July 1967

Brief 67-10240

NASA TECH BRIEF

Vis-A-Plan (Visualize A Plan) Management Technique Provides Performance-Time Scale

The problem:

To devise a bar-charting technique for representing and evaluating project activities on a performance-time basis.

The solution:

Vis-A-Plan is a rectilinear method of charting that presents the logic diagram of a project as a series of horizontal time bars. Although compatible with and supplementary to PERT, this technique may be used independently in development planning without the need for sophisticated machine programming and computer analysis.

How it's done:

The event/activity relationship between Vis-A-Plan and PERT is the same, but the manner of display is significantly different. In PERT, the activity is represented by a line with an arrowhead showing the direction of activity flow, the length of the line has no real meaning in terms of graphic representation of length of time. In Vis-A-Plan, the length of the activity bar is the true length of the planned activity indicated by time scale, and each activity is identified by notations describing it and the individuals or offices responsible for its accomplishment. In addition, Vis-A-Plan uses alphabetical coding along the vertical axis, facilitating location of any stage of activities by rectangular coordinates.

Two fundamental types of activities are generally shown with the Vis-A-Plan chart: series and parallel. Series activities which have direct relationships and modifying effects upon each other are depicted as a series of steps. Parallel activities are those which proceed independently and concurrently, appearing as parallel bands. The network notations and reporting methods developed to simplify and standardize charting procedure are shown.

Notes:

1. This technique offers a number of distinct advantages to both management and the work force, as it is relatively simple to use and interpret. It can condense information from many documents and planning elements into a single time-scaled picture from which one can, by inspection, determine activity sequence and interrelationships, key events and dates, concurrent activities, procurement lead times, critical situations, and project status.
2. This technique should find many applications in management practice covering a wide range of activities including aircraft maintenance, manufacturing, publication production, government agency operations, research projects, and procurement activities. It should be particularly useful for making surveys and project reports in almost any work area because this system is easy to set up and maintain and is based on simple time/cost logic which anyone can understand.
3. Inquiries concerning this innovation may be directed to:

   Technology Utilization Officer
   Kennedy Space Center
   Kennedy Space Center, Florida 32899
   Reference: B67-10240

Patent status:

No patent action is contemplated by NASA.

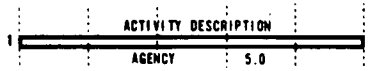
Source: Nathan H. Ranck
of Trans World Airlines
under contract to
Kennedy Space Center
(KSC-10073)

Category 06

(continued overleaf)

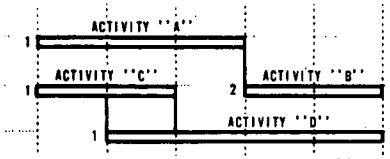
NETWORK NOTATIONS

1 ACTIVITY DESCRIPTION



LENGTH of horizontal ACTIVITY BAR indicates the SCHEDULED WORK TIME.
Notation ABOVE bar DESCRIBES ACTIVITY.
Notations BELOW bar are to denote AGENT RESPONSIBLE for reporting activity PROGRESS, and may include, the activity length in TIME UNITS, if needed.

2 SERIES AND PARALLEL ACTIVITIES

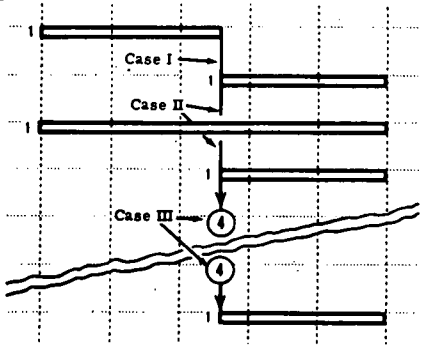


START of Activity "B" is DEPENDENT on COMPLETION of Activity "A".

START of Activity "D" is DEPENDENT on PARTIAL COMPLETION of Activity "C".

CONTINUATION of "D" is DEPENDENT on COMPLETION of "C".

3 ACTIVITY INTER-CONNECTIONS



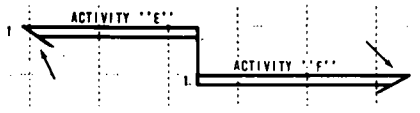
VERTICAL INTERCONNECT LINES depict SCHEDULE RELATIONSHIPS and INTERDEPENDENCIES between activities, thus:

Case I - Related adjacent activities are directly connected.

Case II - Related activities separated by one or more unrelated activity lines.

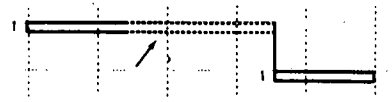
Case III - Related activities which are widely separated, or are on different nets, are connected by circle interface numbers.

4 INDEFINITE STARTS AND END



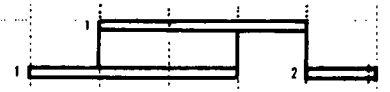
The FEATHERED ENDS indicate that the STARTING DATE of Activity "E" and COMPLETION DATE of Activity "F" are either not known, or occur beyond the time scale of the chart.

5 PLANNED SLACK TIME



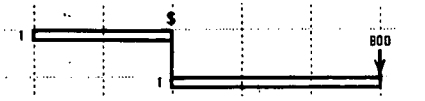
"SLACK" TIME. A period of no scheduled work with respect to the specific program.

6 NETWORK RE-EVALUATION



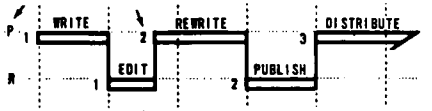
NETWORK SHADING. Network segments shaded in gray are under study and may be revised.

7 SPECIAL SYMBOLS



DOLLAR SIGN - Funds required by this date to continue as scheduled.
NETWORK ARROWS may be used:
To clarify direction of information flow in complicated networks (not shown). To indicate specific points in time, i. e., "BOD".

8 ALPHA-NUMERIC LOCATOR



Activity Locator (Alpha-Numeric)
Alphabetically noted horizontal lines, top to bottom of chart.
Numerically noted activities, serially from left to right on each line.
Example: "REWRITE" activity is referenced as "P-2".

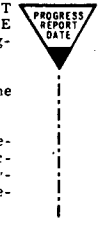
PROGRAM PROGRESS REPORTING

A PROJECT SCHEDULE

As shown in NETWORK NOTATION #1, the original plan and schedule for a project's activities are represented by two solid, parallel lines laid horizontally on a time-scaled grid.

B REPORT DATE MARKER & REFERENCE LINE

As programs are updated, a REPORT DATE TRIANGLE and REFERENCE LINE will be placed on the master charts in register with the appropriate date.

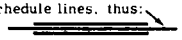


Data to the LEFT of the reference line will reflect PROJECT HISTORY.

Data to the RIGHT of the line will represent the SCHEDULE of the remaining activities, and a FORECAST for those activities in process at the time progress report information is posted.

C ACTUAL ACTIVITY PERFORMANCE

A single solid line, when inserted between the parallel activity schedule lines, thus:



will denote the period of ACTUAL ACTIVITY PERFORMANCE, and may represent ---

EARLY COMPLETION:

EARLY START:

ON TIME COMPLETION:

ON TIME START:

LATE COMPLETION:

LATE START:

SLIPPAGE:

OR ANY COMBINATION OF THESE CONDITIONS.

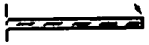
Current program progress will be represented directly along the report date reference line for activities:
In progress,
Completed since previous report date,
Starting since previous report date.

D ACTIVITY PERFORMANCE FORECAST

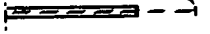
When used in conjunction with the Activity Performance line pattern described in "C", above, a FORECAST of an early, on time, or late completion of an activity in process MAY BE INDICATED, thus:

Early completion:

On time completion:



Late completion:



E PROGRAM OR PROJECT RESCHEDULING

In the event that a project has experienced delays of a magnitude warranting a rescheduling, a "rescheduled" notation will be placed at the top and bottom of the master chart, along with a notation as to the cause of the rescheduling (generally, citing the activities involved).

To preserve a record of the original planning, the original operational date (or other key date) will be noted along the upper portion of the chart, using super script numbers to denote the sequential order of reschedule, and the impact on the original key date.

See example below where **0** = Operational Date.