



# Remedial Process Improvement in Large Project-Oriented Organisations

*Andrew Gabb*

# Preamble

- This presentation applies to many organisations of different types, including acquirers and suppliers.
- All such organisations have difficulties with process improvement or reform.
- Some appear to succeed **much** better than others.
- Remedial - assumes existing processes and policy and previous attempts at reform.
- Large heterogeneous organisations - typically 1000s of personnel, 10s or 100s of projects.

# Introduction

- Level of success is very low (<20% for BPR?).
- Level of reported success is much higher.
- Analysis and comparison with software projects shows the primary sources of failure are in management and objectives.
- Dogmatic analytical approaches do not appear to work well.
- Need a much more flexible and talented approach, more like evolutionary development & acquisition.
- Pitfalls, attitudinal changes, organisation frameworks.
- Pointers to development, rollout and maintenance of processes.

# Sources

- Direct experience and close exposure to different organisations world-wide.
- Numerous articles on the subject, including INCOSE and SESA papers.
- Process standards and capability models.
- Example organisations:
  - Government acquisition organisations in US, UK, Canada and Australia, including the FAA and NASA.
  - Defence suppliers of complex systems.
  - Large software development organisations.

# About Faith and Incantations

No miracle can be wrought without faith - without the worker's faith in himself, as well as the recipient's faith in him.

... And the greater part of the worker's faith in himself is made up of the faith that others believe in him.

Incantations will destroy a flock of sheep if administered with a certain quantity of arsenic. I look for the man who will bring the arsenic, and don't mind about his incantations.

George Eliot

# Process

- Arguments about process vs. product focus - most is uninformed, defensive or polemic.
- The real issue is preparing personnel for their tasks and supporting them in those tasks.
- Where people are doing similar tasks, there are real advantages in doing them the same way.
- Having a defined basis for those tasks is much better than continual reinvention of the wheel.
- Process assets - procedures, guidelines, templates, tools, training.
- Process improvement assets - metrics, feedback, audits, proactive lessons learnt, etc.
- Process assets must be integrated and maintained as a product group.

# Sys. Eng. approaches/barriers (1)

- Our objectives will always be vague - how to quantify success, particularly in the short term.
- The environment is complex and changing.
- The 'system' exists - we can't design it from scratch.
- It already provides a useful capability - not totally broken.
- Measuring benefits of specific changes?
- There are many, many constraints that we can't ignore. Choosing which to fight is critical.

## Sys. Eng. approaches/barriers (2)

- Fragmentary contributions are useful, possibly essential.
- Loose integration and coordination will be more useful than tight control.
- Likely result: Years of effort producing acres of A3 charts that are wrong, impossible to assimilate and which no-one really understands.

# Objectives for Process Improvement

- *Faster, better, cheaper* is not enough - encourages simplistic and silver bullet solutions.
- *Avoid project delays, failure and bad press* is just as meaningless.
- Prototyping and piloting is difficult, slow and perhaps not representative.
- Instead, we need a picture or 'model' of a **functional** organisation, similar to an operational concept.
- My 1999 *Targets* paper for the DMO is one form of such a model (7 pages).
- Such a model is not only useful for process design, but also for weakness analysis.

# Targets: 2.1 Preparedness and Assistance

- All personnel know what tasks they need to perform, why the tasks are necessary, and have adequate knowledge and skills to perform those tasks.
- They know how their activities relate to other activities which may be performed at the same time, and the potential areas of interaction with related activities.
- They know why the products that they produce, contribute to, or review are needed, and the relationships of these with other products.
- All personnel know the basic objectives of the project, the strategy being undertaken, and the current state of progress.
- They understand their role in the project and their relationship with the roles of others that they work with (including suppliers and customers).
- They understand the proposed full life cycle of the system being acquired, and recognise the need to consider in-service support in addition to in-service operations.
- Expert authoritative advice is available on all aspects of project activities from a centralised help desk. A specific help desk provides assistance with project relationships.

# What we **must** have

- Total management support for the cause (if not the immediate plan).
- Independence from the project organisational branches and elements (tribal influences).
- A coordinated team of capable experienced analysts and process developers.
- A validated and endorsed multi-level long term plan.
- Continuous review and adjustment of the plan.
- Continuous feedback from projects, e.g. lessons learnt.
- A consistent big push, with immediate evidence and results. This not only provides less reaction at the workplace, but allows the managers to get on with it.
- Some of the best and most flexible management available anywhere to get it up and working.

# Things to avoid

- Avoid unrealistic expectations and goals, e.g. cost estimation.
- Minimise conflicts of interest, e.g. policy, review and consulting. ENRON?
- Avoid single guru, or single contractor, resources - errors, conflicts of interest and bottlenecks.
- Avoid reaction to symptoms rather than causes.
- Avoid mixing of authorities/elements with process descriptions - separate what is to be done, from who does it and reviews it. Otherwise confusing and always wrong.
- Resolve personality and ideology clashes ASAP. Whole approach needs serious conflict resolution - hence independent assurance team.

# Attitudinal Preparation

- This is an extremely difficult task - that silver bullet solutions and full analysis approaches won't work.
- This is a large, expensive, long task, e.g. \$50m over 10 years.
- Clear statement to all staff that mistakes have been made in the past, and this really is it (e.g. HESD address to the International Performance Management Symposium in February 2003).
- Minimise political interference by careful cultivation and briefing of relevant senior staff. Recognise that their experience is often limited and musty - that their other advisers may be narrow and partial.
- All players must realise that the plan **will** change, and that mistakes **will** be made.

# Who should do it?

- This is beyond the experience, capability and capacity of **any** consulting organisation in Australia.
- Those from offshore will have difficulty in adjusting to the local environment and culture (but won't know it or admit it).
- But offshore consultants **will** be needed in an advisory capacity.
- The teams **must** include capable staff from the project side.
- Be **very** wary of staff or consultants who got us where we are now, particularly silver bullet addicts.
- **Beware** the packaged solution from large process vendors.
- **Keep control within the organisation.**

# Plan of attack

- Survey of weaknesses, looking at competence and confidence of staff/projects. Careful design of the survey is essential.
- Identify the barriers to PI and remove them one way or another - may include senior managers who are more part of the problem rather than the solution.
- Review other sources of 'problem' symptoms, e.g. Chaos, ANAO and other reports.
- Note that 'lessons learned' DBs are often worse than useless.
- Establish an early help/suggestion desk - both help and feedback.
- Some cheap initiatives can be relatively harmless, so can establish, formalise and use as a baseline.
- Early metrics so we can measure progress and work out what and how to measure.
- Concentrate on increasing staff awareness early (e.g. training), so they can contribute.

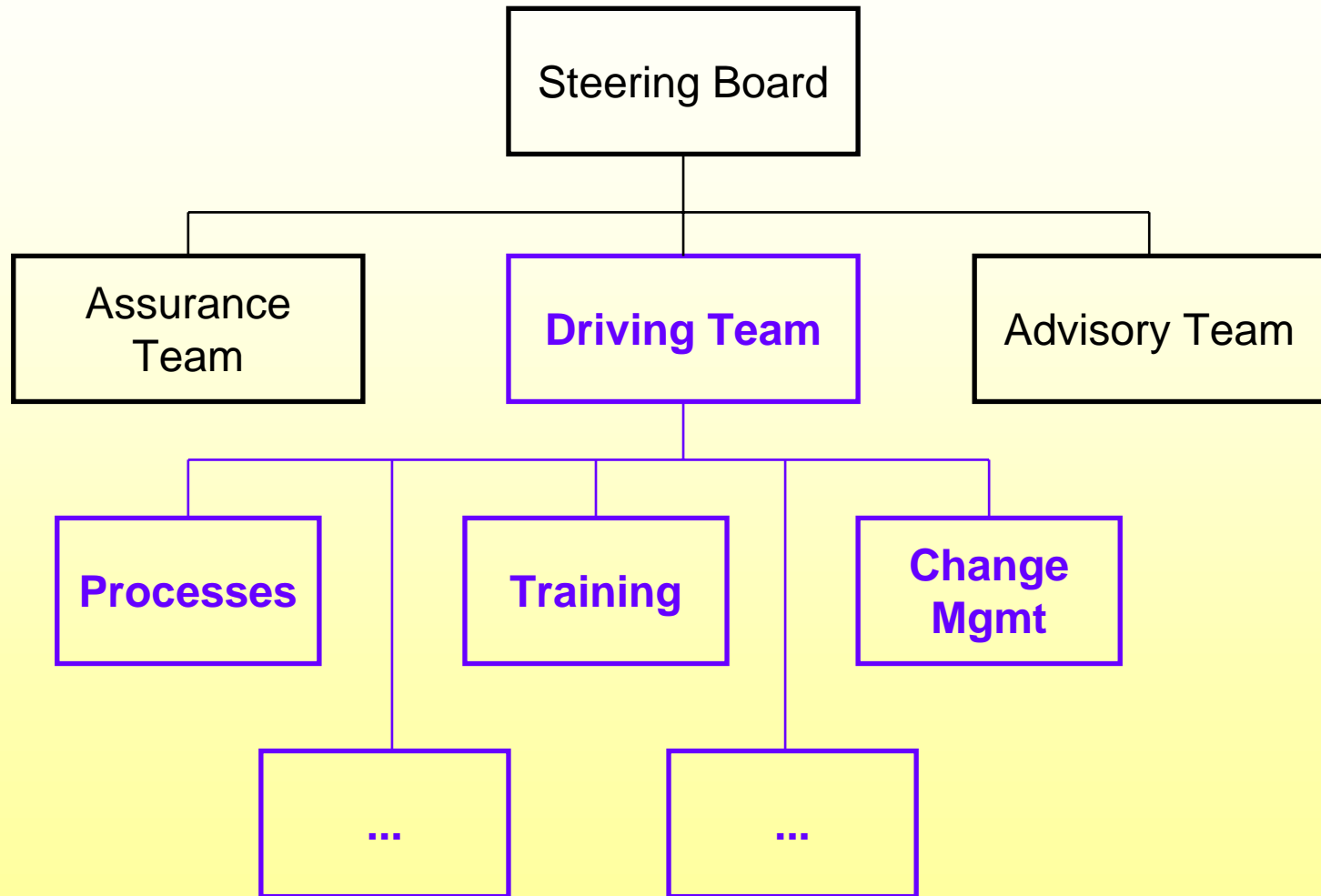
# Training

- Start a coordinated training program ASAP (mostly COTS) and review its progress carefully.
- Tailor it over time to meet the evolving processes.
- Note that training **cannot** be efficient if the processes are poorly defined.
- Base training initially on the weakness survey.
- Include cultural training on project dynamics (including the games people play).

# Organisation / Framework (1)

- PI controlled by a senior manager independent of the project departments:
  - Reduces tribal conflicts and biases.
  - Allows a better relationship with the customers, which is critical.
  - Reduces risk of other managers using PI for their own protection or promotion.
- A **driving team** integrates all initiatives and runs the plan. This is akin to architectural design and monitoring for a major project. Streamlining, minimising duplication and effort.
- **Assurance team** of experts, independent of other teams, to provide balance and review.
- **Change management** team.
- Larger **advisory team** staffed from projects (for suggestions, review and feedback).
- Establish **independent** centres of knowledge for critical disciplines, e.g. project management, systems/software engineering, logistics, T&E.

# Organisation / Framework (2)



# Scope of products and activities

- Project process assets, including procedures, guidelines, tools and other resources.
- Monitor the effectiveness of current processes, including collection and analysis of metrics.
- Determine and tune training needs and delivery schemes.
- Capture lessons learned and feed back into process.
- Provide help desk, information centre, referral centre.
- Provide a centre of expertise, core of knowledge, technical library.
- Provide limited consultancy services to projects.
- Review relevant products from projects, such as plans and specifications.

# Machiavelli on innovation

- And it ought to be remembered that there is nothing more difficult to take in hand, more perilous to conduct or more uncertain in its success, than to take the lead in the introduction of a new order of things.
- Because the innovator has for enemies all those who have done well under the old conditions, and lukewarm defenders in those who may do well under the new.
- This coolness arises partly from fear of the opponents, who have the laws on their side, and partly from the incredulity of men who do not readily believe in new things until they have had a long experience of them.

Machiavelli, Nicolò (The Prince, 1513 - tr. W.K. Marriott)