

Advances in Project Management Series¹

Are Projects and Project Managers Fragile, Robust or Anti-Fragile?

By Prof Tony Bendell
Services Limited & the Anti-Fragility Academy
Nottingham UK

It may be said that we live in depressing times. Our media is full of failing and failed organisations. From the financial crises to the BBC, from the US IRS or the Veterans Health Administration, to the UK Houses of Parliament, all around us is the evidence that our systems and safeguards are failing to protect the stakeholders from the slings and arrows of outrageous management, and an ever more demanding and volatile environment. Clearly, modern life has an enormous dependence on the integrity of human systems.

But what of Projects? Are they more or less liable to failure? Is our Project Management any better than our operations management? Of course, projects also fail all too frequently to deliver on time, to cost and to requirement. This is true whether we consider the Catalogue of Catastrophe in development projects around the world, including boreholes and wells in Africa, the De Havilland Comet, the Swedish Navy's new flagship that sank on its maiden voyage, failure of government projects such as the UK's Department for Transport Shared Services Centre, or IT projects such as the early IBM Stretch supercomputer project. Project failure is not new and, it can be argued, not adequately safeguarded against, even today.

IN A SENSE, ITS ALL ABOUT HOW WE MANAGE AND DEAL WITH RISK

However, "Risk" is itself a human construct; our way of coping with, and trying to predict and manage the unknown. It reflects the fact that: "*Organisations of any kind face internal and external factors and influences that make it uncertain whether, when and the extent to which they will achieve or exceed their objectives*" (ISO 31000:2009). "Risk" is then defined as the effect this uncertainty has on the organisation's objectives. This view of risk as a human construct is valid, whether or not one believes in a probabilistic, or a deterministic universe, and applies as much in project management to achieving project objectives, as it does in operations.

The key issue for both operations management and project management is that looking at risk as we do in this way, is not completely helpful, particularly in a complex turbulent world in which there is an apparently increasing incidence of so-called Black Swans. These are those low probability, unpredictable events with major consequences. In my book '*Building Anti-Fragile Organisations; Risk, Opportunity and Governance in a Turbulent World*' (Gower June 2014) I

¹*The PMWJ Advances in Project Management series includes articles by authors of program and project management books published by Gower in the UK and by Routledge worldwide. [To view project management books published by Routledge publishers, click here](#). See this month's author profile at the end of this article.*

argued that, despite good intents, much of Risk Analysis and Management as we know it today is part of the problem, not of the solution. My argument is that the way we conceive and approach Risk and its Management, has led to increased exposure and fragility.

The core of this argument is based on application of the Anti-Fragility concepts of Nassim Taleb, the author of *The Black Swan*, who has been extensively lauded for his insights into the recent banking and economic crisis. There is no doubt that whilst Taleb is a Professor of Finance, much of his arguments about risk, and in particular his emerging view of Anti-Fragility, apply also in other domains, such as companies, Healthcare systems and Organisational design and management, as well as, indeed, to projects of all types.

FRAGILE, ROBUST, AND ANTI-FRAGILE PROJECTS

Organisations, systems and projects may be Fragile, Robust or Anti-Fragile.

- Fragile refers to systems, organisations and projects that can be easily damaged in terms of meeting their objectives by changes or shocks in the external or internal environment.
- Robust refers to systems, organisations and projects that are able to withstand such adverse conditions.
- Anti-Fragile refers to systems, organisations and projects that, like biological systems, are more than just robust and can keep functioning and within limits actually improve their resilience and performance through being stressed.

Anti-Fragility is a new way of thinking about mitigating risk. With this view, to find out about risk avoidance, mitigation and management in human systems or projects we focus on the analogous characteristics of biological systems that, being more than just robust, **actually improve their resilience through being stressed**. Wouldn't we like that to be true about our projects also?

Applying this concept to the planning, deployment and management of projects of all types allows us to identify the characteristics of these that will not only mitigate against the realisation of hazards, but will enable growth in protection over time. At the project level, Anti-Fragility (or not) is defined by the project strategy, structure and systems, its people, relationships and the culture of the project team.

Typically, some sources of Anti-Fragility in projects are:

- Learning and experience
- Real time awareness of environment and internal project circumstances
- Effective information systems
- The ability to take decisions and act quickly and well
- Flexibility and Agility
- Good decision making
- Shared and spread risk

Of course, there can be a danger of applying 'one dimensional' Anti-Fragility, where we just rely on a single aspect, such as experience, and hope for the best. Often a practical approach to

retaining Anti-Fragility in a project approach, is to incorporate the development of the appropriate collaborative culture and multi-skilling; i.e.an emphasis on people. In contrast, technology solutions, such as “hard-wiring” conveyor systems or reliance on restrictive standardised business software systems, are by definition inflexible, and are typically fragile.

Application of Quality Management Systems and ISO9001, are inherently Anti-Fragile features within projects. In fact, all organisational and system information gathering and feedback loops, that potentially use current performance as the basis for control and/or change represent Anti-Fragility Features. This includes Strategy Review; Risk Management; Budgetary Control; Internal & External Audit; Quality Control; Quality Assurance; Developmental and Evaluative Performance Appraisals; HSE Assurance; Continuous Improvement, Kaizen, Six Sigma, Lean Improvement, Agile Deployment, and Organisational Assessment against the EFQM Excellence Model.

But there is a big ‘BUT’. The ways that these systems are implemented are themselves typically fragile, rather than Anti-Fragile. They are typically formalised, delegated to middle management, routinized and automated. Their information base is typically inadequate and untimely. Decision making under threats lacks clarity, determination and learning.

Such safeguarding systems are typically also designed for robustness rather than Anti-Fragility, which also often implies rigidity. They have incomplete information flow and assume some stability and no “Black Swans”. Even worse, there is a danger of them becoming compliance-driven rituals, with incomplete information, with most importance being given to the integrity of the paper trail for auditing purposes, and with them being given inadequate senior management attention.

In fact, there is a lack of a holistic approach to fragility minimisation and management in current practice in project and system design and execution. Thus, a key part of the Anti-Fragile mechanism in all these cases is the human role. And whilst Risk Management and Quality Management are Anti-Fragility features of our project execution, they are themselves often implemented in a Fragile way. We can call this Second Level Fragility, and it’s a serious problem.

A BASIC FRAGILITY TEST FOR YOUR PROJECTS

Many of my clients have found the following simple ten question questionnaire a simple starting point for reducing project fragility. It is really a self-realisation tool, designed to identify where the most major dangers of fragility may be lurking.

You might like to try it. For each question, give an answer as a score between 0 (very bad) and 10 (excellent).

1. How good is our current project planning and management approach?
2. Do we include deliberate diversity of approach and deployment?
 - Diversity supports Anti-Fragility, as not everything is then likely to fail together.
So, 0 = very standardised, no diversity; and 10 = highly diverse approaches.
3. How Aware are we of our Environment?
4. Do we Learn?

5. Do we Implement what we Learn?
6. Do we Learn and implement the learning fast enough?
7. Do we have the Infrastructure to Learn and implement learning?
8. Do we Evolve, or are we essentially unchanging?
 - Again, evolution supports Anti-Fragility, so that 10 = high evolution over time.
9. Do we have the Infrastructure to Evolve?
10. How Optimised are Our Processes?
 - Highly optimised processes tend to be fragile as they are heavily loaded and stressed, and there is no space to intervene and maintain them if things go wrong. So, score 0 = highly optimised processes.

TEN COMMON PITFALLS OF FRAGILE PROJECT MANAGEMENT

Arguably, globally our organisations and systems are failing with increasing frequency and magnitude, and the Risk and Quality professions appear to be ignoring it. The same may be true with projects.

In my experience, there are ten common pitfalls of fragile organisations, that I believe also apply to project managers and their projects. These are:

1. Not knowing that they are fragile.
2. Not being joined up.
3. Knowing, not doing.
4. Doing Risk Management incorrectly.
5. Too much emphasis on money and short-termism.
6. Bureaucracy and emphasis on control.
7. Badly managing change.
8. Weak processes or an emphasis on initiatives.
9. Non-transparent decision making.
10. Naive offshoring and ignoring customers.

TEN WAYS YOU AND YOUR PROJECTS CAN BECOME MORE ANTI-FRAGILE

But, there are solutions. The key is awareness and learning, and applying what you learn. Unfortunately, this can often be a weakness in project management based organisations, compared to functional management ones.

Suggestions to consider are:

1. Don't think you are there with Anti-Fragility. Realise that you never completely get there, but are also never completely not there.
2. Be aware, scan the external and internal environment, risks, scenarios and possible Black Swans.
3. Be joined up and nimble, keep learning, and apply the learning.
4. Avoid rigidity, ultra-efficiency and relying on robustness.
5. Don't automate, engage.
6. Reduce the fragility of anti-fragile systems.

7. Use diversity.
8. Apply precautionary principles; there are some risks you should just not take. Be aware of them, and stick to the principles.
9. Fail often and small. Experimenting on a small scale to learn is very useful. Experimenting on a large scale with your fingers crossed to meet the schedule, without having tried it small scale first, is potentially a disaster.
10. Stress test. Do not wait for something to fail. Check out the robustness of your project management in advance and learn how strong it is, and where it needs improvement.

ARE PROJECTS AND PROJECT MANAGERS FRAGILE, ROBUST OR ANTI-FRAGILE?

It might be argued that under commercial pressures, it is easy to forget what Project and Risk Management are really about. It's easy to dismiss the elephant in the room, when you see yourself as only occupying a small part of the room, and it's not your room. The problem can be tackled. Anti-Fragility gives us a coherent framework for unifying and utilising an impressive arsenal of already existing approaches and methods to take Project Management and Risk Management from the reactive to the proactive. But changing ourselves, our practice, is the hardest type of change.

About the Author



Professor Tony Bendell

Services Limited & the Anti-Fragility Academy
Nottingham UK



Respected academic, and international expert on improvement, Tony is a well-known invited speaker at Conferences worldwide, and formerly the Rolls-Royce funded Professor of Quality Management at the University of Leicester UK. A leading figure in quality and productivity improvement and excellence, he has published extensively and is principle author of the bestselling Financial Times book on Benchmarking available in 6 languages.

His most recent book 'Building Anti-Fragile Organizations' published by Gower in June 2014, examines the shortcomings of conventional risk analysis, the impact of Black Swans, and the strategic, cultural, process and people requirements for the development of systems and organisations that get stronger from being stressed.

Prof. Bendell also has extensive international knowledge of the field of Lean & Six Sigma. This has been added to by Professor Bendell's unique experience as chair of BSI Technical Committee MS6 that developed the new ISO18404:2015 certifiable Lean & Six Sigma international standard, and his current role as project manager of the sector scheme set up by the Royal Statistical Society in cooperation with the major UKAS accredited certification bodies to allow accredited certification against ISO18404.

Tony has been involved in implementing Lean and Process Improvement and Six Sigma programmes in numerous manufacturing and service companies and the public sector. This includes work with the NHS, the Police and Local Authorities as well as companies in electronics, construction, the oil industry, automotive, food and the service sector.

He is regarded as a thought leader in the Excellence and Quality fields and a leader into research on Quality Methods, Management, Measurement and Benchmarking. As well as the UK Government's DTI "Managing in the 90's" booklet on the Quality Gurus, he has also written major management texts for the Financial Times and Sunday Times, including ones on Benchmarking and Implementing Quality in the Public Sector. His most recent book on "*Building Anti Fragile Organisations; Risk and Opportunities in Turbulent Times*" was published by Gower in 2014.

Tony has always been active in trying to improve the practice of Project Management, having taught Project Management and Emergency Management up to Masters level, and also worked much lower down the education scale on programmes like the Ministry of Justice's Lean Constructor programme. He believes passionately that we need to improve both the training and practice in Project Management, to at least the same level as in Operations.

The Anti-Fragility Academy was set up by Professor Tony Bendell in 2013 to offer evaluation, consultation and advice to organisations as to how they might render themselves less fragile.