COLLABORATIVE PROJECT CONTROL SYSTEMS

TAKING A PEOPLE-CENTRIC APPROACH TO IMPROVING PROJECT SUCCESS

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1. Background

It is well known that projects typically do not attain high average success rates and that to achieve an increased rate of success remains challenging. Flyvbjerg and Sunstein (2016) report an average cost overrun of 39% on a database of over 2,060 major projects across 103 Countries and six continents. Worse, some industry studies suggest that there has only been a modest improvement in the past several decades.

There is increasing evidence that the common thread in project failure is human behaviours with many pointing to project governance teams as well as behavioural biases in decision-making and Complexity, notwithstanding the project team and leadership in general.

Developing a better understanding of how people can be empowered and leveraged to improve project controllability is fundamental to finding a way forward to improving project success rates. This means re-imaging project management through a different 'people-centric' lens.

2. The Importance of Project Success

Notwithstanding project success rates, the significance of project management is even greater when considering that it is estimated that over 30% of the global economy is project-based (Turner, 2009). In Australia alone, one estimate suggests the financial 'waste' of the combined private and public sector spend on capital infrastructure megaprojects to be $60 billion on an annual capital spend of $300 billion.

3. State of the Art

3.1 Project Management Practice

Optimising value during project execution rests with monitoring and controlling practices over the full span of project control. While many techniques are discussed in the practice guides and the literature, current project control practice (as distinct from monitoring) relies mostly on manual methods (reports, phone calls, meetings, emails) driven by project managers. Surprisingly, there is scant research that addresses methods of project controllability that can operate in real-time to address the needs and drive all project participants collaboratively to deliver projects.

3.2 People-Centric Perspectives in Projects

Current project management practice is derived from the hard, physical sciences and focuses on work management processes and practices to execute tasks ensuring that projects have enough effort supplied by appropriately qualified and skilled people (Seymour & Hussein, 2014).

Leadership is commonly cited as being a key contributor to successfully managing project human resources. It is arguable, however, that followership is as essential on projects as leadership. The imbalanced focus on leadership compared to followership is evident in a google search of these two terms. Followership receives about 2,400 times fewer hits than leadership. Unfortunately, the focus on leadership to the exclusion of followership steers thinking away from the opportunity to harness collaboration of 'followers' to improve project controllability.

Ramos-Villagrasa, Marques-Quinteiro, Navarro, Rico (2018) review the previous 17 years of research into teams as Complex Adaptive System (CAS). Amongst a wide range of other matters, it reveals that informal leaders emerge within an ever-changing team environment. Is it possible that the informal leaders make up for the failings of the formal leaders? While good leadership is important, it may not be the dominant factor that it is thought to be.

Slevin and Pinot (2007, p. 17) note that it is not uncommon for a substantial proportion of project people to be managed by the project manager of a supplying organisation. In this situation, the purchasing project manager has no direct control over this group of people but certainly 'wears' the reputational damage of a poor project outcome.

Cooke-Davies (2011) addresses formal power relationships between buyer and seller on a project. Wu, Zhao, Zuo and Zillante (2018) point to conflicting project interests amongst the project owner, contractors and other participants that cause significant problems on projects due to differing objectives (goal conflicts) through project implementation.

Human irrationality and decision-making bias are often cited as sources of project failure (Flyvbjerg, 2016, 2018). Kahneman (2011) takes a systems approach addressing a range of biases such as optimism bias. Gigerenzer (2018, p. 305) however disputes Kahneman's work on behavioural economics asserting that behavioural economics is itself often tainted by bias, being the tendency to spot biases even if there are none.

3.3 Systems Approaches to Project Controllability

Ramos-Villagrasa, Marques-Quinteiro, Navarro and Rico (2018) review the literature relating to project teams in the context of them being Complex Adaptive Systems (CAS) modelled using Nonlinear Dynamical Systems (NLDS) techniques. While the dynamical nature of the project system is recognised, people are still treated mainly as a provider of project task processing effort.

A book titled *Aspects of Complexity: Managing Projects in a Complex World* by Cooke-Davies (2011) provides a medley of papers written by contributing authors that relate the management of projects to Complexity and complex environments but no automation tools to control projects are cited.

The term 'Systems Thinking' was first coined and defined by Richmond, Peterson, Vescuso and Maville (1987). A wide range of scholars has contributed to the discussion on systems thinking. These scholarly articles reveal that there is much thinking about systems thinking, some field observations but scant if any application in the field of systems thinking applied to project controllability.

Checkland (2000) reviews the development and evolution of Soft Systems Methodology (SSM). The SSM approach is directly aimed at addressing human systems. The SSM approach was used to help conceptualise the Concorde project in which it was reported that the Concorde project was initially thought to require a system to carry out an engineering project but ended up as requiring a system to carry out a 'political' project that demanded a 'worldview'.

Ford and Lyneis (2019) provide a summary of the System Dynamics (SD) field as it applies to project management. A re-work approach is used applying Causal-Loop and Stock-Flow diagrams to focus on schedule control as well as the application of project SD modelling during the planning stages of the project but not to project control during execution.

Mitchell (2006, 2009) introduced the emerging field of Network Science, explaining that generally, a network exists as nodes connected by links, has no central control mechanism, have distributed control and self-organise. Network Thinking brings into play all the behavioural features of a complex system. It is an important advancement over and above traditional systems thinking.

4. The Way Forward

4.1 Problem Model

Building a problem model that represents the real world is fundamental to determining a solution model. To be successful, the problem model must take a holistic approach covering the full span of control, including commercial boundaries, decision-making biases, goal-conflicts, power in the relationships and project system impairments exhibited by people. In other words, represent the 'worldview'.

Another aspect to be considered are the conditions necessary and sufficient to drive project success. Addressing success drivers using a suite of 'dominant factors' that when taken together, are both necessary and sufficient for success. The idea of 'dominant factors' is forward-looking. They address the critical matters that are needed to drive success from the start of the project. This approach contrasts with root cause analysis used in hindsight to determine (often singularly) what went wrong after the fact. The concept of dominant factors allows for the fact that they may exist as a blend and, as to which factors dominant a project at any point in time, depends on a wide range of circumstances.

4.2 Solution Model

As suggested above a complete project system that brings into play the many aspects of the problem model, including internal and external commercial boundaries that cover the full span of control is required. A baseline system model of current practice that uses the same thinking process can then be created for comparison. The two models created by the author to date are starkly different from each other, which demonstrates that a very promising line of enquiry is afoot. The model representing current day practice largely operates as a serial suite of open-loop control systems existing within each contributing organisation while the model built for study purposes is a holistic, collaborative closed-loop control system that can operate in near real-time. Feedback to address the range of dominant factors is applied as feedback signals to the system. The occurrence of risk events, being a disturbance to the project system, is catered for within the solution model, but this time with both feed-forward and feedback signals.

4.3 Call to Interested Parties

The first to solve the problem of how to move the project success 'dial' significantly in a positive direction is likely to be able to assert a significant competitive advantage over their commercial rivals.

If your organisation struggles with project delivery, is interested in improving delivery success rates, is desirous of developing a commercial market advantage, or just improving stakeholder value, please contact the author.

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About the Writer

Paul is a mature-age 3rd year PhD student. Having practised the science and art of project management for 40 years in multiple States, Countries, industries and disciplines, he brings a wealth of understanding of PM practice to his academic studies. There are few who cannot benefit from exposure to Paul's knowledge, experience and wisdom gained by successfully delivering many landmark projects, including megaprojects. If your organisation would benefit from Paul's studies and would like to participate for mutual learning, please contact Paul directly on **0414-879 736** or by email **paulmyers2070@gmail.com**