: This is a list of the employees attending the retreat. Tools and Techniques Research (interviews & focus groups): This involves gathering information about potential venues that meet the requirements and budget. Decision-making tool: You may use a decision matrix to evaluate the pros and cons of each potential venue and choose the one that best meets the needs of the company. Communication skills: You must communicate effectively with the venue and the participants to ensure everything is organized and smooth. Outputs Retreat Agenda: This is a schedule of the activities and events that will take place during the retreat. Retreat Evaluation: This document assesses the retreat's success and provides feedback for future planning. In this example, the inputs (project charter, budget, venue requirements, participant list) are used in conjunction with the tools and techniques (research, decision-making tool, communication skills) to produce the outputs (retreat agenda, retreat evaluation). Example 2 Input: A list of items that need to be purchased for a dinner party (e.g., ingredients, decorations, tableware). Tool: A shopping list app or spreadsheet to organize the items and track progress. Technique: A budgeting approach to ensure the items are purchased within the allocated budget. Output: A successful dinner party with all of the necessary items purchased and in place. In this example, the input is the list of items that must be purchased for the dinner party. The tool is the shopping list app or spreadsheet that is used to organize and track the items. The technique is the budgeting approach that is used to ensure that the items are purchased within the allocated budget. The output is a successful dinner party with all of the necessary items in place. Example 3 Imagine you are a project manager at a construction company tasked with building a new office building. Inputs Project charter: This document outlines the scope, objectives, and stakeholders of the project, as well as the authority and responsibility of the project manager. Budget: This is the amount of money allocated to construct the building. Design plans: These are the drawings and specifications for the building, including the layout, materials, and finishes. Permits: These are the legal documents allowing the construction to occur. Tools and Techniques Construction management software: This tool helps plan, schedule, and track the construction process. Risk assessment: This involves identifying and evaluating potential risks to the project, such as weather, accidents, or delays. Change management process: This is a set of procedures for requesting and evaluating changes to the project. Outputs Office building: This completed building meets the design plans and budget. Change requests: These documents outline changes to the project that the project manager and the client have approved. Status reports: These are documents that provide updates on the progress of the construction and any issues that have arisen. In this example, the inputs (project charter, budget, design plans, permits) are used in conjunction with the tools and techniques (construction management software, risk assessment, change management process) to produce the outputs (office building, change requests, status reports). Summary To sum it up, ITTO is an important concept in project management because it helps project managers understand the inputs, tools, and techniques required to produce the desired outputs of each process in the project management life cycle. It also helps project managers to identify and resolve problems that may arise during the project and adapt to changes in the project environment. By understanding the relationships between inputs, tools, techniques, and outputs, project managers can ensure they have the necessary resources, information, and plans to complete the project successfully. DOWNLOAD THE FREE MINDMAPS + REGISTER FOR THE FREE WEBCLASS One of the most difficult areas of the PMP (Project Management Professional) exam is ITTOs. Even mentioning the word 'ITTOs' can strike fear for many PMP candidates. This guide will explain what ITTOs are and how to dissect the common ITTOs used in the PMBOK 6th edition guide. What are ITTOs and how do I read an ITTO process chart?ITTOs stand for Inputs, Tools & Techniques, and Outputs. Together, they tell you how PMI wants you to complete the process. You can read the ITTO chart the way you read a recipe. For example, if I was to write a process chart for baking a cake, it would look something like the following:FlourButterSugar Baking powder EggsMixingBaking WhiskingPouringDecoratingThe ingredients are the inputs that I need; the tools and techniques are the methods that I use to transform the inputs into the outputs; and the outputs is the final product that I'm able to produce (in this case the birthday cake). In other words, the ITTO chart for each of the 49 processes tells you how you can accomplish the objective of that process. Let's take an example for the PMBOK for a more realistic example. Below, we have the process chart for Develop Project Charter. The first thing you want to do before you even look at the process chart is to understand what is the purpose of the process and what is it that it's trying to accomplish. Develop Project Charter is the process of developing a formal documentation that recognizes the existence of the project and gives the project manager the authority to apply organizational resources to project activities. A project cannot start without a project charter. Now that we know the purpose of this project, let's take a look at its ITTO process chart. Business documentsBusiness caseBenefits management plan AgreementsEnterprise environmental factors Organizational process assets Expert judgment Data gathering Brainstorming Focus groupsInterviewsInterpersonal and team skillsConflict management Facilitation MeetingsProject charterAssumption log This ITTO chart tells us how we can go about developing the project charter for our project. We will need to look at any relevant business documents, agreements and take any existing organizational policies or procedures into consideration. Once we have our inputs, we can meet with our experts to discuss how to create the project charter. We may also need to use data gathering techniques, such as brainstorming or interviews, in addition to interpersonal and team skills. Once we've completed the work, the final outputs that we will obtain are the project charter and the assumption log. The ITTO chart above summarizes how PMI wants project managers to develop project charter in just a few words. If the ITTO chart is confusing, try writing it out in layman's terms as we have done for the Develop Project Charter process above. Tailoring Considerations for ITTOsNote that you do not need to use all of the ITTOs from the chart in order to complete the process. The ITTO chart is meant to be comprehensive and equip the project manager for any situation that they may face. However, in real life, the project manager will need to tailor the ITTOs to fit their specific project situation. Do I need to memorize all the ITTOs?No, you do not need to memorize the ITTOs. There are on average around 10+ ITTOs per process. With 49 processes, it means there are 500+ ITTOs in the PMBOK 6th edition guide. While some of you may have photographic memory, most of us do not. The PMP exam is also not meant to be a memorization exam either.   What's more important is that you understand why the specific input, tool or technique, and output belong to that specific process. For each ITTO, ask yourself, "Why is it here in this process? What purpose does it serve? How does it help me accomplish the end objective?" It's more important to understand why it is included in the ITTO chart than it is to memorize all 49 ITTO charts. We also have an ITTO mind map that you can download here & register in our free PMP training that will teach you how to get certified in 6 weeks. Interactions & Flows Between ProcessesThe 49 processes work together to complete the project. In other words, none of the processes work in isolation. What this means is that: the output of one process becomes the input for another process. Here's an example: This image above is taken from Figure 4-13 on page 114 of the PMBOK 6th edition guide. It shows you how the outputs of the Perform Integrated Change Control process then becomes inputs for a number of other processes. Project processes do not happen in a vacuum; they work together to complete the project. The 49 processes interact with each other continuously, and outputs from one process then become inputs to another. Understanding the Big PictureWhen you're studying for your PMP exam, it's easy to get lost analyzing the endless amounts of ITTOs. However, before you dive in too deeply, you always need to keep the big picture in mind. The big picture is how PMI wants you to complete a project from start to finish. This is shown on the 49 Process Chart from the PMBOK 6th edition (see below). DOWNLOAD THE FREE MINDMAPS + REGISTER FOR THE FREE WEBCLASS The 49 processes chart tells you how PMI wants you to manage a project from start to finish. Watch the video below for tips and tricks on how to memorize this chart for your PMP exam: Across the column headers, you have the 5 Process Groups (initiating, planning, executing, monitoring & controlling, and closing). Across the row headers, you have the 10 Knowledge Areas. In the intersection, you have 49 processes. Each process has a corresponding knowledge area and process group. You can zoom into each of the processes and take a look at its ITTOs – but don't lose sight of the big picture. Pro tip: Although you don't need to memorize all 500+ ITTOs, it's a good idea to memorize the 49 process chart for your upcoming PMP exam. Tools and Techniques Groups When you deepdive into the ITTOs, you will start to see groupings of ITTOs. Each grouping shows you related ITTOs that all have a common objective. Let's talk a look at some common groupings below: Data gathering techniques – these techniques are used to obtain & collect data from a variety of different sources. Data analysis techniques – these techniques are used to organize and evaluate the information gathered. Data representation techniques – these techniques are used to show the data in graphical forms. Decision-making techniques – these techniques are used to select a course of action after evaluating various different alternatives. Communication skills – these techniques are used to transfer information between team members or stakeholders on the project. Interpersonal and team skills – these techniques are used to lead team members and stakeholders. Here are the tools & techniques that fall under each of the groupings: Integration management is the knowledge area where the project manager combines the results from all the other knowledge areas together to provide an overall view of the project. Below is the ITTO chart for all processes under integration management. Business DocumentsAgreementsEnterprise Environmental FactorsOrganizational Process AssetsExpert Judgment Data GatheringInterpersonal and Team SkillsMeetingsProject CharterAssumption LogDevelop Project Management PlanProject CharterOutputs From Other ProcessesEnterprise Environmental FactorsOrganizational Process AssetsExpert JudgmentData GatheringInterpersonal and Team SkillsMeetingsDirect and Manage Project WorkProject Management PlanProject Documents Approved Change RequestsEnterprise Environmental FactorsOrganizational Process Assets Expert JudgmentProject Management Information SystemMeetingsDeliverablesWork Performance DataIssue LogChange RequestsProject Management Plan UpdatesProject Document UpdatesOrganizational Process Assets UpdatesProject Management Plan Project DocumentsDeliverablesEnterprise Environmental FactorsOrganizational Process AssetsExpert JudgmentKnowledge Management Information ManagementInterpersonal And Team SkillsLessons Learned RegisterOrganizational Process Assets UpdatesProject Management Plan UpdatesMonitor & Control Project WorkProject Management Plan Project DocumentsWork Performance InformationAgreementsEnterprise Environmental FactorsOrganizational Process AssetsExpert JudgmentData AnalysisDecision MakingMeetingsWork Performance ReportsChange RequestsProject Management Plan UpdatesProject Document UpdatesPerform Integrated Change ControlProject Management Plan Project DocumentsWork Performance ReportsChange RequestsEnterprise Environmental FactorsOrganizational Process AssetsExpert JudgmentChange Control ToolsData AnalysisDecision MakingMeetingsApproved Change RequestsProject Management Plan UpdatesProject Document UpdatesProject CharterProject Management PlanProject DocumentsAccepted DeliverablesBusiness DocumentsAgreementsProcurement DocumentationOrganizational Process AssetsExpert judgment Data AnalysisMeetingsProject Documents UpdatesFinal Product, Service, Result, or TransitionFinal ReportOrganizational Process Assets Updates DOWNLOAD THE FREE ITTO CHARTS + REGISTER FOR THE FREE WEBCLASS Scope refers to the features and functions in the end project deliverable. Project scope refers to the work that needs to be completed in order to complete the scope. Thus, project scope management is all about determining and managing the project scope throughout the project lifecycle. The chart below shows all of the ITTOs for all processes under the Scope Management knowledge area. Project CharterProject Management PlanEnterprise Environmental FactorsOrganizational Process AssetsExpert JudgmentData AnalysisMeetings Scope Management Plan Requirements Management Plan Project CharterProject Management Plan Project DocumentsBusiness DocumentsAgreementsEnterprise Environmental FactorsOrganizational Process Assets Expert JudgmentData GatheringData Analysis Decision MakingData RepresentationsInterpersonal And Team Skills Context DiagramsPrototypesRequirements DocumentationRequirements Traceability MatrixProject CharterProject Management Plan Project DocumentsEnterprise Environmental FactorsOrganizational Process Assets Expert JudgmentData AnalysisDecision Making Interpersonal And Team SkillsProduct AnalysisProject Scope StatementProject Document UpdatesProject Management Plan Project DocumentsEnterprise Environmental FactorsOrganizational Process AssetsExpert JudgmentDecompositionScope BaselineProject Document Updates Project Management Plan Project DocumentsVerified Deliverables Work Performance Data Inspection Decision MakingAccepted DeliverablesWork Performance InformationChange Requests Project Document UpdatesProject Management Plan Project Documents Work Performance Data Organizational Process Assets Work Performance InformationChange RequestsProject Management Plan UpdatesProject Documents Updates DOWNLOAD THE FREE ITTO CHARTS + REGISTER FOR THE FREE WEBCLASS Project scheduling involves creating a detailed plan on when which task will be completed on the project. It provides the project team with a sequence of activities, and it tells the team when the overall project will be completed. The project schedule is a major communication tool; it can also be used to manage stakeholder expectations. Please see the chart below for all of the ITTOs for Project Schedule Management. Project CharterProject Management Plan Enterprise Environmental FactorsOrganizational Process AssetsExpert JudgmentData AnalysisMeetings Project Management PlanEnterprise Environmental Factors Organizational Process Assets Expert JudgmentDecompositionRolling Wave PlanningMeetings Activity List Activity AttributesMilestone ListChange RequestsProject Management Plan UpdatesProject Management Plan Project DocumentsEnterprise Environmental Factors Organizational Process Assets Precedence Diagramming Method (PDM)Dependency Determination And IntegrationLeads & Lags Project Management Information SystemProject Schedule Network DiagramsProject Document UpdatesEstimate Activity DurationsProject Management Plan Project DocumentsEnterprise Environmental Factors Organizational Process Assets Expert JudgmentAnalogous EstimatingParametric EstimatingThree-Point EstimatingBottom-Up Estimating Data AnalysisDecision MakingMeetingsDuration EstimatesBasis Of Estimates Project Documents Updates Project Management Plan Project DocumentsAgreementsEnterprise Environmental FactorsOrganizational Process Assets Schedule Network AnalysisCritical Path MethodResource Optimization Data Analysis Leads and Lags Schedule CompressionProject Management information SystemAgile Release PlanningSchedule BaselineProject Schedule Schedule Data Project Calendars Change RequestsProject Management Plan UpdatesProject Documents Updates Project Management Plan Project Documents Work Performance Data Organizational Process Assets Data AnalysisCritical Path MethodProject Management Information SystemResource OptimizationLeads and LagsSchedule CompressionWork Performance InformationSchedule ForecastsChange RequestsProject Management Plan Updates Project Documents Updates DOWNLOAD THE FREE ITTO CHARTS + REGISTER FOR THE FREE WEBCLASS Project cost management deals with the cost of all resources (human and materials) needed to complete all project tasks. As a project manager, you want to know what individual activities will cost as well as the entire project. You need to track the project budget and product reports about it on a regular basis. Below are the processes within Cost Management and their associated ITTOs. Project CharterProject Management Plan Enterprise Environmental FactorsOrganizational Process AssetsExpert JudgementData Analysis MeetingsProject Management Plan Project DocumentsEnterprise Environmental FactorsOrganizational Process Assets Expert Judgment Analogous EstimatingParametric EstimatingBottom-up EstimatingThree-Point Estimating Data AnalysisProject Management Information System Decision MakingCost EstimatesBasis of EstimatesProject Documents Updates Project Management Plan Project DocumentsBusiness DocumentsAgreementsEnterprise Environmental FactorsOrganizational Process Assets Expert Judgement Cost AggregationData Analysis Historical Information Review Funding Limit ReconciliationFinancingCost Baseline Project Funding RequirementsProject Documents UpdatesProject Management Plan Project DocumentsProject Funding Requirements Work Performance Data Organizational Process Assets Experts Judgment Data AnalysisTo-Complete Performance index (TCPI)Project Management Information SystemWork Performance InformationCost ForecastsChange RequestsProject Management Plan Updates Project Documents Updates DOWNLOAD THE FREE ITTO CHARTS + REGISTER FOR THE FREE WEBCLASS Quality is "the degree to which a set of inherent characteristics fulfills requirements" (ISO 9000). Project managers should prevent quality issues from getting into the end deliverable. It is usually less costly to prevent problems than to fix it once the product is in the hands of the customer. The project manager seeks to minimize the overall cost of quality, which is the sum of cost of conformance and cost of nonconformance. Before the project ends, the project manager needs to inspect the deliverable to ensure that it meets the agreed upon quality standards. Please see below for the ITTOs of all quality management processes. Project CharterProject Management Plan Project DocumentsEnterprise Environmental Factors Organizational Process Assets Expert JudgementData Gathering Data Analysis Decision Making Data RepresentationTest And Inspection Planning MeetingsQuality Management PlanQuality Metrics Project Management Plan Updates Project Documents Updates Project Management Plan Project DocumentsOrganizational Process Assets Data GatheringData AnalysisDecision MakingData RepresentationAudits Design For XProblem SolvingQuality Improvement MethodsQuality ReportsTest And Evaluation Documents Change Requests Project Management Plan UpdatesProject Documents Updates Project Management Plan Project DocumentsApproved Change Requests Deliverables Work Performance Data Enterprise Environmental FactorsOrganizational Process AssetsData GatheringData Analysis InspectionTesting/Product EvaluationData RepresentationMeetingsQuality Control MeasurementsVerified DeliverablesWork Performance Information Change RequestsProject Management Plan Updates Project Document Updates DOWNLOAD THE FREE ITTO CHARTS + REGISTER FOR THE FREE WEBCLASS Project resources include both physical resources (e.g. equipments and materials) and team resources. Resource management revolves around the management of all resources on the project. The project manager needs to use different skills when managing physical and team resources. When managing teams, the project manager needs to be aware of the organization's culture, geographic location, and internal & external team influences. The chart below shows all of the processes within resource management plus their corresponding ITTOs. Project CharterProject Management Plan Project DocumentsEnterprise Environmental FactorsOrganizational Process AssetsExpert JudgementData RepresentationOrganizational Theory MeetingsResource Management PlanTeam Charter Project Documents UpdatesEstimate Activity Resources Project Management Plan Project Documents Enterprise Environmental Factors Organizational Process Assets Expert JudgementBottom-Up EstimatingAnalogous EstimatingParametric EstimatingData Analysis Project Management Information System MeetingsResource RequirementsBasis Of EstimatesResource Breakdown StructureProject Documents UpdatesProject Management Plan Project Documents Enterprise Environmental Factors Organizational Process Assets Decision Making Interpersonal And Team SkillsPre-AssignmentVirtual TeamsPhysical Resource AssignmentsProject Team AssignmentsResource CalendarsChange Requests Project Management Plan Updates Project Documents Updates Enterprise Environmental Factors Updates Organizational Process Assets Updates Project Management Plan Project Documents Enterprise Environmental Factors Organizational Process Assets ColocationVirtual Teams Communication TechnologyInterpersonal And Team SkillsRecognition And Rewards Training Individual And Team Assessments MeetingsTeam Performance AssessmentsChange Requests Project Management Plan Updates Project Documents UpdatesEnterprise Environmental Factors Updates Organizational Process Assets UpdatesProject Management Plan Project Documents Work Performance Reports Team Performance Assessments Enterprise Environmental Factors Organizational Process AssetsInterpersonal And Team SkillsProject Management Information SystemChange Requests Project Management Plan UpdatesProject Documents UpdatesEnterprise Environmental Factors Updates Project Management Plan Project Documents Work Performance Data Agreements Organizational Process AssetsData AnalysisProblem SolvingInterpersonal And Team Skills Project Management Information SystemWork Performance InformationChange Requests Project Management Plan Updates Project Documents Updates DOWNLOAD THE FREE ITTO CHARTS + REGISTER FOR THE FREE WEBCLASS Communication is the process of exchanging information. Communications on the project can be internal or external, formal or informal, written or oral. As a project manager, you need to manage your communication upwards to senior management and project sponsors, downwards to team members, and horizontally to other peers. Communication is the main task of a project manager, and you will constantly be doing it throughout the project. Effective communications is essential to ensure project success. We have all the Communications Management processes and their respective ITTOs in the chart below. Plan Communications Management Project Charter Project Management Plan Project Documents Enterprise Environmental Factors Organizational Process Assets Expert Judgement Communication Requirements AnalysisCommunication Technology Communication ModelsCommunication Methods Interpersonal And Team Skills Data Representation MeetingsCommunications Management Plan Project Management Plan UpdatesProject Documents UpdateProject Management Plan Project Documents Work Performance Reports Enterprise Environmental Factors Organizational Process Assets Communication TechnologyCommunication MethodsCommunication SkillsProject Management Information System Project Reporting Interpersonal And Team Skills MeetingsProject Communications Project Management Plan UpdatesProject Document UpdatesOrganizational Process Assets UpdatesProject Management Plan Project Documents Work Performance Data Enterprise Environmental Factors Organizational Process Assets Expert JudgementProject Management Information SystemData RepresentationInterpersonal And Team Skills MeetingsWork Performance InformationChange Requests Project Management Plan Updates Project Documents Updates DOWNLOAD THE FREE ITTO CHARTS + REGISTER FOR THE FREE WEBCLASS Risk is an uncertain event that may or may not happen in the future. Project risk management aims to identify and manage risks throughout the project lifecycle. Risks can be positive or negative. A positive risk is called an opportunity, and a negative risk is called a threat. New risks can occur at any time on the project, so the project manager needs to perform the risk management processes continuously. Below are the ITTOs for all the risk management processes. Project Charter Project Management Plan Project Documents Enterprise Environmental Factors Organizational Process AssetsExpert Judgment Data AnalysisMeetingsProject Management Plan Project Documents Agreements Procurement Documentation Enterprise Environmental Factors Organizational Process Assets Expert Judgment Data GatheringData Analysis Interpersonal And Team Skills Prompt ListsMeetingsRisk Register Risk Reports Project Documents Updates Perform Qualitative Risk AnalysisProject Management Plan Project Documents Enterprise Environmental Factors Organizational Process Assets Expert Judgment Data Gathering Data Analysis Interpersonal And Team Skills Risk Categorization Data Representation MeetingsProject Documents Updates Perform Quantitative Risk Analysis Project Management Plan Project Documents Enterprise Environmental Factors Organizational Process Assets Expert JudgmentData Gathering Interpersonal And Team Skills Representations Of Uncertainty Data AnalysisProject Documents Updates Project Management Plan Projects Documents Enterprise Environmental Factors Organizational Process Assets Expert Judgment Data Gathering Interpersonal And Team Skills Strategies For Threats Contingent Response Strategies Strategies For Overall Project Risk Data Analysis Decision MakingChange Requests Project Management Plan Updates Project Documents UpdatesProject Management Plan Project Documents Organizational Process Assets Expert JudgementInterpersonal And Team SkillsProject Management Information SystemChange Requests Project Documents Updates Project Management Plan Project Documents Work Performance Data Work Performance Reports Data AnalysisAuditsMeetings Work Performance InformationChange Requests Project Management Plan UpdatesProject Documents Updates Organizational Process Assets Updates DOWNLOAD THE FREE ITTO CHARTS + REGISTER FOR THE FREE WEBCLASS Procurement involves obtaining goods and services from a third party vendor. As a project manager, you need to be familiar with the procurement management processes of your organization, and know how to procure, select and manage contractors on your project. The signed contract between the buyer and seller is a legally binding document, and there is usually an extensive approval process. The 3 main types of contracts that you may have on your project are: fixed cost, time and material, and cost reimbursable. All of the procurement processes are listed below along with their respective ITTOs. Plan Procurement Management Project Charter Business Documents Project Management Plan Project Documents Enterprise Environmental Factors Organizational Process Assets Expert Judgment Data Gathering Data AnalysisSource Selection Analysis Meetings Procurement Management PlanProcurement StrategyBid Documents Procurement Statement Of WorkSource Selection Criteria Make-Or-Buy Decisions Independent Cost Estimates Change Requests Project Documents Updates Organizational Process Assets UpdatesProject Management Plan Project Documents Procurement Documentation Seller Proposals Enterprise Environmental Factors Organizational Process Assets Expert JudgmentAdvertising Bidder Conferences Data Analysis Interpersonal And Team Skills Selected Sellers AgreementsChange RequestsProject Management Plan Updates Project Document Updates Organizational Process AssetsProject Management Plan Project Documents Agreements Procurement Documentation Approved Change Requests Work Performance Data Enterprise Environmental Factors Organizational Process AssetsExpert JudgmentClaims AdministrationData AnalysisData InspectionAuditsClosed Procurements Work Performance Information Procurement Documentation Updates Change Requests Project Management Plan UpdatesProject Documents Updates Organizational Process Assets Updates DOWNLOAD THE FREE ITTO CHARTS + REGISTER FOR THE FREE WEBCLASS A stakeholder is anyone with a stake on the project. A stakeholder can be positively or negatively impacted by the project. Some stakeholders have limited ability to influence project outcomes, while others have significant power and influence. It's important for the project manager to know what the stakeholder's stake is and how much power they have. It is the project manager's job to communicate with the stakeholders and manage their expectations accordingly. Identifying and managing stakeholders are done continuously throughout the project. Please see the chart below for all processes and ITTOs associated with stakeholder management. You should also read: PMP 5th Edition ITTO Commonly Asked Questions AnsweredProject Charter Business Documents Project Management Plan Project Documents Agreements Enterprise Environmental Factors Organizational Process AssetsExpert Judgment Data GatheringData AnalysisData RepresentationMeetings Stakeholder RegisterChange Requests Project Management Plan UpdatesProject Documents UpdatesPlan Stakeholder EngagementProject Charter Project Management Plan Project Documents Agreements Enterprise Environmental Factors Organizational Process Assets Expert Judgment Data GatheringData Analysis Decision MakingData Representation Meetings Stakeholder Engagement Plan Manage Stakeholder EngagementProject Management Plan Project Documents Enterprise Environmental Factors Organizational Process Assets Expert JudgmentCommunication Skills Interpersonal And Team Skills Ground Rules MeetingsChange Requests Project Management Plan Updates Project Documents Updates Monitor Stakeholder Engagement Project Management Plan Project Documents Work Performance Data Enterprise Environmental Factors Organizational Process Assets Data Analysis Decision Making Data RepresentationCommunication Skills Interpersonal And Team Skills MeetingsWork Performance InformationChange RequestsProject Management Plan Updates Project Documents Updates By Vinai Prakash ITTO stand for Inputs, Tools & Techniques & Outputs. ITTO's exist for each of the 47 Processes, based on the PMBOK Guide, Sixth Edition. These processes are spread in the [intlink id="38″ type="post"]10 Knowledge Areas[/intlink] and the [intlink id="40″ type="post"]5 Process Groups[/intlink]. Understanding the ITTOs is vital to pass the PMP Exam. Atleast 40% of the PMP Exam questions (roughly 80 out of 200), can be answered correctly if you have a solid understanding of the Inputs, Tools & Techniques, and Outputs of the Processes… and their interactions. However many people just resort to memorize them, and guess what… memorizing it for 47 processes not easy, and is not really necessary. Yes, you need to remember them for a few processes to be exact, but not all. If you attend any PMP Training, or buy a good Exam Prep Book, you can understand how the different processes interact with each other. The output of any process becomes the input to the next process in the logical order. Even if you are able to memorize it, you may make mistakes, or may not be able to answer the PMP exam questions if you do not understand the relationship between the different processes. Test your knowledge of ITTOs for PMP Exam? Loading … Loading … Loading … Answers to these 3 questions are provide at the bottom of this post. Importance of Knowing the Inputs, Outputs, Tools & Techniques for Each Process How to Remember ITTOs for the PMP Exam What is the correct sequence of processes? Which process comes first? Which process would have been completed before this process can start Practice Tips Answers to ITTO questions above: Q1: Correct answer is B – second choice Q2: Correct answer is C – third choice Q3: Correct answer is D – fourth choice A Handy ITTO Resource Guide for you to print and carry around We have created a handy ITTO resource guide, that you can print and carry around with you, to read as and when you get time. You can get it here (Excel 2003 File – Right Click to Download) – ITTO-for-PMP-Exam Attend Online PMP Training by PMChamp Coach Vinai. Watch a video each day, and learn important concepts in easy, bite sized pieces. Hope this helps you in preparing for the PMP Exam in a better way. All the Best! Loading … Cheers, Vinai Prakash, PMP When you are preparing for the PMP certification exam, you will surely come across PMP ITTO. This refers to the detailed ITTO project management processes in the PMBOK guidebook. Several processes also included in the guide book. We have discuss the easiest way of using those processes through PMP ITTO spreadsheet. You will come across 6 types of questions in the PMP certification exam. These questions are relevant to PMP tools and techniques charts that take you through numerous decision-making stages. ITTO is the 1st type of questions that you will face. In the experience of many PMP certified managers, ITTO questions are the most challenging ones. Let us have a deep understanding of ITTO based questions to prepare best for the challenges put in front of you when you are sitting for the PMP certification exam. Dealing with ITTO Based Questions: What is PMP ITTO in Project Management The PMBOK guidebook includes a total of 42 sets of ITTO based management processes. This means that to decide on a certain procedure of a project, you need to learn 42 different sets of ITTO process. As a result, it is important to know about ITTO in detail. Also Read: Benefits of PMP Certification What Does ITTO PMP Stand For? Before we go into the whys and hows of the PMP ITTO mind map, it is crucial to understand every letter of the ITTO. The ITTO in PMP stands for Input, Tools, Techniques, and Outputs. An example can simplify the whole thing. Let us imagine that we will have to build a house. At first, we will need Inputs, such as financing, plans, permits, and many other things. After that, we will go forward with the Tools and Techniques we have in building the house. These Tools and Techniques can be labor, plumbing, electricity, framing, trades, and other aspects of making something. Finally, when the project is finished, we will have an Output. Read Now: Is PMP Worth It? The PMP certification exam takes a project manager through all these processes in completing a project. There is an interrelationship between all these stages of decision making and completion of a project. Here is a brief description of the ITTO. Inputs Inputs refer to internal or external items required to complete the project before the project can be initiated. These inputs can be outputs from any previous project. Some of the inputs can be project schedule, project approval and resources, Enterprise Environmental Factors (EEF), and Organizational Process Assets (OPA). Tools Tools are necessary tangible resource that is utilized while performing a particular activity of a project. These tools can be a software program, information systems, or analytical techniques to complete the project. PMO DASHBOARD (AI) Techniques Using the set of inputs and tools, human resource management is responsible for producing a product, service, or result through systematic and approved procedures. These techniques or procedures to complete a project can be interviews, inspections, expert mentoring, decompositions, and many more. Outputs When all the PMP process chart processes have been utilized, the project is completed, and there is an output. The output is the result of the inputs, tools, and techniques. Outputs can also serve as inputs of future project works. So, which are outputs of the executing process of project integration management? The outputs can be updated in the project management plan, updates in the organizational process assets, or information on work performance. Check Now: How to Get PMP Certification Fast in Just 30 Days? Master the ITTO PMP Questions with These 7 Steps As we have now understood what ITTO means and what kind of challenges you may go through in the PMP exam, it is time to focus on cracking the challenges. To master ITTO questions, you will need to construct a PMP tools and techniques chart to get the best output from the inputs. Here are 7 steps to master ITTO questions in your PMP exam: Understanding the Main Objective First and foremost, you must understand the purpose of a project. The main and primary objective of the process will lead you to understand the project's inputs, tools, techniques, and outputs. For instance, when you describe the scope of a product, you are considering all the requirements. Therefore, this will take you through the input plan. Once you understand the process, you can figure out the tools and techniques to establish the outputs. Identifying the PMP Inputs and Outputs Once you have understood the process's primary objective, you can now focus on the inputs and outputs of the process by creating a project management inputs and outputs chart. This will enable you to know the specific inputs needed to carry out the project and possible outputs necessary for the fulfillment of the project. It is recommended to spend a significant amount of time identifying a few key inputs and outputs. This will enhance your chance of mastering ITTO. Also Check: PMP Certification Exam Costs Creating Interrelation Between Project Management Mapping and ITTO Every process in project management serves a purpose that is related to ITTO. As a result, you should try to relate the PMP process groups with the flow of information by creating a PMP ITTO mind map. For instance, the Management Process Knowledge falls under the Project Integration Management Knowledge Area. This means that the process inputs data from several areas, and the project outputs are a continuous process. Listing the Occurrences Logically Through PMP ITTO Spreadsheet There are 49 processes in the PMBOK guidebook. Even though there are many inputs and outputs, they often occur more than once. However, it is important to map them logically. One way to do that is by creating a PMP process chart. You can do that by preparing a PMP ITTO cheat sheet. The ITTO PMP cheat sheet will contain notes, formulas, terms, tips and tricks, and abbreviations for quick review. The spreadsheet can be dynamic and searchable not to have to back and forth inside the guidebook. This can improve the learning speed, and you can quickly learn every trick of the ITTO. Also Read: Tips for PMP Certification Preparation Recognizing the

Limitations All of the above steps will enable you to understand the inputs and outputs of PMP ITTO. However, some processes will be really tough to determine the inputs and outputs. Therefore, here you will identify the things that cannot be input or output. In the PMBOK guide, the data flow diagrams are the perfect depiction of the sources of inputs and outputs. Recognizing Various Tools and Techniques There are 2 types of tools and techniques for project management process groups and knowledge areas mapping. These are: Read Now: Best PMP Study Guide Specific Tools and Techniques of the Knowledge Area These specialized techniques are used in special knowledge areas. They serve a unique purpose that is particular for that area. For instance, the rolling wave planning technique is used in only the Define Activities Process. Just like this, some other techniques and tools are specific for one particular project only. If you can identify and memorize that, you can easily master ITTO for that knowledge area. PMP Exam Simulator Grouping of Tools and Techniques This is called T&T grouping. There are 6 T&T groups in PMP ITTO. What you can do in this process is that you can list all the techniques that fall under each of the T&T group. This way, you can categorize the processes into these groups and learn almost all of the tools and techniques. Eliminating 1 to 3 Choices The final step is to eliminate choices from the MCQ questions. This helps a candidate to take an improved decision. You can follow three key steps in the elimination method. Also Read: PMP vs PMI ACP The first task is to understand the question thoroughly. The above 6 steps are the perfect assistance for this task. Next, you can eliminate choices that are not asked in the question. For instance, when the question asks for inputs and outputs, you can get rid of the choices' tools and techniques. The last task is to find unfamiliar choices. The question will tend to confuse you by having options that may look to an ITTO term. You can eliminate that option as it is likely to be a wrong answer. FAQ Is It Necessary to Memorize ITTO for the PMP Exam? Yes, you should be able to remember the ITTO for a few processes. However, not all the 49 processes will require you to memorize ITTO. How Many ITTO Questions will be Asked in the PMP Exam? On average, the number of ITTO questions can be around 10. In most PMP exams, there can be 4 to 16 ITTO based questions. Is There Any Shortcut Way to Memorize and Understand PMP ITTO? Unfortunately, there is no shortcut way to crack the ITTO questions. However, the 7 steps of mastering ITTO can be extremely useful for a PMP candidate. Why is ITTO Questions so Hard to Answer? ITTO questions can be tricky. However, it is not that difficult to answer if you have prepared well for the PMP exam. Candidates who do find ITTO questions tough have not prepared enough to master ITTO questions. Conclusion The PMP certification exam is one of the toughest exams you will come through throughout your life. The PMP ITTO certainly does not make it easier for candidates to crack the PMP exam. Therefore, a candidate must have a clear idea about the concepts. The 7 steps can ensure better learning so that an aspiring PMP candidate can master answering ITTO questions. Make sure you've read the "PMP ITTO Spreadsheet" section carefully, it will help you the most. The Complete Guide to Inputs, Tools, Techniques and Outputs. Whether you're just beginning your studies, or are well in to your journey to earning a Project Management Professional (PMP)® Certification, it's natural to feel a little insecure or intimidated by the seemingly endless PMP® ITTO that are diagrammed and discussed for each Project Management process. This one topic is probably responsible for more questions and anxiety for PMP® candidates than any other exam-related topic. I have good news for you: understanding PMP ITTO and their relationships are logical, easily done, and this complete guide will show you how to understand and make ITTO your ally when taking the Exam. I promise you that by the end of this article you will have learned everything there is to know about the various aspects, facets and features of Inputs, Tools, Techniques and Outputs you need for your exam success. We'll start this by putting ITTO into context, then move into the "What's" and "Why's" behind ITTO, and finish with "How's" of studying and using ITTO. Putting ITTO in context Inputs, Tools, Techniques, and Outputs are the foundation and infrastructure of the Project Management processes discussed in the PMBOK® Guide. Also read PMBOK® Guide 6th Edition Knowledge Areas for Project Management - Process Groups and Processes - The Complete Guide for more on the relationships between Knowledge Areas and Process Groups. I find putting things context helps me to understand them better; in this case, using an analogy of building a house works well. We all recognize there is a world of difference between a pile of building materials on plot of land and a finished house. The same location and materials are included in both; yet one is a pile of "things," the other can be a home that nurtures a family. This is where ITTO come in, they allow you to build the house (or, processes and projects in our case). To build a house you need Inputs (plans, specifications, permits, financing, building materials, etc.), then you proceed to construction by using Tools and Techniques (skilled labor and trades, concrete, framing, electrical, plumbing, finish work, etc.); when done, you have a house as your Output. To take the house building example even further, there is an order to constructing a house and relationships between construction actions and activities. For example, you can't frame the house until the foundation is constructed and you can't wire or plumb the house until it is framed. ITTO, and the Project Management Processes they support, have similar logical sequencing constraints and relationships. Finally, to understand how a house is built, it is more important to know and understand the interrelationships and sequencing of construction activities than it is fixating on variable details, such as out how many nails may be needed – the same is true for processes and this Complete Guide will show you why. What does ITTO stand for? Let's start with the basics and then work through the "why's" and "how's." I've already stated in this Guide that ITTO stands for Inputs, Tools, Techniques, and Outputs. But, how are these terms defined? The following definitions and examples are taken directly from the Glossary and/or text, respectively, of the PMBOK® Guide – Sixth Edition: Inputs Any item, whether internal or external to the project which is required by a process before that process proceeds. May be an output from a predecessor process . Examples include: Project charter Project schedule Resource calendars Approved change requests Enterprise Environmental Factors (EEF), such as government or industry standards, project management information system, organizational structure, culture, practices, and infrastructure, etc. Organizational Process Assets (OPA), such as standardized guidelines, work instructions, project management templates, project files from previous projects, and other historical information, etc. Tools Something tangible, such as a template or software program, used in performing an activity to produce a product or result. Examples include: Analytical techniques Project management information system(s) Benchmarking Product analysis Techniques A defined systematic procedure employed by a human resource to perform an activity to produce a product or result or deliver a service, and that may employ one or more tools. Examples include: Meetings Expert judgment Inspection Interviews Decomposition Outputs A product, result, or service generated by a process. May be an input to a successor process . Examples include: Work performance information Change requests Project management plan updates Organizational process assets updates Project documents updates These definitions are taken from the Glossary of Project Management Institute, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)– Sixth Edition, Project Management Institute Inc., 2017. You probably noticed that I placed emphasis on two statement above. Both say that Outputs from one process may be Inputs to another – this important fact will show up repeatedly in this complete guide. Why do I need to learn ITTO, it looks like a lot of work? I get asked this question all the time. You're quite right to question the "why;" understanding why ITTO are used and are important will greatly aid in your studying for the exam. Let's decompose these questions into smaller, more manageable pieces to look at the "why" behind ITTO (similar to what you'd do for a project's scope and/or deliverables). Why is the ITTO classification used? ITTO are the logical extension of the classification/standardization system used in the PMBOK® Guide. The PMBOK® Guide is divided into 10 Project Management Knowledge Areas, each of which is developed and supported by the 5 Project Management Process Groups, where applicable – this results in a total of around 50 processes. ITTO are a standardized means of systematically using the same method of developing and executing processes and projects. When you think about it, decomposing processes into ITTO reduces each to its most fundamental and basic components, and does so in a standardized manner that is equally applicable for all processes and projects. Understanding this allows you to build your project on a solid foundation from the ground up – like constructing a house. Why are there so many ITTO? There are many Project Management processes, and each of them have ITTO. The number of ITTOs associated with each process is proportional to the prerequisites (Inputs) necessary to start the process, the type(s) and level of effort necessary to do the process (Tools and Techniques), and the one or more things you produce from the process (Outputs). Are each Project Management process's ITTO unique? Some are; but, most aren't. By this I mean that there are some ITTO that show up only once (or even a handful of times). However, the majority of ITTO show up over and over – this is discussed in more detail below. Therefore, the number of ITTO you need to learn is actually far fewer than it first appears. Many ITTO look familiar, where have I seen them before? You're not imagining things, the majority of ITTO also show up as part of the vocabulary you need to be fluent in to pass the PMP exam. This allows you to double down on your studying by reinforcing vocabulary and ITTO at the same time. For more tips on studying for the PMP exam please review Creating Your PMP Study Plan - The Complete Guide. What are PMP ITTO? When project management practitioners refer to "PMP ITTO" they mean the global set of ITTO associated with all the Project Management processes detailed in the PMBOK® Guide, not ITTO related to one specific process. To understand how the ITTO are used, the PMBOK® Guide provides useful figures and tables that illustrate the interrelationships between Project Management processes that will greatly help your understanding of ITTO; the two most important are: Figure 3-3. Project Management Process Interactions (p. 53 - FIFTH EDITION), which provides a diagram with an overview, or "big picture" summary of project management process. This particular figure is taken from the FIFTH EDITION, because the Sixth Edition no longer includes it. And even though the details of the drawing are no longer accurate because many of the ITTOs have changed, the 'big idea' is still correct: ITTOs flow between processes and process groups in many ways. PMBOK® Guide - FIFTH EDITION Process Interactions Again, the figure above is from the PMBOK® Guide - FIFTH EDITION. Do not look at the details of the data flow. 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And just to be absolutely clear, a system can be defined as: "A collection of parts that interact with each other to function as a whole." (James P. Lewis; Mastering Project Management, p. 90) or "a set of interacting or interdependent components forming an integrated whole" (Wikipedia). An everyday simple example of this type of system with outputs from one process becoming an input to another is baking a cake, which is made up of three processes: Inputs: flour, eggs, milk, baking powder, spices, etc. Tools and Techniques: mixing and combining wet and dry ingredients Output: cake batter Inputs: cake batter Tools and Techniques: cake pans and cooking process in oven Output: baked cake Inputs: baked cake, ingredients to make frosting/icing Tools and Techniques: make frosting/icing, cake stand, spatula, piping bag, ice the cake Outputs: Frosted/iced cake ready for serving Returning to PMP ITTO, not only can Outputs from one process be Inputs to one or more other processes, these Inputs/Outputs relationships can and do cross Project Management Knowledge Area and Process Group boundaries. For example, the Output of Develop Project Management Plan (i.e. the Project Management Plan) is an Input to the following Project Management Processes: So almost every single Project Management process has the Project Management Plan as an Input. It makes sense: all of these Processes are directly affected by, controlled, informed, or based on the Project Management Plan. How can I use the PMBOK® Guide to study ITTO? Now that we've touched on the "What" and "Why" of ITTO, we can move on to the "How." ITTO are clearly labeled and presented in multiple ways in the PMBOK® Guide. Additionally, the authors of the PMBOK® Guide recognize that not everyone finds reading information as the best way to learn. Therefore, in addition to text, they have included a series of figures and tables as aids to clarify processes and illustrate ITTO interrelationships. The PMBOK® Guide is very well organized and designed to make finding information as quick and painless as possible. 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William Zinsser, in his excellent 1993 book Writing to Learn, discusses how writing about a field of knowledge is the best way to immerse oneself it a subject, identify and understand not just the key points but the supporting details, and is a path to "owning" the subject. How you choose to create your own ITTO chart will be based on how you learn and what works best for you. However, most students tend to take the information that they find in the PMBOK® Guide and then organize it into a format that works for them. Click here for ITTO Spreadsheet Samples on Google... As you will see, the information needed to prepare these kind of charts is included in the PMBOK® Guide text, as well as in overview diagrams and the ITTO figure. The best approach is usually to take a very direct, simple format – use the name of the process and corresponding chapter/section number from the PMBOK® Guide as the title and ITTO are broken into Inputs, Tools and Techniques, and Outputs. Creating an this type of chart is more than a learning exercise, you will be creating a concise reference document to supplement your other study aids, as well as developing a quick reference guide that you'll find yourself using as your project management career progresses. What is the best way to learn ITTO for the PMP Exam? I'm often asked two similar but distinctly different questions: How to learn ITTO for the PMP exam? How to memorize ITTO for the PMP exam? One short answer will address both these questions: Study and learn what each ITTO is and learn why you need them in each process. Don't attempt to memorize them! While we all know people that are capable of memorizing all the ITTO, most of us can't. This is not a bad thing! It is more important to understand the how's, why's, and relationships between ITTO than it is to attempt to memorize all of them. Passing your PMP certification exam is best done by understanding and applying concepts, not memorizing facts. 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After reading this Complete Guide to PMP ITTO you should be more comfortable and knowledgeable about the basic "What's," "Why's," and "How's" of studying and using ITTO. To recap what we've covered in this Guide: ITTO form the foundation and framework for the nearly fifty Project Management processes. Outputs from one process can be Inputs for another. For the most part, ITTO are not unique to a specific process and the number of ITTO you have to learn is much shorter than it first appears. It is better and more productive to understand ITTO and their interrelationships than it is to attempt to memorize all of them. There are excellent figures and tables in the PMBOK® Guide that will help you understand and study ITTO for the exam. Preparing a PMP ITTO chart (summary spreadsheet) and flashcards are two excellent ways to use "writing to learn" to bolster your preparation for the exam. Learning the PMP ITTO is a significant undertaking, but with a solid commitment to studying and learning, a study plan developed by you for your personal circumstances, and diligent effort, you will learn and understand ITTO. Additionally, your return on this investment of effort compounds with time – the same way that a house appreciates in value – being well prepared and passing the PMP exam increase your market value. © 2015-2023 OSP International LLC. All rights reserved. This copyrighted article may not be reproduced without express written consent of OSP International LLC. Whether you're just beginning your studies, or are well in to your journey to earning a Project Management Professional (PMP)® Certification, it's natural to feel a little insecure or intimidated by the seemingly endless PMP® ITTO that are diagrammed and discussed for each Project Management process. This one topic is probably responsible for more questions and anxiety for PMP® candidates than any other exam-related topic. I have good news for you: understanding PMP ITTO and their relationships are logical, easily done, and this complete guide will show you how to understand and make ITTO your ally when taking the Exam. I promise you that by the end of this article you will have learned everything there is to know about the various aspects, facets and features of Inputs, Tools, Techniques and Outputs you need for your exam success. We'll start this by putting ITTO into context, then move into the "What's" and "Why's" behind ITTO, and finish with "How's" of studying and using ITTO. Putting ITTO in context Inputs, Tools, Techniques, and Outputs are the foundation and infrastructure of the Project Management processes discussed in the PMBOK® Guide. Also read PMBOK® Guide 6th Edition Knowledge Areas for Project Management - Process Groups and Processes - The Complete Guide for more on the relationships between Knowledge Areas and Process Groups. I find putting things context helps me to understand them better; in this case, using an analogy of building a house works well. We all recognize there is a world of difference between a pile of building materials on plot of land and a finished house. The same location and materials are included in both; yet one is a pile of "things," the other can be a home that nurtures a family. This is where ITTO come in, they allow you to build the house (or, processes and projects in our case). To build a house you need Inputs (plans, specifications, permits, financing, building materials, etc.), then you proceed to construction by using Tools and Techniques (skilled labor and trades, concrete, framing, electrical, plumbing, finish work, etc.); when done, you have a house as your Output. To take the house building example even further, there is an order to constructing a house and relationships between construction actions and activities. For example, you can't frame the house until the foundation is constructed and you can't wire or plumb the house until it is framed. ITTO, and the Project Management Processes they support, have similar logical sequencing constraints and relationships. Finally, to understand how a house is built, it is more important to know and understand the interrelationships and sequencing of construction activities than it is fixating on variable details, such as out how many nails may be needed – the same is true for processes and this Complete Guide will show you why. What does ITTO stand for? Let's start with the basics and then work through the "why's" and "how's." I've already stated in this Guide that ITTO stands for Inputs, Tools, Techniques, and Outputs. But, how are these terms defined? The following definitions and examples are taken directly from the Glossary and/or text, respectively, of the PMBOK® Guide – Sixth Edition: Inputs Any item, whether internal or external to the project which is required by a process before that process proceeds. May be an output from a predecessor process . Examples include: Project charter Project schedule Resource calendars Approved change requests Enterprise Environmental Factors (EEF), such as government or industry standards, project management information system, organizational structure, culture, practices, and infrastructure, etc. Organizational Process Assets (OPA), such as standardized guidelines, work instructions, project management templates, project files from previous projects, and other historical information, etc. Tools Something tangible, such as a template or software program, used in performing an activity to produce a product or result. Examples include: Analytical techniques Project management information system(s) Benchmarking Product analysis Techniques A defined systematic procedure employed by a human resource to perform an activity to produce a product or result or deliver a service, and that may employ one or more tools. Examples include: Meetings Expert judgment Inspection Interviews Decomposition Outputs A product, result, or service generated by a process. May be an input to a successor process . Examples include: Work performance information Change requests Project management plan updates Organizational process assets updates Project documents updates These definitions are taken from the Glossary of Project Management Institute, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide)– Sixth Edition, Project Management Institute Inc., 2017. You probably noticed that I placed emphasis on two statement above. Both say that Outputs from one process may be Inputs to another – this important fact will show up repeatedly in this complete guide. Why do I need to learn ITTO, it looks like a lot of work? I get asked this question all the time. You're quite right to question the "why;" understanding why ITTO are used and are important will greatly aid in your studying for the exam. Let's decompose these questions into smaller, more manageable pieces to look at the "why" behind ITTO (similar to what you'd do for a project's scope and/or deliverables). Why is the ITTO classification used? ITTO are the logical extension of the classification/standardization system used in the PMBOK® Guide. The PMBOK® Guide is divided into 10 Project Management Knowledge Areas, each of which is developed and supported by the 5 Project Management Process Groups, where applicable – this results in a total of around 50 processes. ITTO are a standardized means of systematically using the same method of developing and executing processes and projects. When you think about it, decomposing processes into ITTO reduces each to its most fundamental and basic components, and does so in a standardized manner that is equally applicable for all processes and projects. Understanding this allows you to build your project on a solid foundation from the ground up – like constructing a house. Why are there so many ITTO? There are many Project Management processes, and each of them have ITTO. The number of ITTOs associated with each process is proportional to the prerequisites (Inputs) necessary to start the process, the type(s) and level of effort necessary to do the process (Tools and Techniques), and the one or more things you produce from the process (Outputs). Are each Project Management process's ITTO unique? Some are; but, most aren't. By this I mean that there are some ITTO that show up only once (or even a handful of times). However, the majority of ITTO show up over and over – this is discussed in more detail below. Therefore, the number of ITTO you need to learn is actually far fewer than it first appears. Many ITTO look familiar, where have I seen them before? You're not imagining things, the majority of ITTO also show up as part of the vocabulary you need to be fluent in to pass the PMP exam. This allows you to double down on your studying by reinforcing vocabulary and ITTO at the same time. For more tips on studying for the PMP exam please review Creating Your PMP Study Plan - The Complete Guide. What are PMP ITTO? When project management practitioners refer to "PMP ITTO" they mean the global set of ITTO associated with all the Project Management processes detailed in the PMBOK® Guide, not ITTO related to one specific process. 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In the PMBOK® Guide, ITTOs are the basic building block of all 49 processes. These are the components of a process and understanding of these processes gives you a solid foundation for executing your project. Each process of PMBOK® Guide is designed to produce some output and for that, it applies tools & techniques on a set of inputs. Let's begin with each component of ITTO one by one: What is the input in ITTO? Before starting activities of a process, you need to think about all the pre-requisite items which ease the creation of the output. Let's suppose; you are planning to develop a plan for your project requirements and scope. For that, you are thinking – What existing organization templates (Organization Process Assets) can help me, What is the organization culture (Enterprise Environmental Factors) I need to take care of identifying stakeholders, And, what is the guideline for the approaches (Project Management Plan) of developing my Scope and Requirement Management Plan? And finally, what are the initial requirements (taken from Project Charter) which can be used to detail the Scope and Requirement management plan. All of these items are Input in ITTO, as all of these items support you in developing the Scope Management Plan and Requirement Management Plan. What are the Tools and Techniques in ITTO? After consideration of input, the next step you take is to carry out activities involved in the process. In your developing Scope and Requirements Management plan example – You meet with identified stakeholders and take their expert judgments. Also, you can do data analysis for the information you discovered during this process. Here Expert Judgment and Meeting are the Tool & Techniques for producing your Scope and Requirement Management Plan. What are the Outputs in ITTO? Outputs are the result of transformation on selected inputs. It is the application of Tools & Techniques on inputs. Like, during a meeting with your stakeholders, you take their opinion. And, produce the scope and requirement management plan, which serves the output of developing a scope management plan. Below is the consolidated view of the Plan Scope Management Process: Source: Project Management Institute, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) – Sixth Edition, Project Management Institute Inc., 2017, Figure 5-2, Page 134. PMBOK® Guide, Outputs from one process can be Inputs for another. This Scope Management Plan is an input to "Collect Requirements", "Define Scope", and "Create WBS" All of the PMBOK® Guide processes are grouped by process groups and the knowledge areas. For more on grouping and correlation between the PMBOK® Guide processes and knowledge areas, you may read Knowing PMBOK® Guide Knowledge Areas and Process Groups The Complete Guide to PMP® Exam ITTO (Inputs, Tools, Techniques, and Outputs) takes the definition of ITTO directly from the Glossary of PMBOK® Guide as follows: Each process of PMBOK® Guide has on average seven ITTO per process, and it takes around 300 total ITTOs. This number scares many of you; let me give you the good news here. You are required to learn much less number of these ITTOs. Most of the Input, Tools & Techniques, and Outputs are commonly used throughout PMBOK® Guide and PMP® certification training. All you need is to become fluent in these commonly used ITTOs. The PMBOK® Guide also helps you in learning these ITTOs. Part 2starting from page number 541 gives you a process group Overview figure and ITTO & Data Flow Diagram of each process. It is a great tool for those who are visual learners. Here I am presenting some of these ITTOs which are repeatedly used throughout the PMBOK® Guide. Commonly used Inputs in all ITTO: Enterprise Environmental Factors & Organization Process Assets: Many of you get confused about which input comes in Enterprise Environmental Factor (EEF) and which one comes in Organization Process Assets (OPA). EEF are factors that are outside the control of the Project Team. And, these are surrounded around your project. While OPA represents already available lesson learned, checklist, templates which organization has developed from the past projects learning. You may read more on the details of Enterprise Environmental Factors and Organization Process Assets Project Management Plan: The Project Management Plan in PMBOK® Guide is central to all the project work. And, defines how the project will be executed, monitored & controlled, and closed. You may easily observe that the Project Management Plan comes as an Input in most of the Planning processes because it provides an approach to developing plans. Also, as it defines how to do work and how to monitor the project progress, thus it comes in many Execution and Monitoring & Controlling processes. In summary, you can see the Project Management Plan as an Input in half of the processes. The Complete Guide to PMP® Exam ITTO (Inputs, Tools, Techniques, and Outputs) list all the processes which take Project Management Plan as an Input: Work Performance Information: The Work Performance Information is the output of controlling processes and gives your stakeholders the status of project deliverable s. Like – if the project meets the quality standards and how the project is performing against cost and schedule estimates. Work performance information is valuable information in taking many project decisions and serves input to Monitor & Control project work to generate integrated work performance report. Commonly Used Tools and Techniques in PMBOK® Guide ITTO: Expert Judgement: To meet the goal of a process, whenever you engage your stakeholders most of the time you are taking information for what they know (Expert Judgement) about the topic under discussion. In PMBOK® Guide, Expert Judgement is most commonly used in planning processes. Project Management Information System: (PMIS): In the PMBOK® Guide, the PMIS represents access to tools for the collection & distribution of information, and interfaces to other online automated systems. It is also considered to be an Enterprise Environmental Factor. As it comes from the organization environment and influences the project execution. It is a valuable tool to know for many PMBOK® Guide processes. Commonly Generated Output: Change Requests: As the project moves in execution as a result of work performed, most of the processes generate the Change Requests. All of these changes are processed through the Integrated Change Control Process and goes as input there. If these changes are approved, it usually updates the Project Management Plan and other Project Baselines. Updates: The updates in the Project Management Plan and Project Documents are typical output in many planning, execution, and Monitoring & Controlling processes. You may observe these updates throughout the PMBOK® Guide. Only a few direct questions come on the direct ITTO part as PMI focus on conceptual understanding. You need to give emphasis on the understanding of the relationship between Input, Output, and Tools & Techniques. If you want to overcome the fear of this ITTO, you need to focus more on understanding why a particular ITTO is used in a PMBOK® Guide process. It will not only support you to attempt pure ITTO based questions but also give you a better understanding of concepts to crack scenario-based questions in the PMP® exam. Your creation may support a strategy that works for you. You can create your ITTO chart to understand better the flow and relationships of Input, Output, and Tools & Techniques. Alternatively, you may download the following sheet which covers Input, Tools & Techniques and Output of all the 5 Process Groups and 10 Knowledge Areas. This sheet will help you to discover 'What' you are required (Input), 'How' you will achieve the process goal (Tools & Techniques), and 'What' you want to make (Output) from the process activities.In Summary, understanding ITTO by their interrelationships instead of memorizing all of them will remove your exam fear. Learning PMP® Exam ITTO is an important activity and a Study Plan will also help in passing the exam without unnecessary delays.iZenBridge offers a PMP® Certification Online training program which gives you complete assistance throughout your certification journey. We offer complete study materials, audiovisual training support, live webinars, and 24/7 trainer assistance.

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