Avoiding the 'Tipping Point to Failure'

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Presentation Outline

- The Problem
- The 'Tipping Point'
- Three Primary Causes
  - The bow-wave effect
  - Change overload
  - Relationships
- Early warning indicators
- Conclusion
Have you ever noticed?

Â All projects usually start out OK
Â Most projects continue for a while OK
Â Some projects actually finish OK
Â Others suddenly crash!
Â This paper looks at why:
    ✪ Most crashes are unexpected
    ✪ The consequences are severe
    ✪ Recovery is very difficult

The 'Tipping Point'

The 'Tipping Point'

Â Very few projects slide elegantly into failure:

Â You have some control in a steady slide
Most projects fall off a cliff:

And you have no control once you are over the edge:

The Tipping Point

The Tipping Point is a construct within Complexity Theory. It:

- Describes the way natural systems can absorb influences with minimal (or predictable) change until the 'tipping point' is reached and then there is a sudden catastrophic change.
- The 'tipping point' cannot be predicted in advance.

See: A Simple View of 'Complexity' in Project Management

The Tipping Point:

- Once a system has 'tipped' the change is irreversible.
- Experience of similar systems 'tipping' provide an indication of what to expect.
- But it is never the same twice!

Malcolm Gladwell's book:
The Tipping Point to Failure

The ‘Tipping Point’

Project teams are complex adaptive systems that function by communicating

The Team includes:
- Client / end user
- Designers and specifies
- External agencies / authorities / senior management
- The core workers and managers
- Suppliers and subcontractors

The Tipping Point

CRPR, the Complex Responsive Process of Relating. Successful teams:
- Use information exchange within relationships to create the knowledge needed to fulfill their objectives
- Social Capital of the team:
  - Existing knowledge of each individual
  - Effectiveness of the relationships (communication)
  - Ability to process new information to create new knowledge
  - Willingness to create and use the new knowhow

**The Tipping Point to Failure**

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### The ‘Tipping Point’

**Teams can adapt to change**
- Change and stress can strengthen teams
- All teams can absorb some levels of change and stress with limited or (predictable) damage
  - Repair and recovery is practical
- Excessive stress destroys teams
  - The ‘tipping point’
  - Repairing the damage is not possible; reconstruction is needed

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### A dysfunctional team:
- Spends time fighting
- Does not communicate
- Does not solve problems efficiently
- Does not develop the new knowledge needed to deliver the project efficiently
- Winning is more important than doing

**Communication failure = project failure**

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See: *Complexity Theory*
Research into projects shows a similar effect: Pavel Barseghyan

When complexity increases beyond the organization's capability, the performance decreases significantly.

This applies to both:
- The organisation
- And the project!
The Tipping Point to Failure

The ‘Tipping Point’

Two basic facts:
1 Once a system has tipped it can never go back to its original state!
2 You cannot predict the tipping point in advance
   - But you can recognize similar trends and patterns to know one is approaching

Project Complexity

- There are four basic dimensions to every project:
  - Its inherent size;
  - The degree of technical difficulty in creating the output (complication);
  - The degree of uncertainty involved in the project; and
  - The complexity of the relationships both within the project team (small politics) and surrounding the project.
Project Complexity

Â In combination these create the innate complexity quotient for the project

Â The innate complexity of the project should be compensated by the skills of the project organisation and the team

Â The Helmsman model is built around organisational ability to manage complexity

See: Project Size and Categorisation

<table>
<thead>
<tr>
<th>Helmsman Scale</th>
<th>Organisational Level</th>
<th>Difficulty Level</th>
<th>Project Characteristics</th>
<th>Examples</th>
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<tbody>
<tr>
<td>&lt; 4</td>
<td>SME</td>
<td>Minor</td>
<td>Projects that can be done by smaller organisations</td>
<td>Build new custom home</td>
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<tr>
<td>4 - 5</td>
<td>Large</td>
<td>Small</td>
<td>Projects normally performed in the business units of large organisations</td>
<td>Product maintenance and competitive enhancements to ongoing business operations</td>
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<td>5 - 6</td>
<td>Large</td>
<td>Core</td>
<td>Standard core projects in the top 50-300 organisations. Normally have executive attention.</td>
<td>Regulatory, environmental, business upgrades, GST, Y2K, Clean fuels</td>
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<tr>
<td>6 - 7</td>
<td>Large</td>
<td>National</td>
<td>Largest projects commonly undertaken across the top 50-100 organisations. Normally have board attention.</td>
<td>Merger integration, core system replacement, A380 introduction</td>
</tr>
<tr>
<td>7 - 8</td>
<td>National</td>
<td>National</td>
<td>Largest projects commonly undertaken in the Nation. Create newsworthy impacts on the economy.</td>
<td>BHP Olympic dam, National Broadband Network Some defence projects</td>
</tr>
<tr>
<td>8 - 9</td>
<td>Nationally significant</td>
<td>National</td>
<td>Rare and highly complex projects, seldom undertaken in the Nation. Create significant impacts on the national economy.</td>
<td>Snowy River scheme, Sydney Olympics, Collins submarines</td>
</tr>
<tr>
<td>9 - 10</td>
<td>International</td>
<td>International</td>
<td>Significant multi-national project</td>
<td>Halcon Collider, Joint Strike Fighter, BAe E</td>
</tr>
</tbody>
</table>
Project Complexity

The ability to manage complexity is innate to the organisation - the location of the cliff depends on the organisational capabilities.

Assuming the initial project, the organisational capabilities and the team design are balanced.

Most project teams can manage a bit more complexity caused by the actions of others in the team.

Until the tipping point is reached,

This is the space where project control systems add value!

Three basic sources of added complexity are:

Cause 1

Â Burning contingencies too quickly
   ï Caused by inadequate output
   ï Consuming float and delaying non-critical work
   ï Over consuming calculated risk management contingencies
   ï Frequently hidden (end dates are ð O K ð)
   ï **Tipping point:** Sudden massive increase in output required when the project hits the wall but no spare capacity

Cause 2

Â Excessive change
   ï Change orders / changing requirements
   ï Changes in strategy
   ï Changes in project team (eg, suppliers)
   ï Under control, changes incorporated and communicated in a timely manner
   ï **Tipping point:** changes not incorporated
      Â Rework and delay ï late communication
      Â Changes to changes to fix issues
Cause 3

Â Failing relationships
  ï Inefficient communication
  ï Ineffective problem solving
  ï Emergence of the Øblame gameØ
  ï In control ï open communication and trust
  ï Tipping point: All communication verified
     (eg, in writing) ï no trust.
     Â Slow and ineffective communication
     Â Ineffective problem solving and limited knowledge creation

See: http://www.stakeholdermapping.com/

Causes of a ØTipping PointØ

Â All three causes interact and feed off each other
Â Management cannot cope with the issues and complexity
Â Relationships fail, communication breaks down
Â Project ØipsØ into failure
Causes of a 'Tipping Point'

Problems cannot be solved at the level of awareness that created them.

Albert Einstein

Once a project has tipped, the current team is incapable of reversing the problem.

Early Warning Indicators

- Project controls can help predict the emergence of a tipping point
- Timely management action to reinforce the current team may avoid the cliff
- But the indicators are subtle and previous experience of a tipping point is essential
Early Warning Indicators

Productivity issues (cause 1)
- Measure the consumption of ‘float’
- Use Earned Schedule and TCPI(t)
- Measure consumption of contingencies

Solution
- Identify the problem early
- Identify the cause (usually management)
- Take strong corrective actions early
- Trust your planners and controls people!

Early Warning Indicators

Excessive change (cause 2)
- Measure the time to resolve changes
- Measure the # late changes (rework)
- Measure the # open changes (trends)

Solution
- Understand what is ‘normal’
- Identify abnormalities early
- Add appropriate resources early
- Work with the source of the changes
The Tipping Point to Failure

**Early Warning Indicators**

- Relationship breakdown (cause 3)
  - Assess stakeholder relationships regularly
  - Plan to build robust relationships and test their effectiveness
  - Track trends: overall and key individuals
- Solution
  - Don’t let key relationships fail!
  - Get outside help if needed
  - Pre-plan escalation paths

**Early Warning Indicators**

- Organisational resilience is the key:
  - Open and robust communication
  - Some spare capacity and unused capability
  - Willingness to seek help and accept assistance
  - Focus on problem solving and outcomes (not the blame game)
  - Management prepared to make decisions and change decisions as things emerge
Dealing with Disaster

- Remember everyone is in the same boat, including the client!
- The current team can only hold the line.
- Massive support is needed quickly to:
  - Rebuild relationships
  - Determine the scale of the problem
  - Stop the situation getting worse (triage)
  - Repair the damage
  - Establish a new capability to finish

Conclusions

- Once you have tipped into failure, it is too late!
- The team that tipped cannot recover themselves
- Look for the warning signs and act early
- But the preventative action cost money and introduces its own complexity
Conclusions

• Preparation is the key
  - Understand the organisation’s capability
  - Understand the project team’s capability
  - Understand you clients capability
  - Pack your parachutes...

Conclusions

• Backed up by rigorous surveillance
Questions Please

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