

# And then came Complex Project Management (revised)

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## Abstract

The subject of management is renowned for its addiction to fads and fashions. Project Management is no exception. The issue of interest for this paper is the establishment of standards in the area, specifically the ‘College of Complex Project Managers’ and their ‘competency standard for complex project managers’. Both the college and the standard have generated significant interest in the Project Management community. Whilst the need for development of the means to manage complex projects is acknowledged, a critical evaluation show significant flaws in the definition of complex in this case, the process by which the College and its standard have emerged, and the content of the standard. If Project Management is to continue to develop as a profession, it will need an evidence-based approach to the generation of knowledge and standards. The issues raised by the evaluation provide the case for a portfolio of research that extends the existing bodies of knowledge into large-scale complicated (or major) projects. We propose that it would be owned by the practitioner community, rather than focused on one organization. Research questions are proposed that would commence this stream of activity towards an intelligent synthesis of what is required to manage in both complicated and truly complex environments. This is a revised paper previously presented at the 21st IPMA World Congress on Project Management Cracow, Poland.

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## 1. Introduction

Fads and fashions in management are well understood phenomena [1]. Project Management (PM) could be described as ‘currently fashionable’, given the level of interest in the area. On the one hand, PM is recognized to be the key enabler of business change and a vital contributor to future business success [2]. On the other, projects commonly fail to meet their objectives [3–5]. What are project managers and their organizations to do to resolve this dissonance? One organizational response to this is to seek increased levels of certainty of performance through the application of recognised competencies and standards [6]. Significant numbers of Project Managers have gained certi-

fication to the existing PM standards (e.g. PMI, APM, PRINCE2) and more recently to the Program Standards, ProgM (PMI) and Managing Successful Programmes (from the UK’s Office of Government Commerce).

A recent addition to the list of professional organisations is the College of Complex Project Managers (CCPM) who have developed their own standard. This new standard has emerged and appears to have gained momentum unchecked by any critical debate. The Competency Standards for Complex Project Managers (CSCPM) holds little back on its claims. “*This standard lays the foundation for project management to effectively deal with complex projects, and in doing so, to add real value to our world*” [7].

The objective of this paper is to provide a discussion starter on the professional development issues raised by this development, to examine this phenomenon and the associated claims, and to provide a development of the critical debate concerning its utility and implications for the practice

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of PM. The outcome is a set of recommendations for how the debate can be progressed through grounded research.

The paper is structured around three main issues. The first concerns the nature of complex and complexity being discussed. The approach used by the College and the standard are compared with existing approaches. Secondly, the process by which the College and standard has emerged is examined. Lastly, the content of the standard and its implications are discussed.

## 2. The nature of complexity and the complex project manager

*“Every decade or so, a grandiose theory comes along, bearing similar aspirations and often brandishing an ominous-sounding C-name. In the 1960 it was cybernetics. In the ‘70s it was catastrophe theory. Then came chaos theory in the ‘80s and complexity theory in the ‘90s” [8].*

Project managers have a wide and diverse set of applications for the term ‘complex’ [9], without drawing distinctions between complex and complicated, for instance. Some unpacking of the term is useful however, to allow more specific examination of relevant aspects of complexity theory.

Complexity theory has been liberally applied over the last decade in many disciplines as disparate as astronomy, biology, physics and finance in an attempt to solve complex problems [10]. Much theory building and modelling of complex systems has taken place from which we may make successful predictions about the real world, but very few practical tools have been developed to manage or control complex systems. Traditional methods are often the only option humans have to muster some sort of control of complex systems, and these predominate in the PM literature [11].

A complex system is a system formed out of many components whose behaviour is emergent. That is to say that the behaviour of a complex system cannot be simply inferred from the behaviour of its components [12]. Examples of complex systems include human civilisation, governments, families, the human body (physiological), a person (psychosocial), the brain, the ecosystem of the world and sub-world ecosystems: desert, rainforest, ocean, and forest fires, traffic jams, the weather, the spread of infectious disease and infectious ideas [12,13]. The term ‘complexity’ (the suffix -ity being used to express a state or condition) is best defined as a question. How complex is it? An answer would be, its complexity is (some metric). This definition makes a connection between the condition of a complex system and our understanding of it. Complexity therefore, is a measure of the inherent difficulty to achieve the desired understanding of a complex system. Or alternatively stated it is the amount of information necessary to describe a complex system [12].

Managerial Complexity in the project environment comes not only from individual structural elements (categor-

ised as being external stakeholders, task characteristics and organisational complexity) and their interaction, but also from the dynamic effects of each of these changing and then interacting as they change, causing further change in other parts of the system [9]. A model of this complexity is shown as a structural dynamic interaction (SDI) matrix in Fig. 1

So what does complex mean in PM? A review of the subject has been published recently which assists the development of this debate [14]. In practice, common synonyms for the term complex are difficult, complicated, intricate, involved, tangled, and knotty, to name but a few. Commonly the PM literature uses the term loosely, for instance when describing the “web of relationships” among project stakeholders that need to be managed (e.g. [15]). Projects themselves have been described as complex systems that require management [7,16,17], not only because they deal with technological issues but because they deal with the wider organizational factors largely beyond the project manager’s control [18]. Using the SDI matrix, we can say that they are truly complex where they exist in stage 4 – they have multiple structural elements interacting and changing as they progress. This precludes many projects, including very large ones, where they may have very high levels of structural complexity, but due to stability in other conditions, do not have the dynamic interaction complexity. A question that arises from this discussion is the (metric) that would apply to a project to put it into the complex (stage 4) category. This has not currently been established and is required to provide some threshold to the inevitable notion that most projects possess some degree of complexity. Thus complexity is a variable rather than a binary commodity, and without measures for it, is a term that is less than helpful, particularly when being used to prescribe what is and is not a complex project.

In addition to this, it is notable that projects are socially constructed entities [19,20], and so can be described as complex adaptive systems. Indeed, there are many notions of complexity, describing projects in terms of complexity landscapes, for instance.

### 2.1. A case of mistaken identity

With the above in mind, we now consider the approach taken to complexity by the College and the standard.

	Independent	Interacting
Structural	1. Independent structural complexity	2. Interacting structural complexity
Dynamic	3. Independent dynamic complexity	4. Interacting dynamic complexity

Fig. 1. Structural dynamic interaction (SDI) matrix.

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