Why Software Projects Need Heroes

James Bach, SQA Consultant
http://www.satisfice.com
540-631-0600

With heroic assistance from Norm Kerth
72073.3222@compuserve.com

Why this Seminar?

◆ Goal
  ✓ Show you how it is possible for you, personally, to change your software project, department, or company into a higher performance organization.

◆ Strategy
  ✓ Provide a human-centered framework for software project management.
  ✓ Provide a personal framework for solving systemic problems in software projects.
Roadmap

1. Chronic software project problems
2. Software process dynamics
3. Heroism in software projects
4. Quality assurance as a heroic pursuit
5. Traditional vs. heroic project models
6. Achieving a heroic environment
7. Being a healthy hero

Chronic Problems of Software Project Management

- Uncontrolled feature set
- Undesireable feature set
- Uncontrolled schedule
- Uncontrolled costs
- Poor documentation
- Overall lack of communication
- Uncontrolled risk

Here are just a few...
One Solution

Better software process!

Preferred by:

- Most consultants
- TQM advocates
- SEI’s Capability Maturity Model
- ISO 9000

Why Defined Processes are Not the Answer

People \[\rightarrow\] Process
Defined Process Vs. Good Process

- **Process:**
  pattern of problem-solving behavior

- **Defined process:**
  standard pattern to solve a standard problem

A good process is one that solves the right problems.

Mechanical vs. Creative Process

- **Mechanical**
  - All important steps defined.
  - All problems solved beforehand.
  - No ambiguity.
  - No judgment required.
  - Predictable output.
  - Static and brittle.
  - Can be performed by an unskilled person.

- **Creative**
  - Important steps undefined.
  - Many problems must be solved by the practitioner.
  - Considerable ambiguity.
  - Judgment required.
  - Situational output.
  - Dynamic and flexible.
  - Requires skilled practitioner.
There are No Software Factories

Software development is invention, not production.

In Software Projects Most Process is Creative

- **Mechanical**
- **Creative**
- **Local**
- **Global**

**Undefinable Process**
A dynamic process is one that changes to fit the problem at hand.

A *good* dynamic process comes from having a good meta-process, and someone who will perform it.

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**Example of Dynamic Process**

- **Business**
  - Customer Satisfaction
  - Product Development
  - Quality Assurance
    - Testing
Dynamic Process Cycle

Aspects of Dynamic Process Cycle

The World

Craftsman

Scientist

Actual

Perceived

Ideal

Actual

Ideal

Actual

Ideal

Plans

Models

Engineer

Process Integration

Process

Problem

Solution

Processor
### Problems with Unintegrated Processes

- Mistakes and misunderstandings
- Feelings of incompetence
- General inefficiency
- Obscures true process
- Obscures true problems (goal displacement)
- Inflexibility

### Problems with Highly Integrated Processes

- Harder to transfer the process
- Harder to share the process
- Harder to debug the process
- Identity becomes confused with the process
Dangers of Process Definition

<table>
<thead>
<tr>
<th>Bad Process</th>
<th>Good Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unintegrated</td>
<td>Integrated</td>
</tr>
<tr>
<td>Official process</td>
<td>2. Assimilation</td>
</tr>
<tr>
<td>1. Definition</td>
<td>3. Adjustment</td>
</tr>
<tr>
<td>Useful process</td>
<td></td>
</tr>
</tbody>
</table>

Process definition often leads to official processes that may be politically correct, but are also incomplete, idealistic, and unfamiliar to the people who must practice them.

IBM in the 80’s

Process-Performing

See Big Blues: The Unmaking of IBM, by Paul Carroll
Microsoft in the 80’s

Problem-Solving

People
Skill & Collaboration

Process

Tools

See Showstopper, by F. Pascal Zachary

Who Processes the Processes?

Heroes!

"A hero is someone who, for the general good, takes initiative to solve ambiguous problems."
Other Views of Heroes

- A hero is someone endowed with great courage or strength, celebrated for bold exploits, and favored by the gods.
- A hero is a vain, unreliable hacker.
- A hero is a normal person who does extraordinary things.
- A hero is someone who finds a way.
- A hero is someone who goes beyond their programming.

Why Talk About Heroes?

For one thing, there is so much innovation in any software project that we are forced to confront the human element.

Besides,
You are a hero.
The Hero’s Journey

The Known World

The Unknown

Initiation

Separation

Return

Hard Problem

Solution

Hard Problem

Solution

Initiation

Return

See: The Hero With A Thousand Faces, by Joseph Campbell

Pathologies of Heroism

Separation

Initiation

Hard Problem

Solution

New problems created

Unnecessary heroism

Thoughtless solution

Escapism

Overcommitment

Burnout

Perfectionism

Idealism

Elitism

No solution

Unfinished solution
What is Quality?

- **Aesthetic view**
  Quality is emergent excellence.

- **Manufacturing view**
  Quality is conformance to requirements.

- **Customer view**
  Quality is whatever the customer says it is.

- **Utilitarian view**
  Quality is happy consequences.

**Utilitarian Quality**

![Utilitarian Quality Diagram]

- Problems observed in the product
- Utilitarian SQA (risk assessment)
- Products (perceived quality)
- Quality observed in the product
- Problems (perceived risk)
Utilitarian Quality Measurement is Heroic

1. Objective measurement of quality is impossible.

2. Many quality factors can be objectively measured, but comprehensive assessment of those factors in software is not feasible.

3. Many other quality factors are situational or subjective.

4. Therefore, quality assessment is subjective.

Bug Review Meeting: Heroic Quality Consensus

- Formal meeting of project leaders
- Purpose
  - Change control
  - Quality consensus
- Agenda
  - Review all high priority bugs
  - Determine which ones must be fixed
  - Revisit those decisions, later on
- Method
  - Discussion until consensus
In complex projects, tasks explode and problems distract.

Task/Products Paradigm

Traditional Project Cycle

Oriented around tasks and products.
Adaptive Project Cycle

In complex projects, tasks are pruned and problems solved.
# Achieving a Heroic Environment

<table>
<thead>
<tr>
<th>Factor</th>
<th>Symptoms</th>
<th>Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Teamwork</strong></td>
<td>Lack of communication</td>
<td>Face conflicts and resolve them</td>
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<tr>
<td></td>
<td>Defensiveness &amp; escapism</td>
<td>Forge a team identity</td>
</tr>
<tr>
<td><strong>Roles, Tasks, &amp; Goals</strong></td>
<td>Poor quality</td>
<td>Seek clear and relevant mission</td>
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<tr>
<td></td>
<td>No sense of progress</td>
<td>Align roles with talent &amp; skills</td>
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<td></td>
<td>No improvement</td>
<td>Encourage creative exploration</td>
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<tr>
<td><strong>Skill &amp; Talent</strong></td>
<td>Sloppiness</td>
<td>Train &amp; mentor</td>
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<td></td>
<td>Missed deadlines</td>
<td>Align goals w/ abilities</td>
</tr>
<tr>
<td><strong>Values &amp; Commitment</strong></td>
<td>Sloppiness</td>
<td>Look for hidden agendas</td>
</tr>
<tr>
<td><strong>Facilities &amp; Support</strong></td>
<td>Missed deadlines</td>
<td>Seek active commitment</td>
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<tr>
<td></td>
<td>Frustration &amp; cynicism</td>
<td>Gain management attention</td>
</tr>
<tr>
<td></td>
<td>Lack of commitment</td>
<td>Spend money</td>
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<tr>
<td><strong>Problem &amp; Product Tracking</strong></td>
<td>Project gridlock</td>
<td>Maintain issues list</td>
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<tr>
<td></td>
<td>Features out of control</td>
<td>Maintain evolving feature list</td>
</tr>
<tr>
<td></td>
<td>Schedule slippage</td>
<td>Maintain evolving schedule</td>
</tr>
</tbody>
</table>

## Being a Professional Hero

- Serve your team
- Be visible
- Master your craft
- Grow colleagues
- Take the initiative
- Be respectful in dissent
- Honor diversity
- Use win-win tactics
- Take care of your health

Some of these ideas were inspired by the work of Norm Kerth.