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Non-Conformance Co\$t and It\$ Implication\$ on DoD Program\$

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DCMA Cost of Nonconforming Material (NCM)

Defense Contract Management Agency

- 1. In many instances, the Government does not receive the proper value by accepting nonconforming product (NCM) at the same price as a conforming product**
- 2. Contractors have been tendering an excessive amount of NCM to the Govt and a reduction is essential**
- 3. By accepting minor NCMs at full price, the Govt is sending the wrong message to contractors and indicating it is acceptable to produce NCMs**

Monetary and other forms of consideration will encourage contractors to thoroughly evaluate the root causes of NCMs and thereby institute effective corrective action to prevent their recurrence.

Visibility of NCMs that create costs is necessary.

46 .105 Contractor Responsibilities

(a) The contractor is responsible for carrying out its obligations under the contract by—

(1) Controlling the quality of supplies or services;

(2) Tendering to the Government for acceptance only those supplies or services that conform to contract requirements;

46.407 -- Nonconforming Supplies or Services.

- (a) **The contracting officer should reject supplies or services not conforming in all respects to contract requirements (see [46.102](#)).**

In those instances where deviation from this policy is found to be in the Government's interest, such supplies or services may be accepted only as authorized in this section.

FAR 46.407

- (1) **In situations not covered by paragraph (b) of this section, the contracting officer ordinarily must reject supplies or services when the nonconformance is critical or major or the supplies or services are otherwise incomplete.** However, there may be circumstances (e.g., reasons of economy or urgency) when the contracting officer determines acceptance or conditional acceptance of supplies or services is in the best interest of the Government. The contracting officer must make this determination, based upon--
- (i) Advice of the technical activity that the item is safe to use, and will perform its intended purpose;
 - (ii) Information regarding the nature and extent of the nonconformance or otherwise incomplete supplies or services;
 - (iii) A request from the contractor for acceptance of the nonconforming or otherwise incomplete supplies or services (if feasible);
 - (iv) A recommendation for acceptance, conditional acceptance, or rejection, with supporting rationale; and
 - (v) The contract adjustment considered appropriate, including any adjustment offered by the contractor.

The contract need not be modified unless it appears that the savings to the contractor in fabricating the nonconforming supplies or performing the nonconforming services will exceed the cost to the Government of processing the modification.

The Problem - Hidden Factories with Hidden Costs

There is a **Hidden Factory** with **Hidden Costs** that impacts product schedule, cost, and quality

FACT: DoD assumes payment is for conforming product

FACT: Historically, DCMA has been pressured to accept product that is non-conforming due to schedule pressures, mission requirements, and a current lack of clear agency instruction and/or guidance

FACT: FAR 46.407 requires consideration to the Govt for accepting NCM.

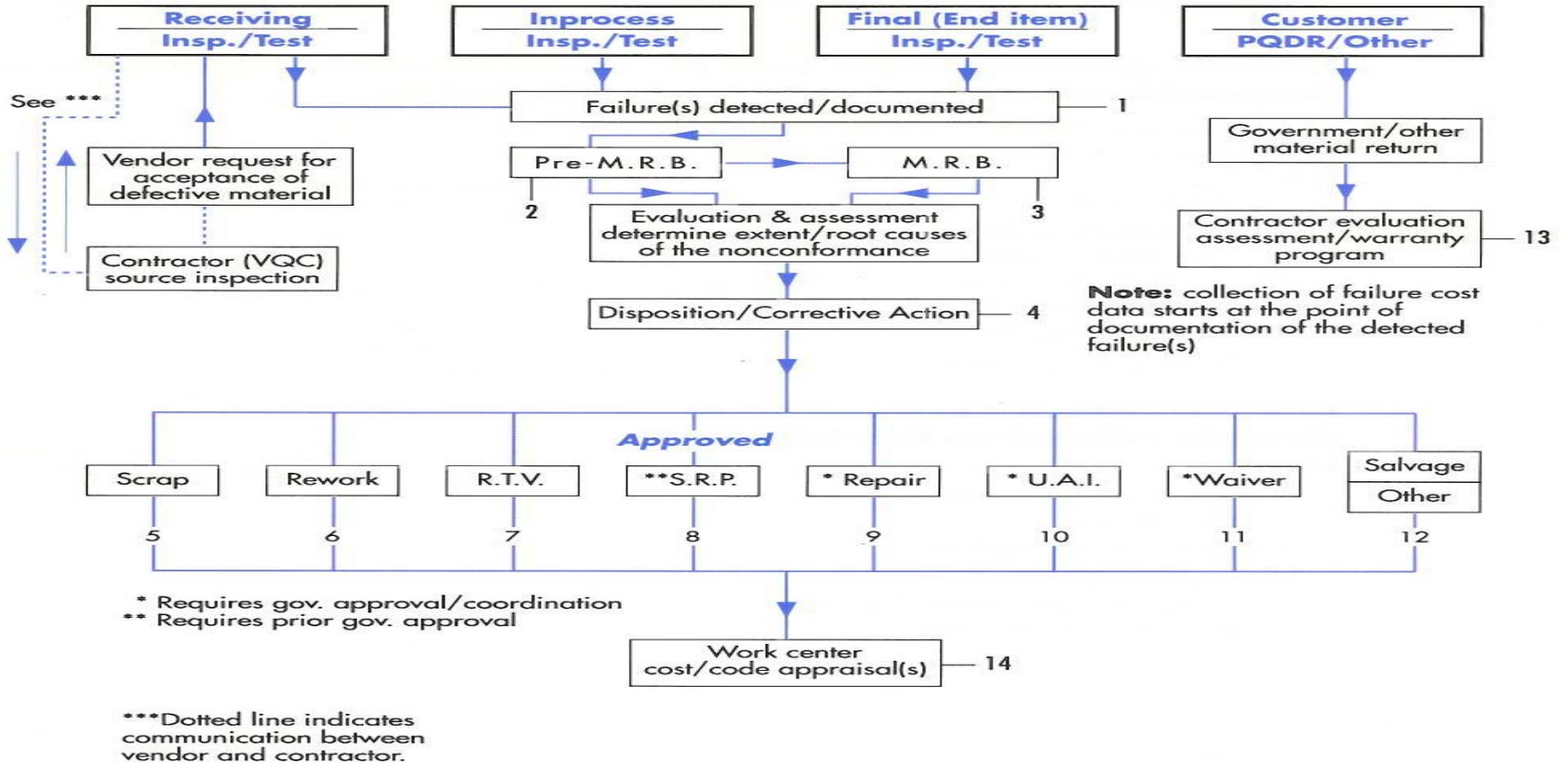
FACT: Acceptance of Type II non-conformances (MRB) is a PRIVILEGE extended to the Contractor - NOT A RIGHT!

- **Note: Consideration is not always monetary and subject to customer input for actual consideration type.**

Cost of Nonconformances

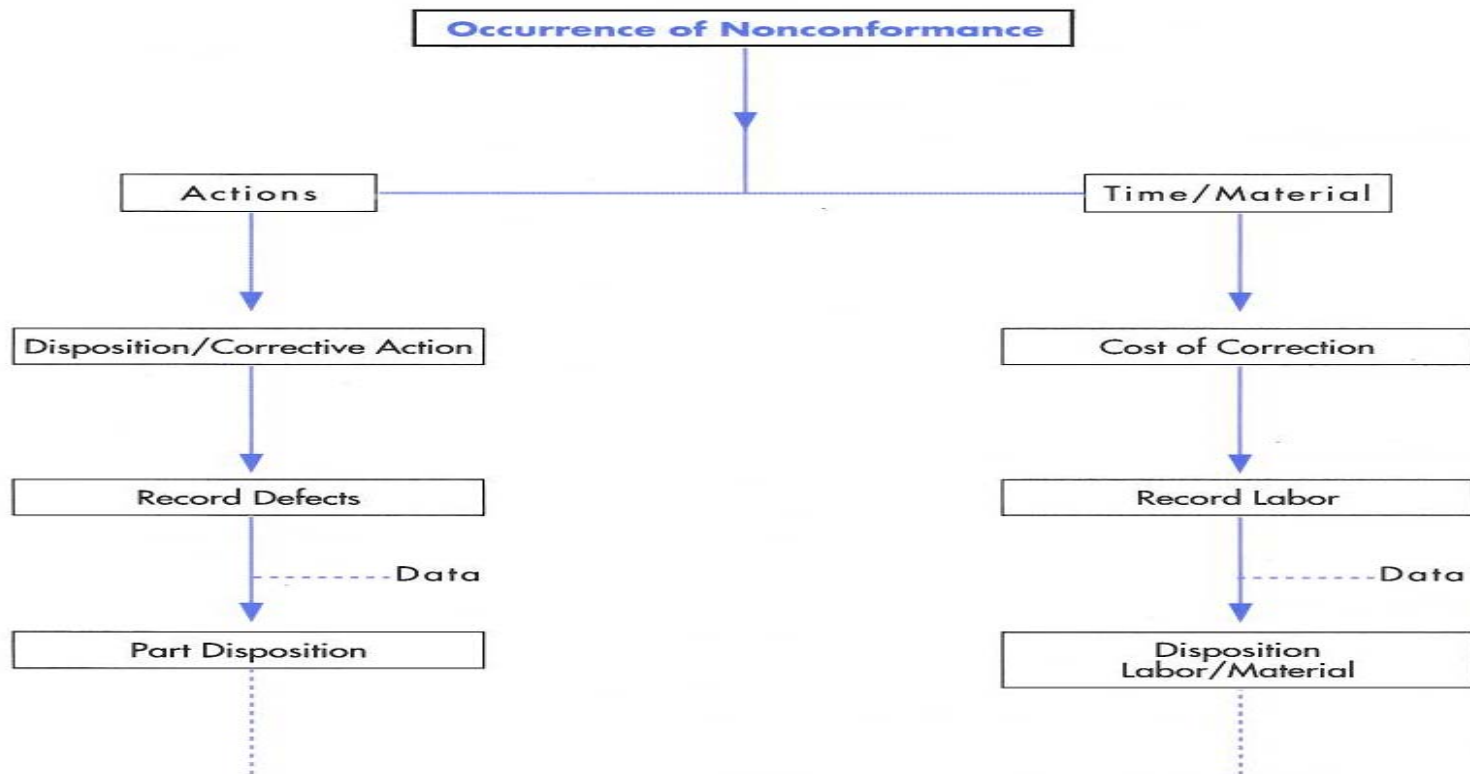
COST OF NONCONFORMANCES

(Internal/external failure costs) (generic)



This flowchart depicts the flow of an item found to be nonconforming. The numbers 1 through 14 are the modules which have been flowcharted showing how the various dispositions of the pre-MRB and MRB add cost to the manufacturing of any item found to be nonconforming.

Nonconforming material adds cost



Nonconformance costs include:

- Costs incurred as a result of nonconformances
- Costs incurred as a result of corrective actions taken specifically to prevent future occurrences

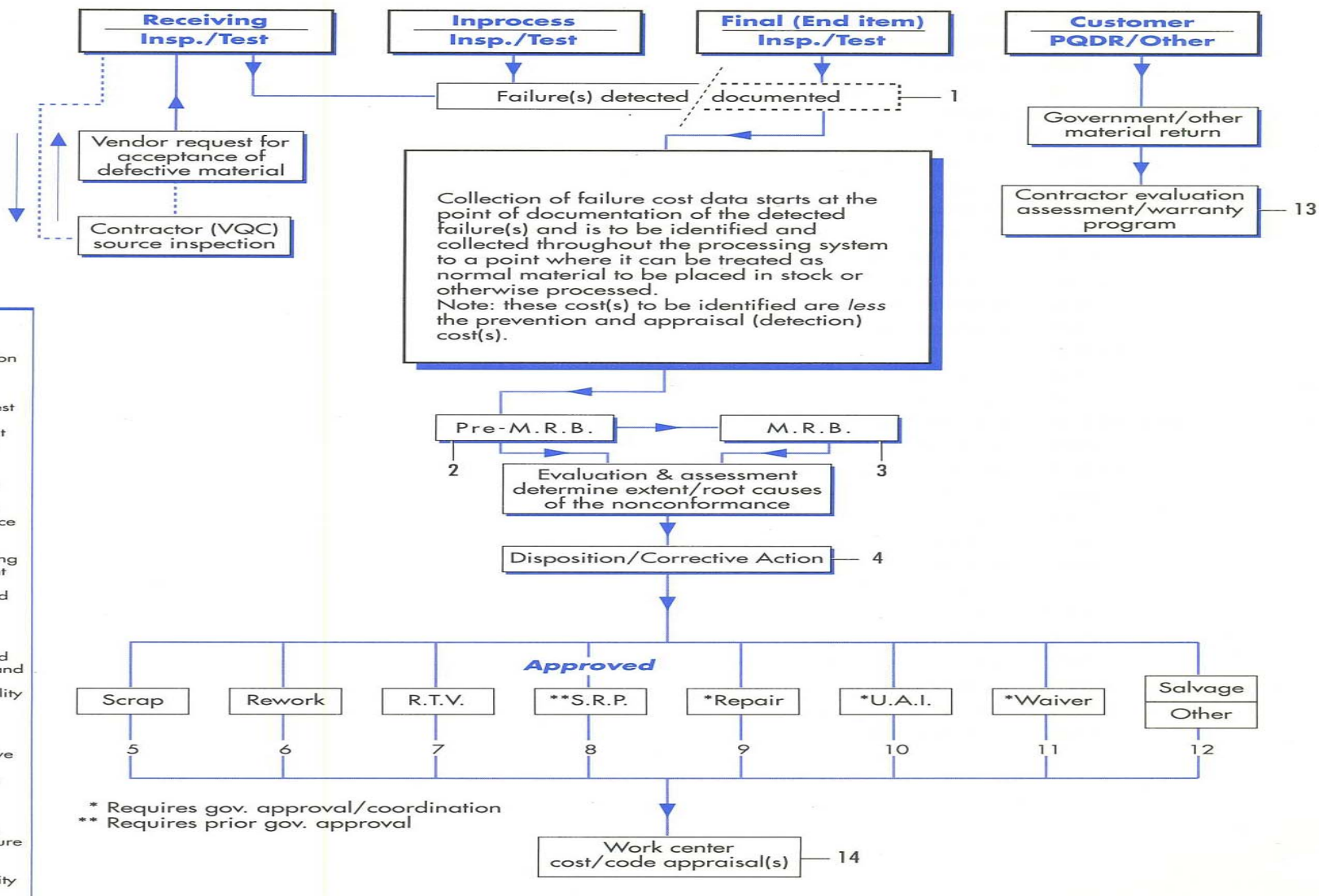
Cost of Nonconformance

Module

1

Failure(s) Detected/Documented

(internal/External Failure Costs) (Generic)



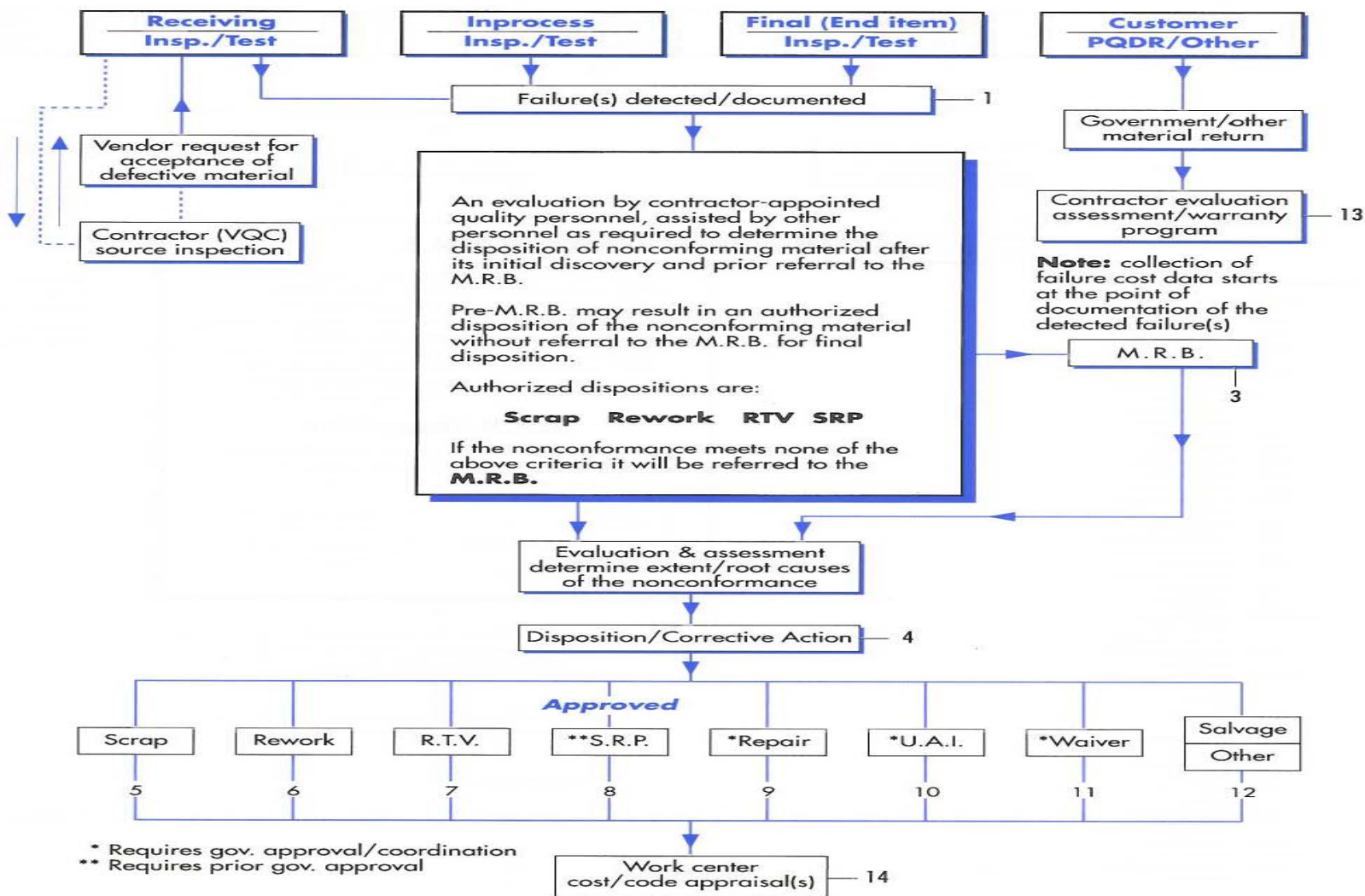
Abbreviations

- acc. accept
- adm. administration
- C/A corrective action
- CAR corrective action request
- CIO continuous improvement opportunity
- def. defective
- doc. document
- eng. engineering
- eval. evaluation
- gov. government
- IAW in accordance with
- insp. inspection
- mfg. manufacturing
- mgmt. management
- MRB. material review board
- mat. material
- opr. operation
- pre-MRB preliminary material review board
- P&P packaging and packing
- PQDR product quality deficiency report
- qual. quality
- rej. reject
- rep. representative
- rew. rework
- r/o repair order
- RPR repair
- RTV return to vendor
- SRP standard repair procedure
- supv. supervisor
- U.A.I. use as is
- VQC vendor quality control

* Requires gov. approval/coordination
 ** Requires prior gov. approval

Preliminary Review Board

(Internal/external failure costs) (generic)



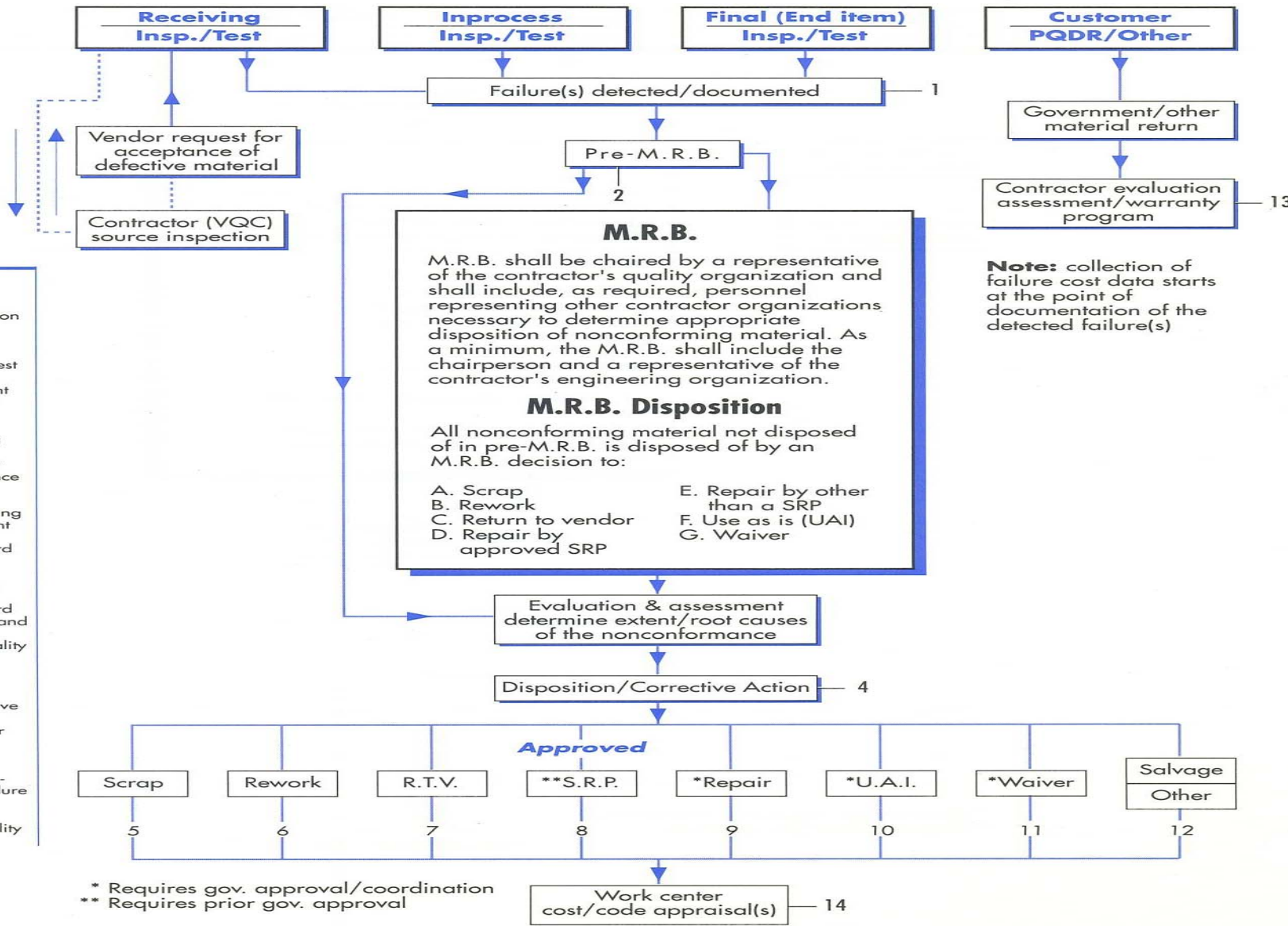
Cost of Nonconformance

Module

3

Material Review Board

(Internal/external failure costs) (generic)



- Abbreviations**
- acc. accept
 - adm. administration
 - C/A corrective action
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 - eng. engineering
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M.R.B.

M.R.B. shall be chaired by a representative of the contractor's quality organization and shall include, as required, personnel representing other contractor organizations necessary to determine appropriate disposition of nonconforming material. As a minimum, the M.R.B. shall include the chairperson and a representative of the contractor's engineering organization.

M.R.B. Disposition

All nonconforming material not disposed of in pre-M.R.B. is disposed of by an M.R.B. decision to:

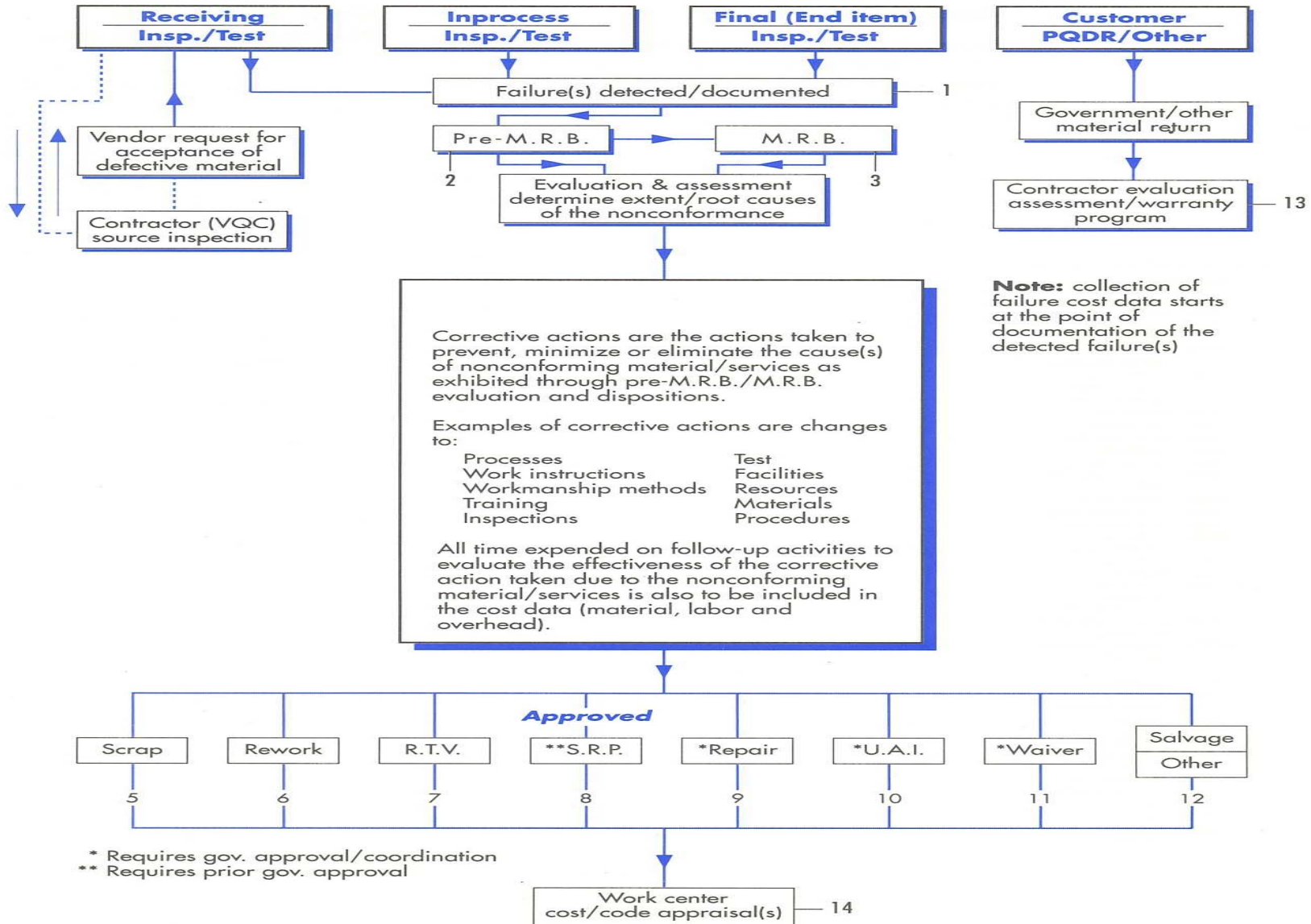
A. Scrap	E. Repair by other than a SRP
B. Rework	F. Use as is (UAI)
C. Return to vendor	G. Waiver
D. Repair by approved SRP	

Note: collection of failure cost data starts at the point of documentation of the detected failure(s)

* Requires gov. approval/coordination
 ** Requires prior gov. approval

Disposition/Corrective Action

(Internal/external failure costs) (generic)



Factors Contributing to Costs

- A. Costs of Corrective Action**
- B. Costs of Rework**
- C. Costs of Scrap**
- D. Costs of Re-Testing**
- E. Costs of Troubleshooting/Investigation**
- F. Costs of Repair**
- G. Costs of Re-Inspection**
- H. Costs of PQDRs**
- I. Costs of Failure Analysis**

- J. Generation and processing of Engineering Change Orders (ECOs) (Due to problems).**
- K. Cost of replacement materials**
- L. Labor costs for manufacturing replacements**
- M. Storage costs for extra inventory**
- N. Material costs for extra inventory**
- O. Handling and transportation costs for extra inventory**

The Solution

Develop a DCMA initiative for a strategy to significantly -

- **Reduce NCM** and influence highly effective contractor corrective action processes
- Reduce man-hours of scarce DCMA technical resources engaged in processing and evaluating contractor RFD/RFW/MRB requests

Expected Benefits -

- **Cost Reduction** through activity based costing and identification of the “true cost” of NCM by working with the Contractor
- Robust and demonstrated stability of contractor corrective action processes
- **Improve schedule and quality** by producing product right the first time. Both Contractor, Govt, and Customer benefit from this.

Create a Win-Win situation

Key Features of a NCM Policy

- **Allows the Agency to penetrate and positively influence the supply chain noting that a significant majority of “Quality Escapes” originate from sub-tier suppliers**
- **Provides sound methodology and procedures for both low volume and high volume Type II Waiver/MRB activity**
- **Provides detailed direction and creates alignment of the 08XX, 1102, and 1910 elements**
- **Requires a Product Assurance Council comprised of contractor CEO and Directors of Manufacturing, Quality, Engineering, Purchasing, and Subcontracts and, corresponding DCMA counterparts**

Example - Benefits of NCM Reduction Policy

Example – During period 1992-1994, a major Defense Plant with three business segments: missiles, ship systems, and land combat systems, DCMA/KTR negotiated a major NCM Reduction MOA which focused on:

- Overall cost of quality reduction
- Production processes
- Supplier quality improvement
- Institutionalized successes
- Inventory configuration management issues

The Results:

- Total **defects down 83%**
- Supplier quality improved as base reduced and **certified suppliers increased**
- Cycle times improved on all programs
- **Quality costs** as percentage of sales **decreased** from 6.8% to 2.2% (1994 Industry Avg = 3.9%)
- **Scrap and rework costs decreased** \$5.37 to \$1.66 per labor hour (1994 Industry Avg = \$2.60)
- Inventory reduced 80% and number of turns doubled

Example – Benefits of NCM Reduction Program experienced by a Defense Contractor

- Quality costs were reduced by **\$20 million**
- Losses decreased by **69%** (normalized)
- Improved processes and work flows
- Supply Chain penetrated, i.e., subcontractors were “conditioned” that NCM was not acceptable (DCMA and Contractor actions align with FAR).
- Enhanced inter-changeability and maintainability realized by end-user
- DCMA Engineering stepped up to task

Plan of Action

- 1. Re-introduce negotiation or cognitive recognition of potential contractor “consideration” as Standard Operating Practice.**
- 2. Re-introduce Agency level Instruction wrt Control of Nonconforming Material (Policy and Procedure), recommended Instruction would include -**
 - Product Assurance Councils – Comprised of DCMA and Contractor executive leadership (Participation extended to Customers)**
 - Influences and drives contractor Lean – Six Sigma events and associated corrective actions**
 - Establishes negotiated NCM targets and thresholds by the DACO and contractor**
 - Requires components of consideration**
- 3. Proposed Agency NCM instruction should be presented to the JALC and promulgated as a joint service instruction (re-write of DLAM 8200.11)**

**Non-Conforming Material is an
Government-wide/Industry problem
which requires partnership solution.
DCMA can lead the way on this
important initiative!**