

A woman with dark hair and glasses is looking down at a tablet. The background is a collage of futuristic, digital-themed images including data charts, network diagrams, and abstract light patterns. The overall color palette is dominated by purples, blues, and oranges.

COSTAIN

Navigating the Wake turbulence.

Avoiding pilot induced oscillation in your projects through good project performance conversations

Peter Mill – P3M Discipline Lead

Paul Fisher – Principal Consultant

Improving people's lives.

Navigating the Wake turbulence.

Avoiding pilot induced oscillation in your projects through good project performance conversations



Agenda

1. Introductions

- Pete Mill
- Paul Fisher B.Eng (Hons) Aeronautical Engineering – Manchester University 1991 - 1994

2. Pilot / Project Induced Oscillation

3. Causes of Project Failure

4. Good Project Performance Conversations

5. Questions and Conclusions

1. Introductions

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Peter.

And Paul....



Two little dickie birds, Sitting on a wall;
One named Peter,
One named Paul.
Fly away Peter!
Fly away Paul!
Come Back Peter!
Come Back Paul!

2. What is PIO?

Pilot Induced Oscillation (PIO)

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Pilot-induced oscillations (PIOs),

- are *sustained or uncontrollable oscillations resulting from efforts of the pilot to control the aircraft.*
- They occur when the pilot of an aircraft inadvertently commands an often increasing series of corrections in opposite directions,
- each an attempt to cover the aircraft's reaction to the previous input with an overcorrection in the opposite direction.

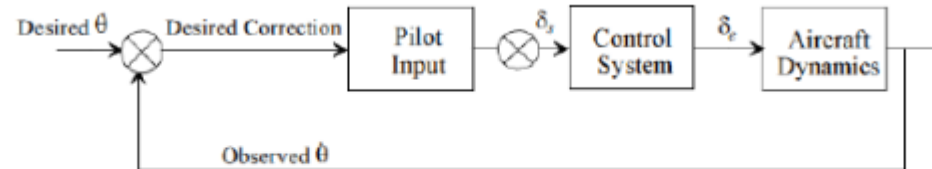


Fig. 1: Aircraft Closed Loop Block Diagram

Imagine that the Pilot is the Project Manager, the Aircraft is the Project

(and that the instruments are the Project Controls Data and that, hopefully there is a Navigator or Co-Pilot – i.e. the Project Controller)

2. What is Pilot Induced Oscillation (PIO)?

The Ultimate Outcome of PIO



[JAS 39 Gripen crash \(rare alternate angle\) due to pilot-induced oscillation on February 2 1989. - YouTube](#)



SAAB Gripen - PIO

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2. What is Pilot Induced Oscillation (PIO)?

A Near Miss

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[Pilot induced oscillation - saved by my instructor - YouTube](#)



2. What is Pilot Induced Oscillation (PIO)?

A Near Miss



In the previous scenario, who was

1. The Project Manager?
2. The Project Controller?

Project Induced Oscillation



3. Why do Projects Fail?

Objective Evidence 1 : Costain's Own Research

2020 Report

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Improving major project performance through
establishing the right culture and leadership behaviour



AUGUST 2020

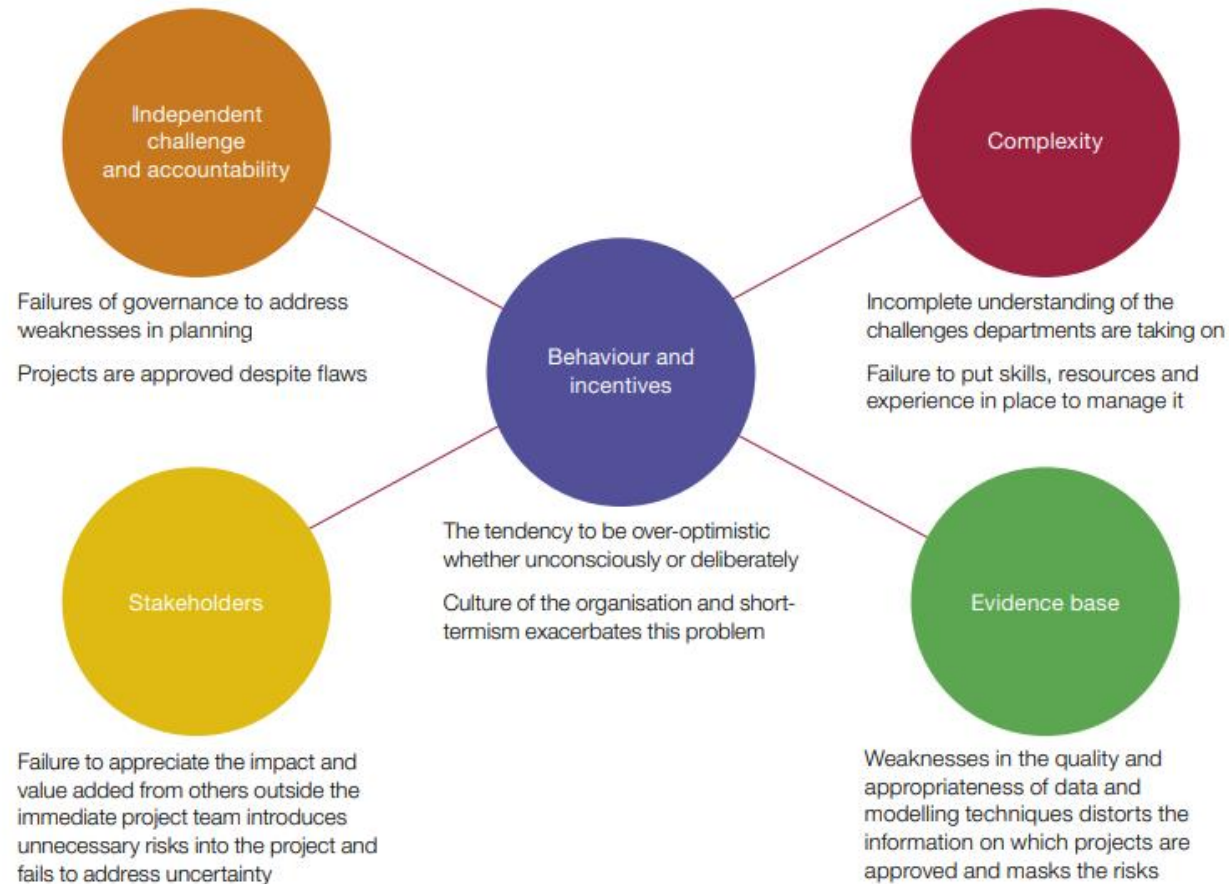
Although not widely researched or discussed openly, the right leadership behaviours at project reviews have the potential to improve project performance and potentially the performance of our industry. **Project reviews are the cornerstone of any major project for the regular and formal review of performance reporting and decision-making.** Typical project reviews (normally following a monthly cycle) provide clear and independently validated information to project stakeholders, facilitating understanding and early identification of risks and issues.

Objective Evidence 2 : The ‘Conspiracy of Optimism’

The National Audit Office



- In 2013, the UK National Audit Office produced a report entitled ‘Over-optimism in government projects’ citing the following issues: -



- [10320-001-Over-optimism-in-government-projects.pdf \(nao.org.uk\)](#)
- Picture – Copyright National Audit Office

4. Good Project Performance Conversations

Culture and Behaviour



Geert Hofstede classified cultures into six dimensions,

One of these can be applied to both the flight deck and also to the context of the relationship between a Project Manager / Director / Leader and their 'subordinates': -

Power distance, which defines the "nature of relations between subordinates and superiors", or "how often subordinates are afraid to express disagreement"

Korean Air Flight 801

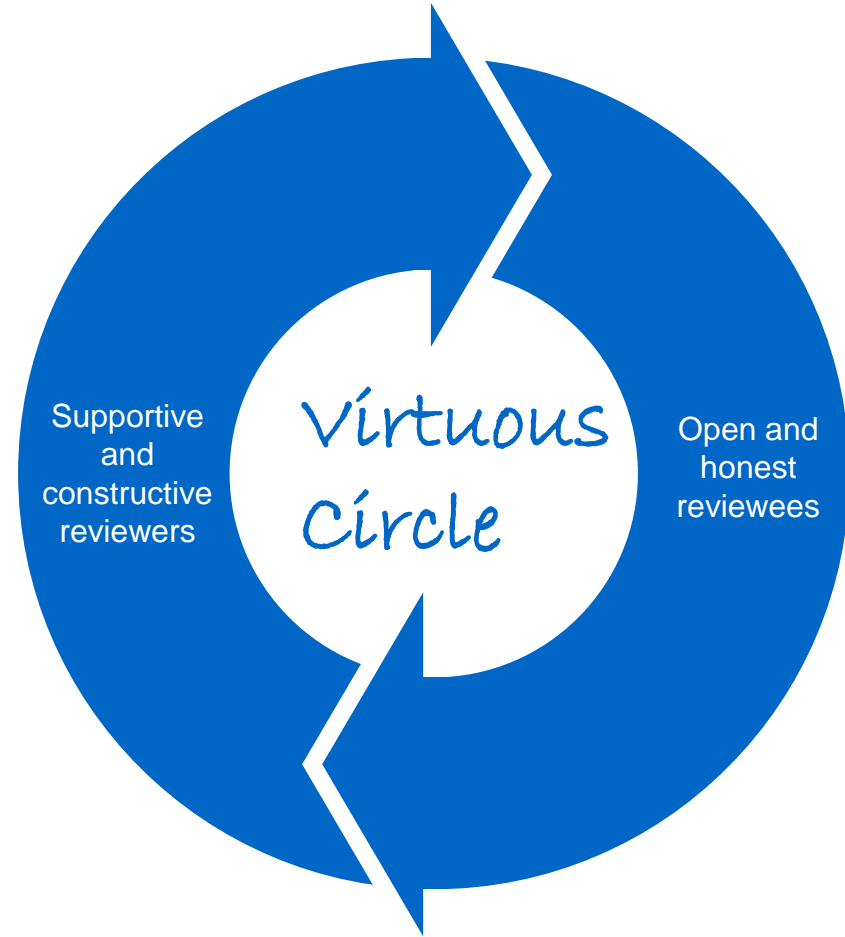
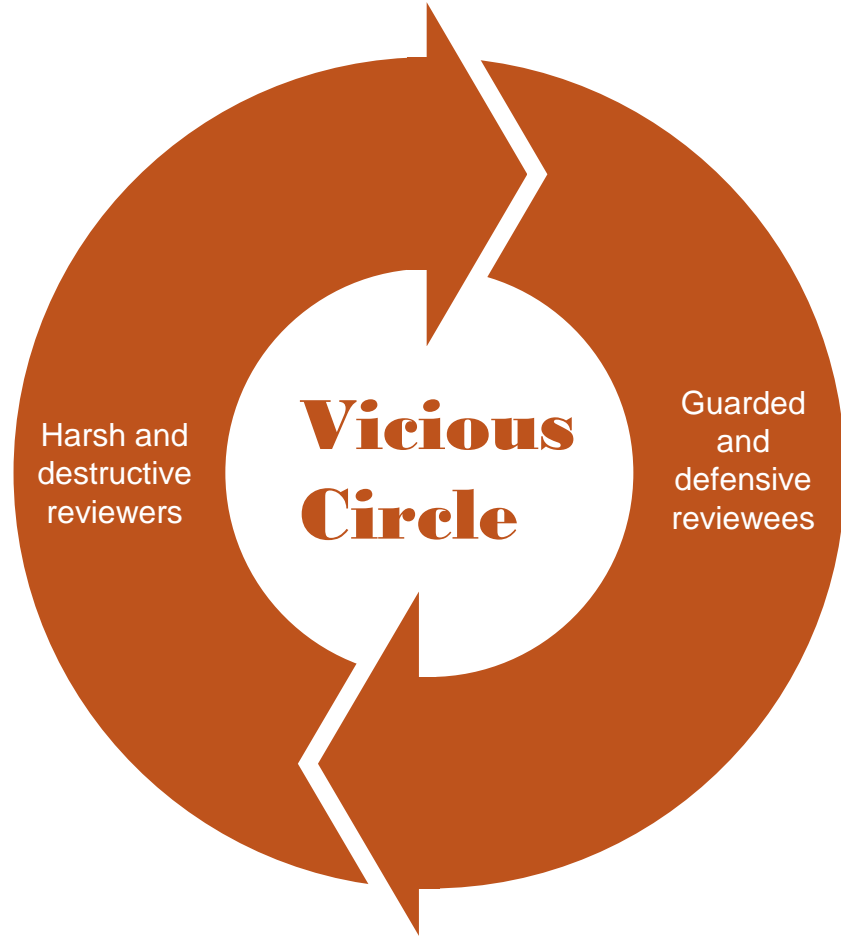
The captain made the decision to land despite the junior officer's disagreements, eventually bringing the plane down short of the runway. Of the 254 people on board, 229 died as a result of the crash. (A highly complex situation in reality with this as one of the root causes)

[ATC - Korean Air 801 - \[CFIT\] 6 August 1997 - YouTube](#)

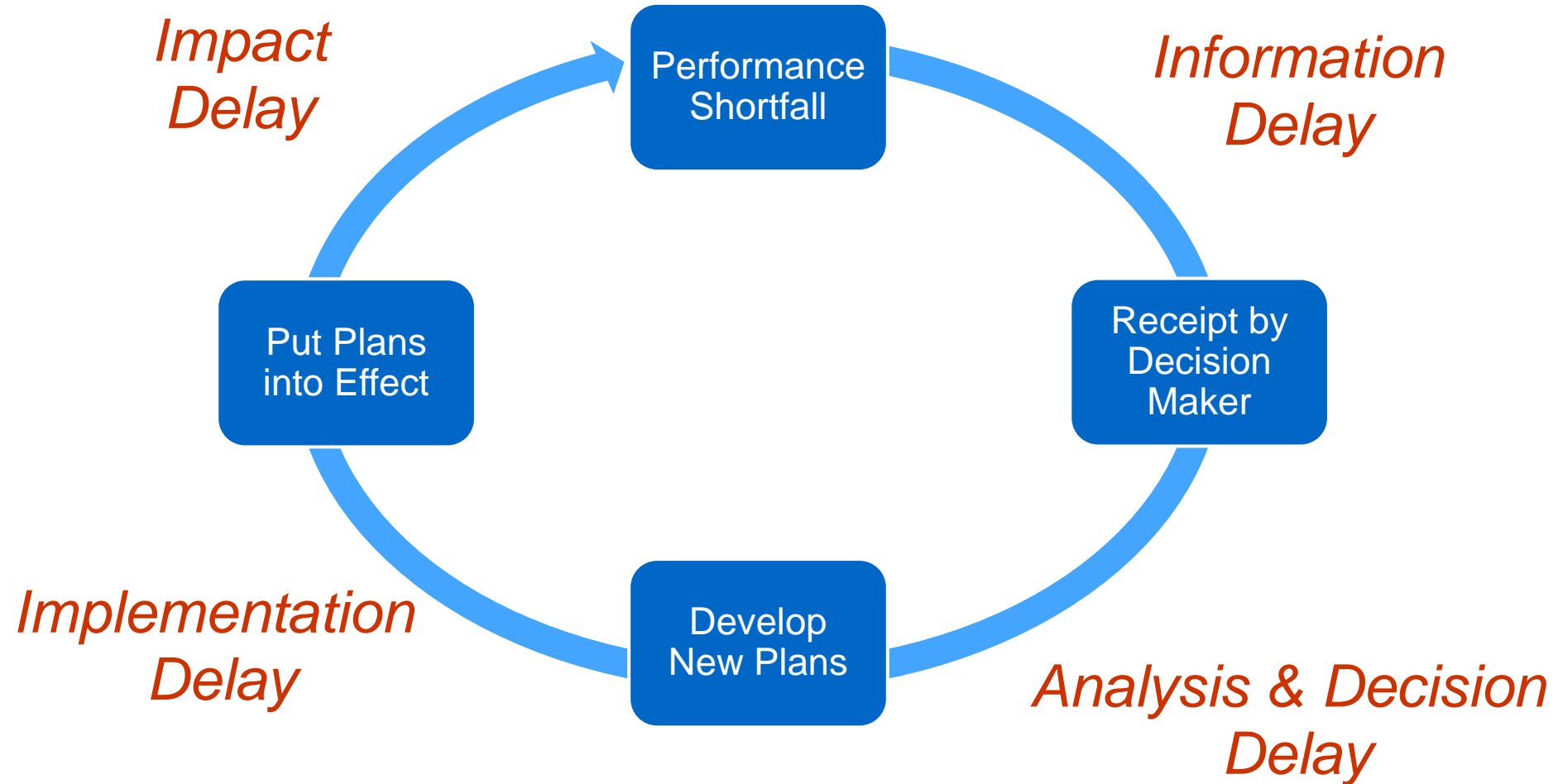
[First Air captain ignored co-pilot's warnings before Nunavut crash | CBC News](#)



The Right Behaviours



Control Delay – Why variances increase



Summary vs Synthesis

Summary	Synthesis
Reporting ideas of others	Highlights important points AND your observation(s) of the related texts
Highlights important points of one source	Usually has a specific focus
Neither supports nor refutes an argument	Thesis is defined and supported by various sources
Does not contain your opinion	Compare and contrast information from multiple sources; cite multiple sources at once
Constructs a narrative from source material with no critical analysis (often arranged in historical order by date of publication)	Makes connections between sources (support argument, refute argument, similar/opposing concepts, similar/opposing methodologies, etc.)

Good Performance Conversations



Why?

**‘Good Baseline + Good Data + Competent People + Good Performance Conversations + Good decisions
= Greater chance of Project success’**

1. We will avoid **‘Project Induced Oscillation’** by improving performance conversations through coaching the appropriate behaviours required
2. Significant evidence through, for example, the National Audit Office (NAO) and Costain’s own research has shown that **‘optimism bias’ is endemic in many major, complex programmes** (amongst other biases*).
3. Good performance conversations are a key mitigation to the risk of optimism bias because: -
 - Everyone has the same understanding of the **goodness of the baseline and the data**
 - Everyone understands the **basis of the baseline** and to what extent optimism is ‘built in’
 - Everyone is able to **synthesise multiple data sources and** articulate the status on this basis
 - Everyone understands what the various programme data sources mean in terms of **status and forecast**
 - Everyone feels competent and empowered to discuss and challenge the synthesised messages with **the appropriate behaviours**
 - Leaders demonstrate and **model the behaviours** required

Questions to close..



Are you in control, or just pushing the levers?

Are you achieving the desired responses to your control inputs?

Is the culture and behaviour in your project conducive to positive, closed loop control?

Thank you

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