The State of the Practice?

"I'd rather have it wrong than have it late. We can always fix it later."
- A senior software manager (industry)

"The bottom line is schedule. My promotions and raises are based on meeting schedule first and foremost."
- A program manager (government)

The software process improvement movement was galvanized by the “software crisis” and the dissatisfaction of customers (primarily the US DoD) with their software suppliers.
A Myth: The Problems Are Technical

Projects generally fail for management reasons
• "Bugs in the Program" report, 1989

The major problems in software development are managerial - not technical.

Leverage Points Considered

Process, people, technology...
Organization, project, team, individual...
Organizational maturity vs process capability...
Routine work vs innovative work...
Analytic vs best practice strategy...
Process as the Leverage Point

Process - a sequence of steps performed for a given purpose (IEEE)

*The quality of a (software) system is largely governed by the quality of the process used to develop and maintain it.*

Ad Hoc vs Mature Processes

Ad hoc processes
- Improvised by practitioners and their management
- Not rigorously followed or enforced
- Highly dependent on current practitioners
- Low visibility

Mature processes
- Explicitly defined, managed, measured, controlled, and effective
- Focus on organizational transformation for repeatable processes
“M” is for (Capability Maturity) Model

“The real world”

Integrated product teams
System engineering
Organization culture
Technology
Marketing

People issues

“Models are simplified views of the real world.”

“All models are wrong; some models are useful.” George Box

Evolution of Organizational Capability

<table>
<thead>
<tr>
<th>Level</th>
<th>Process Characteristics</th>
<th>Predicted Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optimizing</td>
<td>Process improvement is institutionalized</td>
<td>Time/$/...</td>
</tr>
<tr>
<td>Managed</td>
<td>Product and process are quantitatively controlled</td>
<td>Time/$/...</td>
</tr>
<tr>
<td>Defined</td>
<td>Software engineering and management processes defined and integrated</td>
<td>Time/$/...</td>
</tr>
<tr>
<td>Repeatable</td>
<td>Project management system in place; performance is repeatable</td>
<td>Time/$/...</td>
</tr>
<tr>
<td>Initial</td>
<td>Process is informal and unpredictable</td>
<td>Time/$/...</td>
</tr>
</tbody>
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Potential Leverage Points for e-Discovery

Build organizational capability / maturity (frameworks)
- Adapt existing frameworks, develop a specific one

Develop the skills of those doing e-Discovery
- Training, coaching, mentoring, ...

Document the attributes of a “good” e-Discovery process
- Peer reviews, disciplined execution, ...

Buy / build e-Discovery tools

Define “goodness” measures for e-Discovery
- Statistical confidence based on attribute sampling, discovery sampling, etc., capture / recapture models, ...

Questions and Answers
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