

QUALITY CONTROLS FOR THE INVESTIGATION/PREVENTION PROCESS

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WHAT MES DOES

MES provides investigators and users of investigation work products with tools to:

- (1) Planning and data needed to describe the mishap process;
- (2) Apply scientific data language rigor to mishap process data;
- (3) Verify mishap process data relevance to the undesired outcome;
- (4) Arrange data to verify their relative chronological accuracy;
- (5) Identify the "beginning" of the mishap process; i.e., the point at which the planned process translated into the mishap process;
- (6) Identify gaps or uncertainties in the description of the mishap process, and define additional data needed to surmount them;
- (7) Identify point(s) at which mishap process progress became irreversible;

- (8) Identify and define actors, actions and relationships which contributed to the progress of (or failed to arrest) the mishap process;
- (9) Evaluate and discriminate among specific corrective actions devised to address problems demonstrated by current mishap;
- (10) Institute quality controls over the complete investigation/analysis/ recommendation process to enable quantitative measurement of both predicted and achieved effectiveness of competing recommendations.
- (11) Provide validated models of mishap-related event sets for future use by designers, auditors, supervisors, trainers, procedures writers, investigators, litigants, etc.

Problem:

Currently, similar High-Risk Catastrophic Events recur continually, despite "investigation-based" recommendations ostensibly designed to preclude recurrence. No measures of effectiveness are implemented to verify the effectiveness of recommendations.

Need:

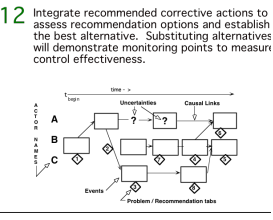
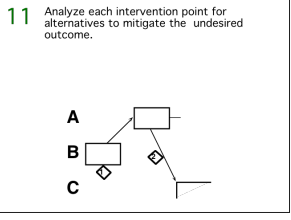
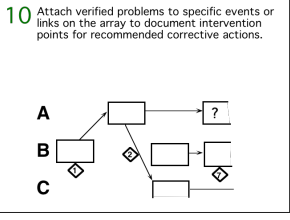
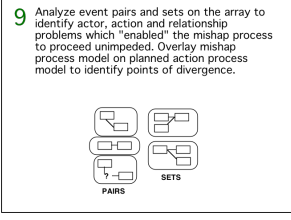
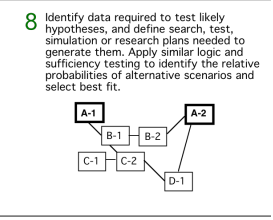
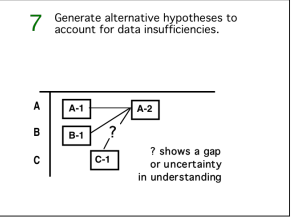
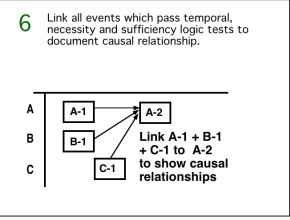
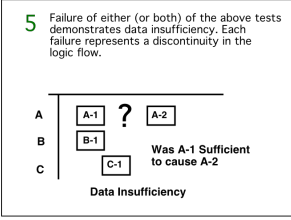
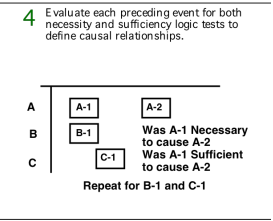
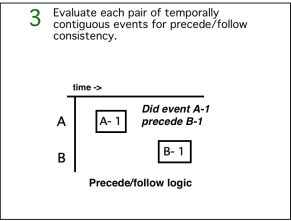
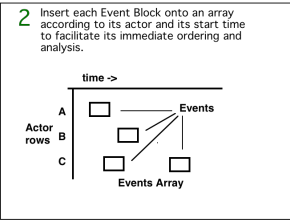
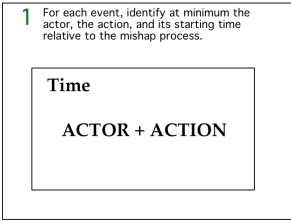
A methodology that applies the *rigor of scientific method and data language* to catastrophic event investigation and analysis, in order to establish *robust construction and evaluation criteria* for recommendations which will achieve future prevention or mitigation.

Solution:

MULTILINEAR EVENTS SEQUENCING (MES)

FUNDAMENTAL POSTULATES

- All outcomes are the result of a dynamic process comprised of interactions among a matrix of events;
- Planned processes are designed to achieve desired outcomes;
- Mishaps result when changes during a planned process initiate an unplanned process which ends in an undesired outcome;
- The basic structural unit for describing a dynamic process is an "event block", consisting of an "actor" performing an "action" at a time;
- A dynamic process links many "actors" performing many "actions" over time;
- All "actors" relevant to the process are somewhere, doing something, at all times during the process;
- Events occur in logical sequence, usually based on natural laws, which can be verified analytically;
- A process must be described completely and accurately before effective action can be taken to change its future attributes; and
- If you can't depict a process in a flow chart, you don't understand it!



DEMAND THE HIGHEST QUALITY INVESTIGATION PROCESS !

Establish objective quality standards.

Select a consistent methodology to achieve the standards.

Train investigators to use it.

Follow up to ensure work product quality.