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LisaProject: Applications of LisaProject

While the Lisa applications library offers many attractive features, LisaProject draws the attention of many executive decision makers. Apple presents LisaProject as a powerful instrument to efficiently and effectively accomplish resource scheduling. But as one explores the subject beyond this point, many questions arise. What is PERT, and how does LisaProject use PERT to achieve its schedule? What is a critical path and what are its implications? How does one apply LisaProject in the real world? Although the complete answers to these questions go beyond the scope of this publication, we will briefly discuss some of the issues and provide further research avenues for the reader.

What is PERT? PERT (Program Evaluation and Review Technique) is a scheduling algorithm, developed and utilized extensively by the Air Force during the Second World War. It identifies the tasks, resources, and their associated time-frames needed to complete an objective. Simply put, PERT is a network model which determines the significance and timing of the tasks involved in completing a project. As opposed to the majority of linear programming models that seek to maximize/minimize an objective function, PERT's algorithm uses Lisa's date arithmetic to arrive at the estimated sums of elapsed time to complete a "leg" of the project. The individual times associated with each "leg" are then compared to determine the longest route. This longest "leg", then, is the "critical path". Each task along the "critical path" is identified as a mandatory activity which is essential to timely completion of the project, and therefore, is defined by the system as having no spare ("slack") time. Again, as opposed to linear programming tools, PERT neatly avoids "supoptimization" (scheduling of two or more resources during the same time period), while arriving at an optimal solution to the problem.

Management scheduling staffs can bring the project generation phase to a rapid finish. During the progress of the project, the "what if" capabilities offer myriad uses. Specifically, the "critical path" identification feature not only indicates the relevant priorities of tasks, but its corollary argument tells the manager which tasks he can relatively ignore. If task A, to give an example, is not on the "critical path", then one should not expend labor, money or other scarce resources to try to expedite it. Devoting further resources to task A just will not abbreviate the length of the entire project. Also, the planner may take the completed project and use it to clearly develop budgets by tagging dollar values to resource and task "classes" and using LisaCalc to crunch the numbers.

For readers who desire further information on these topics, see:

1. "PERT ORGANIZATION: A Technique for Evaluating Schedules", Publications, Inc., October 1981, pgs. 407-412. A six page discourse on the Boolean Matrix involved in PERT.
2. Elementary Systems Mathematics: Linear Programming for Business , Robert E. Machol, McGraw-Hill Book Co., NewYork, 1976. An exhaustive examination of mathematical programming techniques which are matrix oriented.
3. "Computerizing PERT for Business", Dun and Bradstreet , January, 1979, pgs. 87-95. How to apply computer generated PERT charts to everyday business situations.
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