Managing the Unknown with Marty McFly: The Solution Is Behind You

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Agenda
## Mike Griffiths

### Project Manager and Consultant
- >25 years IT experience in energy, utilities, defense, & finance
- 10 years PMO Agile and Traditional Integration

### Agile Project Management
- Helped create Agile method DSDM in 1994
- 20 years agile project experience (DSDM, XP, Scrum)
- Board director of Agile Alliance and APLN
- Author, trainer, and presenter Agile Conference 2001-15
- Author “PMI-ACP Exam Prep” book by RMC

### Traditional Project Management
- PMP, PRINCE2 certifications
- PMBOK v3, v4 and v5 contributor and reviewer
- Trainer for PMI SeminarsWorld 2005-2014
- Presenter PMI Global Congress 2004-2014
- PMI-ACP Certification Steering Committee member
- PMI Agile Community of Practice Co-Founder
Navigation at Sea in the 1700’s:
1707 Scilly Isles Navy Disaster 2,000 lives lost
1714 Longitude Board: Prize of £20,000
The Unlikely Source

John Harrison
(Carpenter)

The Seduction of Certainty

Leonhard Euler
(Mathematician)

“Sphere Segment” Calculations
The Seduction of Certainty

Tobias Mayer (Mathematician)

“Lunar Distance” Calculations

Perfectly, Impractical

The Unsophisticated Outsider

John Harrison (Carpenter)
Today’s Wicked Problems

Knowledge Worker Project Management:
• Evolving Business Problems
• Changing Requirements
• Emerging Technology
• Intangible: transform Ideas not Concrete or Steel
• Requiring Collaboration from Divergent SMEs

Difficult to plan and manage using traditional project management

Agenda
Knowledge Workers

Knowledge Workers act and communicate knowledge within a specific subject area

“People with subject matter expertise who communicate this knowledge and take part in analysis and/or development” – Harvard Business School

- Engineers
- Teachers
- Scientists
- Lawyers
- Doctors
- IT personnel

78% of North American workers are now engaged in Knowledge Work

Knowledge Work Differences

<table>
<thead>
<tr>
<th>Industrial Worker</th>
<th>Knowledge Worker</th>
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<tbody>
<tr>
<td>Work is visible</td>
<td>Work is invisible</td>
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<tr>
<td>Work is specialized</td>
<td>Work is holistic</td>
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<tr>
<td>Work is stable</td>
<td>Work is changing</td>
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<tr>
<td>Focus on running things</td>
<td>Focus on improving things</td>
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<tr>
<td>More structure with fewer decisions</td>
<td>Less structure with more decisions</td>
</tr>
<tr>
<td>Focus on the right answers</td>
<td>Focus on the right questions</td>
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- “Management Challenges of the 21st Century” - Peter Drucker, 1999
Fixed vs. Moving targets

**Fixed Targets:**
Aim, Aim, Aim, Fire
Plan, Plan, Plan, Execute

**Moving Targets:**
Point missile in right direction, Fire, Steer, Steer
Point team in right direction, Execute, Steer, Steer

“You cannot chase a dog with a train”

**Agenda**
Traditional Project Management

- Strong focus on “Plan the Work, Work the Plan”
- Great for definable, predictable projects
- More difficult to make work with vague, changing requirements
- Gantt charts, WBS, Network diagrams: “Seduction of Certainty“

Standardization of Project Management

How did we lose our ability to manage uncertainty?

Parallel work streams, iterative development, frequently changing plans used to be common, but then they were all but erased.

Theories:

1. It was simplified for multiple choice testing
   - Proceduralization into Single workflows
   - Q: What comes next in our process...
   - Q: <Short Scenario> - what is the best thing to do?

2. Laziness 1: Having options is complicated, just tell me a single right way to do things

3. Laziness 2: We just remember the easy part of an idea or story
Agenda

Solving Complex Projects

1. **Consensus Gathering** - collaboratively gain consensus on direction, approach and decisions

2. **Prioritization** – build mindful to risk reduction and business value

3. **Short Build / Feedback Cycles** – iterate through short cycles of Planning, Exploring, Learning and Adapting

4. **Results Oriented Reporting** – use metrics based on accepted work that give meaningful indicators to likely completion rates

5. **Respect and Empowerment** – engage in respectful practices that encourage information sharing and organizational optimization rather than personal optimization
Consensus Gathering

For intangible problems, frequent validation of understanding is essential.

- Personas
  Define and agree target customers

- Wireframes & Prototypes
  Gain agreement on flow, desired look & feel and behaviour
Prioritization

Build mindful to risk reduction and business value

- Optimize business value by focusing on the most valuable components
- Recognize risks as anti-value
- Drive down risks through short-term tests of parallel development

Prioritization: Manhattan Project

- Research and development project that produced the first nuclear weapons in WWII
- Origin of the Phase Gate approach to project management
Prioritization: Manhattan Project

- Research and development project that produced the first nuclear weapons in WWII
- Origin of the Phase Gate approach to project management

Lesley Groves: “The whole endeavour was founded on possibilities rather than probabilities. Of theory there was a great deal, of proven knowledge, not much. There was simply no ready solution to the problem we faced.”

- Explored and implemented different solutions in parallel
- “Parallel streams + mid-course adjustments led to breakthroughs not thought possible 3 years before”
- 30 years prior to Toyota’s “Set based Engineering”
- More about risk reduction and finding the best solution than Phase Gates
**Prioritization**

Build mindful to risk reduction and business value

Modern Examples:

- **Product Backlog**
  Work prioritized by business value

- **Risk Adjusted Backlog**
  Risk response actions in the backlog

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**Prioritization**

Build mindful to risk reduction and business value

Modern Examples:

- **Risk Burn Down Charts**
  Track risk reduction along with value delivery
Short Build / Feedback Cycles

**Short Build / Feedback cycles** – iterate through short cycles of **Planning**, **Exploring**, **Learning** and **Adapting**

The Unsophisticated Outsider

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**Short Build / Feedback Cycles**

Waterfall Lifecycle: Winston Royce, 1970
Short Build / Feedback Cycles

• Finding solutions through feedback & adaptation

Iterative and incremental development

Nested cycles of review and adaptation
Results Oriented Reporting

**Results Orient Reporting** – use metrics based on accepted work that give meaningful indicators to likely completion rates

- Rather than reporting we are 90% complete planning
- Report 5% of the features have been developed, tested and accepted
- Accept uncertainty: show ranges and confidence in estimates

Results Oriented Reporting: Polaris

- Polaris project to develop the first submarine launched ballistic missile (SLBM)
- Attributed as the origin of Critical Path Method (CPM) and PERT

Admiral Burke: “The first group that demonstrates a capability for this is very likely to continue the project and others may very well drop out.”

The result was a clear prioritization of schedule over cost and specification; and a willingness to experiment and change specifications over the course of the project.

PERT served “...less for improving project control than for offering technological pizzazz that was valuable in selling the project. (Since) The image of efficiency helped the project. It mattered not whether parts of the system functioned or even existed, it mattered only that certain people for a certain period of time believed they did.”
Results Oriented Reporting

Results Orient Reporting – use metrics based on accepted work that give meaningful indicators to likely completion rates

- Burn Up Charts
  Report features accepted over time

- Parking Lot Diagrams
  Summarize progress on a single page

Respect and Empowerment

Respect and Empowerment – engage in respectful practices that encourage information sharing and organizational rather than personal optimization

1. Increase motivation through:
   - Autonomy (Time, Task, Technique, Team)
   - Mastery (Flow, Toxic M&Ms)
   - Purpose

2. Review and adapt
Respect and Empowerment

Respect and Empowerment – engage in respectful practices that encourage information sharing and organizational rather than personal optimization

1. Today’s “Gantt” charts are Priestly charts from 100 years before Henry Gantt

An actual Gantt chart showing performance compared to plan

Henry Gantt: “Increased production not through speeding up workmen but by removing the obstacles which prevent them from doing their work”, “Reduced costs, because of the elimination of waste as well as improvements in process”, “Men interested in their work not only because of the wages but because they have an opportunity to increase their knowledge and improve their skills.”
Respect and Empowerment

Respect and empowerment – engage in respectful practices that encourage information sharing and organizational rather than personal optimization

- Kanban Boards
  Shows work by state and WIP

- Information Radiators
  Large displays of team based information

Respect and Empowerment

Respect and empowerment – engage in respectful practices that encourage information sharing and organizational rather than personal optimization

- Retrospective findings

- Measure up
Recap

• “Gantt” charts are actually Priestly charts, real Gantt charts are retrospective tools
• PERT was originally used as a diversion and pizzazz device
• The Waterfall lifecycle is actually an iterative, user focussed approach
• Manhattan project was more about concurrent development than phase gates
• See http://bit.ly/1H2ctfy

Summary

• Wicked problems cannot be solved with linear approaches
• Teams have been solving wicked problems for hundreds of years (but we seem to have forgotten this)
• We do this through:
  1. Consensus Gathering
  2. Prioritization
  3. Short Build / Feedback cycles
  4. Results Oriented Reporting
  5. Respect and Empowerment
Thank you

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