



# Complexity In Change Management



The Power of Perspective



# Executive Summary

As we continue to respond to the challenges of a changed and changing world, a word that keeps on being quoted is “complexity”. Politicians tell us that their solutions are complex, experts tell us their models are complex and as project professionals trying to manage all this change, it sometimes seems as if we are moving beyond complexity towards pure chaos.

Most people using the word “complex” do not understand the difference between complex and complicated – and even if they do, they fail to understand the three vital dimensions of complexity.

Research on real projects at Cranfield University has not only identified frameworks for understanding these three dimensions but has also produced tools and techniques for managing them on complex projects and programs. To help explain the research, we use the analogy of flying and show how organizations can get their change projects off the ground and then land them safely at their destinations.

As we enter the next phase of the Covid-19 crisis, understanding of projects through the three “lenses” of complexity will not only provide a competitive edge, but also perhaps help project managers “fly high” in managing their complex projects in this complex world.

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CHAPTER 1

# Complexity - It's Not Complicated





## 1. The Flying Analogy

I spend a great deal of my working time in front of boards of directors who want to know how to better achieve their strategic visions. They want to know how to better manage their projects and programs and are eager for some 'magic bullets', systems, procedures, and protocols – some magic methodology that will guarantee success.

I suppose I could bore them with descriptions of the latest agile methodology or the latest revision to Prince 2, but I find very quickly their eyes glaze over, and the conversation goes nowhere. Instead, I give them a figure, 68%. What is this figure? According to much of the academic research, it is the typical global failure rate of projects.

Strategy is about where you dream to go. Projects are the vehicles that fly you there, so the question is: would you board a flight if you knew that there was a 68% chance of a crash?

Think of the last time that you flew. Whether it was for pleasure or for business, the chances are that your key objective was to get to your destination as quickly and as uneventfully as possible. The journey itself was a costly irritation and if you could have simply clicked your fingers and arrived magically at where you wanted to go, avoiding the airport, transit, security, flight time, immigration/customs and jet lag, then it would be a real blessing. So, it is with change projects – no one wants the project, they just want the outcomes.

Now think about what you voluntarily submit yourself to in terms of the flight. Apart from the cost, the journey to the airport, the queues, and the sheer stress of getting to the aircraft, now think about the actual flight itself. You squeeze yourself into a thin metal tube that has the crash resistance of a Coca-Cola can. You are then strapped into your seat with hundreds of other equally stressed passengers. The pilots at the front arrange for the aircraft to be preloaded with a huge amount of highly explosive fuel. If it ignites – you fry/you die.

The pilots then accelerate the 200 tons of human flesh, metal, plastic and sloshing explosive fuel down a runway and when you reach about 200km/hour (think of that when you next look at your car speedo), they haul back on the controls, take off and then turn you into a high speed flying bomb. You are then accelerated up to 750km/hr. and

taken 10,000 meters into the skies above planet earth, a place where there is virtually no oxygen and it is so cold that your lungs would quickly freeze solid). At this altitude it would take you mere minutes to fall to your inevitable and rather messy death.

After potentially hours of this almost surreal experience, the pilot then throws the aircraft down at a hard-concrete strip which you pray is the right one, and somehow manages to decelerate your fragile tube down to a safe stop and pulls to a halt right outside your terminal.

I now ask you a simple question: the last time you flew – what was the name of the pilot? Did you thank him/her? Did you even check that there was a qualified pilot on board? A project manager is like a pilot – no one notices them unless things go wrong.

Turning strategy into reality is like a flight – you are taken from where you are to where you dream of being. The alarming fact is that almost 70% of change initiatives, mergers, acquisitions, and strategies fail – they are doomed from the start and will simply crash and burn.

Now let us look at how this analogy can lead us towards an understanding of complexity.

## 2. Dimensions of Complexity

The first thing we must look at is the difference between complex and complicated. Academics writhe over definitions but I like to think of a simple example – a swiss watch.

This watch may be expensive, ingenious, and contain many parts but essentially it does one thing and does it well – it predictably tells the time. If you take it apart and then reassemble it, then it just returns to what it was – a watch. It is merely complicated. I am often told that a project is “complex” because it is large in terms of scale, cost or size, but when I break it down it turns out to be simply large and complicated (perhaps with small pockets of complexity).

So, what is complex? Again, many definitions compete but they all seem to gravitate towards words like unpredictable, interconnected but evolving, messy, even undefinable and overwhelming.

The research at Cranfield University<sup>1</sup> has taken over 40 academically identified types of complexity and distilled them down. Let us start with two. Then we will add the third at the end.

The first dimension is **Structural** and can be seen as the logical parts of the project:

- ◉ Size, financial scale, interdependencies, variety, pace, technology, breadth of scope, number of specialties, multiple locations/time-zones

This dimension has been largely mapped by the project management profession and there are now many excellent tools, techniques and processes to deal with it.

The second dimension is **Emergent** and can be seen as how the world is changing around the project itself:

- ◉ Technological and commercial maturity & change, novelty, clarity of vision/goals, clear success criteria/benefits, previous experience, availability of information, unidentified stakeholders, “missing” plan, unforeseen, unknowables.

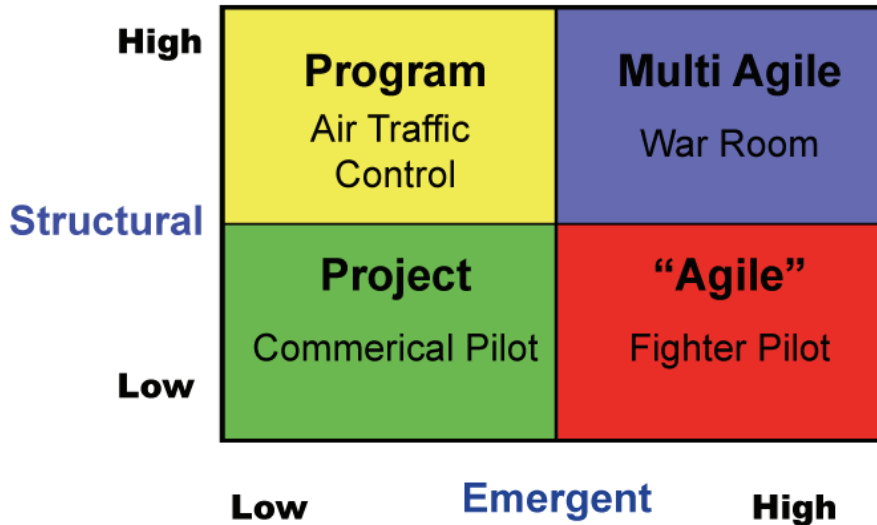
This dimension takes us into the world of risk registers, scenario planning, and formal change control.

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1. Maylor, Turner & Murray-Webster, 2014.

If we now turn these two dimensions into a simple 2X2 matrix, then we can apply our flying analogy:

## Dimensions of Complexity



**Figure 1:** Two Dimensions of Complexity

As you can see, in the low/low box we have the “conventional” project – fairly straightforward and unlikely to change much. Still actually very difficult to manage but if we give it to a professional project manager (think pilot) and we have a methodology, checklists, risk management, etc., then there is a good chance that it will take off and land safely (deliver its cargo of benefits).

The “low emergent - high structural” box can best be thought of as being like air traffic control – many conventional projects flying around. It is the job of the program/portfolio management to make sure that they are aligned and hopefully don’t crash into each other – think project prioritization.

The “low structural - high emergent” box is the home of the fighter pilot – dare we use the much-abused word “agile”. Here we have project professionals (i.e., the pilots) but whilst they plan as much as they can, they know that the “enemy” has plans for them, and as such they must remain alert and hugely responsive to inevitable change.

The “high structural - high emergent” box is the realm of “multiple agile” – a relatively new and currently little understood area of change management. A good analogy for conceptualizing this is the war room – think Battle of Britain, plotting tables and trying to make sense of rapidly evolving events and priorities. The key here is judgment, pattern recognition, intelligence, and risk – enterprise PPM systems!

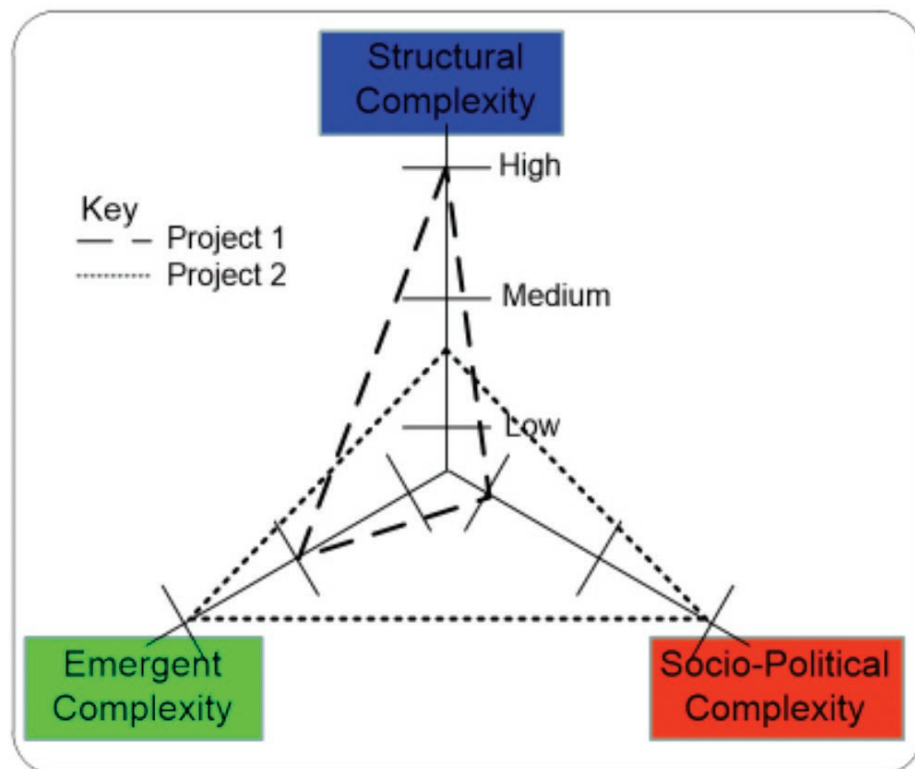


The above two-dimensional matrix is a great help to begin to conceptualize complexity, but it is only a start. The problem is that projects fly in three dimensions, and the third dimension is the most difficult complexity to manage – it is called the **Socio-Political**.

Socio-Political complexity covers aspects such as communication, intuition, confidence, politics, stakeholder engagement, culture, empowerment, leadership, personality, physiology, social systems and EQ

All of these are usually only given lip service on projects and are seldom properly unpacked and discussed. Can you remember seeing a section on “departmental politics” on your project plan?

Now that we have our three dimensions, we can start to look at our projects through the three lenses. For example, the figure below shows two projects together with the team assessment of how they measure up on the three axes:



**Figure 2:** Three Dimensions of Complexity

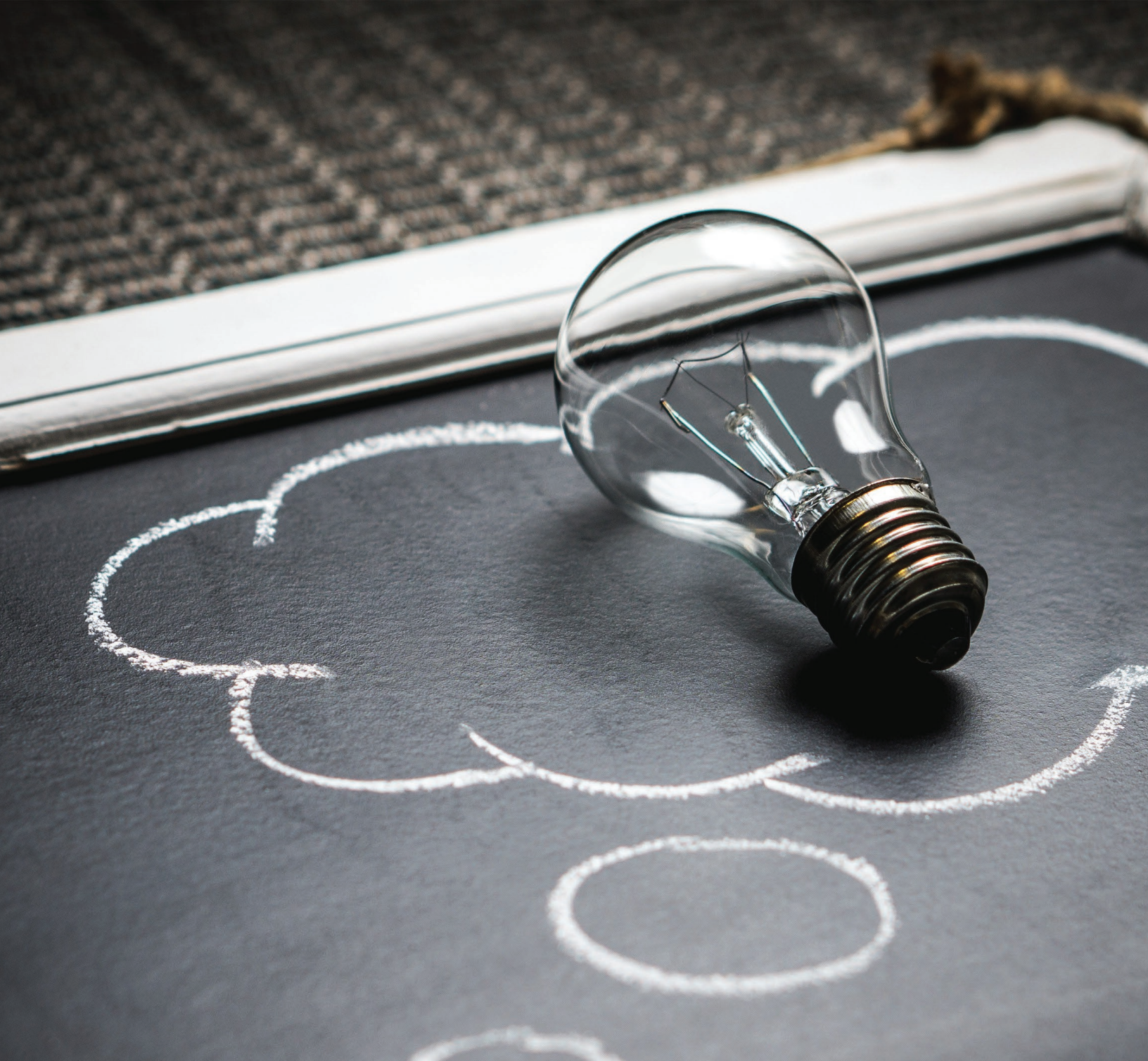
A final piece of the research looked at which complexities project managers felt most of their problems came from and it came as no surprise that they were largely socio-political. Next, they were asked which of the three

complexities were given the most attention on their projects in terms of development and training and of course, it proved to be structural, a sad comment on how we train our pilots!



**Figure 3:** The Three Complexities





CHAPTER 2

# Conclusion



I hope you have enjoyed this brief flight through the world of complexity. I have found over the years that whilst PPM is understandably explained in terms of process and tools, it often fails to capture the imagination of those unfamiliar with the field. Pilots, fighters, and air traffic control analogies seem to tap into people's thirst for adventure, speed, and exploring new horizons. Likewise, "complexity" is often sadly given as an excuse to abandon planning altogether and plunge into "heroic" management which all too often ends in failure and expense.

The three-lens model provides a simple practitioner tool which over the last three years has proven itself on many projects, both mega and small. Research in the field is continuing and we now have complexity assessment toolkits and the beginnings of a psychometric test to assess individuals preferred leadership styles when faced with complex projects.

In conclusion, I would give three pieces of key advice:

1. Keep calm, don't be overwhelmed. Separate the complicated from the complex and remember that it's OK and inevitable for change to change.
2. Worry most about the element of "Socio-Political" complexity. It is the people that will either help you or hijack you.
3. Learn from real pilots — have your crash on a simulator, I personally train project managers on my simulators. The good ones are open and learn quickly and the bad ones always say when they crash: "Well, of course, I'd never do that in real life..."

Remember, post Covid-19, the world is going to have to rebuild and re-orientate to the new realities, and change/project managers will be in high demand – let's get out there, let's embrace complexity. Let's fly!



## CHAPTER 3

# How Cora Systems Powers Enterprise PPM & Transformation

## Key Aspects of the Cora Solution

Cora Systems is a worldwide leader in providing enterprise PPM solutions to global organizations and government agencies, such as Honeywell, Allergan, PwC, City of London and the UK's National Health Service.

Cora is a proven foundation for the delivery of projects, digital transformation and strategic objectives. Fully digitizing program and project lifecycles, providing total transparency, empowering decision-making, and streamlining governance and reporting. Every day, across more than 50 countries, over \$20 billion worth of projects are managed on the Cora platform.

## Powering Enterprise PPM & Transformation

Cora PPM contains a comprehensive suite of functionality that provides the strategic capabilities to optimize capacity, analyze scenarios, track benefits, inform all stakeholders and integrate across the enterprise. The platform acts as the bedrock for delivering major transformation programs.



### Complete Enterprise Project & Program Management

Cora PPM provides the control, governance and insight required to identify, prioritize and authorize extensive enterprise portfolios that align to strategy and deliver ROI.



### Digitize & Streamline Business Processes

Cora PPM digitizes all your portfolio, program and project processes, surfacing information when, where and how it's needed. Transform the way you manage your program lifecycle, providing the transparency, intelligence and decision-making capability to drive change across your enterprise.

"With Cora, we're able to sit around the table at senior management level and understand where we are much better than previously."

#### Paul Moody

Director of Global Engineering Projects,  
Allergan Pharmaceuticals



"We are happily using Cora to manage the portfolio of projects that makes up our £1.7bn Superfast Program, and our £294m Local Full Fibre Networks Program. It works well at a low level for project planning, risk and issues, change logs, benefits tracking, weekly reports, etc. Then the PMO can roll up and summarize that low-level data into a full program/portfolio view."

#### Justin Leese

Program Director, Local Full Fibre Networks,  
Department for Digital, Culture, Media & Sport (UK)







## Integrate, Centralize & Consolidate

Cora PPM acts as a single point of entry for all project data and facilitates easy integration with any enterprise technology architecture. Providing you with an immediate, consolidated view of all your project portfolios and deliverables. Complete visibility and insight are acquired through instant information “roll-up”, linking top-down goals with bottom-up contributions of each and every initiative.



## Swift Enterprise Deployments

Accelerate time to market and improve return on investment by leveraging best-practice implementation supported by our team of experts.



## Mapped to Your Processes

Cora PPM is configured to each client’s specific business processes, and we are methodology agnostic – we’ll tailor the platform and the templates to fit your chosen project methodology be it Agile, PMBOK, PRINCE2 or other.

“It’s great to have that cascade of information to highlight issues and risks for the right people who can then intervene. The functionality to do that in a more controlled environment, to take it through the different authorization layers, we see as really valuable.”

**Patrick Beattie**  
Director, PwC



“Cora really allows us to drill down into information so we can give our senior management the key decision-making information to make informed decisions on all our schemes.”

**Ian Thrupp**  
Head of Planning and Project Controls, WSP



“Cora as a platform gives us that single source of truth to what’s going on in the organization and also gives us the ability to prioritize what’s really important to us. Being able to put that information in front of our board and our executive team to say, ‘Here is all of the change that’s going on. What’s the most important to you?’ and then actually allocate the resources and funding for those projects to help move us into that strategic position is invaluable.”

**Sarah Malin**  
Head of Program Management, CityFibre



# The Value

Digitize your programs and lifecycles, gain greater insights, more informed decision-making, and streamline your governance and reporting.

## ⦿ Strategic Insights

Roll out failsafe, strategically-aligned projects that utilize resources and deliver maximum value.

## ⦿ See The Full Picture

Quickly view data dashboards that visualize the health of your portfolio and drill-down to focus in on any issues.

## ⦿ Support Governance

Ensure the right people have the right oversight with multi-level access protocols.

## ⦿ Easily Scale

Small to large, local to global, all in the cloud.

## ⦿ Complete Control

Manage scope, financials, progress and quality of project delivery in one centralized system.

## ⦿ Seamless Collaboration

No matter the team – internal or contractor, desk-based or mobile – integrations make workflows seamless.



# \$20 BILLION

Worth of projects managed on Cora PPM.



# 400,000+

Projects live on Cora at any one time.



# 50+

Countries where Cora is in use.



# 1

Platform & version of the truth.



# Author Bio

Stephen Carver is rated as one of the top 3 lecturers at one of Europe's leading MBA business schools, Cranfield University's School of Management in the UK.

He has a reputation of taking complex management concepts such as projects, influencing change and crisis management and being able to distil them down into highly informative and fast-moving lectures – often

using “storytelling” techniques. His attitude is: “If you haven’t done it – you shouldn’t be teaching it!”

Unusually, for an academic, he has actually spent most of his working life in real business and still runs his own, highly successful, project management company. Stephen is a rare blend of academic, businessman and teller of tales. He has taught across the world and has appeared on national radio and TV.



An aerial photograph of a dark asphalt road with yellow lane markings, winding through a dense, lush green forest. The road curves from the top right towards the bottom left. The trees are tall and coniferous, creating a textured canopy. In the bottom right corner, there is a faint, semi-transparent circular graphic element.

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