M P you G

How to Link Tasks Using a Master Project Schedule

June 26, 2019 @ 12pm-1pm EST

Presented By:

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Objectives

- Describe the importance of sequencing activities when building a project schedule

- Define Precedence Diagramming Method

- Differentiate two methods of linking between projects

- Define master project

- Demonstrate linking activities across two projects using master project and subprojects

Project Schedule Management Knowledge Area
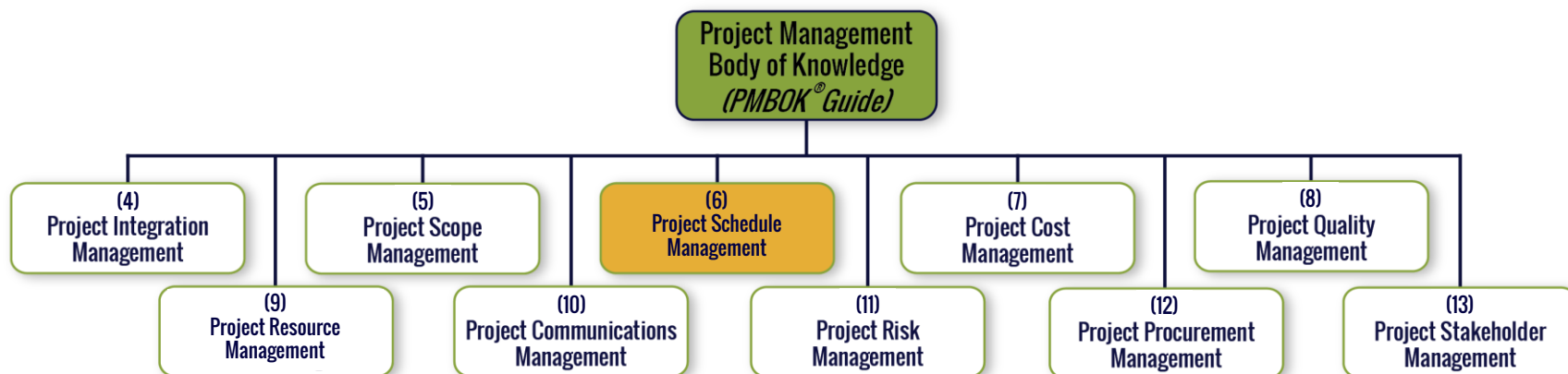
- Processes required to ensure timely project completion
  - Plan Schedule Management
  - Define Activities
  - **Sequence Activities**
  - Estimate Activity Durations
  - Develop Schedule
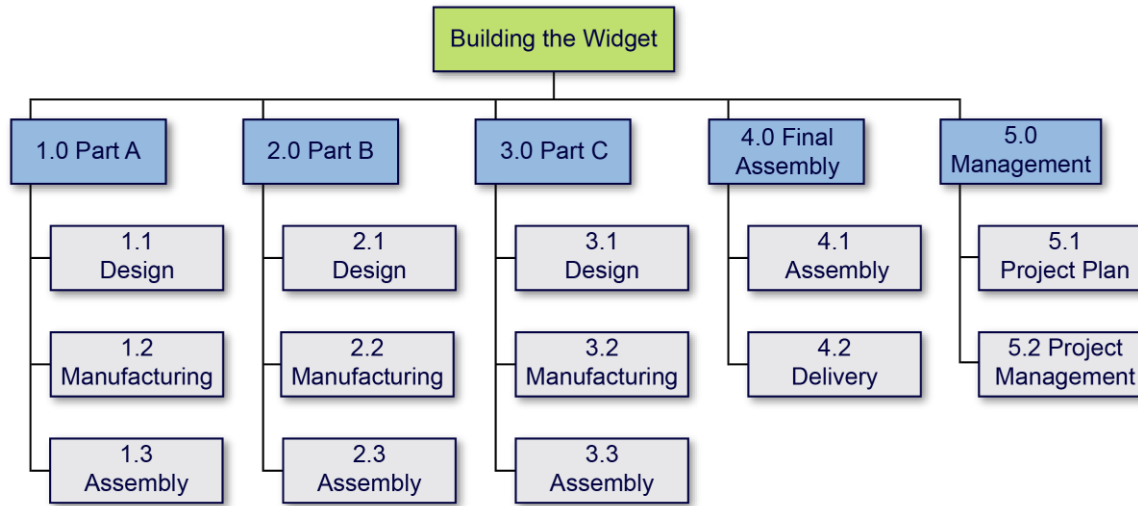 - Control Schedule

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Sequencing Activities

- Sequencing activities and milestones with logic is the foundation of any schedule model

- The method of connection is defined as a relationship

- Every activity and milestone, except the first (with no predecessor) and the last (with no successor), should be connected to at least one predecessor and one successor

- Considered best practice in GAO Schedule Assessment Guide and DCMA 14 point schedule assessment

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Sequencing Process

1. WBS

```
                    Building the Widget
    ┌──────────┬──────────┬──────────┬──────────┐
 1.0 Part A  2.0 Part B  3.0 Part C  4.0 Final   5.0
                                     Assembly  Management
    │           │           │          │          │
 1.1         2.1         3.1        4.1        5.1
 Design      Design      Design     Assembly   Project Plan
    │           │           │          │          │
 1.2         2.2         3.2        4.2        5.2 Project
 Manufacturing Manufacturing Manufacturing Delivery Management
    │           │           │
 1.3         2.3         3.3
 Assembly    Assembly    Assembly
```

2. Activity List

Activity and Milestone List
Part A
Design Part A
Manufacture Part A
Assemble Part A
Part A Complete
Part B
Design Part B
Manufacture Part B
Assemble Part B
Part B Complete
Part C
Design Part C
Manufacture Part C
Assemble Part C
Part C Complete
Final Assembly
Assemble Widget
Deliver Widget
Management
Deliver Project Plan
Project Plan complete
Project Management

3. WBS and Activity List Develops Sequence

```
Develop Project → Project Plan → Design Part A → Manufacture → Assemble → Part A
Plan             Complete                        Part A        Part A     Complete
                              → Design Part B → Manufacture → Assemble → Part B → Assemble → Deliver
                                                Part B        Part B     Complete  Widget    Widget
                              → Design Part C → Manufacture → Assemble → Part C
                                                Part C        Part C     Complete
```
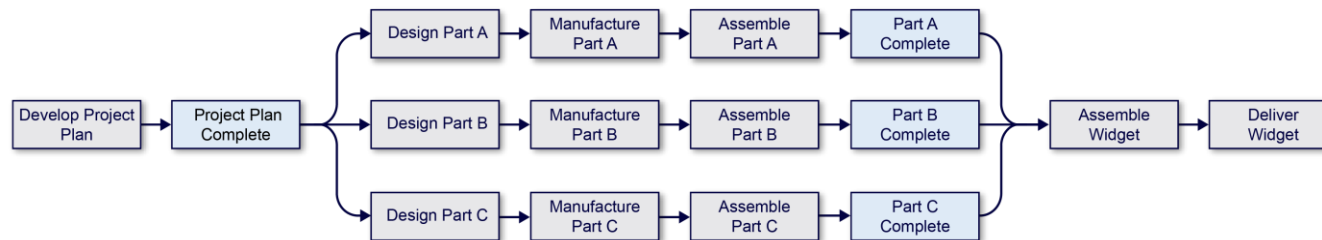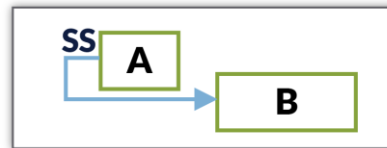
Precedence Diagramming Method (PDM)

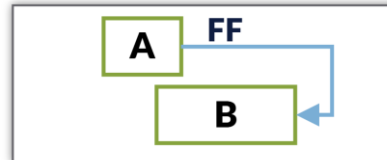- Illustrates assumed work tasks and expected relationships

  – Finish–to–Start

  – Start–to–Start

  – Finish–to–Finish

  – Start–to–Finish

Use a **network diagram** to accurately reflect a project's event sequence

Graphics adapted from the Project Management Institute, A Guide to the Project Management Body of Knowledge, (PMBOK® Guide) – Sixth Edition, Project Management Institute, Inc., 2017, Page 190.

Develop Schedule

- Once tasks are sequenced and the activity durations are estimated the schedule is built

- Microsoft Project allows many ways to link the tasks in the schedule
    - Typing the dependencies directly into the Predecessor field
    - Using the Predecessor/Successor table in the task form
    - Manually select tasks, clicking the Link Tasks button in the Task ribbon

Linking Task Across Multiple Projects

- Situations where linking across multiple projects may be needed
  - **Handoffs**
    - One project can't start until another one has completed so the respective start and finish milestones are linked
    - Software development does not start until requirements are complete
  - **Task completion is dependent on task completion in another project**
    - The manufacturing of the cockpit of a plane from one facility is dependent on the manufacturing of the navigation system from another facility
    - Each has a project schedule and these two tasks are linked
  - **Start and Finish of a Program consisting of two or more projects**

Methods of Linking Multiple Projects

- **Using Task Information dialog**
  - Ensure files are in same directory
  - Double-click task to be linked to open Task Information Dialog
  - Select Predecessor tab
  - Manually type project name/task row number in ID column

- **Directly into the task fields**
  - Manually type project name/task row number in the Predecessors or Successors field

- **Using a master project with subprojects**

Master Projects and Subprojects

- **Master projects**
  - Provide a project framework for the subprojects
  - Connect individual subprojects together
  - Contain the overall project flow and major milestones

- **Subprojects**
  - Detailed component projects individually managed and independently maintained
  - Become component and summary tasks of a master project

Recommended Subproject Link Methods

- Always use milestones in the master project to link tasks in two or more subprojects
    - Subprojects are easier to maintain without affecting the master project
    - Keeps subproject transition in front of the program manager
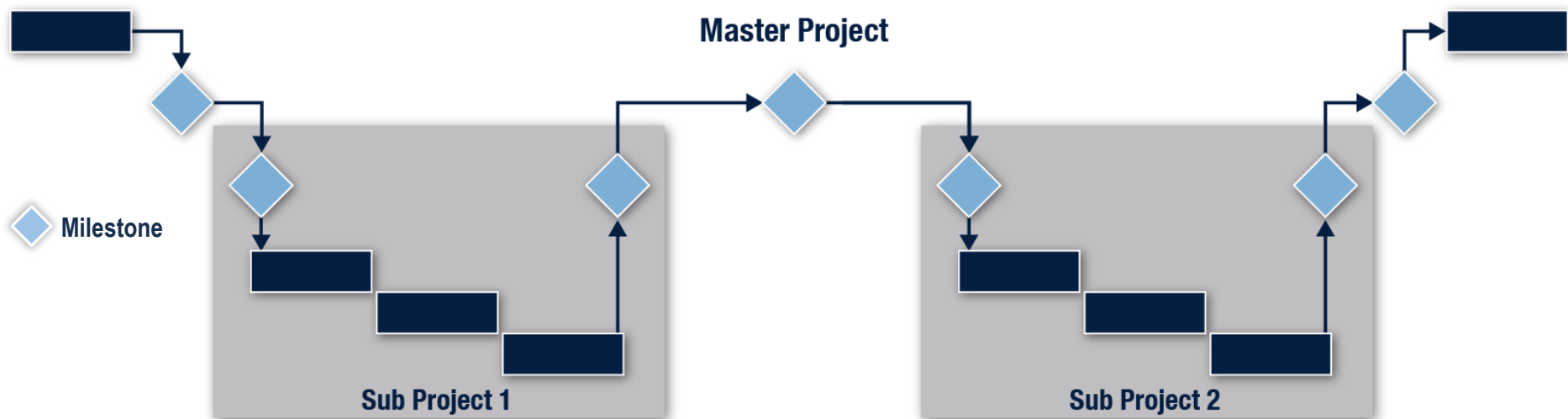
Master Project Contents

- Meetings and major milestones for project

- Contractual deliverables

- Non-contractual deliverables

- Handoffs between subprojects

- Program LOE tasks
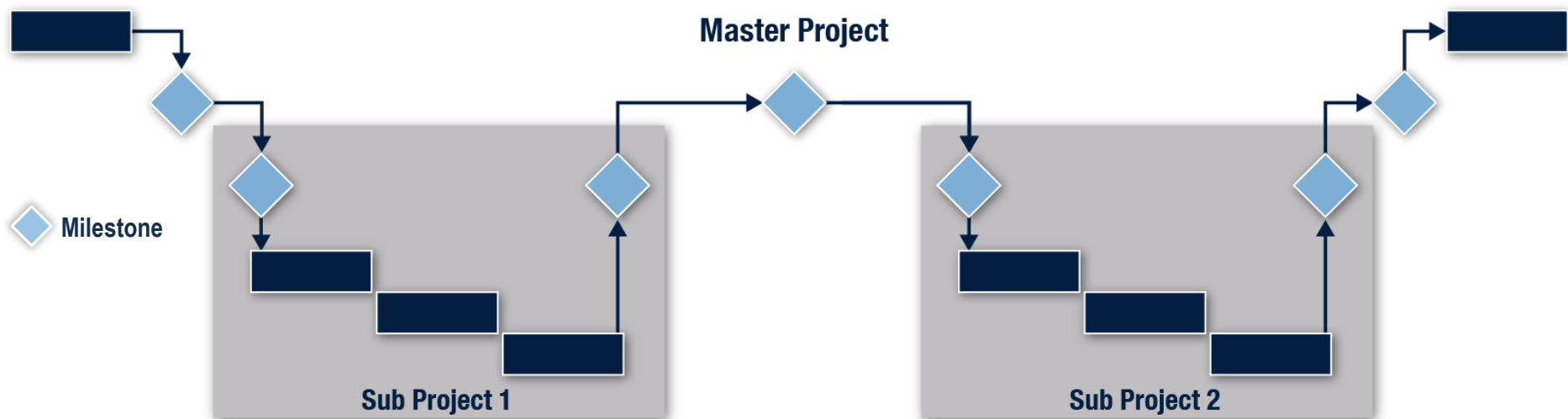
Subproject Contents

- Major milestones "owned" by the subproject

- Contractual deliverables "owned" by the subproject

- Non-contractual deliverables "owned" by the subproject

- Milestones for handoffs to other subprojects or the master

- Technical tasks

- Project LOE tasks
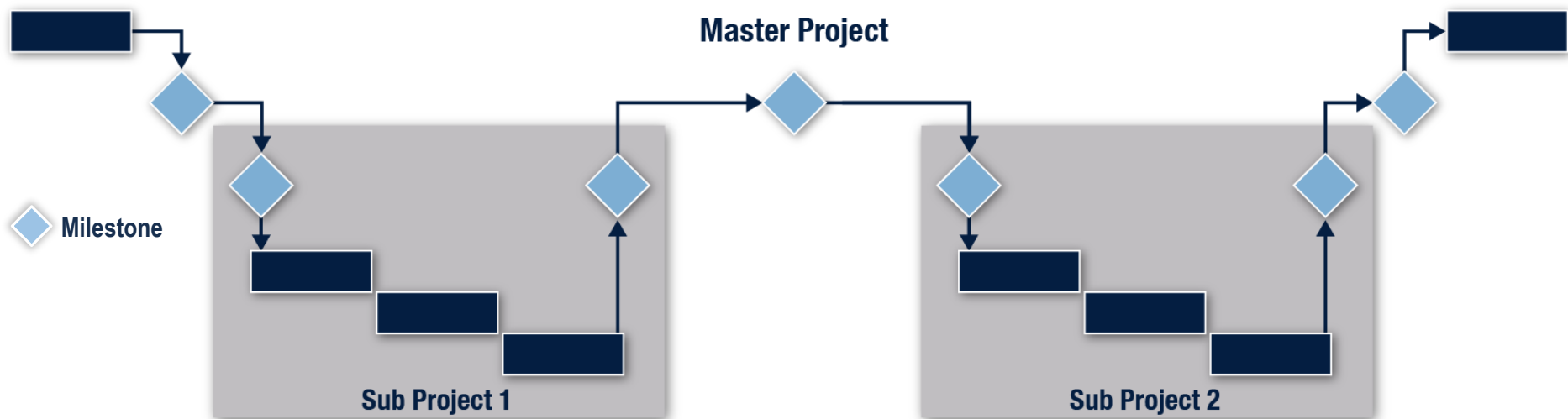
Linking Tasks Using a Master Project Demo

- Create master project

- Insert subprojects

- Create milestones

- Link master project milestones with subproject tasks or milestones

Insert a Subproject Into a Master Project

- **Step 1:** Select the **Project** tab

- **Step 2:** Select the task where the subproject will be inserted

- **Step 3:** Select **Subproject** in the **Insert** group

Insert Subproject

- **Step 4:** Select a schedule to be inserted

- **Step 5:** Click **Insert**
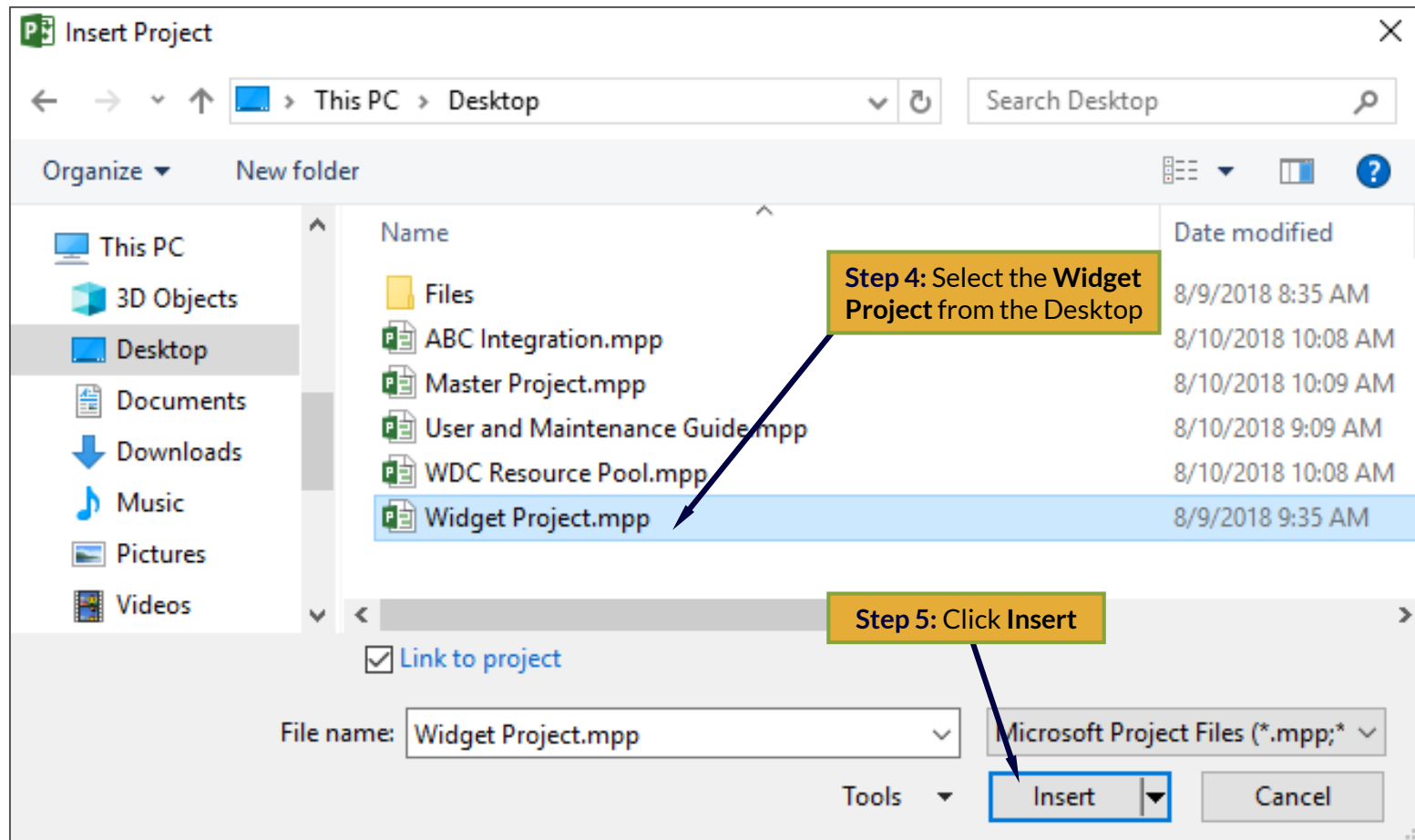
Project Schedule Inserted

- The inserted project file becomes a summary task

Add Remaining Schedules

- Insert the remaining schedules as subprojects

Insert the schedules

Enter the Milestones into the Master Project

- Enter milestones above subprojects

Add milestones to the master project

Link Between Master and Subprojects

- **Step 1:** Expand each of the subprojects
- **Step 2:** Select a milestone in the first subproject
- **Step 3:** Use <Ctrl> and select the milestone in the master project
- **Step 4:** Click the **Link Tasks** icon in the **Schedule** group

Link Between Master and Next Subprojects

- **Step 1:** Select the master project milestone
- **Step 2:** Hold <Ctrl>, select the milestone in the second subproject
- **Step 3:** Click the **Link Tasks** icon in the **Schedule** group

External Task Representations

- Schedule dates in both the master and the subproject are impacted

Project Management Plan Completed milestone scheduled to complete based on Widget schedule

Links between projects show source file

Task Name	Duration	Start	Finish	Predecessors	
Project Management Plan Completed			7/18	C:\Users\jbongiovani\Desktop\Widget Project.mpp\21	◆ 8/7
Preliminary Design Completed			/6/18		◆ 8/6
Management Review	0 days	Mon 8/6/18	Mon /6/18		◆ 8/6
Widget Delivered	0 days	Mon 8/6/18	Mon 8/6/18		◆ 8/6
User and Maintenance Guide Delivered	0 days	Mon 8/6/18	Mon 8/6/18		◆ 8/6
▷ **Building the Widget**	**36.13 days**	**Mon 8/6/18**	**Wed 9/26/18**		
▲ **User and Maintenance Guide**	**52 days**	**Mon 8/6/18**	**Wed 10/17/18**		
▲ **Develop User and Maintenance Guide**	**36.5 days**	**Mon 8/6/18**	**Wed 9/26/18**		
Guide Started	0 days	Tue 8/7/18	Tue 8/7/18	C:\Users\jbongiovani\Desktop\Master Project.mpp\2	◆ 8/7
Draft User Guide	20 days	Wed 8/8/18	Wed 9/5/18	3	
Draft Maintenance Guide	5 days	Thu 9/6/18	Wed 9/12/18	4	
Create First Draft	5 days	Thu 9/13/18	Wed 9/19/18	5	
Review First Draft	2 days	Thu 9/20/18	Fri 9/21/18	6	
Preliminary Design Completed	0 days	Mon 8/6/18	Mon 8/6/18		
Create Final Draft	2.5 days	Mon 9/24/18	Wed 9/26/18	7,8	
▷ **Print and Reproduce User and Maintenance Guide**	**15.5 days**	**Wed 9/26/18**	**Wed 10/17/18**		
▷ **ABC Integration**	**43 days**	**Mon 8/6/18**	**Thu 10/4/18**		

Start User and Maintenance Guide starts on 8/7/2018

View External Links

- **Step 1:** Select the **Project** tab
- **Step 2:** Select **Links Between Projects** in the **Properties** group

Links Between Projects Dialog

- The **Links Between Projects** dialog displays details regarding external links in the project

External Predecessors tab displays the tasks in other schedules that are predecessors to tasks in this schedule

Links Between Projects In C:\Users\jbongiovani\Desktop\Master Project.mpp

| External Predecessors | External Successors |

ID	Task	Type	Date	% Comp	Differences
2	Project Management Plan Co				
	Deliver Project Plan	FS	Tue 8/7/18		

Path:

| Help | Accept | All | Delete Link | B... |

Links Between Projects In C:\Users\jbongiovani\Desktop\Master Project.mpp

| External Predecessors | External Successors |

ID	Task	Type	Date	% Comp	Differences
2	Project Management Plan Co				
	Guide Started	FS	Tue 8/7/18	0%	None

External Successors tab displays the tasks in other schedules that are successors to tasks in this schedule

| | Accept | All | Delete Link | Browse... | Close |

The Predecessor task name, the date for the task, and file name that contains the task will all be displayed

Summary

- Insert subprojects into the master project

- Add milestones to the master project

- Link the master milestones with the subproject tasks and/or milestones in the order of the desired sequence

- Repeat process as many times as needed

Questions?

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Thank You!

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