



# **RELIABILITY-CENTERED MAINTENANCE**

## **RCM**



# CONDITION BASED MAINTENANCE PLUS

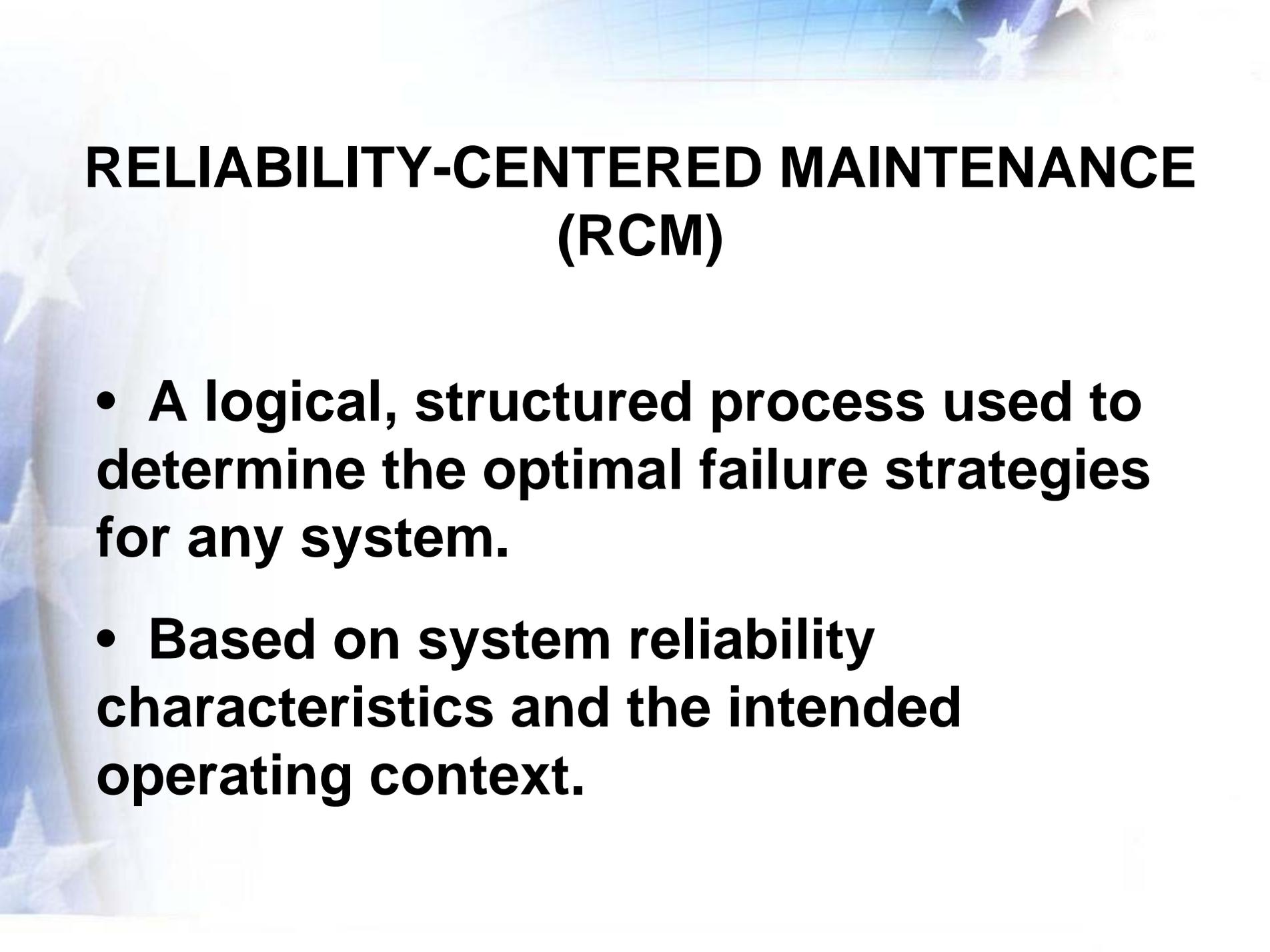
## CBM+

# DoD CBM+

**CBM+ is the application and integration of appropriate processes, technologies and knowledge-based capabilities to improve the reliability and maintenance effectiveness of DoD systems and components. At its core CBM+ is maintenance performed on evidence of need provided by **Reliability-Centered Maintenance (RCM)** analysis and other enabling processes and technologies.**

# DoD CBM+



The background of the slide is a stylized American flag, with the stars and stripes visible. The top right corner features a blue field with white stars, while the rest of the slide has a white background with faint, larger stars.

# **RELIABILITY-CENTERED MAINTENANCE (RCM)**

- **A logical, structured process used to determine the optimal failure strategies for any system.**
- **Based on system reliability characteristics and the intended operating context.**

# **RELIABILITY-CENTERED MAINTENANCE (RCM)**

- **RCM defines what must be done to a system to achieve the desired levels of safety, reliability, environmental soundness, and operational readiness at best cost.**
- **RCM is to be applied continuously throughout the life cycle of any system.**

# **RCM HISTORY**

**1965: FAA and Commercial Aviation Industry form group to study Preventative Maintenance.**

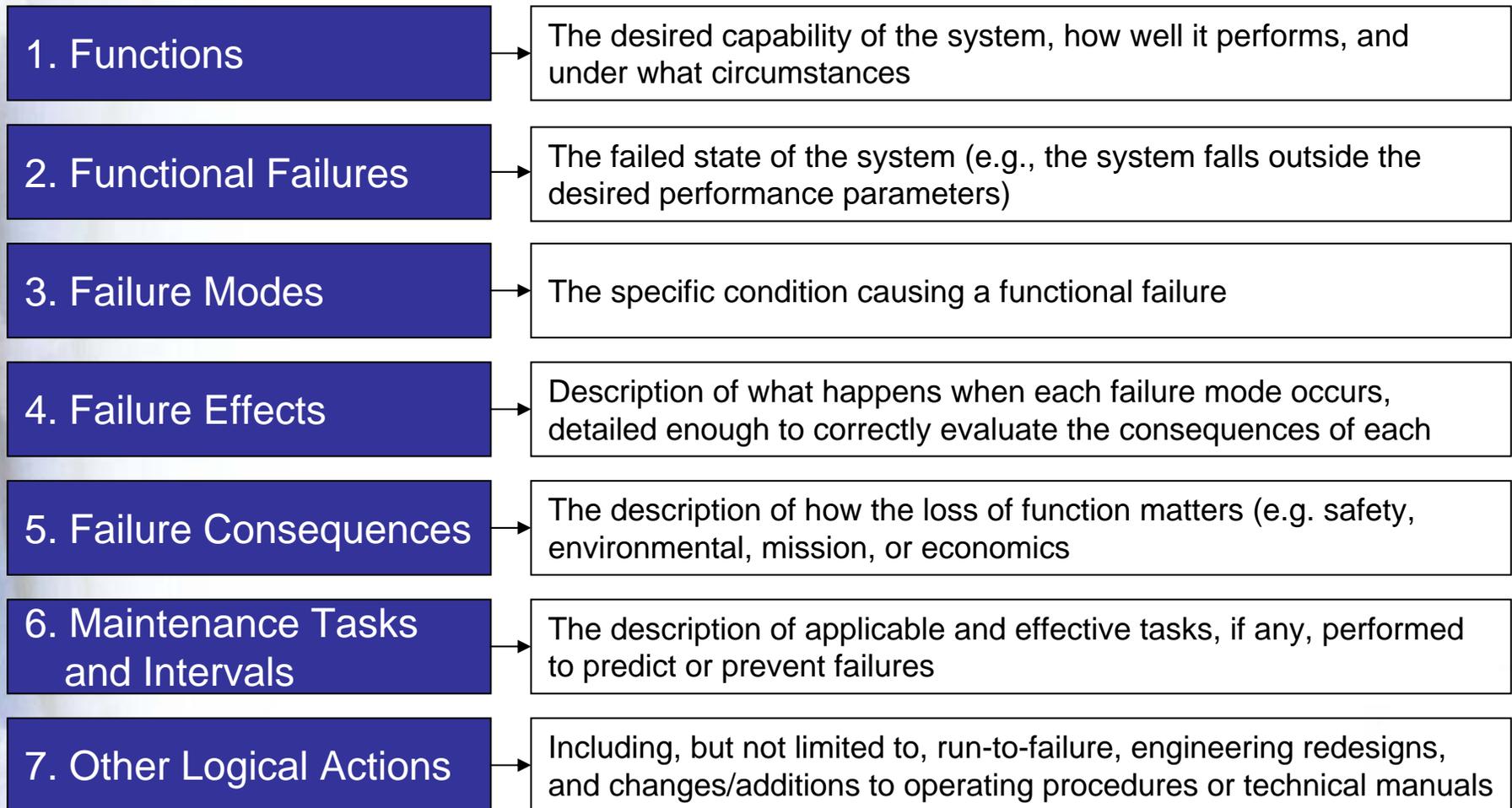
**1968: Becomes Maintenance Steering Group, produces MSG-1 first applied to Boeing 747.**

**1972: U.S. Navy applies MSG principles to aircraft and submarines.**

**1978: “Reliability-Centered Maintenance” (Nowlan and Heap) released.**

# The RCM Process

A DoD-approved RCM process includes identifying the following items in sequence.





**CLASSIC RCM for Maintenance  
Developers (Certification)**  
(5 Days)

**BACKFIT RCM (Certification)**  
(2 Days)

**NAVSEA RCM Overview**  
(2 Hours)

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**OPNAVINST 4790.16**

CBM Instruction

**OPNAVINST 4700.7**

Maintenance Policy for USN Ships

**MIL-P-24534A**

Planned Maintenance System Development

**ePMS Gateway**

**<https://altair.seajax.navy.mil/epmsgateway>**

**eRCM (web-enabled)**

**eWAIVER (web-enabled)**

**NAVSEA RCM Handbook**



## **Fundamentals of RCM Analysis**

(3 days)

## **RCM Management Brief**

(2-4 Hours)

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**OPNAVINST 4790.16**

CBM Instruction

**NAVAIRINST 4790.20**

RCM Program Instruction

**NAVAIR 00-25-403**

Naval Aviation RCM Process

**IRCMS** (client server)

**IRCMS** (web-enabled)

**RCM Scorecard**

**RCM Task Analysis Worksheets**



**RCM Practitioner Course**

(15 Days)

**RCM Facilitator Course**

(10 Days)

**RCM Introductory Course for Physical Assets**

(3 days)

**RCM General Course for Requirements Analysis,  
Policies, and Processes**

(1 Day)

**Marine Corps RCM Overview**

(4 Hours)

**Marine Corps RCM Executive Overview**

(1.5 Hours)

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**MIL-HDBK-502**

Acquisition Logistics

**MCO 4790.1**

Marine Corps Maintenance Policy (MCMP)

**MCO 4000.57**

Maintenance/Support Policy for Ground Systems

**MEA Enabler Suite**

(web-enabled, under development)



## **ARMY MATERIAL COMMAND**

### **Army RCM Facilitator Training**

(2 Weeks)

### **Army RCM for the Warfighter**

(2 Days)

### **Army RCM Overview for Management**

(1.5 hours)

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## **ARMY REGULATION 750-1**

**Army Material Maintenance Policy**

**RCM Scorecard**

**PM/FM Matrix**

**CBM Gap Analysis**



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**AFI 21-101**

Maintenance Management of Aircraft

**AFI 63-107**

Integrated Product Support Planning and Assessment

**AFMCINST 21-103**

Reliability -Centered Maintenance Programs

**PCOE BP 99-4**

Best Practices for Application of RCM for USAF Gas Turbine Engines

**LOG 032: RCM for In-Service Engines**

(4 Days)