Why Software Projects Need Heroes

James Bach

Satisfice, Inc.
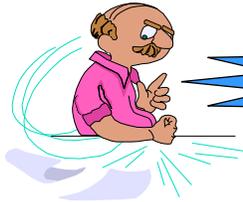
james@satisfice.com

Chronic Problems of Software Project Management

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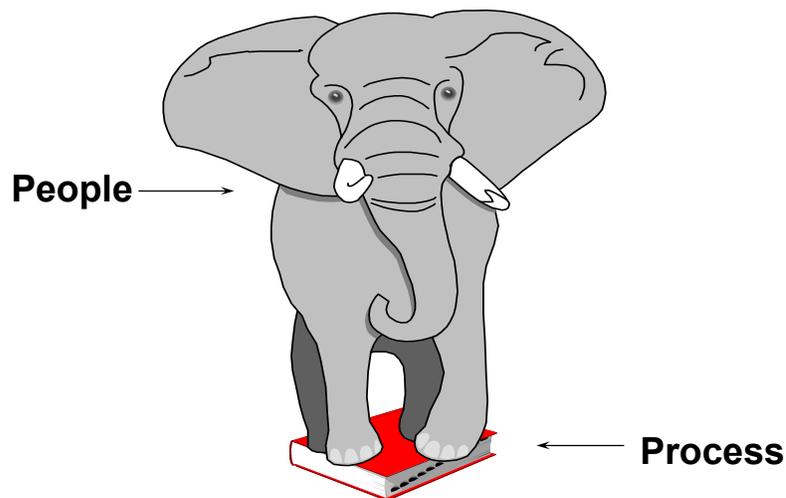- Uncontrolled risk

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 →

← **Process**

Defined Process Vs. Good Process

- *Process:*
  pattern of problem-solving behavior

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

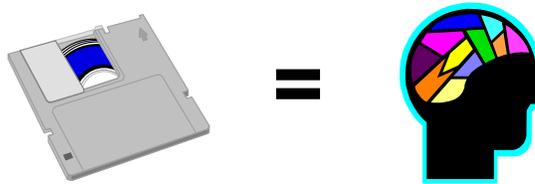**A good process is one that solves the right problems.**

Algorithmic vs. Heuristic Process

- Algorithmic
  - All important steps explained.
  - All problems solved beforehand.
  - No ambiguity.
  - No significant judgment.
  - Standardized outcome.
  - Brittle.
  - Can be performed effectively by ignorant agent.

- Heuristic
  - Important steps may be unexplained.
  - Many problems must be solved by the practitioner.
  - Considerable ambiguity.
  - Substantial judgment required.
  - Customized outcome.
  - Flexible.
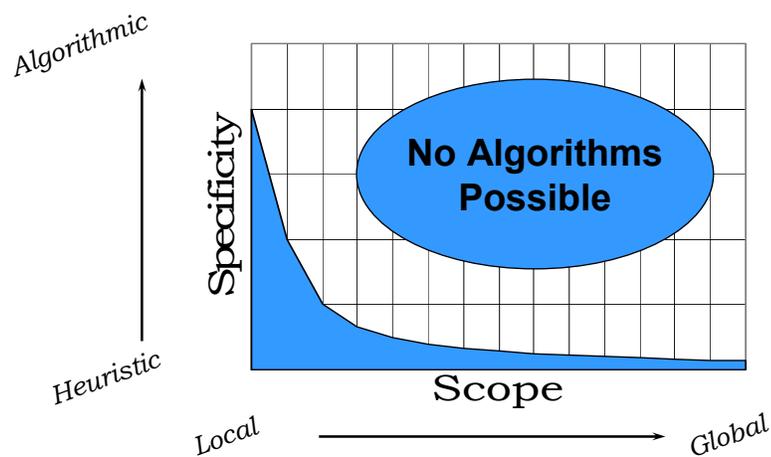 - *Cannot* be performed effectively by an ignorant agent.

Process people get a bad name when they confuse a heuristic with an algorithm.
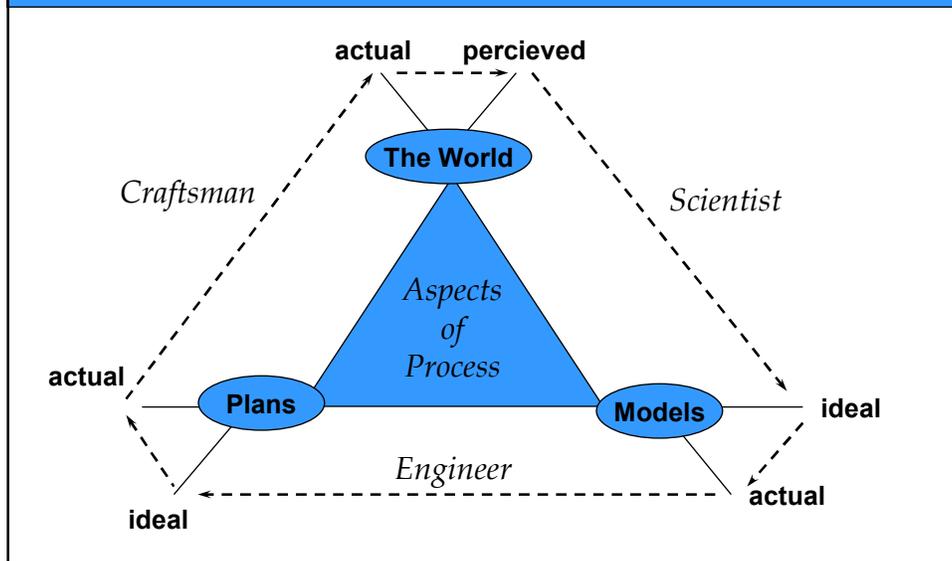
There are No
Software Factories

*Software development
is invention, not production.*

In Software Projects
Most Process is Heuristic

Many Meanings of "Process"

actual   percieved

Craftsman   *Scientist*

The World

Aspects of Process

actual   **Plans**   **Models**   ideal

Engineer

ideal   actual

Process Integration
(Skill)

Described Behaviors

S1
S2
S3
Sn

Skilled Person

DB1
DBn

Recipe

UB1
UBn

Situations

Undescribed Behaviors

Process Integration
(Skill)

Situational
Blindness

Possibly
unnecessary

S1

DB1

**Less
Skilled
Person** → **Simulated
Skill**

DB*n*

Instruction
Following

Recipe

Possibly
critical

HR1
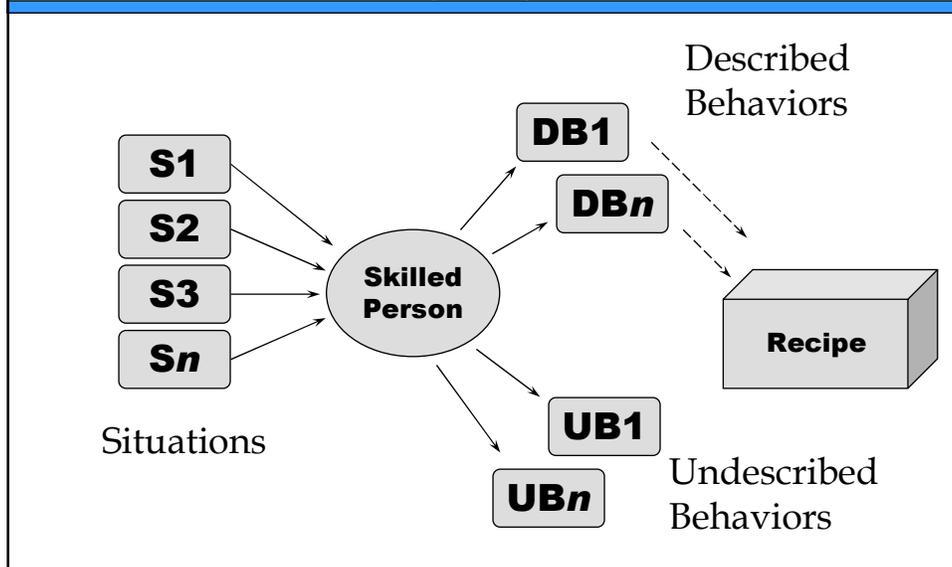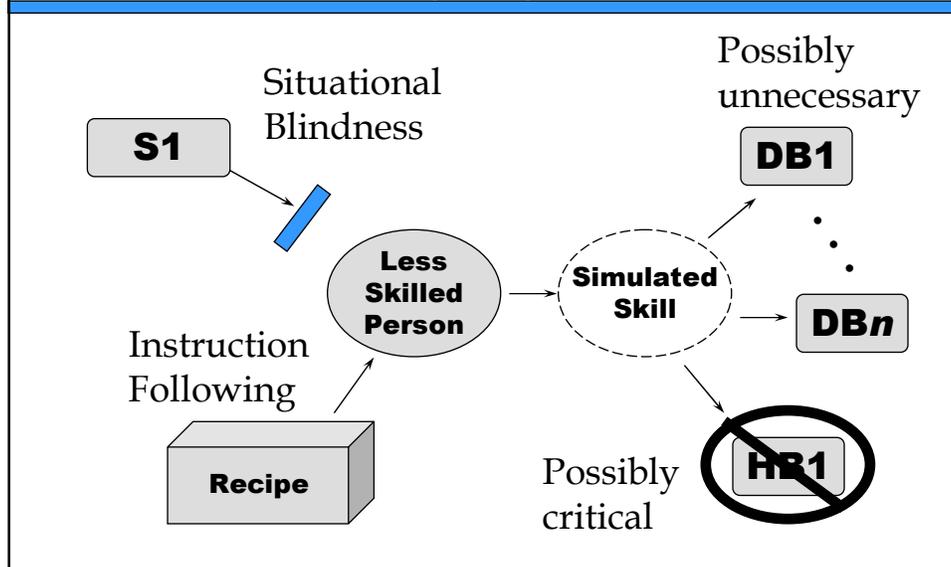
Problems with
Unintegrated Processes

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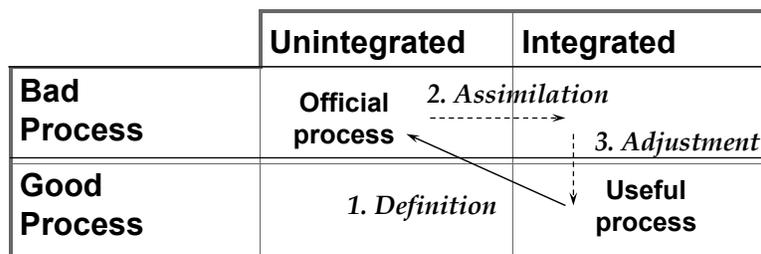- Obscures true process
- Obscures true problems (goal displacement)
- Inflexibility

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

	Unintegrated	Integrated
Bad Process	**Official process** *2. Assimilation*	*3. Adjustment*
Good Process	*1. Definition*	**Useful process**

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.

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.*
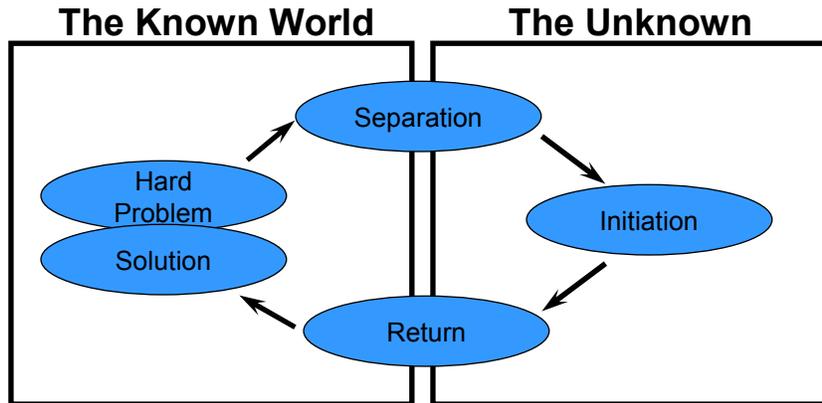
Implications...

- Heroic behavior always involves:
  - **Choice**
  - **Risk**
  - **Service**
- If it's dictated by a supervisor, it isn't heroic.
- In intellectual work, heroism appears in decisions about the quality of a solution…
  Do you settle for what you have, or do you find a *better solution?*

Why Talk About Heroes?

Because the quality of the heroism has a **huge** impact on the project.
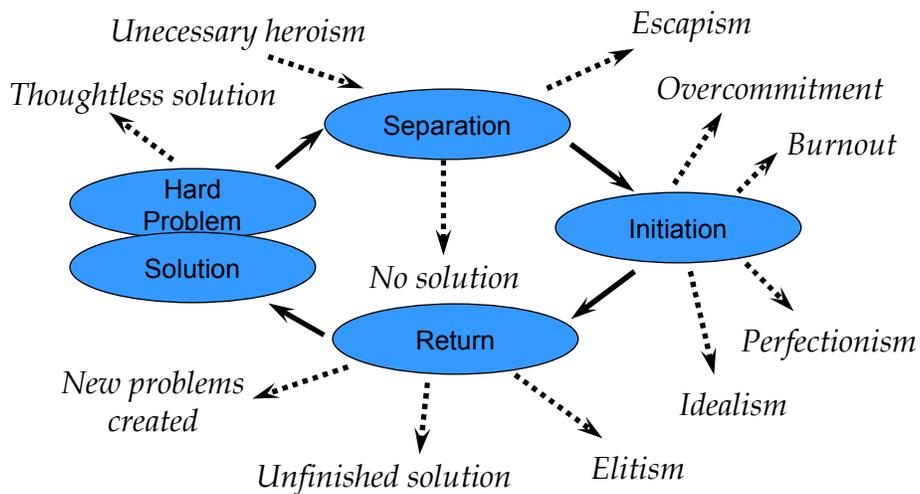Let's foster it, not fear it.

Besides, *You* are a hero.

The Hero's Journey

The Known World   The Unknown

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

Pathologies of Heroism

Unecessary heroism

Escapism

Thoughtless solution

Overcommitment

Burnout

No solution

Perfectionism

Idealism

New problems created

Unfinished solution

Elitism

Quality Measurement is Heroic

1. *Some quality factors can be objectively measured, but comprehensive assessment of those factors in software is not feasible.*

2. *Many other quality factors are situational or intrinsically subjective.*

3. *No unbiased and meaningful algorithm exists to compose quality factors into one measure of "quality."*

4. *Objective measurement of quality is impossible.*

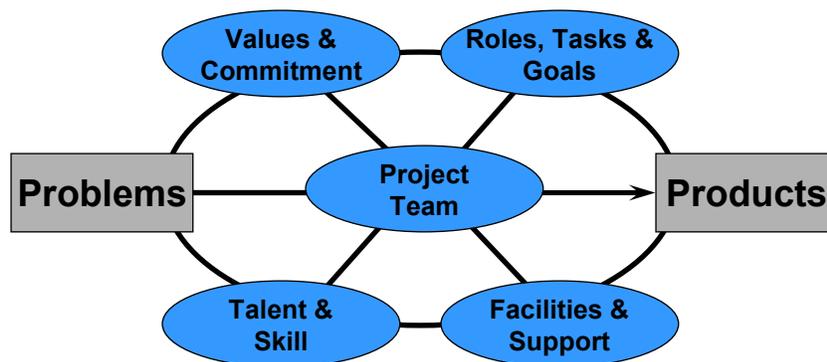# Bug Review Meeting:
Heroic Quality Consensus

- 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

Task/Products Paradigm

Tasks → *Problems* → Products

In complex projects, tasks explode and problems distract.

Adaptive Paradigm

Problems → Products

- Values & Commitment
- Roles, Tasks & Goals
- Project Team
- Talent & Skill
- Facilities & Support

In complex projects, tasks are pruned and problems solved.

Being a Professional Hero

- Develop skill through problem-solving experiences.
- Grow a colleague support network.
- Uncover your own faults before other people do.
- You MUST experiment… That means doing "bad practice" some of the time.
- Drive your own learning. No one else will.
- Preserve the stories about great deeds and great mistakes.
- Heroism is not *escapism.* It's about being *engaged* with a meaningful problem.
- Currency of heroism: respect and reputation.