Project Scheduling and Budgeting

Week 4 Project

Mark Wrublewski

South University

MGT3035

Dr Flores

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**The critical Path**

The critical path is typically the arrangement of actions that regulate the project period. It is the lengthiest path in the project, and even minor variations can affect the project length. Project activity diagram, including front map and arrow figure. The nodes represent activities, arrows indicate logic. The node has no practical meaning, only indicates the start and finish of the action, and the arrow line indicates both the task and the logical relationship. When seeking general critical path method by using six-time scale of FIG preamble, the total difference is equal to 0 or is less than the activity of the composition of the critical path 0.

Once an arrow is drawn from task A to task B, this means that task A must be accomplished earlier task B. There are equivalent tasks situated at the same stage but have diverse task lines. They should not depend on each other e.g. point 1 to task A and B. Arrow Diagramming Method (ADM) is a network circle drawing method that applies arrows to denote activities and nodes to signify events. This method is also called Active on the AITOW (AOA). In the arrow notation, assign a unique code to each event instead of each activity. The start of the activity (the tail) event is called the precede event of the activity, and the end of the activity (arrow) is called the successor event of the activity.

The critical path is created by end-to-end dependences from one task to the other, consequential in a happy-path duration (all went well). So, assuming entirely the tasks in the spreadsheet and their prototypes run from start to finish. When a project is distinct to have a clear start and end, one could add a "virtual" node the project that has an end-to-end reliance on the "last" nodes has the path of the longest duration ( as we has multiple paths with the same total duration) in chart. Thus if one of the tasks on these paths takes longer than expected, the last node becomes critical path (s).

**Comparison between AON and AOA**

Hillier and Lieberman (2001) believe that traditional project networks are mostly represented by AOA, but The AON network map has the following advantages over the traditional AOA network diagram: 1. The AON network map is easier to construct than the AOA network map. 2. The AON network diagram is graphically represented and intuitive. 3. When the project schedule needs to be adjusted or changed, the AON network map is easier to correct than the AOA network map. 4. AOA mode drawing does not require virtual jobs, and network diagrams are easier to draw. Use AOA in the way of drawing, it is often necessary to use virtual jobs to fully indicate the relationship between the operations; AON mode drawing does not use virtual job.

AON's method of drawing network diagrams and planning and controlling projects is also based on AON. The way to draw a project network diagram does not require a virtual job. Due to the above advantages, the AON project network map is gradually accepted by users, which is now more commonly used to represent Network diagram of project scheduling. However, when drawing a project network map in AOA mode, the required nodes are usually required to be drawn in AON mode. The number of nodes is small, and the AOA drawing method is to express the project network by means of traffic network. Therefore the AOA method facilitates the planning of projects using traffic network analysis methods

**What is "slack" and why is it important**

Allowable slippage for path; the alteration the extent of path and the distance of critical path (Meredith and Mantel, 2014). “On occasion, the PM may convert an adequate accomplishment date for a project which permits for some slack in the whole network. (Meredith and Mantel, 2014, p. 336).

From the beginning of the project plan to the completion of the entire project, the work will not be limited to a single order, these differences the sequential job is called the path of the network, and the total length of time required for each path is the total of all the operating periods. And, the longest path is called the critical path of the project network map. Time required for each job on the critical path the sum total is the total duration of the entire project. If there are different paths with the same total length of time, then the project There are more than one critical path. The importance of a critical path is any activity on the path, if there is a delay Will affect the progress of the entire project, and the delay in the progress of other non-critical paths will not necessarily affect the progress of the entire project. Conversely, if you want to shorten the total duration of the project, one should try to shorten it on the critical path.

According to the definition of the Project Management Institute (PMBOK) in 2000, the actual value management is an integration model. Domain, time, and resources to measure the effectiveness of the project. It will plan the amount of work to be performed, and it has actually been implemented. A comparison of the workload and the cost already spent to determine whether the cost and time schedule are achieved according to the plan objectives. Real Value-managed projects, from work packages to overall project levels, are common The monitoring system can also integrate various functional management such as project schedule and cost, and it is easy to focus on execution

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