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UNDERSTANDING THE CORE PRINCIPLES OF EARNED VALUE MANAGEMENT (EVM) IS ESSENTIAL FOR PROJECT MANAGERS, STAKEHOLDERS, AND TEAMS AIMING TO MONITOR PROJECT PERFORMANCE ACCURATELY. A FUNDAMENTAL ASPECT OF EFFECTIVE EVM IMPLEMENTATION INVOLVES CORRECTLY ASSOCIATING EACH EVM METRIC WITH ITS SOURCE. DOING SO ENSURES TRANSPARENCY, IMPROVES DECISION-MAKING, AND ENHANCES THE ABILITY TO CONTROL PROJECT SCOPE, SCHEDULE, AND COSTS. THIS ARTICLE DELVES INTO THE SIGNIFICANCE OF LINKING EACH EVM VALUE TO ITS SOURCE, CLARIFIES EXCEPTIONS SUCH AS COST AT COMPLETION, AND PROVIDES PRACTICAL GUIDANCE FOR MASTERING THIS CRITICAL PROCESS.

WHAT IS EARNED VALUE MANAGEMENT (EVM)?

BEFORE EXPLORING THE SPECIFICS OF ASSOCIATING EVM VALUES TO THEIR SOURCES, IT IS IMPORTANT TO UNDERSTAND WHAT EVM ENTAILS.

DEFINITION OF EVM

EARNED VALUE MANAGEMENT IS A PROJECT MANAGEMENT TECHNIQUE THAT INTEGRATES SCOPE, SCHEDULE, AND COST PARAMETERS TO ASSESS PROJECT PERFORMANCE AND PROGRESS OBJECTIVELY. IT PROVIDES A QUANTITATIVE BASIS FOR DECISION-MAKING, ENABLING PROJECT MANAGERS TO IDENTIFY VARIANCES EARLY AND TAKE CORRECTIVE ACTIONS PROMPTLY.

CORE EVM METRICS

THE KEY METRICS IN EVM INCLUDE:

- PLANNED VALUE (PV): THE BUDGETED COST FOR WORK SCHEDULED TO BE COMPLETED BY A SPECIFIC POINT.
- EARNED VALUE (EV): THE BUDGETED COST FOR THE WORK ACTUALLY PERFORMED.
- ACTUAL COST (AC): THE REAL COST INCURRED FOR THE WORK PERFORMED.
- COST AT COMPLETION (ESTIMATE AT COMPLETION, EAC): THE FORECASTED TOTAL COST OF THE PROJECT AT THE END.

WHILE THESE METRICS ARE STRAIGHTFORWARD, UNDERSTANDING THEIR SOURCES AND HOW THEY RELATE TO PROJECT ITEMS OR ACTIVITIES IS CRUCIAL FOR EFFECTIVE MANAGEMENT.

ASSOCIATING EVM VALUES TO THEIR SOURCES: THE BASICS

AT THE HEART OF EVM ANALYSIS IS THE ASSOCIATION OF EACH METRIC WITH ITS SOURCE—EITHER SPECIFIC PROJECT ITEMS, TASKS, OR WORK PACKAGES.

WHY IS IT IMPORTANT?

- TRACEABILITY: ENSURES THAT EACH VALUE CAN BE TRACED BACK TO SPECIFIC WORK ITEMS, FACILITATING EASIER AUDITS AND REVIEWS.
- ACCURACY: PREVENTS MISINTERPRETATION OF DATA BY CLARIFYING WHAT EACH METRIC REPRESENTS.
- CONTROL: ENABLES TARGETED CORRECTIVE ACTIONS BY UNDERSTANDING WHICH ITEMS OR TASKS ARE DRIVING VARIANCES.

- **REPORTING CLARITY:** PROVIDES STAKEHOLDERS WITH A CLEAR VIEW OF WHERE PROJECT PERFORMANCE ISSUES ORIGINATE.

ASSOCIATING VALUES TO ITEMS VS. COST AT COMPLETION

- **ITEMS:** THE COMMON REFERENCE FOR EVM METRICS—WORK PACKAGES, TASKS, OR DELIVERABLES.
- **COST AT COMPLETION (EAC):** AN OVERARCHING FORECAST THAT REPRESENTS THE TOTAL EXPECTED COST UPON PROJECT COMPLETION, WHICH DOES NOT DIRECTLY CORRESPOND TO INDIVIDUAL ITEMS BUT RATHER TO THE PROJECT AS A WHOLE.

THIS DISTINCTION IS CRITICAL: WITH THE EXCEPTION OF COST AT COMPLETION, EVM VALUES ARE TYPICALLY TIED TO SPECIFIC PROJECT ITEMS, PROVIDING GRANULAR INSIGHT INTO PROJECT PERFORMANCE.

HOW TO ASSOCIATE EACH EVM VALUE TO ITS SOURCE

IMPLEMENTING EFFECTIVE ASSOCIATION INVOLVES SYSTEMATIC PROCESSES AND BEST PRACTICES.

1. DEFINE WORK BREAKDOWN STRUCTURE (WBS) CLEARLY

- BREAK DOWN THE PROJECT INTO MANAGEABLE COMPONENTS.
- ASSIGN UNIQUE IDENTIFIERS TO EACH WORK PACKAGE OR TASK.
- ENSURE THAT EACH ITEM HAS AN ASSOCIATED SCOPE, SCHEDULE, AND BUDGET.

BEST PRACTICE: USE A WELL-STRUCTURED WBS TO FACILITATE PRECISE TRACKING AND ASSOCIATION.

2. LINK EVM DATA COLLECTION TO SPECIFIC ITEMS

- WHEN MEASURING EV, AC, OR PV, RECORD DATA AGAINST THE CORRESPONDING WORK PACKAGE OR TASK.
- USE PROJECT MANAGEMENT SOFTWARE THAT SUPPORTS ITEM-LEVEL TRACKING.
- MAINTAIN DETAILED RECORDS OF WORK PERFORMED AND COSTS INCURRED PER ITEM.

TIP: REGULARLY UPDATE THE STATUS OF EACH WORK ITEM TO KEEP EVM DATA CURRENT.

3. USE STANDARDIZED CODING AND IDENTIFICATION

- IMPLEMENT CODING SCHEMES THAT TIE EACH WORK ITEM TO SPECIFIC COST ACCOUNTS.
- ENSURE THAT ALL TEAM MEMBERS AND DATA COLLECTION SYSTEMS ADHERE TO THESE CODES.
- FACILITATE AUTOMATED DATA AGGREGATION AND ANALYSIS.

4. MAINTAIN A TRACEABILITY MATRIX

- CREATE A MAPPING DOCUMENT LINKING EACH EVM METRIC TO SPECIFIC ITEMS.
- USE THIS MATRIX FOR AUDITS, PERFORMANCE REVIEWS, AND REPORTING.
- UPDATE REGULARLY AS PROJECT SCOPE OR STRUCTURE EVOLVES.

5. INTERPRET COST AT COMPLETION APPROPRIATELY

- RECOGNIZE THAT EAC IS AN AGGREGATE FORECAST, NOT TIED DIRECTLY TO INDIVIDUAL ITEMS.
- USE EAC TRENDS TO ADJUST FORECASTS AT THE PROJECT LEVEL, NOT NECESSARILY AT THE ITEM LEVEL.
- WHEN NECESSARY, BREAK DOWN EAC INTO COMPONENT ESTIMATES TO RELATE TO ITEMS.

SPECIAL CONSIDERATION: COST AT COMPLETION

WHILE MOST EVM METRICS ARE ASSOCIATED WITH SPECIFIC ITEMS, COST AT COMPLETION (EAC) REPRESENTS AN OVERALL FORECAST AND IS NOT DIRECTLY LINKED TO INDIVIDUAL PROJECT COMPONENTS.

UNDERSTANDING EAC

- EAC IS DERIVED FROM CURRENT PERFORMANCE DATA AND FORECASTS FUTURE PERFORMANCE.
- IT REFLECTS THE PROJECTED TOTAL COST, CONSIDERING CURRENT VARIANCES AND TRENDS.
- IT PROVIDES A HIGH-LEVEL VIEW OF PROJECT FINANCIAL HEALTH.

WHY EAC IS AN EXCEPTION

- UNLIKE PV, EV, OR AC, WHICH ARE TIED TO SPECIFIC WORK ITEMS, EAC IS A SUMMARY METRIC.
- ITS CALCULATION INCORPORATES MULTIPLE DATA POINTS AND ASSUMPTIONS ABOUT FUTURE PERFORMANCE.
- THEREFORE, IT DOES NOT HAVE A ONE-TO-ONE CORRESPONDENCE WITH INDIVIDUAL ITEMS.

IMPLICATION FOR PROJECT CONTROL

- USE EAC AS A PROJECT-LEVEL INDICATOR TO INFORM STRATEGIC DECISIONS.
- SUPPLEMENT IT WITH DETAILED ITEM-LEVEL DATA (PV, EV, AC) FOR GRANULAR CONTROL.
- WHEN ANALYZING VARIANCES, FOCUS ON THE UNDERLYING WORK ITEMS CONTRIBUTING TO THE EAC.

PRACTICAL EXAMPLES OF ASSOCIATING EVM VALUES

TO CLARIFY THE PROCESS, CONSIDER THE FOLLOWING SCENARIOS:

EXAMPLE 1: TRACKING A CONSTRUCTION WORK PACKAGE

- WORK ITEM: FOUNDATION INSTALLATION
- BUDGETED COST: \$50,000
- PLANNED VALUE (PV) AT CURRENT DATE: \$25,000
- EARNED VALUE (EV): \$20,000 (WORK PERFORMED SO FAR)
- ACTUAL COST (AC): \$22,000

ASSOCIATION: ALL THESE METRICS ARE DIRECTLY LINKED TO THE "FOUNDATION INSTALLATION" WORK PACKAGE, ALLOWING PRECISE PERFORMANCE ASSESSMENT.

EXAMPLE 2: PROJECT-LEVEL EAC

- BASED ON CURRENT PERFORMANCE, THE PROJECT FORECAST INDICATES A TOTAL COST OF \$1,200,000.
- THIS EAC IS AN AGGREGATE MEASURE AND NOT LINKED TO SPECIFIC TASKS.
- TO IMPROVE CONTROL, BREAK DOWN THE EAC INTO ESTIMATES FOR INDIVIDUAL COMPONENTS, E.G., STRUCTURAL WORK, ELECTRICAL, PLUMBING, ETC.

BENEFITS OF PROPER ASSOCIATION IN EVM

IMPLEMENTING RIGOROUS ASSOCIATION PRACTICES YIELDS NUMEROUS BENEFITS:

- ENHANCED VISIBILITY: CLEAR UNDERSTANDING OF WHICH ITEMS ARE UNDERPERFORMING.
- EFFECTIVE CORRECTIVE ACTIONS: TARGETED INTERVENTIONS FOR SPECIFIC WORK PACKAGES.
- ACCURATE FORECASTING: BETTER EAC CALCULATIONS BASED ON ITEM-LEVEL DATA.
- IMPROVED STAKEHOLDER COMMUNICATION: TRANSPARENT REPORTING WITH TRACEABLE DATA SOURCES.

COMMON CHALLENGES AND HOW TO OVERCOME THEM

WHILE ASSOCIATING EVM VALUES TO THEIR SOURCES IS STRAIGHTFORWARD IN PRINCIPLE, PRACTICAL CHALLENGES CAN ARISE.

1. INCONSISTENT DATA ENTRY

- SOLUTION: STANDARDIZE DATA COLLECTION PROCEDURES AND TRAIN TEAM MEMBERS.

2. COMPLEX PROJECT STRUCTURES

- SOLUTION: USE A DETAILED WBS AND MAINTAIN CLEAR MAPPING OF ITEMS.

3. OVER-RELIANCE ON AGGREGATE DATA

- SOLUTION: BREAK DOWN EAC AND OTHER METRICS INTO COMPONENTS FOR BETTER CONTROL.

4. LACK OF SOFTWARE SUPPORT

- SOLUTION: INVEST IN PROJECT MANAGEMENT TOOLS THAT SUPPORT ITEM-LEVEL TRACKING AND REPORTING.

SUMMARY AND BEST PRACTICES

- ALWAYS ASSOCIATE PV, EV, AND AC WITH SPECIFIC PROJECT ITEMS OR WORK PACKAGES.
- MAINTAIN A DETAILED AND CURRENT WBS TO SUPPORT ACCURATE ASSOCIATION.
- USE A TRACEABILITY MATRIX TO DOCUMENT SOURCE RELATIONSHIPS.
- RECOGNIZE THAT COST AT COMPLETION IS AN AGGREGATE FORECAST, NOT TIED TO INDIVIDUAL ITEMS.
- REGULARLY REVIEW AND UPDATE ASSOCIATIONS TO REFLECT PROJECT CHANGES.

- LEVERAGE TECHNOLOGY TOOLS TO FACILITATE PRECISE AND CONSISTENT DATA TRACKING.

CONCLUSION

ASSOCIATING EACH EVM VALUE TO ITS SOURCE—PRIMARILY PROJECT ITEMS—IS FUNDAMENTAL FOR EFFECTIVE PROJECT PERFORMANCE MANAGEMENT. THIS PRACTICE ENHANCES TRANSPARENCY, ACCURACY, AND RESPONSIVENESS. BY UNDERSTANDING THE DISTINCTION WITH COST AT COMPLETION, WHICH SERVES AS A HIGH-LEVEL FORECAST, PROJECT TEAMS CAN BETTER INTERPRET PERFORMANCE METRICS AND MAKE INFORMED DECISIONS. IMPLEMENTING STRUCTURED PROCESSES, LEVERAGING APPROPRIATE TOOLS, AND FOSTERING DISCIPLINED DATA MANAGEMENT ARE KEY TO MASTERING THIS ASPECT OF EARNED VALUE MANAGEMENT. WITH THESE PRACTICES IN PLACE, ORGANIZATIONS CAN ACHIEVE GREATER PROJECT CONTROL, MINIMIZE RISKS, AND DRIVE SUCCESSFUL PROJECT OUTCOMES.

FREQUENTLY ASKED QUESTIONS

WHAT DOES ASSOCIATING EACH EVM VALUE TO ITS SOURCE HELP ACHIEVE IN PROJECT MANAGEMENT?

IT ENHANCES TRACEABILITY AND ACCOUNTABILITY BY CLEARLY LINKING EACH EARNED VALUE MEASUREMENT (EVM) TO ITS ORIGINATING ITEM OR SOURCE, FACILITATING BETTER TRACKING AND CONTROL.

WHY IS IT IMPORTANT TO ASSUME THE REFERENCE IS TO ITEMS EXCEPT FOR COST AT COMPLETION IN EVM?

BECAUSE COST AT COMPLETION (CAC) IS A CUMULATIVE METRIC, WHEREAS OTHER EVM VALUES LIKE PLANNED VALUE, EARNED VALUE, AND ACTUAL COST ARE TYPICALLY ASSOCIATED WITH SPECIFIC ITEMS OR WORK PACKAGES, ENSURING CLARITY IN MEASUREMENT AND ANALYSIS.

HOW CAN ASSOCIATING EVM VALUES TO THEIR SOURCE IMPROVE PROJECT PERFORMANCE ANALYSIS?

IT ALLOWS PROJECT MANAGERS TO IDENTIFY WHICH SPECIFIC ITEMS OR WORK PACKAGES ARE UNDERPERFORMING OR OVERPERFORMING, ENABLING TARGETED CORRECTIVE ACTIONS.

IN THE CONTEXT OF EVM, WHAT DOES IT MEAN TO ASSOCIATE A VALUE TO ITS SOURCE?

IT MEANS LINKING EACH MEASUREMENT—SUCH AS PLANNED VALUE, EARNED VALUE, OR ACTUAL COST—to THE PARTICULAR ITEM, WORK PACKAGE, OR TASK FROM WHICH IT ORIGINATES, EXCEPT FOR COST AT COMPLETION WHICH IS A FORECAST.

HOW DOES EXCLUDING COST AT COMPLETION FROM SOURCE ASSOCIATION AFFECT EVM ANALYSIS?

SINCE CAC IS A FORECASTED AGGREGATE METRIC, IT ISN'T TIED TO INDIVIDUAL ITEMS BUT RATHER TO THE OVERALL PROJECT ESTIMATE, SO IT ISN'T ASSOCIATED WITH SPECIFIC SOURCES LIKE OTHER EVM METRICS.

WHAT ARE THE BENEFITS OF ASSUMING REFERENCES ARE TO ITEMS IN EVM DATA

ANALYSIS?

THIS ASSUMPTION SIMPLIFIES DATA ORGANIZATION, IMPROVES ACCURACY IN TRACKING PROGRESS, AND SUPPORTS DETAILED VARIANCE ANALYSIS AT THE ITEM OR WORK PACKAGE LEVEL.

CAN ASSOCIATING EVM VALUES TO SOURCES HELP IN IDENTIFYING SCOPE CHANGES?

YES, BY TRACING THE VALUES BACK TO SPECIFIC ITEMS, PROJECT TEAMS CAN DETECT SCOPE CHANGES OR DEVIATIONS IN PARTICULAR AREAS OF THE PROJECT.

WHY SHOULD COST AT COMPLETION BE TREATED DIFFERENTLY FROM OTHER EVM VALUES IN SOURCE ASSOCIATION?

BECAUSE CAC IS A CUMULATIVE FORECAST THAT SUMS OVERALL PROJECT COSTS, IT IS NOT TIED TO INDIVIDUAL ITEMS BUT TO THE PROJECT AS A WHOLE, MAKING SOURCE ASSOCIATION LESS APPLICABLE.

WHAT IS THE SIGNIFICANCE OF THE PHRASE 'EXCEPT FOR COST AT COMPLETION' IN THE CONTEXT OF ASSOCIATING EVM VALUES?

IT INDICATES THAT ALL EVM METRICS, EXCEPT FOR THE COST AT COMPLETION, ARE LINKED TO SPECIFIC ITEMS OR WORK PACKAGES, WHEREAS CAC REMAINS A PROJECT-WIDE FORECAST INDEPENDENT OF INDIVIDUAL SOURCES.

ADDITIONAL RESOURCES

ASSOCIATE EACH EVM VALUE TO ITS SOURCE. EXCEPT FOR COST AT COMPLETION, ASSUME THE REFERENCE IS TO ITEMS. THIS PRINCIPLE IS FUNDAMENTAL TO EFFECTIVE EARNED VALUE MANAGEMENT (EVM) PRACTICE, ENABLING PROJECT MANAGERS AND STAKEHOLDERS TO ACCURATELY INTERPRET PROJECT PERFORMANCE DATA. BY UNDERSTANDING THE ORIGINS OF EACH EVM METRIC—WHETHER THEY STEM FROM SPECIFIC WORK PACKAGES, CONTROL ACCOUNTS, OR OTHER SOURCES—TEAMS CAN MAKE MORE INFORMED DECISIONS, IDENTIFY ISSUES EARLY, AND MAINTAIN BETTER CONTROL OVER PROJECT SCOPE, SCHEDULE, AND COSTS.

IN THIS COMPREHENSIVE GUIDE, WE WILL EXPLORE THE SIGNIFICANCE OF ASSOCIATING EACH EVM VALUE TO ITS SOURCE, THE COMMON SOURCES OF EVM DATA, HOW TO IMPLEMENT THIS ASSOCIATION PRACTICALLY, AND THE EXCEPTIONS—PARTICULARLY COST AT COMPLETION—THAT REQUIRE A DIFFERENT APPROACH. WHETHER YOU'RE NEW TO EVM OR LOOKING TO REFINE YOUR PROCESSES, UNDERSTANDING THESE PRINCIPLES IS KEY TO LEVERAGING THE FULL POWER OF EARNED VALUE ANALYSIS.

THE IMPORTANCE OF ASSOCIATING EVM VALUES TO THEIR SOURCES

BEFORE DELVING INTO THE "HOW," IT'S VITAL TO UNDERSTAND WHY ASSOCIATING EVM DATA TO THEIR SOURCES IS SO CRITICAL.

CLARITY AND TRACEABILITY

- **TRACEABILITY:** WHEN EACH EVM METRIC DIRECTLY RELATES TO A SPECIFIC WORK ELEMENT, IT'S EASIER TO TRACE VARIANCES BACK TO THEIR ROOT CAUSES. THIS CLARITY HELPS IN DIAGNOSING ISSUES, WHETHER THEY ORIGINATE FROM SCHEDULE DELAYS, SCOPE CHANGES, OR COST OVERRUNS.

- **ACCOUNTABILITY:** ASSIGNING EVM VALUES TO SPECIFIC ITEMS OR CONTROL ACCOUNTS ENHANCES ACCOUNTABILITY, MAKING IT CLEAR WHO IS RESPONSIBLE FOR EACH SEGMENT OF WORK.

IMPROVED DECISION-MAKING

- TARGETED CORRECTIVE ACTIONS: KNOWING THE SOURCE OF A VARIANCE ALLOWS PROJECT MANAGERS TO IMPLEMENT TARGETED CORRECTIVE ACTIONS RATHER THAN BROAD, LESS EFFECTIVE RESPONSES.
- BETTER FORECASTING: ACCURATE ASSOCIATIONS IMPROVE THE RELIABILITY OF FORECASTS LIKE ESTIMATE AT COMPLETION (EAC), AS THEY ARE BASED ON DATA LINKED DIRECTLY TO SPECIFIC WORK AREAS.

DATA CONSISTENCY AND INTEGRITY

- CONSISTENCY: ASSOCIATING EVM METRICS TO ITEMS ENSURES CONSISTENCY IN DATA COLLECTION AND REPORTING, REDUCING ERRORS AND DISCREPANCIES.
- INTEGRATION: IT FACILITATES INTEGRATION WITH OTHER PROJECT MANAGEMENT TOOLS AND PROCESSES, SUCH AS SCOPE MANAGEMENT AND RISK ANALYSIS.

COMMON SOURCES OF EVM DATA

EVM DATA CAN ORIGINATE FROM VARIOUS SOURCES WITHIN THE PROJECT MANAGEMENT FRAMEWORK. UNDERSTANDING THESE SOURCES HELPS IN ESTABLISHING PROPER ASSOCIATIONS.

1. WORK BREAKDOWN STRUCTURE (WBS) ELEMENTS

- DESCRIPTION: THE WBS DECOMPOSES THE PROJECT INTO MANAGEABLE SECTIONS. EACH WORK PACKAGE WITHIN THE WBS SERVES AS A PRIMARY SOURCE FOR EVM DATA.
- USE IN EVM: EVM METRICS LIKE PLANNED VALUE (PV), EARNED VALUE (EV), AND ACTUAL COST (AC) ARE ASSIGNED AT THE WORK PACKAGE LEVEL, ENABLING DETAILED PERFORMANCE ANALYSIS.

2. CONTROL ACCOUNTS

- DESCRIPTION: CONTROL ACCOUNTS ARE MANAGEMENT POINTS WHERE SCOPE, SCHEDULE, AND COST ARE INTEGRATED AND MONITORED.
- USE IN EVM: THEY SERVE AS THE PRIMARY POINTS OF MEASUREMENT FOR EVM DATA, LINKING THE TECHNICAL WORK TO COST AND SCHEDULE PERFORMANCE.

3. SPECIFIC ITEMS OR DELIVERABLES

- DESCRIPTION: FOR CERTAIN PROJECTS, ESPECIALLY IN MANUFACTURING OR PRODUCT DEVELOPMENT, INDIVIDUAL ITEMS OR DELIVERABLES MAY BE TRACKED.
- USE IN EVM: METRICS CAN BE ASSOCIATED WITH SPECIFIC DELIVERABLES, ESPECIALLY WHEN ITEMS ARE WELL-DEFINED AND INDEPENDENTLY MEASURABLE.

4. COST ACCOUNTS AND COST ELEMENTS

- DESCRIPTION: COST ACCOUNTS AGGREGATE RELATED WORK AND THEIR ASSOCIATED COSTS, OFTEN ALIGNING WITH WORK PACKAGES OR CONTROL ACCOUNTS.
- USE IN EVM: ACTUAL COSTS AND FORECASTS ARE ASSOCIATED HERE TO FACILITATE COST PERFORMANCE ANALYSIS.

5. SCHEDULE ACTIVITIES

- DESCRIPTION: ACTIVITIES WITHIN THE PROJECT SCHEDULE CAN ALSO SERVE AS SOURCES FOR EVM DATA, ESPECIALLY FOR SCHEDULE PERFORMANCE INDICES.
- USE IN EVM: THE PROGRESSION OF ACTIVITIES CAN INFORM EV AND PV CALCULATIONS.

THE EXCEPTION: COST AT COMPLETION AND ITS REFERENCE

WHILE MOST EVM METRICS ARE ASSOCIATED DIRECTLY WITH SPECIFIC ITEMS, COST AT COMPLETION (CAC), OR MORE PRECISELY, ESTIMATE AT COMPLETION (EAC), OFTEN HAS A DIFFERENT REFERENCE POINT.

WHY IS COST AT COMPLETION AN EXCEPTION?

- AGGREGATE NATURE: UNLIKE OTHER EVM METRICS, WHICH ARE TIED TO SPECIFIC WORK UNITS, EAC IS A FORECAST THAT AGGREGATES DATA FROM MULTIPLE SOURCES, INCLUDING CURRENT PERFORMANCE, FUTURE ESTIMATES, AND ADJUSTMENTS FOR SCOPE OR RISK.
- FORECASTING BASIS: EAC IS PRIMARILY BASED ON THE PROJECT'S CURRENT PERFORMANCE (E.G., CPI, SPI) AND ASSUMPTIONS ABOUT FUTURE WORK, RATHER THAN A SPECIFIC, TANGIBLE ITEM.
- FOCUS ON OUTCOMES: IT REFLECTS THE EXPECTED TOTAL COST OF THE ENTIRE PROJECT, NOT INDIVIDUAL WORK ITEMS, MAKING IT INHERENTLY A PROJECT-LEVEL ESTIMATE RATHER THAN ITEM-SPECIFIC.

IMPLICATION

- WHEN ANALYZING OR REPORTING EAC, IT'S IMPORTANT TO RECOGNIZE THAT ITS REFERENCE IS NOT DIRECTLY TO A SPECIFIC ITEM OR SCOPE ELEMENT BUT TO THE OVERALL PROJECT OUTCOME.

PRACTICAL STEPS TO ASSOCIATE EVM VALUES TO THEIR SOURCES

IMPLEMENTING THE PRINCIPLE EFFECTIVELY REQUIRES A STRUCTURED APPROACH.

STEP 1: DEFINE CLEAR WORK AND CONTROL STRUCTURES

- DEVELOP A DETAILED WBS: BREAK DOWN THE PROJECT INTO MANAGEABLE WORK PACKAGES, EACH WITH UNIQUE IDENTIFIERS.
- ESTABLISH CONTROL ACCOUNTS: ASSIGN CONTROL ACCOUNTS THAT ENCOMPASS RELATED WBS ELEMENTS, ALIGNING SCOPE, SCHEDULE, AND COST.

STEP 2: LINK EVM DATA COLLECTION TO ITEMS

- ASSIGN PLANNED VALUES: ALLOCATE PV TO WORK PACKAGES OR CONTROL ACCOUNTS BASED ON SCHEDULE BASELINE.
- TRACK ACTUAL COSTS: RECORD ACTUAL COSTS AGAINST THE SAME ITEMS, ENSURING TRACEABILITY.
- CALCULATE EARNED VALUE: DETERMINE EV FOR EACH ITEM BY MEASURING WORK COMPLETED AGAINST THE PLANNED SCOPE.

STEP 3: USE A CENTRALIZED DATA MANAGEMENT SYSTEM

- INTEGRATED SOFTWARE: UTILIZE PROJECT MANAGEMENT TOOLS THAT ALLOW LINKING OF EVM METRICS TO SPECIFIC ITEMS, CONTROL ACCOUNTS, OR WORK PACKAGES.
- CONSISTENT DATA ENTRY: ENSURE THAT DATA COLLECTION PROCESSES CONSISTENTLY CAPTURE SOURCE INFORMATION.

STEP 4: REGULARLY REVIEW AND RECONCILE DATA

- VARIANCE ANALYSIS: EXAMINE VARIANCES AT THE ITEM LEVEL TO IDENTIFY ROOT CAUSES.
- UPDATE FORECASTS: USE ITEM-SPECIFIC DATA TO REFINE EAC, RECOGNIZING THAT FOR OVERALL PROJECT FORECASTS, THE DATA IS AGGREGATED.

STEP 5: DOCUMENT ASSUMPTIONS AND EXCEPTIONS

- CLARIFY REFERENCES: FOR EACH EVM METRIC, DOCUMENT WHETHER IT IS ASSOCIATED WITH A SPECIFIC ITEM, CONTROL ACCOUNT, OR IS A PROJECT-LEVEL ESTIMATE LIKE EAC.
- HANDLE EXCEPTIONS: RECOGNIZE WHEN METRICS LIKE COST AT COMPLETION ARE BASED ON PROJECT-WIDE FORECASTS RATHER THAN SPECIFIC ITEMS.

EXAMPLES TO ILLUSTRATE THE CONCEPT

EXAMPLE 1: ASSOCIATING EV TO A WORK PACKAGE

SUPPOSE A WORK PACKAGE "WP-DESIGN" HAS A PLANNED VALUE (PV) OF \$50,000. THE WORK COMPLETED IS 80%, SO THE EARNED VALUE (EV) IS \$40,000. ACTUAL COSTS (AC) ARE \$45,000. HERE, ALL THREE METRICS ARE DIRECTLY ASSOCIATED WITH "WP-DESIGN," ENABLING TARGETED ANALYSIS.

EXAMPLE 2: COST AT COMPLETION (EAC)

BASED ON CURRENT CPI, THE PROJECT PREDICTS A TOTAL COST OF \$1,200,000 AT COMPLETION. THIS EAC IS DERIVED FROM THE OVERALL PROJECT PERFORMANCE MEASURES, NOT A SPECIFIC WORK PACKAGE. IT AGGREGATES MULTIPLE SOURCES, MAKING IT AN EXCEPTION TO THE GENERAL RULE OF ASSOCIATING EVM METRICS WITH ITEMS.

BEST PRACTICES AND RECOMMENDATIONS

- ALWAYS LINK EVM METRICS TO ITEMS: TO MAINTAIN CLARITY, ASSOCIATE EACH EVM VALUE (PV, EV, AC) WITH THE SPECIFIC WORK ELEMENT, CONTROL ACCOUNT, OR DELIVERABLE IT ORIGINATES FROM.
- USE A CONSISTENT STRUCTURE: EMPLOY A WELL-DEFINED WBS AND CONTROL ACCOUNT STRUCTURE TO FACILITATE STRAIGHTFORWARD ASSOCIATION.
- BE AWARE OF EXCEPTIONS: RECOGNIZE THAT SOME METRICS LIKE EAC ARE INHERENTLY AGGREGATE AND SHOULD BE TREATED DIFFERENTLY IN ANALYSIS.
- MAINTAIN DOCUMENTATION: CLEARLY DOCUMENT THE SOURCES OF ALL EVM DATA TO AID IN AUDITS, REVIEWS, AND CONTINUOUS IMPROVEMENT.
- TRAIN YOUR TEAM: ENSURE ALL PROJECT PERSONNEL UNDERSTAND THE IMPORTANCE OF ASSOCIATING METRICS CORRECTLY AND ARE TRAINED IN DATA COLLECTION PROCEDURES.

CONCLUSION

ASSOCIATE EACH EVM VALUE TO ITS SOURCE. EXCEPT FOR COST AT COMPLETION, ASSUME THE REFERENCE IS TO ITEMS IS A GUIDING PRINCIPLE THAT UNDERPINS THE INTEGRITY AND USEFULNESS OF EARNED VALUE ANALYSIS. BY DILIGENTLY LINKING PERFORMANCE METRICS TO THEIR ORIGINATING WORK ELEMENTS—BE IT WORK PACKAGES, CONTROL ACCOUNTS, OR DELIVERABLES—PROJECT MANAGERS CAN ACHIEVE GREATER TRANSPARENCY, MORE ACCURATE PERFORMANCE INSIGHTS, AND MORE EFFECTIVE CONTROL. RECOGNIZING THE EXCEPTION OF COST AT COMPLETION ENSURES THAT FORECASTS REMAIN CONTEXTUALIZED AT THE PROJECT LEVEL, AVOIDING MISINTERPRETATION OF AGGREGATED DATA AS ITEM-SPECIFIC.

IMPLEMENTING THIS PRINCIPLE REQUIRES DISCIPLINE, STRUCTURED PROJECT PLANNING, AND CONSISTENT DATA MANAGEMENT PRACTICES. WHEN APPLIED CORRECTLY, IT EMPOWERS PROJECT TEAMS TO MAKE DATA-DRIVEN DECISIONS, PROACTIVELY MANAGE RISKS, AND STEER PROJECTS TOWARD SUCCESSFUL COMPLETION.

Associate Each Evm Value To Its Source Except For Cost At Completion Assume The Reference Is To Items

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