



# Applying the Tenets of Military Planning and Execution to Project and Systems Engineering Management

Systems, Software, and  
Solutions Operation



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*“In preparing for battle, I have always found that plans are worthless, but planning is indispensable.”*

General Dwight D. Eisenhower  
34th President of the United States

# Purpose

- Provide aspiring Systems Engineers with insight into how basic tenets of military planning and execution can be used to plan and monitor the successful execution of a project.

## *Terminology to Represent Generic Systems Engineering Processes*

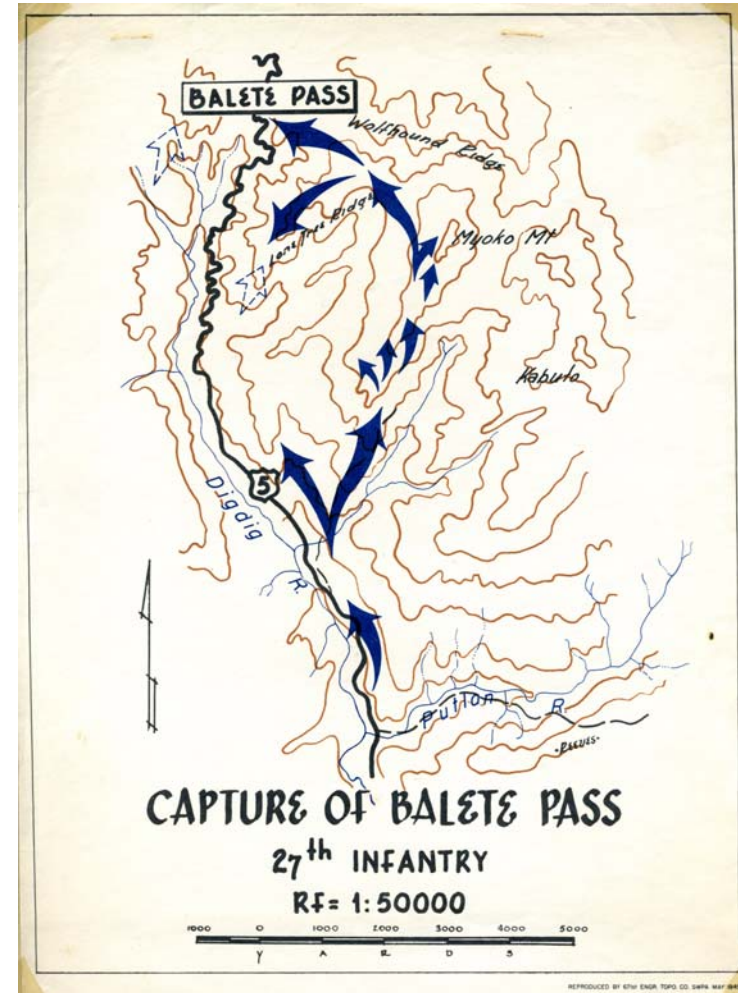
- **Technical Management Processes**

- Decision Analysis
- Technical Planning
- Technical Assessment
- Requirements Management
- Risk Management
- Configuration Management
- Technical Data Management
- Interface Management

- **Technical Processes**

- Requirements Development
- Logical Analysis
- Design Solution
- Implementation
- Integration
- Verification
- Validation
- Transition

- Communicate the overall objective in general terms and leave the detailed planning to lower echelons
- Centralized planning; decentralized execution



# Mission Planning

- Commander's Intent
- Tactical objective(s)
- Prioritization
- Success criteria
- Logistics
- Contingency plans based on risk assessment
- Communication

SECRET *PH*

Auth: CG 25 Div  
Init:  
Date: 10 Apr 45

KOR:

FIELD ORDER)  
NUMBER 11)

HEADQUARTERS  
Twenty-Seventh Infantry  
Vic Putlan PI 10 Apr 45

MAPS: PHOTOMAP DIBRID TO SANTA FE 1:100,000.

1 a. See current intelligence summaries.  
b. On 10, 11, 12 Apr 45, 27 will have priority on air strikes and Arty. 34-SBD's will be available each day, and approximately the following amount of ARTY ammunition will be available daily:

|          |       |
|----------|-------|
| 1500-rds | 105mm |
| 1300-rds | 155mm |
| 200-rds  | 240mm |
| 400-rds  | 81mm  |

2 27(3/0/775 Tk, 1-Plat/0/775 Tk, 1/1/LGAF, 1/C/98 Cal, 1-War Dog atchd): will continue to envelop BALASTE PASS from E.

3 a 1/27 (1-Plat/0/775 Tk atchd): On 10 and 11 Apr 45, probe and shell enemy positions, and on 12 Apr 45, following Arty preparation, Atk W on ridge.  
b 2/27 (-0/27 and 1-Sec/81mm/0/27): Relieve 3/27 on 10 and 11 Apr 45 and secure supply Rd from Fwd LP to GP/1/27.  
c 0/27 (1/1/LGAF (-Co A) 1-War Dog, 3/0/775 Tk atchd): Under Regtl control. Secure Supply Rd from GP/0/27 to Fwd Station LP, and furnish local security for 3-bulldozers.  
d 3/27: Continue present mission until relieved by 2/27, then move to (E.75-7.75) as Regtl Res.  
e AT/27 (1/1/LGAF and 1-Sec/81mm/0/27 atchd): Continue to secure Fwd GP/27 w/1-Plat, maintain R block at (E.50-16.85) secure C/25 Med, and patrol E flank of Regt.  
f Cn/27: Continue present missions.  
g 1/C/98 Cal: No change.  
x (1) No vehicles will use 27th Inf Rd Fwd of GP/0/27 each day until 00/0/27 reports Rd clear of enemy.  
(2) Until a cut is made on W side of Clearing at (E.75-16.40) vehicles passing thru the clearing will be well-dispersed and will cross the clearing rapidly.

4 No change.  
5 No change.

LINDEMAN  
Commanding

OFFICIAL: /s/ Payne  
/t/ PAYNE, S-3  
Dist: Special

CLASSIFICATION *SECRET*  
*PH* *210-53*

A CERTIFIED TRUE COPY:

In addition to this order, I do hereby certify that the 1/3/35th Infantry, the C/65th Engineers, and the 8th FA Bn were attached to the Regiment during this operation.

PHILIP F. LINDEMAN  
Colonel, GSC  
0272444

PHILIP F. LINDEMAN  
Colonel, Inf  
Commanding

*Incl # 1*

- **Big picture, puzzle solvers**
- **Decomposition, flowdown, allocation, and traceability**
- **Hierarchical mindset**
  - Organization
  - Specifications
  - WBS
  - Risk
  - Communication
- **Rigor and discipline do not stifle creativity**
- **Mathematically inclined – “work has volume”**



- **Iterative process**
  - Inputs → Decisions → Outputs → Assessment
  - Ensuring effort is value added
- **Current Operations and Future Operations**
- **Reallocate resources as battlefield is shaped and evolves**
- **Maintain momentum of keeping overall effort moving forward**



- **Reluctance to expend significant effort**
  - Playing field is constantly changing
  - Obsolete as soon as it's put into place
- **Types of planning**
  - Rough Order of Magnitude (ROM) planning
  - Initial baseline planning
  - Re-baseline planning
  - Contingency planning
- **Baseline plan vs. roadmap**
  - Detailed plans vs. convergence of effort
  - Precision vs. general direction
  - Know when to focus on the specifics vs. generalities

# Planning Process

- **Breaking down what appears to be an insurmountable challenge into manageable and achievable activities**
- **Iterative process between detailed scheduling of tasks and achieving intermediate objectives**
- **Identifying**
  - Program milestones
  - Key Decision Points (KDPs)
  - Technical reviews and milestones
- **Measuring progress in terms of pre-defined success criteria and demonstrating intermediate capability**

**Obtain excruciating scrutiny and eventual buy-in**

# Execution

- **Mission planning and briefing**
  - Objective(s)
  - Success criteria
  - Contingency plans for risks and emergencies
- **Pilot mentality**
  - Power required can exceed power available
  - Running out of fuel can ruin your day!
  - Maintaining altitude and airspeed with constant power setting
    - Scan and crosscheck instruments
    - Small and minimal control inputs vs. jerky and erratic
- **Threat Missiles inbound – how do decisions get made!**
  - Having sufficient data and information
  - Timeliness
- **Holding forces in reserve**
  - Deploy to exploit or counter a threat
  - Establish criteria for deploying when and how much
- **Expending too much on real-time monitoring**

- “Systems” thinking
- Planning – scrutiny & buy-in
- Command Center – Segment Current & Future Operations
- IMS vs. Roadmap focus
- Making timely and effective decisions
- Monitor and measure execution in order to efficiently and effectively apply minor course corrections
- Manage reserves to exploit opportunities and repel threats