

Command & Control

**COMMAND
AND
CONTROL
OVERVIEW**

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GENERAL DYNAMICS
Electronics Division

DEFINITION OF COMMAND & CONTROL

The exercise of authority and direction by a properly designated commander over assigned forces in the accomplishment of his mission.

JCS Pub 1

DEFINITION OF COMMAND & CONTROL
(HOW)

Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities and procedures which are employed by a commander in planning, directing and coordinating and controlling forces and operations in the accomplishment of his mission.

JCS Pub 1

Command & Control

COMMAND AND CONTROL
IS
A DECISION MAKING PROCESS

EXTREME UNCERTAINTY

GREAT STRESS

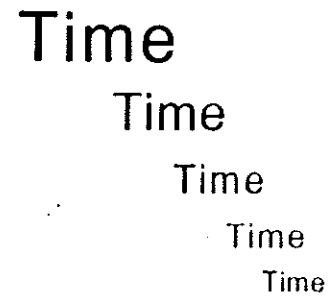
GREAT TIME SENSITIVITY

The MBA School Of War

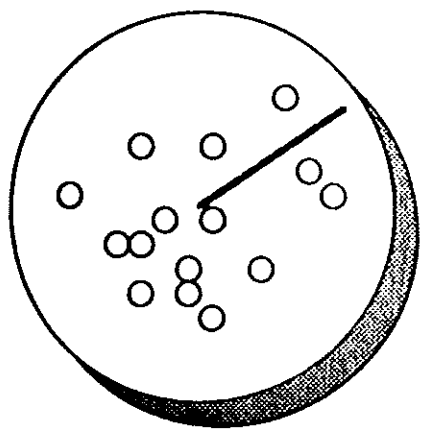
GENERAL DYNAMICS
Electronics Division

THE PROBLEM

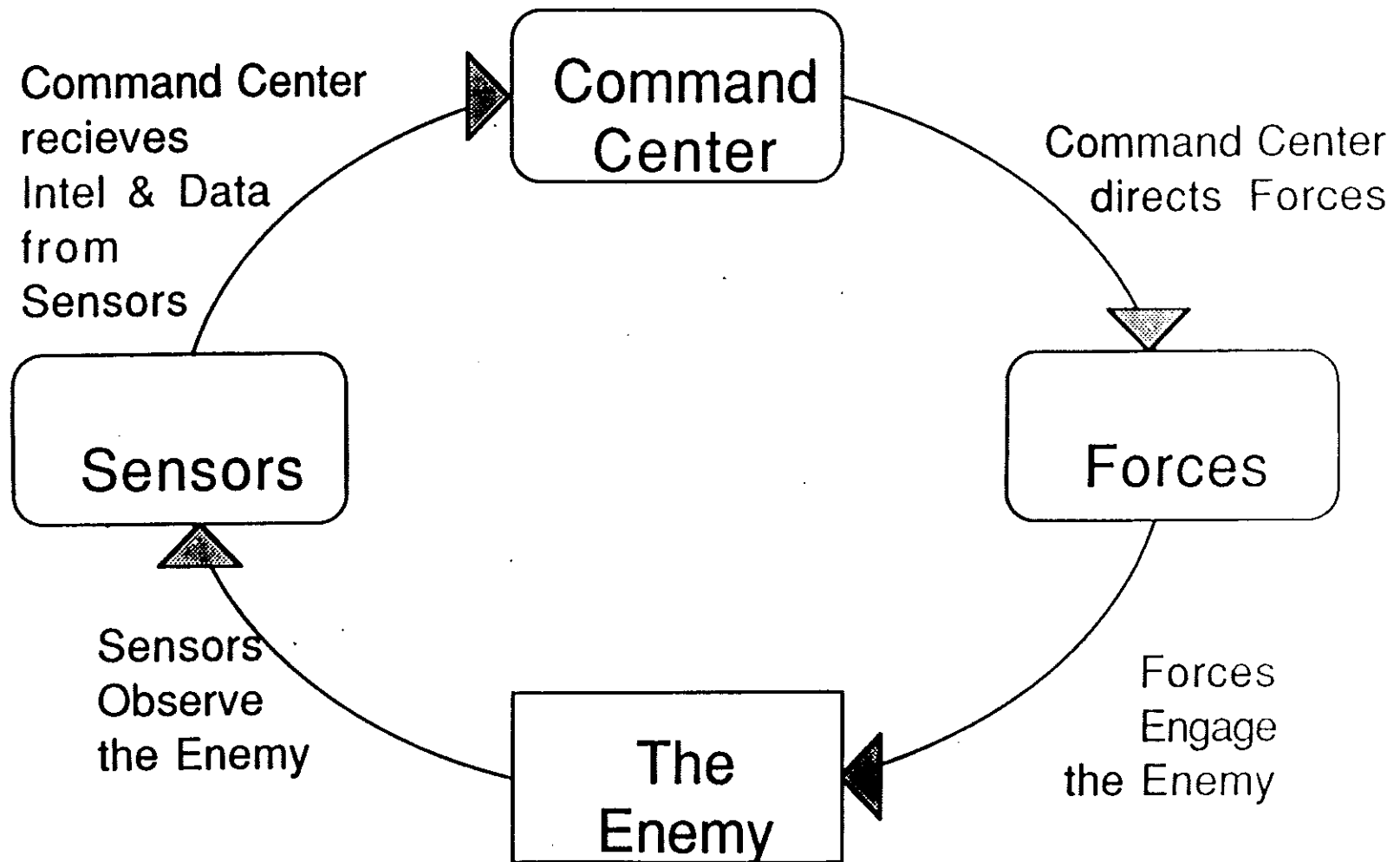
SHRINKING TIME LINE



INCREASED THREAT DENSITY



COMMAND & CONTROL CYCLE



MANAGEMENT FUNCTIONS

PLANNING

MONITORING

ASSESSMENT

DECISION MAKING

CONTROL

REPORTING

MANAGEMENT FUNCTIONS

(Tactical)

SITUATION MONITORING

ENEMY FORCE/RESOURCE MONITORING

FRIENDLY FORCE/RESOURCE MONITORING

PLANNING & PLANNING SOME MORE

OPTION ASSESSMENT, SELECTION & EXECUTION

EXECUTION MONITORING

RESIDUAL CAPABILITY ASSESSMENT & CONTROL

RECONSTITUTION & REDIRECTION OF FORCES

TERMINATION

OPERATIONAL ENVIRONMENT

Day-to-Day Operations

CRISIS

Theater Conventional War

Theater Nuclear War

Reconstitution

Restructure

National Recovery

INCREASING HOSTILITIES



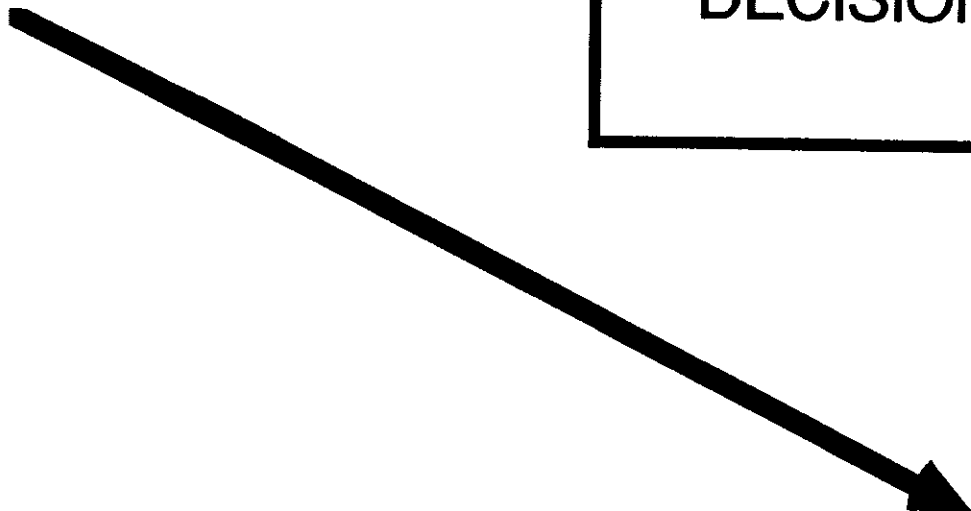
INCREASING COMPLEXITY

THE PROCESS

SURVEILLANCE

COMMAND
AND
DECISION

ENGAGEMENT



Command & Control

Sense

Process

Classify

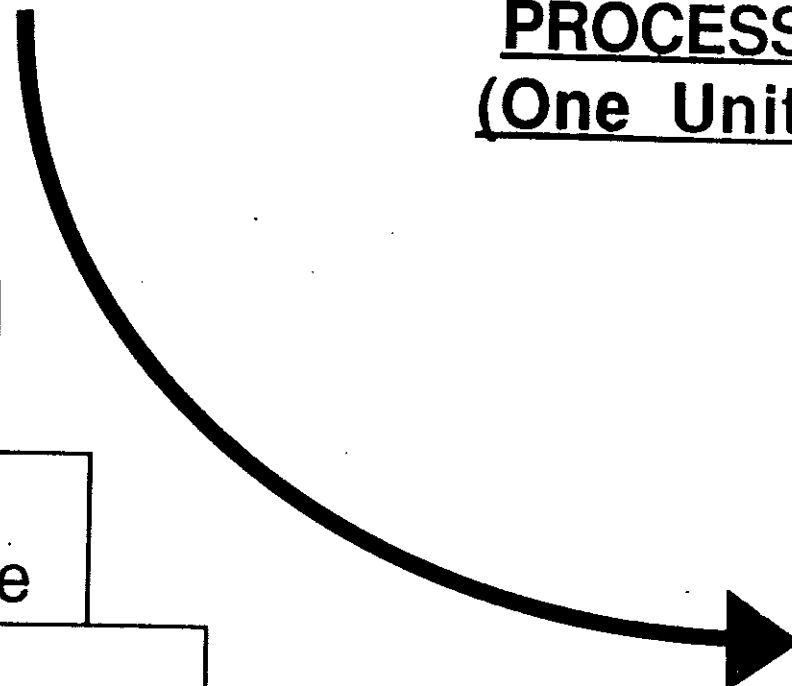
Evaluate

**Apply
Doctrine**

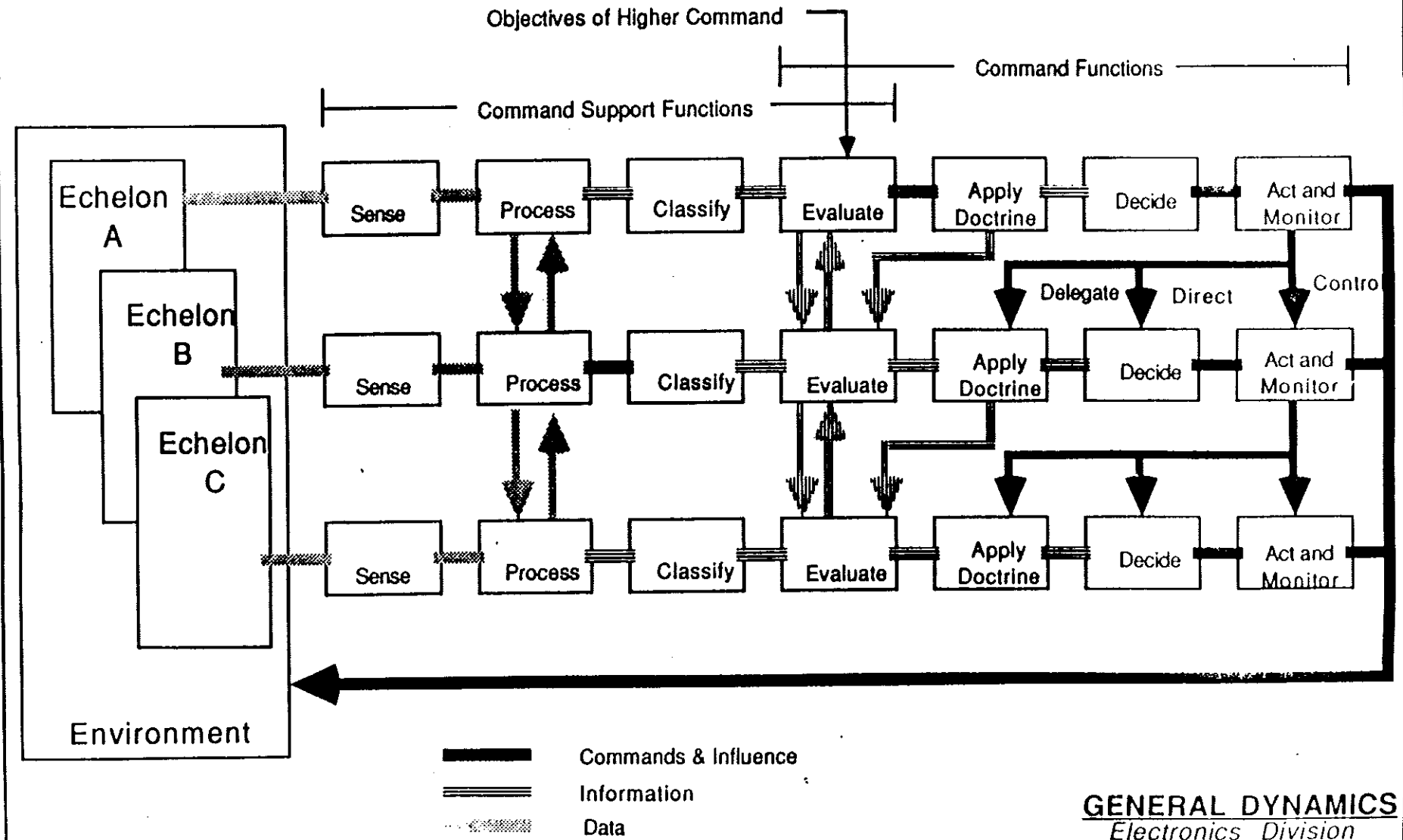
Decide

**Act and
Monitor**

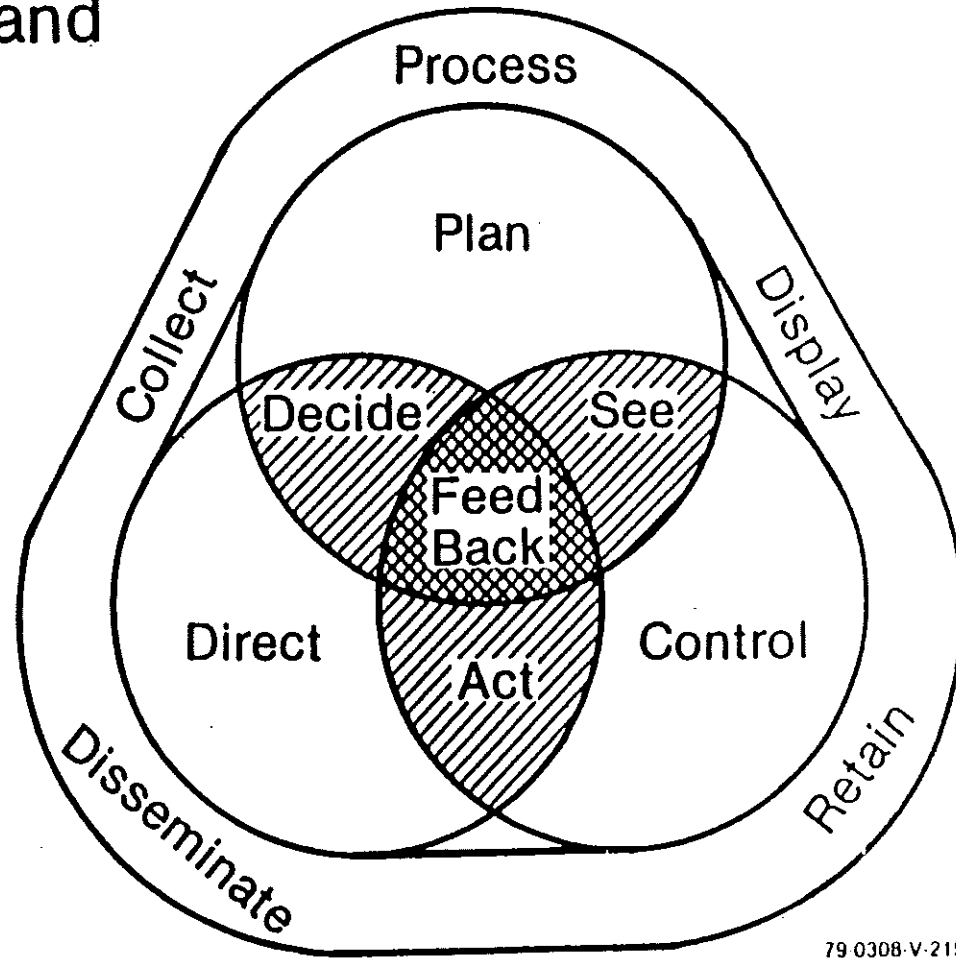
**THE
COMMAND & CONTROL
PROCESS
(One Unit)**



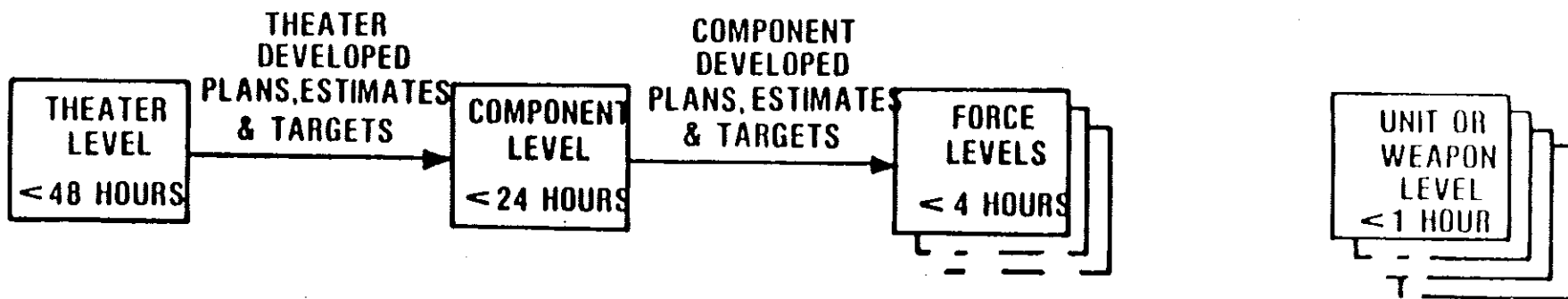
THE COMMAND & CONTROL PROCESS (Multiple Units)



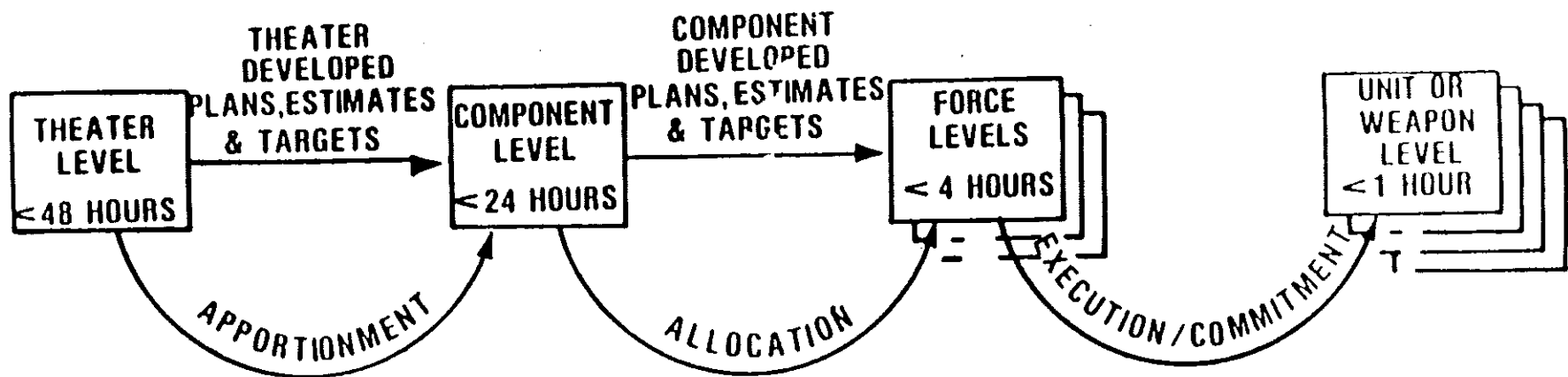
Basic Command and Control System



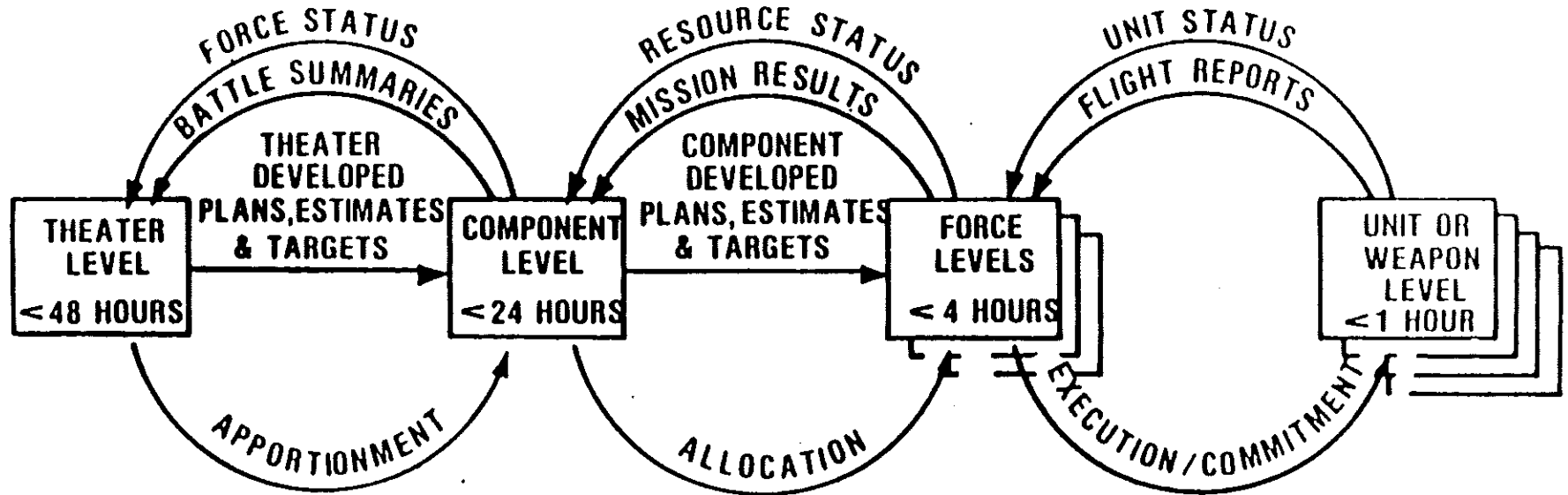
COMMAND AND CONTROL PROCESS



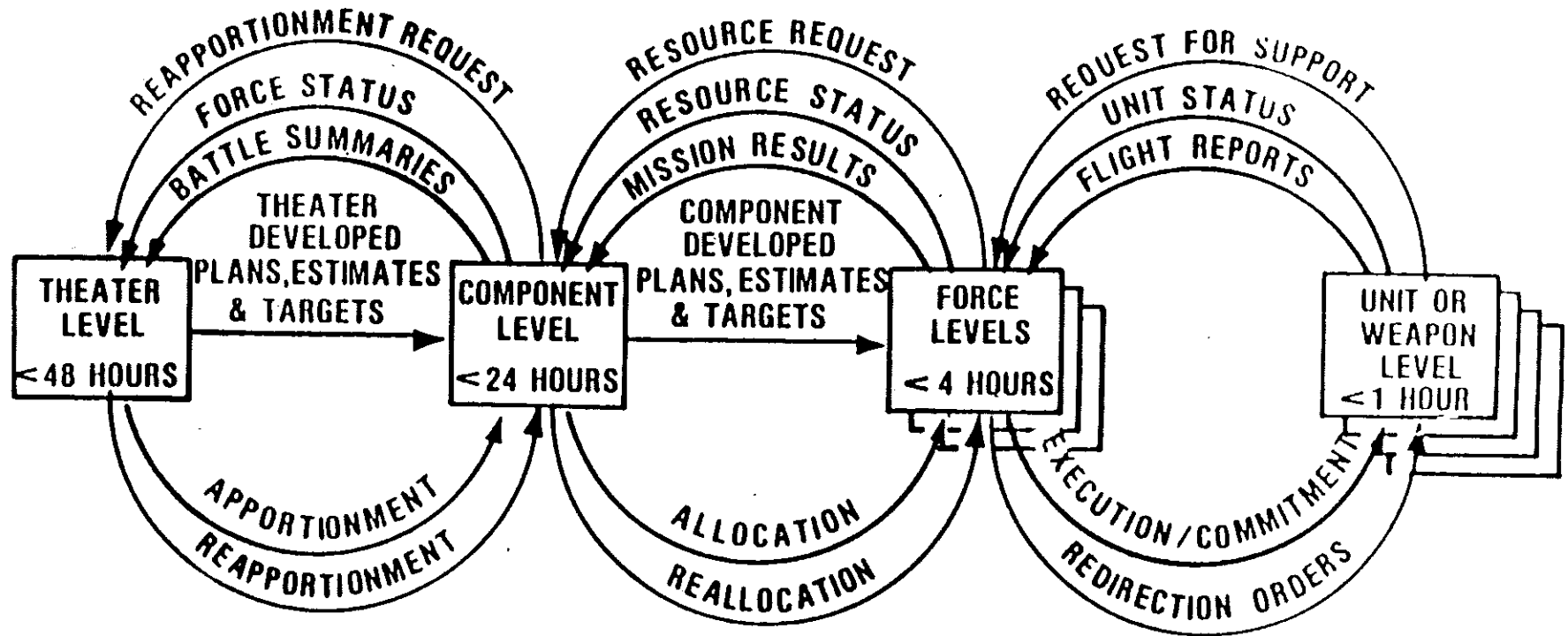
COMMAND AND CONTROL PROCESS



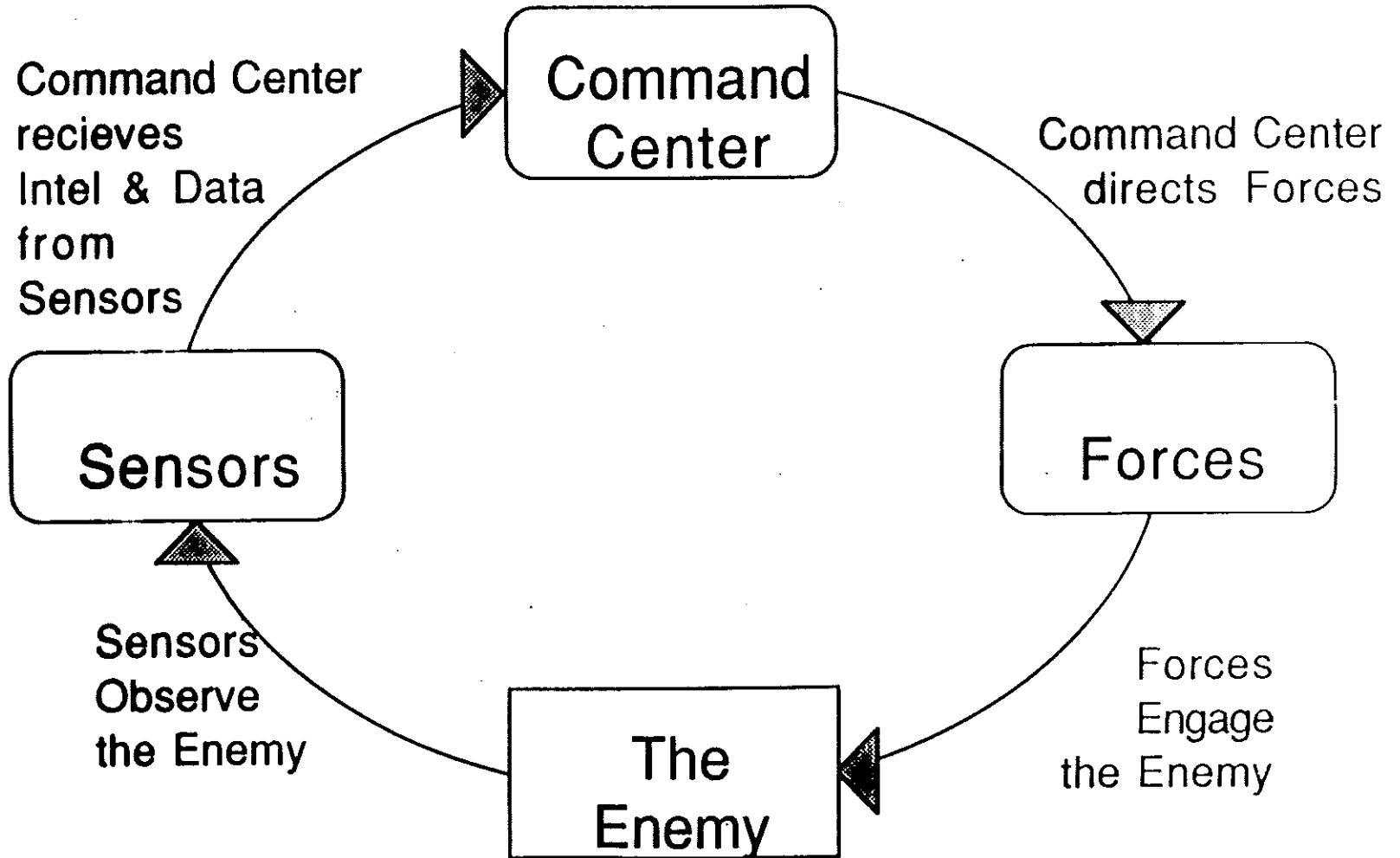
COMMAND AND CONTROL PROCESS



COMMAND AND CONTROL PROCESS



COMMAND & CONTROL CYCLE



SYSTEM ELEMENTS

COMMUNICATIONS

AUTOMATED DATA PROCESSING

SURVEILLANCE/RECONNAISSANCE/INTELLIGENCE

COMMAND CENTERS

DECISION SUPPORT (AI, etc)

COMMUNICATION SYSTEM
CHARACTERISTICS

SECURE FROM INTERCEPT

SECURE FROM DISRUPTION

SURVIVABLE

HIGH INFORMATION BANDWIDTH

INTEROPERABLE WITH ALLIES

SENSOR SYSTEM
CHARACTERISTICS

ACTIVE/PASSIVE SURVEILLANCE
DISSIMILAR SOURCE DATA (FUSION)
EMP/ESM RESISTANT
DISTRIBUTED SYSTEMS
COOPERATIVE SYSTEMS (CrossTell)

REQUIREMENTS FOR NEW
COMMAND & CONTROL SYSTEMS

NEW SYSTEMS MUST WORK WITH OLD SYSTEMS

NEW SYSTEMS MUST INTEGRATE WITH
EXISTING MANAGEMENT (PHILOSOPHY),
HARDWARE, SOFTWARE AND PERSONNEL

SYSTEM DEVELOPMENT IS EVOLUTIONARY

NEW SYSTEMS MUST REACT TO FUTURE THREATS

THE BOTTOM LINE

DETERENCE

Convince the enemy that aggressive action is militarily, politically and economically unacceptable

ECONOMICS

Employ own assets in a more cost-effective manner than the enemy