GRafP Technologies inc.

Maximizing Your CMMI Investments – Ensuring CMMI Participants Survive

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Presenter

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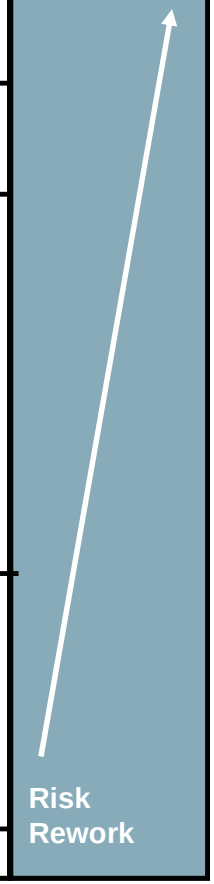
Staged Representation

Level	Focus	Process Areas
5 Optimizing	*Continuous Process Improvement*	Organizational Innovation and Deployment Causal Analysis and Resolution
4 Quantitatively Managed	*Quantitative Management*	Organizational Process Performance Quantitative Project Management
3 Defined	*Process Standardization*	Requirements Development Technical Solution Product Integration Verification Validation Organizational Process Focus Organizational Process Definition +IPPD Organizational Training Integrated Project Management +IPPD Risk Management Decision Analysis and Resolution
2 Managed	*Basic Project Management*	Requirements Management Project Planning Project Monitoring and Control Supplier Agreement Management Measurement and Analysis Process and Product Quality Assurance Configuration Management
1 Initial		



Perceptions - CMMI

- Perceived as a large a model to implement
- Competing against a proliferation of models, standards, governances
  - SOX, COBIT, ITIL, BASEL
- “Non billable projects aren’t as important”

Biggest Headaches

- Formulating a successful *PPQA* function
- Knowing what measurements are sufficient to satisfy the *MA PA*
- How to apply historical data in planning activities … *IPM PA*
- Performing *CM* audits
- Formulating a lite weight decision process … *DAR PA*

Process and Product Quality Assurance (PPQA)

Inherent value of PPQA

- Ensure that essential information is communicated to stakeholders
- Ensure that products satisfy minimum requirements
- Ensure that the process is followed
  - If the process is not adhered to, measurements do not mean anything
  - Essential to successful implementation of statistical process control

PPQA

- PPQA can be implemented in several ways
  - Establishment of a separate group with a mandate from senior management
  - Experienced project managers assuming the role of coordinators to prevent the perception that additional control has been implemented
  - Peer reviews
    - Approach that the scientific community uses

Extra Strength PPQA

- Diplomacy, or the art to do and say unpleasant things in a nice way, is one of the skills required by quality assurance specialists
- Think of PPQA as your personal lawyer, whose objectives are to protect your interests
  - One does not hide things from his or her lawyer; it is entirely counterproductive and it can eliminate all the benefits a lawyer can bring to a cause

Extra Strength PPQA

- One way to present PPQA to project staff
  - Availability of a resource to take care of the unavoidable details that must be taken care of in the course of their interactions with customers and senior management
  - “You are free not to have PPQA in your project, but if something happens, you are on your own and entirely accountable for the consequences”

Extra Strength PPQA

- PPQA activities can be further facilitated
  - Develop/purchase tools
  - Submit surveys
    - Results of surveys can be used to support/corroborate PPQA planning
  - Implement a project sampling approach
    - Focus on projects that fail initial survey
    - Focus on projects that are critical to the business

Survey
(Respondent Page)

Question REQM-GP 2.5 (Requirements Management)

People performing or supporting the requirements management process are trained as needed.

Please select the most appropriate answer

Strongly disagree — Somewhat disagree — Somewhat agree — Strongly agree

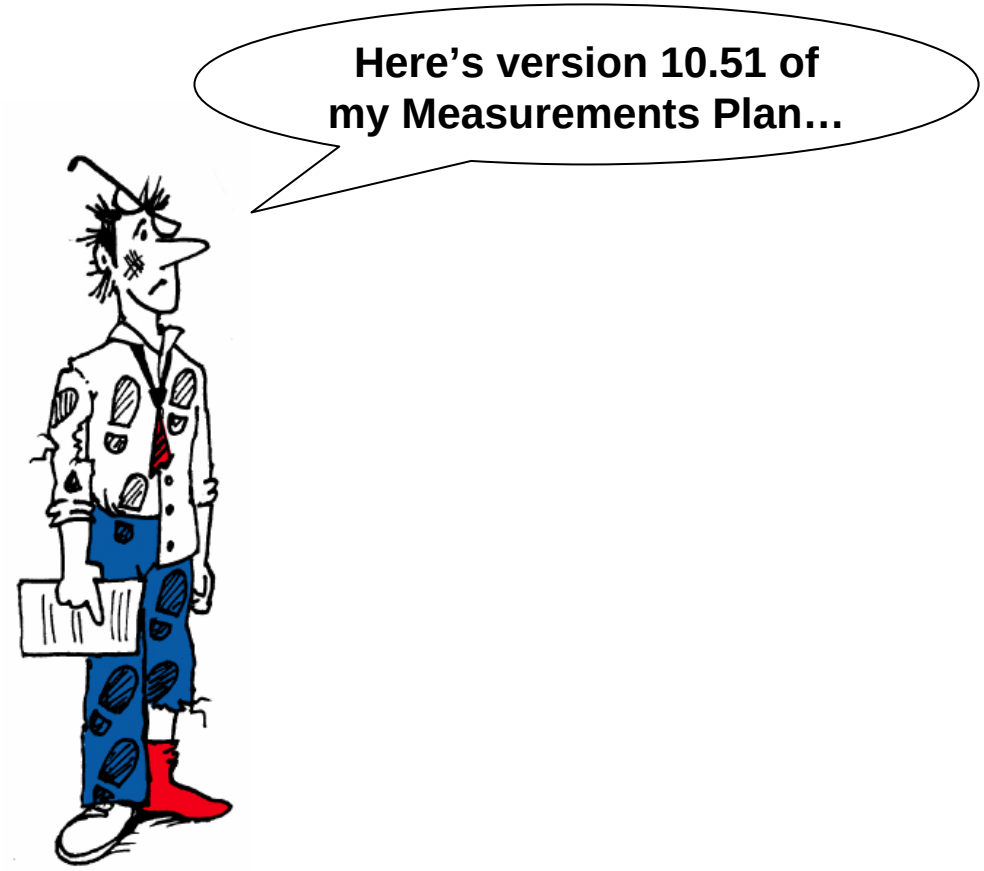
0 1 2 3 4 5 6 7 8 9

Don't know Out of domain Not applicable

Please explain

PREVIOUS QUESTION | REQM-GP 2.5 | GO | NEXT QUESTION

Measurement and Analysis (MA)



MA

- The most common excuse heard in connection with measurements is that numbers don’t tell everything
  - The reciprocal statement is that without numbers, anything can be said
- IT organizations have a tendency of taking either too few measurements (if any!) or else, of getting overboard and planning extensive metric programs that never get implemented

MA – ‘size is important’

- Size as a basic measurement to normalize all others (e.g. cost per unit size, effort per unit size)
  - “ How do you measure the size of your applications?”
  - “We use developer-days”
  - “That’s not size, that’s effort”
  - “Well, this is what we use for size measurements”
  - “What would you say if I told you that the house you asked me to build for you will be 200 worker-days big”
  - “That would not tell me anything about how large my house will be”
  - “That’s precisely the point I am trying to make”

MA

- Two lines of thought exist regarding measurements
  - Endorse the establishment of a stable process at the organizational level before attempting to use any statistical method
  - Use simple statistical methods as soon as it is practical to so do, because taking measurements for the sole purpose of taking measurements is useless
    - By applying simple statistical methods, it can be determined faster if the measurements are indeed useful

MA Myth

- Widely held myth that measurements must follow a Gaussian (or normal) distribution before they can be used
  - This is entirely false
  - Statistical techniques are precisely used to determine if measurements are randomly distributed (not necessarily normally distributed) and to exclude those that are not in order to assess overall performance

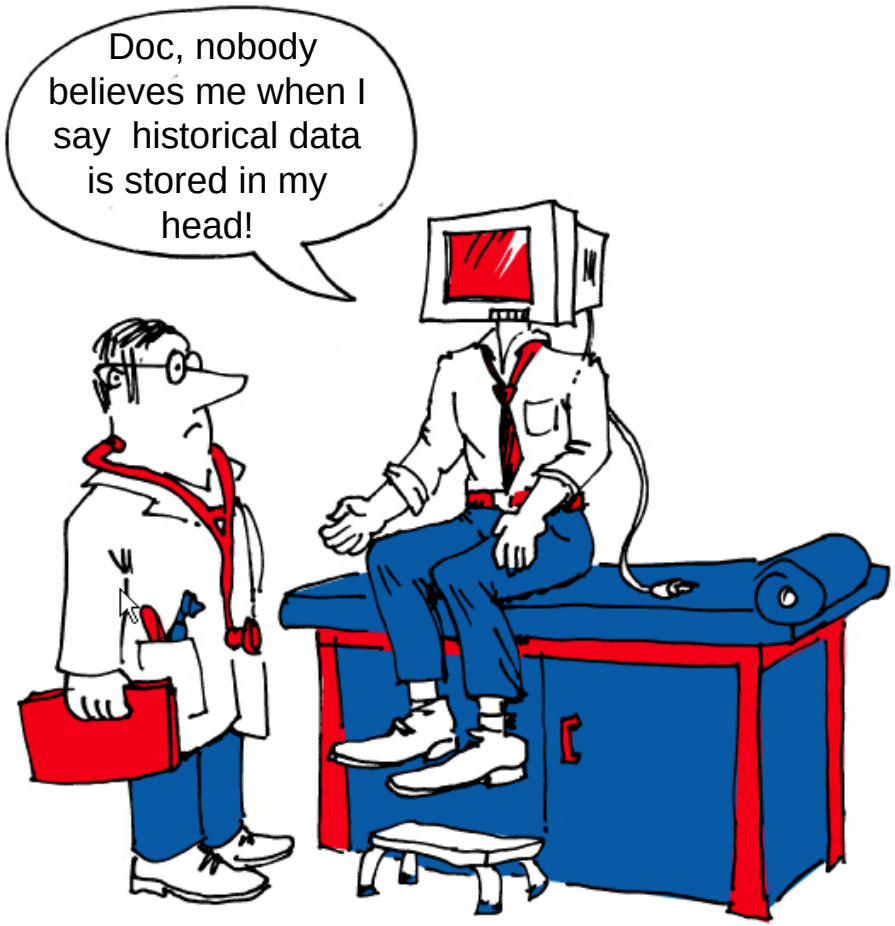
MA Pain Relief

- Initially focus on progress, cost , schedule and quality (number and severity of defects, number and complexity of changes)
- Initially, be careful since measurements can be fudged
- Later, it can be assumed that if similar outcomes can be expected when the same process is being applied to the development of different components, measurements can reliably be used to determine what improvements can be made
  - One can expect to proceed by trial and error before a standard set of measurements is defined, not to mention that measurements may be collected haphazardly at the beginning and may lead to erroneous interpretation

MA Pain Relief

- Assign someone (i.e. PPQA) to verify that proper measurements are being captured
  - Project managers often do not have time to take care of implementation details of some measurements
  - Project team members are not used to collecting measurements

Integrated Project Management (IPM)



IPM

- Assumes that a process-related documentation library and a repository of historical measurements are available
  - Lessons learned in each initiative can now be shared, because they are managed more or less the same way
  - Changes are constantly sought, but these changes are controlled and implemented in a structured way; they are not simply improvised and arbitrarily mandated by those who feel like doing things differently
- IPM can only be implemented after a stable PP and PMC have been practiced

IPM

- The key issue often remaining in IPM is for organizations to ensure that they can provide sufficient documented proof that historical measurements have been used in estimating projects
- Common excuses
  - “Historical measurements can’t be trusted”
  - “Our estimation sheets have been built using Expert judgment”
  - “We’ve got lots of data” (hidden deep down in project folders)

Non drowsy IPM

- Use of historical data to support estimations
  - Two approaches
    - Personnel from a given initiative seeks similar past initiatives and extracts relevant data to justify and rationalize current estimates
    - The process group compiles data collected from past initiatives, extracts useful ratios, derives baselines, and helps development teams make use of data

Non drowsy IPM

- Mandate the use of the process assets, namely procedures, tools, templates, methods and techniques that comprise this defined process
  - PPQA has a particular role to play
- In the extreme case where absolutely no historical data is found to be applicable, a rationale must be presented as to how initial values (e.g. estimations, weights) were arrived at. This last resort should only apply to a minority of cases.

Non drowsy IPM

- Organizations having adopted a management standard are vulnerable to turn it into a bureaucracy if they do not periodically re-assess it
- Compile lessons learned at the end of each phase of an initiative and disseminate them within the organization

Configuration Management (CM)

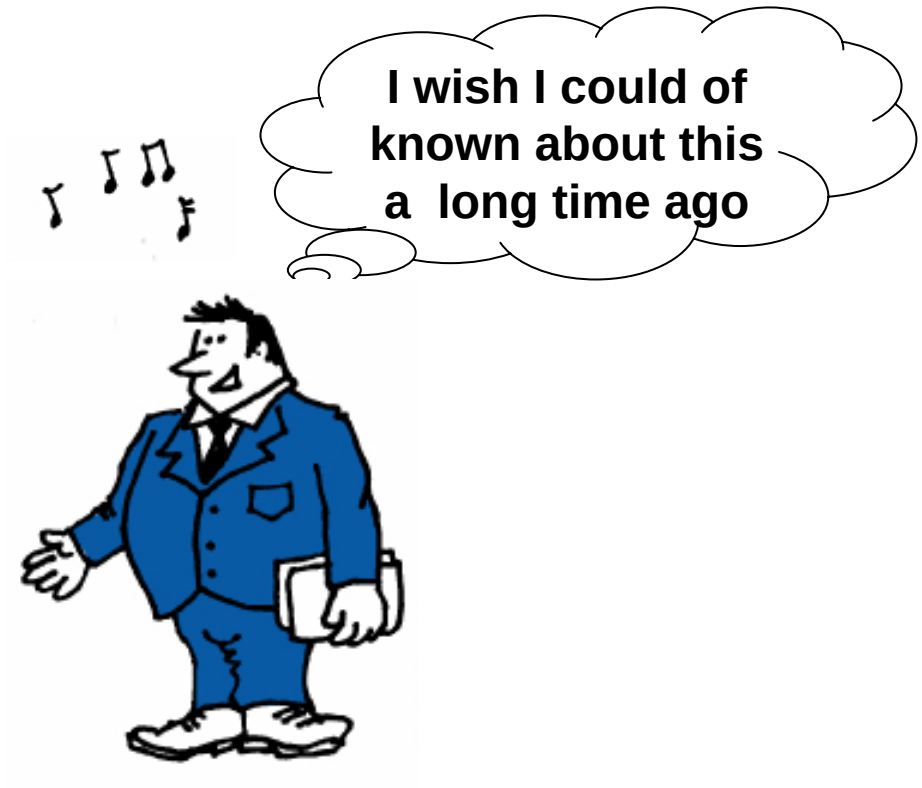
CM

- The key issue often remaining in CM is for organizations to ensure that they can provide sufficient documented proof that CM Audits have taken place
  - Physical audit
  - Functional audit
  - CM audit

Fast, effective, relief from CM

- Various types of audits
  - Physical Audit
    - “If you’ve ever reviewed a parts list in order to determine that everything was delivered as promised, you were conducting a physical audit.”
  - Functional Audit
    - “If you can trace how each functional requirement made its way from the requirements document to the delivered code, and you have the test cases and test results to prove it, this would correspond to a functional audit.”

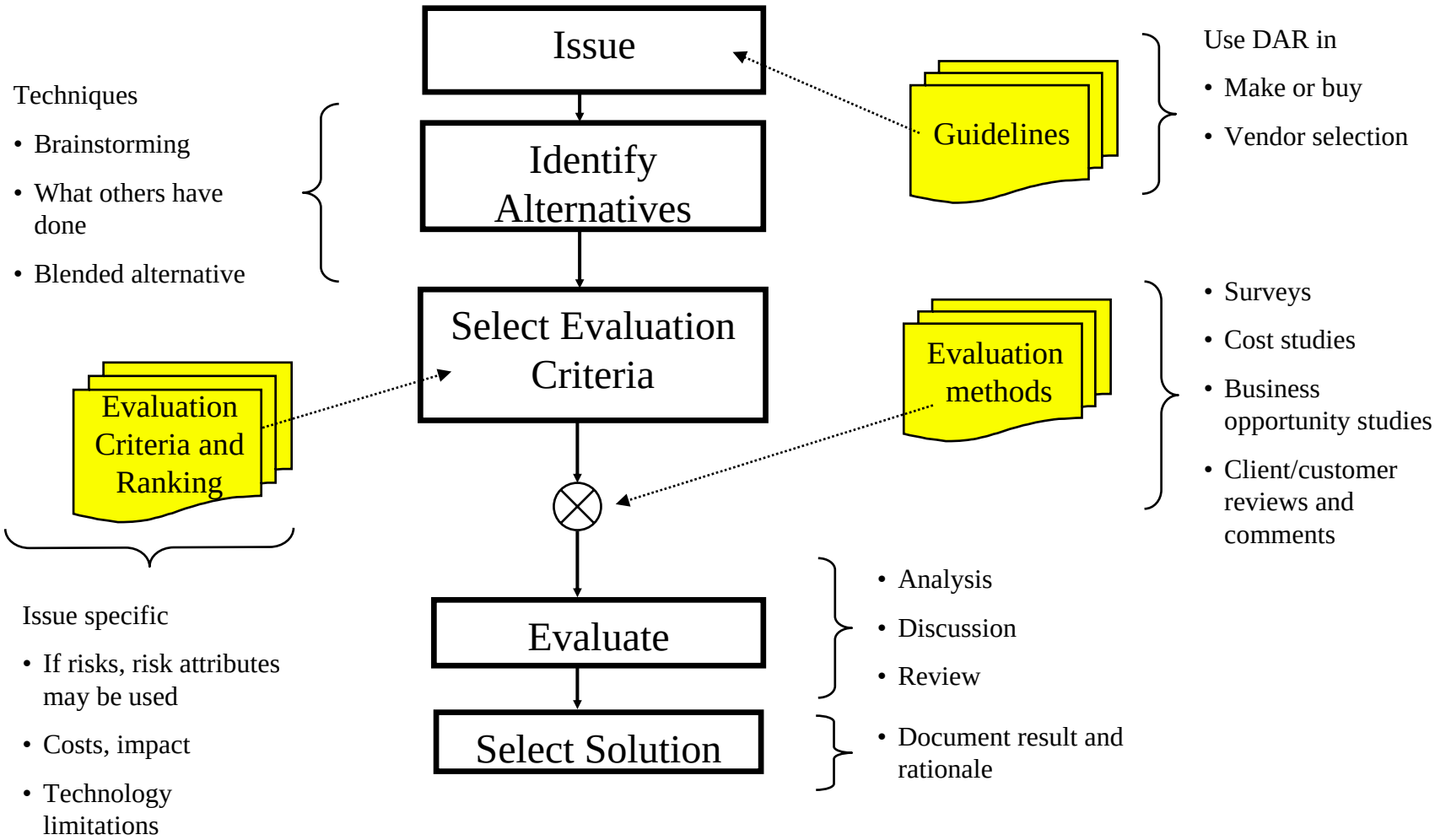
Decision Analysis and Resolution (DAR)



Where DAR may be used?

- Examples include
  - Make or buy
  - Vendor selection
  - New technologies
  - Architectural validation
  - Design decisions
  - Issues associated with medium to high risks
  - Issues that may affect the achievement of a project objective
- Not everything! When “costs” are justified

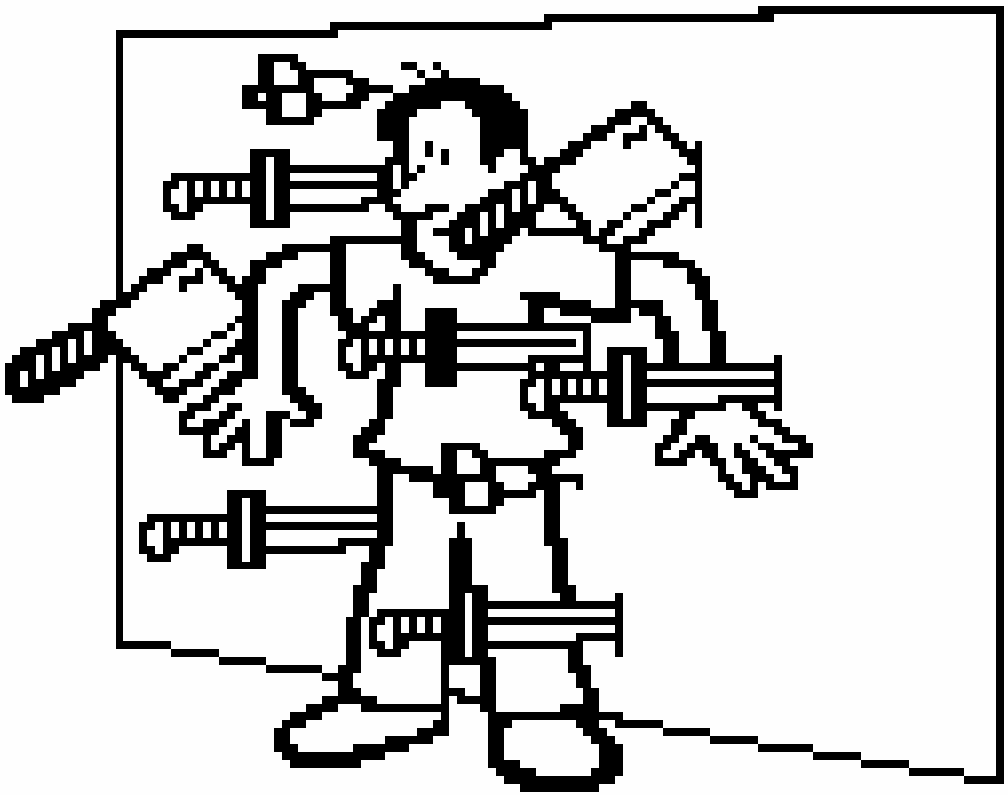
DAR


Issue
Identify Alternatives
Select Evaluation Criteria
Evaluate
Select Solution
Guidelines
Evaluation methods
Evaluation Criteria and Ranking
Techniques
• Brainstorming
• What others have done
• Blended alternative
Use DAR in
• Make or buy
• Vendor selection
• Surveys
• Cost studies
• Business opportunity studies
• Client/customer reviews and comments
Issue specific
• If risks, risk attributes may be used
• Costs, impact
• Technology limitations
• Analysis
• Discussion
• Review
• Document result and rationale

DAR soothing lotion

- Create a report template that holds all the necessary information (& mandate its use)
  - Decision Statement
  - Who is involved in this decision making activity?
  - Assumptions and Constraints
  - Evaluation Method(s)
  - Alternatives under consideration
  - Advantages and Disadvantages
  - Evaluation Results
  - Decision Resolution

Q&A



Thank you

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