



THE MATERIAL MANAGEMENT ACCOUNTING SYSTEM (MMAS) and why hasn't anyone told Property?

ASSET MANAGEMENT STRATEGIES IN A CHANGING WORLD





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TOPICAL OVERVIEW

- History Of Material Requirements Planning (MRP) and Manufacturing Resource Programming (MRPII)
- History of the Material Management Accounting System (MMAS)
- Analysis of MMAS Criteria
- MMAS Concerns and Conundrums
- MMAS Perspective
- Overlapping Business Systems

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MRP Predecessor to MMAS

- Prior to MRP reorder-point/reorder-quantity (ROP/ROQ) type methods like EOQ (Economic Order Quantity) had been used in manufacturing and inventory management.
- In 1964, Joseph Orlicky as a response to the TOYOTA Manufacturing Program, developed Material Requirements Planning (MRP).
- By 1975, MRP was implemented in 150 companies. This number had grown to about 8,000 by 1981.
- In 1983 Oliver Wight developed MRP into manufacturing resource planning (MRP II) which brings master scheduling, rough-cut capacity planning, and capacity requirements planning, and other concepts to classical MRP.
- Simply put, MRP is a production planning and inventory control system used to manage manufacturing processes.

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SO WHAT IS AN MRP SYSTEM?

- Chase and Aquilano (1985) provide this explanation.
 - "Based on a master schedule derived from a production plan, a material requirements planning system creates schedules identifying the specific parts and materials required to produce end items, the exact numbers needed, and the dates when orders for these materials should be released and be received or completed within the production cycle."
 - Chase, R.B. & Aquilano, N.J. (1985). Production and Operations Management (4th ed.). Homewood, IL: Richard D. Irwin, Inc.

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HISTORY

- "Both the DOD Office of Inspector General (DODIG), and the Department of Justice (DOJ) have manifested an active interest in contractor's MRP systems. One major Government contractor has been under investigation concerning its MRP system for nearly three years while another has been referred to the DODIG for criminal investigation.
- The Defense Contract Audit Agency (DCAA) has launched a nationwide program to audit material practices generally, and MRP systems in particular." (p. 1)
 - American Bar Association. (1988) A draft white paper on automated material control and cost accounting systems and government contractors. Washington, DC: Lemmer, T.A.

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HISTORY

- On October 28th, 1988 the proposed rules for the DOD's Contractor Material Management Accounting System were published in the Federal Register and, in Defense Acquisition Circular Number 88-7, dated 31 May 1989, the final rules for the MMAS were published.
- Today we are working under the May 2011 iteration of the DFARS MMAS policy and clause.

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So, Let's have at it!!!

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APPLICATION

- **242.7204 Contract clause.**
 - Use the clause at [252.242-7004](#), Material Management and Accounting System, **in all solicitations and contracts exceeding the simplified acquisition threshold** that are **not** for the acquisition of commercial items and—
 - (a) Are **not** awarded to small businesses, educational institutions, or nonprofit organizations; and
 - (b) Are either—
 - (1) **Cost-reimbursement contracts**; or
 - (2) **Fixed-price contracts** with **progress payments** made on the basis of costs incurred by the contractor as work progresses under the contract.

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THE CLAUSE

DFARS 252.242-7004

Material Management and Accounting System.

(MAY 2011)

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DFARS 252.242-7004

- (a) Definitions.
- (b) General.
- (c) Disclosure and maintenance requirements.
- (d) System criteria**
- (e) Significant deficiencies.
- (f) Untitled.
- (g) Withholding payments.

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(D) SYSTEM CRITERIA

THE MMAS SHALL HAVE ADEQUATE INTERNAL CONTROLS TO ENSURE SYSTEM AND DATA INTEGRITY, AND SHALL --

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SYSTEM CRITERIA

(1) Have an adequate system description including policies, procedures, and operating instructions that comply with the FAR and Defense FAR Supplement;

Sounds familiar – huh?

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SYSTEM CRITERIA

(2) Ensure that costs of purchased and fabricated material charged or allocated to a contract are based on valid time-phased requirements as impacted by minimum/economic order quantity restrictions.

(i) A **98 percent bill of material accuracy** and a **95 percent master production schedule accuracy** are **desirable** as a goal in order to ensure that requirements are both valid and appropriately time-phased.

(ii) If systems have **accuracy levels below** these, the Contractor shall provide adequate evidence that—

(A) There is **no material harm** to the Government due to lower accuracy levels; and

(B) The **cost** to meet the accuracy goals **is excessive in relation** to the impact on the Government;

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SYSTEM CRITERIA

(3) Provide a mechanism to **identify, report, and resolve** system control **weaknesses** and manual override. Systems should identify **operational exceptions**, such as **excess/residual inventory**, as soon as known;

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SYSTEM CRITERIA

(4) Provide **audit trails and maintain records** (manual and those in machine-readable form) necessary to evaluate system logic and to verify through transaction testing that the system is operating as desired;

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SYSTEM CRITERIA

(5) Establish and maintain adequate levels of **record accuracy**, and include reconciliation of **recorded inventory quantities to physical inventory** by part number on a **periodic** basis. A **95 percent accuracy level is desirable**. If systems have an **accuracy level below 95** percent, the Contractor shall provide adequate evidence that—

- (i) There is **no material harm** to the Government due to lower accuracy levels; and
- (ii) The **cost** to meet the accuracy goal is **excessive** in relation to the impact on the Government;

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SYSTEM CRITERIA

(6) Provide **detailed descriptions** of circumstances that will result in **manual or system generated transfers** of parts;



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SYSTEM CRITERIA

(7) Maintain a **consistent, equitable, and unbiased logic for costing** of material transactions as follows:

- (i) The Contractor shall maintain and disclose written policies describing the transfer methodology and the loan/pay-back technique.
- (ii) The costing methodology may be standard or actual cost, or **any of the inventory costing methods in 48 CFR 9904.411-50(b)**. The Contractor **shall maintain consistency** across all contract and customer types, and from accounting period to accounting period for initial charging and transfer charging.

48 CFR 9904.411-50(b)
 (1) The first-in, first-out (FIFO) method.
 (2) The moving average cost method.
 (3) The weighted average cost method.
 (4) The standard cost method.
 (5) The last-in, first-out (LIFO) method.

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SYSTEM CRITERIA

(7) Continued...

(iii) The system **should transfer parts** and **associated costs** within the **same billing period**. In the few instances **where this may not be appropriate**, the **Contractor may** accomplish the material transaction using a **loan/pay-back technique**. The "loan/pay-back technique" means that the physical part is moved temporarily from the contract, but the cost of the part remains on the contract. **The procedures** for the loan/pay-back technique **must be approved by the ACO**. When the technique is used, the Contractor shall have controls to ensure—

- (A) Parts are paid back expeditiously;
- (B) Procedures and controls are in place to correct any overbilling that might occur;
- (C) Monthly, at a minimum, identification of the borrowing contract and the date the part was borrowed; and
- (D) The cost of the replacement part is charged to the borrowing contract;

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SYSTEM CRITERIA

(8) Where **allocations from common inventory accounts** are used, have controls (in addition to those in paragraphs (e)(2) and (7) of this clause) to ensure that—

- (i) **Reallocations and any credit due** are **processed no less frequently** than the **routine billing cycle**;
- (ii) Inventories retained for requirements that are **not under contract** are **not allocated to contracts**; and
- (iii) **Algorithms** are **maintained** based on valid and current data;

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SYSTEM CRITERIA

(9) Have adequate controls to ensure that **physically commingled inventories** that may include material for which costs are charged or allocated to fixed-price, cost-reimbursement, and commercial contracts do not compromise requirements of any of the standards in paragraphs (e)(1) through (8) of this clause. **Government-furnished material shall not be—**

- (i) Physically commingled with other material; or**
- (ii) Used on commercial work;** and

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SYSTEM CRITERIA

- (10) Be subjected to **periodic internal reviews** to ensure compliance with established policies and procedures.



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Does a LOT of that sound like “stuff” that we as Property Professionals deal with???

- I would say YES – a lot of those terms are constructs that we understand.
- But there are embedded issues of which we, Property Professionals, know very little about, or that we need to learn more about, e.g.,



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Can you Describe...

- What are Soft Pegging and Hard Pegging?
- What are Algorithms?
- What is the difference between a moving average and a weighted average cost method?
- What are Dynamic Buffers?



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Why should "PROPERTY" be involved with the MMAS?

- KNOWLEDGE and AUTHORITIES
 - GP CLAUSE Applications EMBEDDED within the MMAS
 - Physical Inventories
 - GP Clause requirements, FAR 52.245-1(f)(1)(iv)
 - DFARS "Loss" clause requirements, 252.245-7002(b)
 - Reasonable Adjustments
 - Liability for the Loss of GP (Including CAP under the MMAS) – PA Authority to Grant Relief

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Why should "PROPERTY" be involved with the MMAS?

- KNOWLEDGE and AUTHORITIES
 - GP CLAUSE Applications EMBEDDED within the MMAS (Continued)
 - RECORDS!!! (MULTIPLE SYSTEMS)
 - Receipt and Issue (With a Conundrum)
 - Disposition of Government Property
 - » FAR 52.245-1(j)
 - » DFARS 252.245-7004

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MMAS CONCERNS AND CONUNDRUMS

- APPLICATION
 - There is no guidance regarding the CONTRACT PURPOSE in driving the use of the MMAS. It is driven by the PRICING Arrangement (CR) or FINANCING provided (Progress Payments).
 - Yet, **MRP and MRP II were primarily concerned with PRODUCTION ENVIRONMENTS!**
 - So does the MMAS work well in an environment such as **Research and Development (R&D) where there is NOT an MPS or a BOM?** Lacking these two items could conceivably render an MMAS Audit as Inadequate – leading to other problems (More Later).
 - How about **Overhaul and Maintenance?** Again, no MPS – so how do I have valid time phased requirements?

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MMAS CONCERNS AND CONUNDRUMS

- **Receipt and Issue**
 - The "Receipt and Issue system" allowed under FAR 52.245-1(f)(1)(iii)(B) appears to be OUTSIDE the MMAS requirements. Is it therefore dead?
 - MY OPINION, NO!
 - Why?
 - Because there are items of material which may neatly fit OUTSIDE the MMAS, e.g.,
 - Parts of the repair of Government Property
 - Parts for an R&D experiment or design
 - THESE TYPES OF EXCEPTIONS MUST BE DOCUMENTED WITHIN BOTH THE PMS AND THE MMAS TO ENSURE ADEQUATE DISCUSSION and
 - The "Receipt and Issue System" MUST be approved by the PAI

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MMAS CONCERNS AND CONUNDRUMS

- **GFP of the MATERIAL classification under the MMAS**
 - The MMAS clause RESTRICTS the use of GFP(M) under the MMAS.
 - 252.242-7004(d)(9) RESTRICTS GFP stating
 - Government-furnished material shall not be—
 - (i) Physically commingled with other material; or
 - (ii) Used on commercial work
 - So, how does this TRULY play out –and what are some of the implications that MUST be addressed – and aren't?

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MMAS CONCERNS AND CONUNDRUMS

- **GFP of the MATERIAL classification under the MMAS**
 - Contractors must be exacting in knowing what is Government-furnished versus CAP or PPI.
 - GFP **cannot** be **COMMINGLED** – well, that takes away one of the "STRENGTHS" of the MMAS
 - GFP **cannot** be **USED** on **Commercial work** – again, taking away another "STRENGTH" of the MMAS – using Material where most urgently/critically needed.
 - GFP has **no cost "Charged"** to the contract, i.e., as an allowable cost, like CAP. How do I **CREDIT/DEBIT** the Acquisition Cost as I have to do for EVERY OTHER TRANSACTION as required by the MMAS???

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MMAS CONCERNS AND CONUNDRUMS

- **GFP of the MATERIAL classification under the MMAS**
 - Notice the clause does NOT restrict GFP from being used from one contract to another.
 - The Government has to be concerned with:
 - **UID** issues (That GFP was probably a DELIVERABLE end item requiring UID Application!)
 - PCOs need to be concerned with LONG LEAD ITEMS – and the POTENTIAL for one **PCO/Contract** "**borrowing**" GFP from another PCO/Contract under the MMAS – resulting in potential claims for equitable adjustment – 52.245-1(d)

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MMAS CONCERNS AND CONUNDRUMS

- **GFP of the MATERIAL classification under the MMAS**
- MY THOUGHTS on GFP(M) UNDER THE MMAS...
 - **GFP(M) MUST**, repeat **MUST** be considered from the **PRODUCTION PERSPECTIVE** – but it **DOES NOT FIT** under the other primary focuses of the MMAS, i.e., the **FINANCIAL** Crediting and Debiting of transactions and the use of material where most urgently needed – regardless of ownership.
- Contractors and the Government need to be aware of this **RISK/REGULATORY WEAKNESS**, and work hand in hand to prevent a potential calamity with GFP(M) under an MMAS.

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MMAS CONCERNS AND CONUNDRUMS

- Government Property (Material) under the MMAS and the **Ground and Flight Risk Clause**
 - The GFR Clause is a bear in and of itself. Now, we may have as Government Property handled under the GFR clause.
 - Since assignment to an Aircraft effects liability under the GFR clause – and the MMAS allows assignment of material to work with very rapid movement/transfers. Trying to determine its "ASSIGNMENT" at a split instant – in retrospect -- can be difficult.

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MMAS CONCERNS AND CONUNDRUMS

- Government Property (Material) where there are multiple AGENCY contracts, i.e., DOD, NASA, DOE, etc.
 - Do these **other agencies ALLOW the commingling of material under the MMAS?**
 - Do these other agencies **RECOGNIZE the use of an MMAS?**
 - If not, **how does the contractor SEGREGATE NON-DOD Contract property from DOD Contract Property?**

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ANOTHER ISSUE WITH MMAS

PERSPECTIVE

THE MMAS IS SUBJECT TO A TEAM REVIEW –
And each member of the team has a different perspective!

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MMAS "PERSPECTIVE"

The MMAS serves many purposes and it depends upon your occupation as to how you view it! Who is looking at what when?

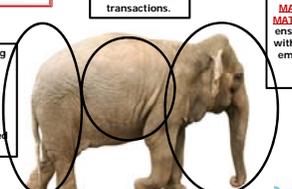
NOTE: The portions of the elephant selected have NOTHING to do with the occupation assigned to that portion of the elephant

CAUTIONARY NOTE: The **ACO** is the **TEAM LEAD**. No One Person has the whole view, as is the Blind Men and the elephant. It is the same with the MMAS. Care must be taken to have a **TEAM** approach where **ALL** of the Standards or Elements are **PROPERLY** reviewed by the **APPROPRIATE** Professionals.

Finance/Accounting Folks focus on the **ACCOUNTING** requirements, e.g., credits and debits for all material transactions.

Property Professionals- Focus on the **MANAGEMENT** of **MATERIAL** (CAP) to ensure compliance with FAR 52.245-1, embedded within the MMAS.

Production and Engineering Professionals- Focus on the **Production planning** and **scheduling** Aspects, e.g., BOMs and MIPs, of the Product being manufactured under the MMAS.



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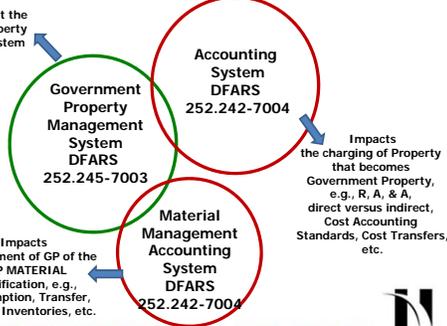
MMAS and the Business System Rules

- **CRITICAL NOTE** – the MMAS is one of the SIX Business System Rules under the DFARS 242.
 - MMAS
 - Government Property
 - Accounting
 - Purchasing
 - EVMS
 - Cost Estimating
- **CAUTION IS WARRANTED** as the MMAS Overlaps with other BUSINESS SYSTEMS.

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OVERLAPPING BSRs



We all know what the Government Property Management System does!

Impacts Management of GP of the CAP MATERIAL classification, e.g., Consumption, Transfer, Physical Inventories, etc.

Impacts the charging of Property that becomes Government Property, e.g., R, A, & A, direct versus indirect, Cost Accounting Standards, Cost Transfers, etc.

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So, do you as a Property Professional Need to know about the MMAS?
ABSOLUTELY!!!

My Advice – Read, Study, Analyze EVERYTHING you can about MRP, MRPII, ERP systems and the MMAS...
Read the DCMA Materials
Read the DCAA Materials

And then share what you have learned with your fellow Property Professionals!

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QUESTIONS?



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THANK YOU!!!

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