

IDEAGRAMS

LESSON FIVE

SYMBOLS AND
DESCRIPTION OF
NETWORK ANALYSIS
FUNDAMENTALS AND
SYMBOLS

IDEAGRAMS:

- THINK VISUALLY
- CONCENTRATE
- ANALYZE CONTENT

LESSON FIVE

INTRODUCING: Network Analysis Description and Legend of Symbols

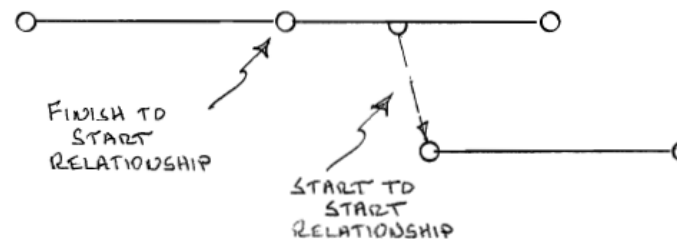
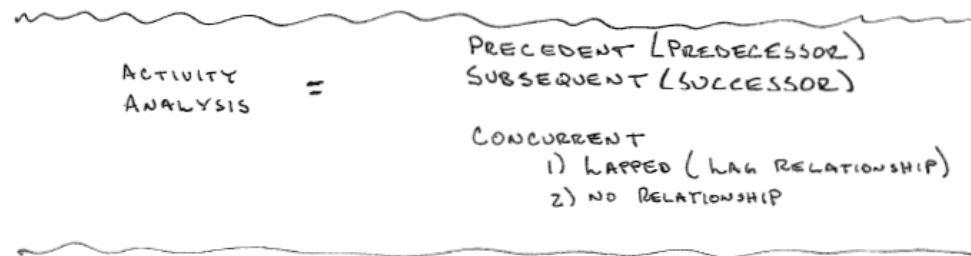
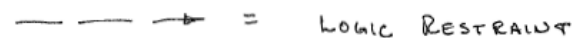
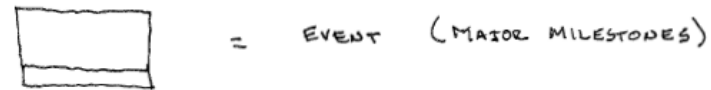
NETWORK ANALYSIS SYMBOLS

THESE ARE THE STANDARD SYMBOLS USED IN A PROJECT MANAGEMENT TYPE NETWORK ANALYSIS DIAGRAM

WE WILL USE SIMILAR SYMBOLS WHEN WE DISCUSS HOW TO PREPARE AN IDEAGRAM THAT CONVEYS THE IDEAS AND CONTENT OF WRITTEN MATERIAL

IT IS IMPORTANT TO UNDERSTAND THESE SYMBOLS AS A BASIS FOR THE FUTURE EXPLANATIONS

NETWORK ANALYSIS SYMBOLS



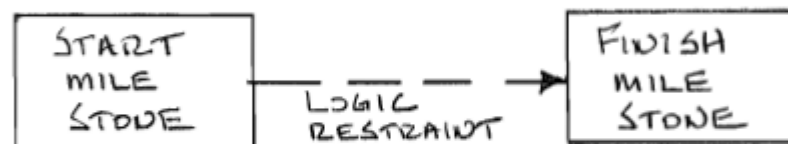
NETWORK ANALYSIS DEFINITION

THESE DEFINITIONS AND DESCRIPTIONS EXPLAIN IN MORE DETAIL THE PROCESS AND THE SYMBOLS

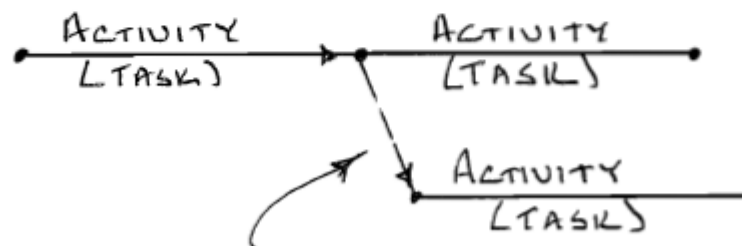
ALTHOUGH THESE DEFINITIONS AND SYMBOLS ARE PROJECT MANAGEMENT SPECIFIC THEY WILL BE USED IN A SIMILAR MANNER WHEN PREPARING AN IDEAGRAM

A NETWORK ANALYSIS / LOGIC DIAGRAM IS A PICTURE OF A SEQUENCE OF ITEMS REQUIRED TO REPRESENT RELATIONSHIPS IN A FLOW FROM LEFT TO RIGHT:

BOX (EVENT, MILESTONE, TOPIC – DOES NOT CONSUME TIME IN A TYPICAL PROJECT NETWORK ANALYSIS; USUALLY REPRESENTS THE START OR FINISH OF A SERIES OF TASKS OR ACTIVITIES)



SOLID ARROW (TASK, ITEM, IDEA IN MORE DETAIL – MAY CONSUME TIME IN A TYPICAL PROJECT NETWORK ANALYSIS)



DOTTED ARROW (REPRESENTS A RELATIONSHIP BETWEEN EVENTS AND/OR ITEMS)

IDEAGRAM: OKAY I KNEW YOU COULDN'T WAIT:

THIS IS AN INNOVATIVE
WAY OF ANALYZING
WRITTEN MATERIAL BY
MAKING AN OUTLINE IN
A NETWORK FORMAT

THE "BOXES" BECOME
MAIN TOPICS OR
HEADINGS

THE LINES WILL
CONTAIN SPECIFIC
EXPLANATORY IDEAS
OR CONTENT

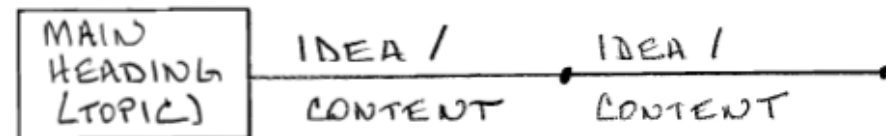
WE WILL STUDY THIS IN
MORE DETAIL LATER

FOR AN OUTLINE OF WRITTEN MATERIAL:

MAIN HEADING

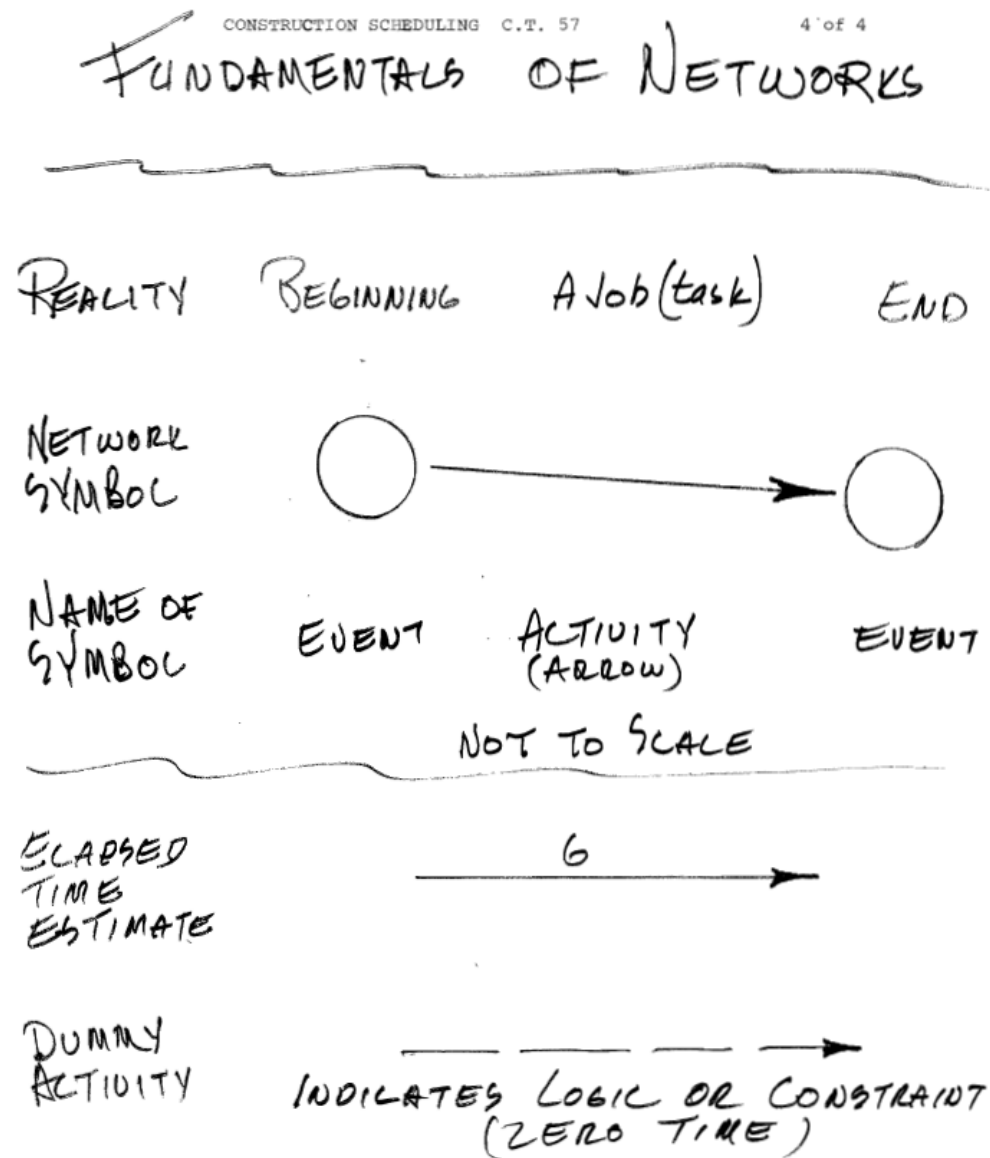
DESCRIPTION

LOGIC



NETWORK ANALYSIS SYMBOLS RE- STATED

THIS CHART WAS
USED BY MY MENTOR
(KARL F. ELLIOTT) IN A
CLASS HE TAUGHT AT
A LOCAL COMMUNITY
COLLEGE



PERT/CPM NETWORK ANALYSIS

WHAT IS IT ?

WHAT DOES IT DO ?

HOW IS THE NETWORK
ANALYSIS MADE ?

THE QUESTIONS AT THE
BOTTOM OF THE PAGE
APPEAR TO BE (AND
ARE) EXTREMELY
SIMPLE

COMPLEXITY ARISES
WHEN THE SPECIFIC
PROJECT HAS MANY
DIFFERENT ELEMENTS
AND SEQUENTIAL
REQUIREMENTS

WHAT IS PERT/CPM NETWORK ANALYSIS ?

Network analysis is a graphic picture of all the tasks required to construct a project. It particularly identifies the relationships among those activities. The tasks are shown on a chart that flows from left to right in a logical sequence as determined by the plans and nature of the project.

Time estimates are made for each task based on relevant experience and the conditions under which the task will be performed. When added together (like a roadmap) and the duration totals accumulated throughout the network the earliest anticipated time that it will take to construct the project is calculated. This longest related sequence of activities is called the critical path. The relationship among the various parts of the project (the other sub-critical paths) reveals the excess time that is available and is called slack or float.

WHAT DOES PERT/CPM NETWORK ANALYSIS DO?

The method forces a systematic and thorough analysis of the project by those who are going to construct it. The result presents an over-all plan of the project integrating the responsibilities of the architect, owner, construction manager, contractor, subcontractors, suppliers and third parties. The PERT/CPM network isolates and defines responsibility (it's always clear whose back the monkey is on at any given time).

The network analysis provides appropriate information with which to schedule, control and re-schedule when the unforeseen occurs. It also helps to foresee and identify possible trouble ahead before it happens.

HOW IS THE PERT/CPM NETWORK ANALYSIS MADE?

The people responsible for planning and building the project make the network. It is best a collaborative effort including the General Superintendent, Superintendent, Project Manager, Foremen, Estimators, Subcontractors and Network Analyst.

Planning (i.e. creating the network analysis) is separated from scheduling. Planning (i.e. sequencing) is performed first and completed. Time estimates are made based on present known availability of crew, material, resources and equipment and then scheduling decisions are made to finalize the initial schedule.

Three questions are asked:

What can be done first ?

What follows the initial activity?

Can anything be performed concurrently (i.e. independently and at the same time).

SAMPLE OF A
PERT/CPM
NETWORK
DIAGRAM

THE
FOLLOWING
CHART WAS
PREPARED IN
1980 TO
SUPPORT THE
LAUNCH OF A
MISSILE BY
BOEING
AEROSPACE
COMPANY

INTRODUCE: 1980 BOEING
AEROSPACE 1st T34D / IUS Launch
(Use of Network Analysis for a Missile
Launch)

SHOW: Sample and Brief Discussion

EXPLAIN: Milestones (Event / Point in
Time)

ACTIVITY: Work Tasks with Duration

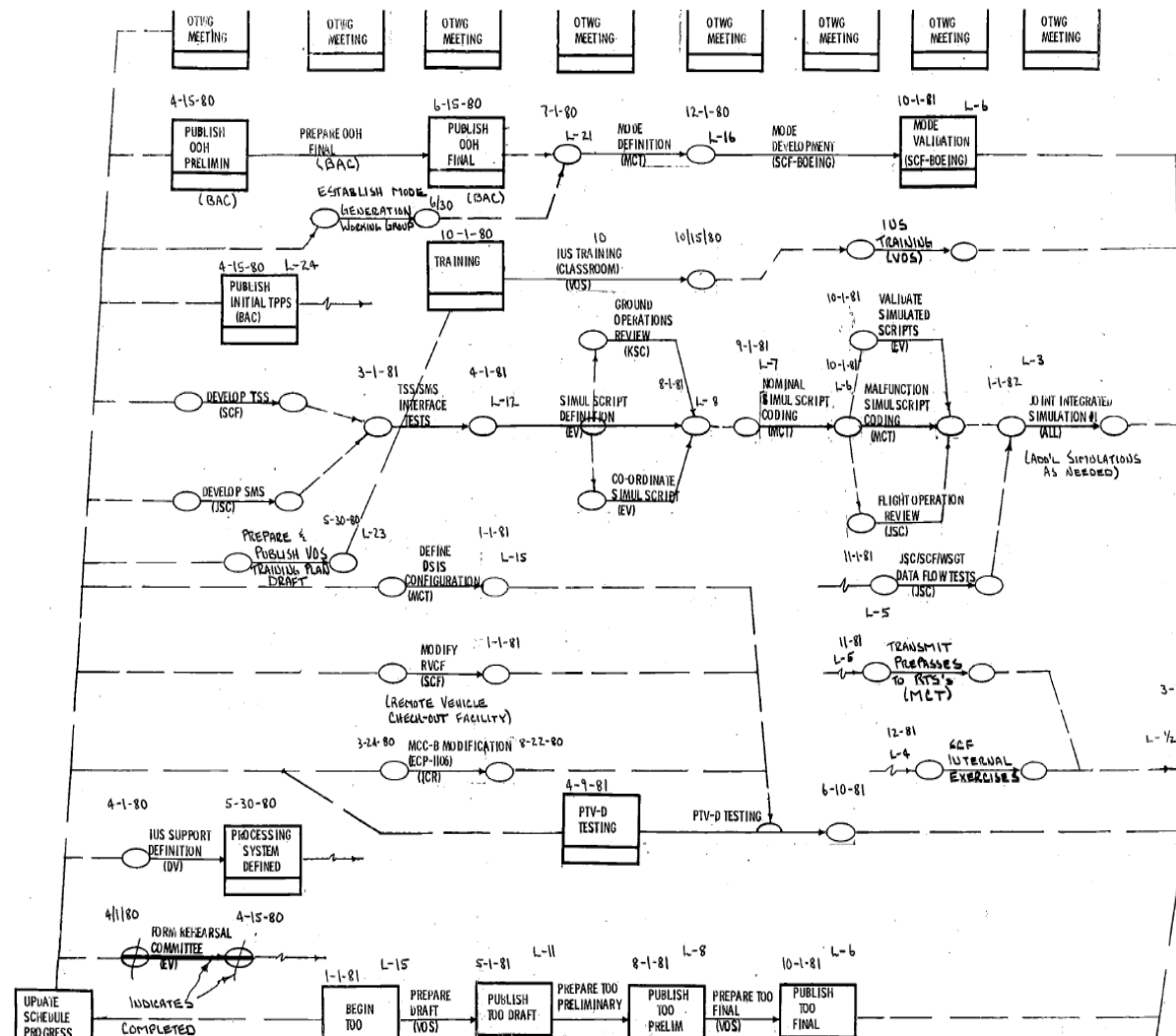
SUMMARY PERT/CPM SCHEDULE

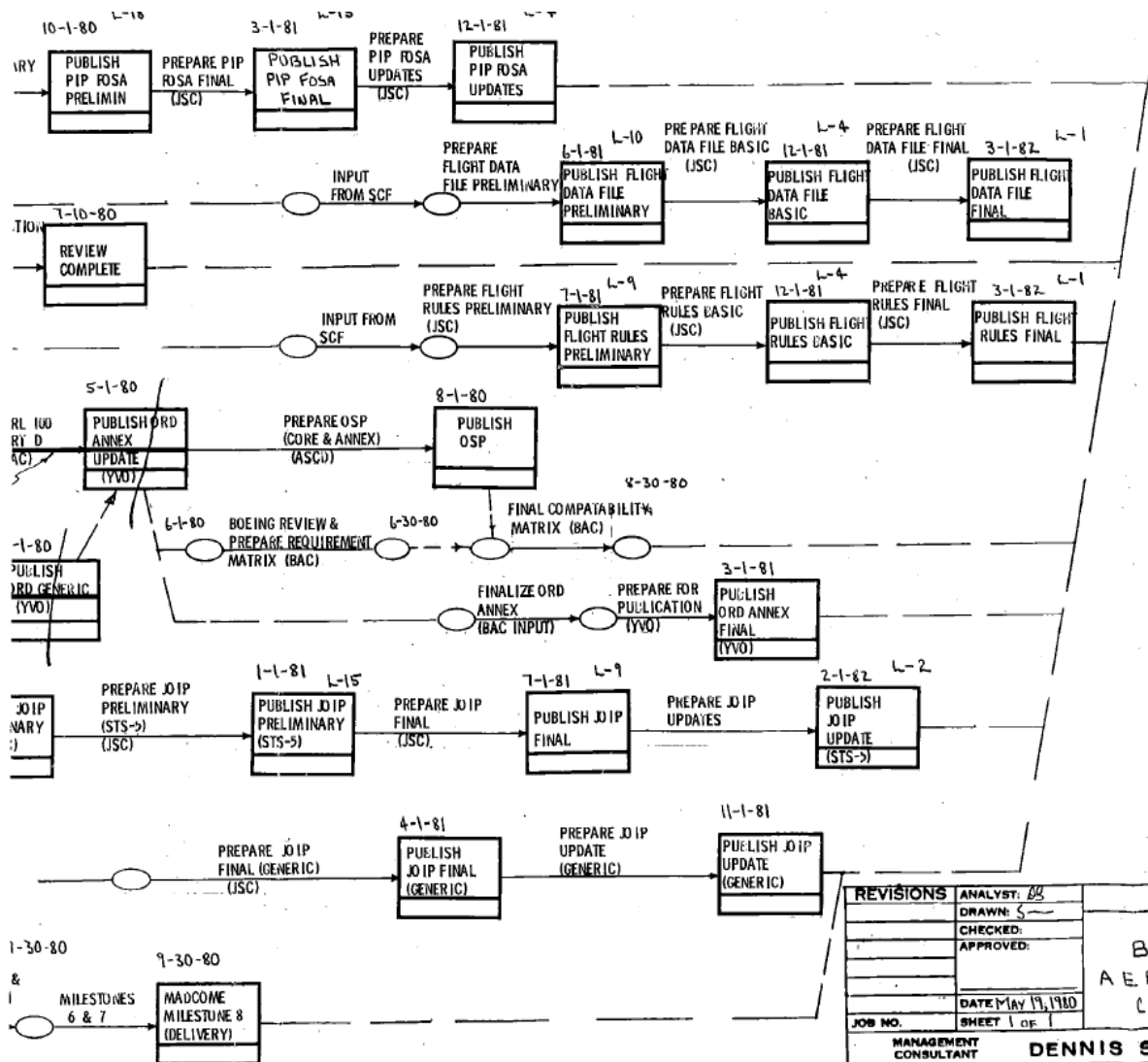
THIS IS A SUMMARY
SCHEDULE IN THE
PERT/CPM NETWORK
ANALYSIS FORMAT
(NOT TIME-SCALED)

IT WAS PREPARED FOR
THE BOEING
AEROSPACE
COMPANY'S 1ST
T34D/IUS LAUNCH IN
1980.

THERE WOULD HAVE
EXISTED OTHER, MORE
DETAILED SCHEDULES
TRACKING ACTIVITIES
AND EVENTS FOR THIS
PROJECT

ANOTHER PART OF
THIS SCHEDULE IS ON
THE NEXT PAGE

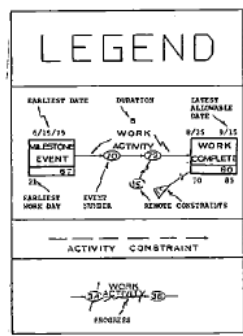




JOI JOINT OPERATION INTERFACE PROCEDURES
 VOS SCF MISSION CONTROL CENTER
 YVO PROGRAM OFFICE

ACTIVITY ACRONYM LEGEND

- BAC TA BOEING TECHNICAL ADVISERS
- DSIS DEFENSE SATELLITE INTERFACE SYSTEM
- IUS INERTIAL UPPER STAGE
- JOIP JOINT OPERATION INTERFACE PROCEDURES
- OOH ORBITAL OPERATIONS HANDBOOK
- ORD ORBITAL REQUIREMENTS DOCUMENT
- OSP ORBITAL SUPPORT PLAN
- OTWG ORBITAL TEST WORKING GROUP
- PIP FOSA PAYLOAD INTEGRATION PLAN -- FLIGHT OPERATION SUPPORT ANNEX
- PTV-P PATHFINDER TEST VEHICLE
- RTS REMOTE TRACKING STATION
- SMS SHUTTLE MISSION SIMULATOR
- TOI TECHNICAL OPERATION INSTRUCTIONS
- TOO TECHNICAL OPERATION ORDERS
- TPPS TEST PLANNING & PROGRAM SCHEDULE
- ISS TELEMETRY SYSTEM SIMULATOR
- WSGT WHITE SANDS GROUND TEST TERMINAL



REVISIONS ANALYST: <i>DL</i> DRAWN: <i>S</i> CHECKED: APPROVED: DATE: May 19, 1980 SHEET 1 OF 1		PERT/CPM NETWORK ANALYSIS BOEING AEROSPACE COMPANY 1ST T34D/IUS LAUNCH PO Box 50383 PALO ALTO, CALIFORNIA	
MANAGEMENT CONSULTANT DENNIS STARKOVICH			