Work **ON** Your Engineering Business, Not **IN** It!

NDIA CMMI Technology Conference
November 17\textsuperscript{th}, 2009
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Improving Software Economics

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What Is Your Competitive Advantage?

- Technology?
- People?
- Quality?
- Cost?

*HOW* you develop your products strongly determines *WHAT* competitive advantages you are able to obtain and maintain.
How Is Your Company Run?

- Day-to-Day?
- Quarter-to-Quarter?
- Year-to-Year?
- Multi-Year?

What activities does management engage in that overlay the activities overwhelming employees on a day-to-day basis? Or, is management consumed by the day-to-day as well?

What insight does management have into the business model that’s being employed, and how to improve and refine it?
Successful Businesses...

• Run operations as if they were a franchise
  – Every business process is standardized
  – Average employees can easily be successful by following the processes as outlined
  – Well executed processes are scaled and leveraged across the organization

• For software organizations, “franchising” processes can result in a 50% or more increase in productivity
Jim Collins’ Good to Great

- Good-to-great companies focus equally on what to do, what not to do, and what to stop doing.
- Technology-driven change had virtually nothing to do with igniting a transformation. Technology can help accelerate, but doesn’t cause change. Technology influences typically come last, not first.
“Good-to-great companies built a consistent system with clear constraints, but they also gave people the freedom and responsibility within the framework of that system. They hired self-disciplined people who didn’t need to be managed, and then managed the system, not the people.”
Other Good to Great Thoughts

• "What are the brutal facts? We've got to get a grip on the facts, what are the trends, what are the trendlines, how bad is it? Get a grip on the facts."
• "How does a culture of mediocrity take hold? The signature of mediocrity is chronic inconsistency"
• "What you can measure you can target. And what you can target you can accomplish."
• "Don't look for silver bullets. Pick a lead bullet and polish it so it becomes silver"
Key Franchising Concepts

• Great businesses are not built by extraordinary people, but by ordinary people doing extraordinary things

• To achieve this, a system is absolutely essential – it becomes the tools people use to increase productivity, to get the job done in a way that differentiates

• A franchise is simply your unique way of doing business – your system

• If you haven’t orchestrated your business, you don’t own it!

Management’s Role

- It’s management’s job to develop systems and tools and teach employees how to use them.
- It’s the employee’s job to use the systems and tools and to recommend improvements based on their experience with them.
- Management makes sure employees understand the idea behind the work they are being asked to do.
- Avoid “Management by Abdication”!

The Capability Maturity Model Integration

- The CMMI is a framework that describes the key elements of an effective systems and software process, and provides for an evolutionary improvement path from an ad hoc, immature process to a mature, disciplined one.

- The CMMI guides engineering organizations that want to gain control of their processes for developing and maintaining systems and software and to evolve toward a culture of software engineering and management excellence.

- The intent of the CMMI is to install a process infrastructure that supports standardization, scalability, continuous re-evaluation, and improvement – *in other words, an engineering system*
CMMI Engineering Business Model Philosophy

Process Management

OPF  OPD  OT

PM

Integrated Project Management

Project Monitoring and Control

Risk Management

Supplier Agreement Management

Engineering

REQM  RD  TS  PI  VER  VAL

Support

Configuration Management

Measurement and Analysis

Process and Product Quality Assurance

Decision Analysis and Resolution
Generic Practices

2.1 Establish an Organizational Policy
2.2 Plan the Process
2.3 Provide Resources
2.4 Assign Responsibility
2.5 Train People
2.6 Manage Configurations
2.7 Identify and Involve Relevant Stakeholders
2.8 Monitor and Control the Process
2.9 Objectively Evaluate Adherence
2.10 Review Status with Higher Level Management

3.1 Establish a Defined Process
3.2 Collect Improvement Information
Examples of Working IN versus ON Your Business - 1

**IN**

*Reacting* to project problems after they occur

Becoming good at *responding to customer complaints*, instead of eliminating them

**ON**

Instituting a *cross-project measurement and periodic review program* that illuminates and addresses potential issues *before* they occur

Reviewing *how* projects are accomplishing their work, and that they are following the organization’s expectations
Examples of Working IN versus ON Your Business - 2

**IN**

Letting teams approach projects however they’d like, and bringing in whatever tools they want

**ON**

Instituting a **consistent engineering process**, and constantly measuring and refining it based on facts

**Quantitatively evaluating and implementing** new technologies/tools in a disciplined fashion
### Examples of Working IN versus ON Your Business - 3

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<thead>
<tr>
<th><strong>IN</strong></th>
<th><strong>ON</strong></th>
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<tbody>
<tr>
<td>Allowing key project decisions to be made by the political/influential power of certain project team members</td>
<td>Requiring DAR to be used in a light-weight, but quantitative fashion to remove individual and political influence out of the process</td>
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Example: 65% More Productivity

<table>
<thead>
<tr>
<th>Average</th>
<th>Requirements</th>
<th>Design</th>
<th>Code</th>
<th>Test</th>
<th>Rework</th>
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<td>4.5 Months</td>
<td>6.6 Months</td>
<td>8.8 Months</td>
<td>9.4 Months</td>
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<tr>
<td>Leading</td>
<td>Requirements</td>
<td>Design</td>
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<td>6.0 Months</td>
<td>6.8 Months</td>
<td>3.75 Months</td>
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Leading organizations spend 20% less on software development effort and schedule, and 50% less on testing costs!

Leading organizations deliver 80% fewer defects to production, resulting in significantly less rework and 45% more productivity!

COMPARE: Trailing organizations spend 30% of project resources on testing, leading organizations spend 15%
Leverage

Standardization has a leverage effect beyond just quality and productivity increases.

Higher Revenue and Profits through More Marketable Products

Current Revenues and Profits

Standardization Investment

Current Capability

Cost of Quality

Productivity

P1 P2 P3

P4 P5

Improved Capability

Cost of Quality

Productivity

P1 P2 P3

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Thank You!

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