Some representations of how projects and/or their management relate to a variety of contexts

By Alan Stretton

INTRODUCTION

Many of the articles I have written for this journal in the past few years have been concerned, in one way or another, with encouraging project people to see project management in a variety of broader contexts. My reasons for doing so have been primarily to encourage moves away from various forms of myopia that tend to persist in some sectors in the project management community. Another is that putting things in broader and different contexts is one of my ways of trying to get new insights into the discipline – and I assume, rightly or wrongly, that this may also apply for some other people.

This article presents several different ways in which projects and their management have been represented, as now summarised. We move progressively from rather particular representations to increasingly generalised ones.

- We start with projects being represented as a particular type of work processing, within a context of multiple modes of work effort, diversity in processing, and differences in batch sizes.

- We then move on to a representation of projects as being one of many types of teams which can operate in organizations, each with differing purposes, time dimensions, and position in the organizational structure.

- The next level of generality comprises representations in which project management is seen as going beyond execution-only and output-focused activities, by contributing to broader ends, including realisation of business outcomes, and achievement of organisational strategic objectives.

- We then move to a different type of generality, which represents project management as being not only concerned with "traditional" contexts of relatively low levels of uncertainty, complexity, or pace, but also as embracing both medium and high levels of these types of dimensions.

- Finally, at a very broad level of generalisation, project management can be seen not only in the context of being a distinctive discipline in its own right, but also as an integral component of broader management contexts.

I believe the first two representations are new to the project management literature. The others have been written about previously, including in some of my own articles in this journal.

PROJECTS SEEN AS A PARTICULAR TYPE OF WORK PROCESSING

From time to time we have seen some rather basic distinctions made about types of work typically undertaken in general management versus project management contexts. For example, Turner 1999 associated general management with routine types of work, and project management with unique work types.

We will now look briefly at a work-related model which is more detailed than most.

Webster's "Process Matrix" model

Francis Webster developed quite a detailed model of various different types of work and means of processing these, which he first showed me in 1999. I have retained a copy of his model, but not of any of his supporting detail. He tells me he has not published his work, but has given me permission to use his model (Webster 2016).

Webster's model, which he called a "Process Matrix", is shown (in adapted form) in Figure 1. It classifies projects as one of five modes of organising work effort on one axis. The model also has an axis with four levels of diversity in work processing, and a third axis that nominates various batch sizes.

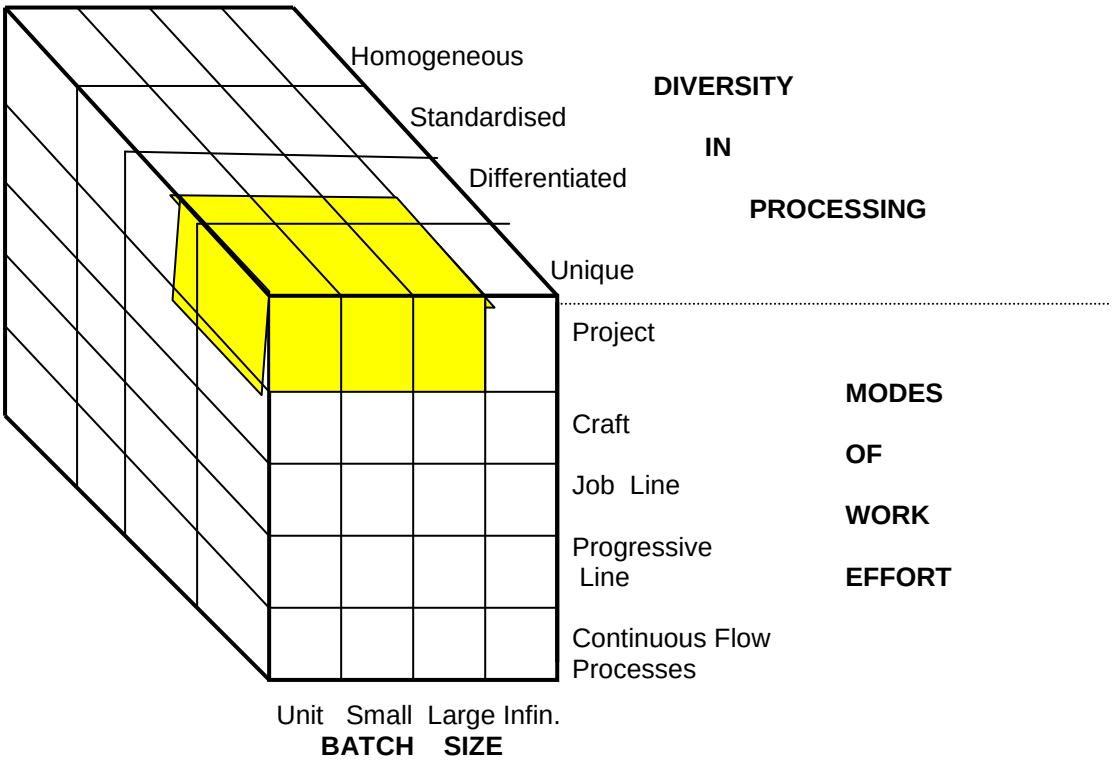

Figure 1: "Process Matrix" – adapted from Webster 1999

The coloured sector in the above figure is only intended to indicate a range within which some mainstream projects might lie. However there are certainly other possible mixes of process diversity and batch sizes that could be associated with certain projects. One of the things I particularly like about this model is its ability to indicate such diverse project ranges pictorially.

I would also comment that the four modes of work processing, together with the range of four batch sizes, and different mixes of these relevant to individual projects, also indicate a need for corresponding diversities of approaches for managing such projects effectively.

PROJECTS SEEN AS BEING ONE OF SEVERAL TYPES OF ORGANIZATIONAL TEAMS

Mohrman's "Team Typology" model

We move on to a non-project contribution by Mohrman 1993, who identifies several different types of teams in organizations. She says that teams vary along three key dimensions, as indicated in Figure 2.

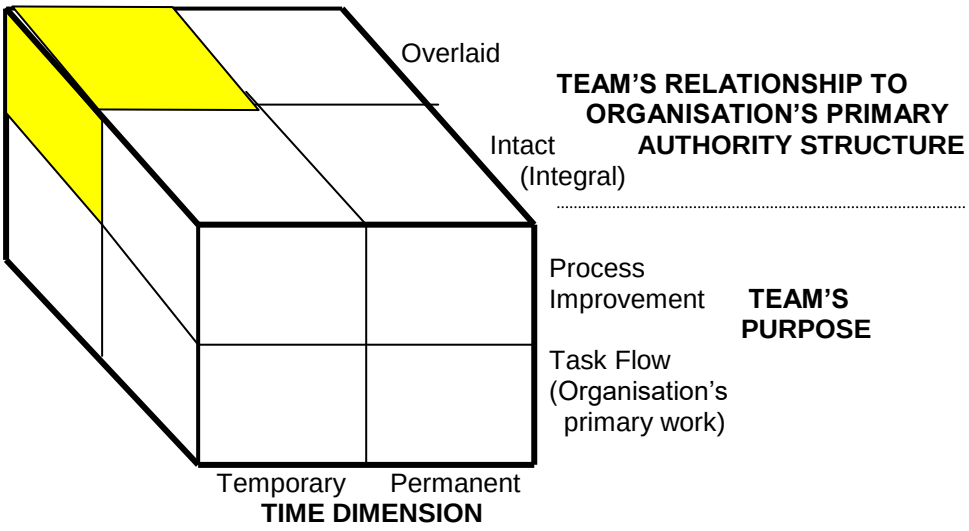

Figure 2: "Team Typology" – adapted from Mohrman 1993

Starting first with the time dimension, Mohrman says the teams

> …can be either permanent or temporary organization structures. Temporary structures are established for a task, such as a project, which has a finite life … The finite-life team has a recognisable beginning, middle, and end, and its life cycle conforms to the work it does. It is best managed according to this life cycle.

Here Mohrman specifically identifies projects as temporary organization structures. It is interesting that this non-project source has come up with the same depiction of projects as has the Scandinavian School of Project Studies (Crawford et al 2013).

Moving to the vertical axis, Mohrman says that the team's purpose

> …can be either to perform the work of the organization (product development, customer service, software support); or to improve the processes of the organization (quality improvement teams, task teams, quality circles).

If I am interpreting Mohrman correctly, the work of the organization (product development, customer service, software support, etc) would appear to be the domain of permanent teams which undertake the primary work of the organization, and are an integral part of the organisational structure.

On the other hand, improving the processes of the organization (quality improvement teams, task teams, quality circles, etc) appear to be more likely to be temporary teams (although in some cases not necessarily so). Certainly, in the project management world, we would tend to see these types of activities as being typically undertaken by project teams.

Mohrman says that the third dimension of this model

> ….reflects whether the team is part of or overlaid on the organisation's primary authority structure. In a functional organization, for example, a functional unit is the major organisational unit; a cross-functional quality improvement team or a new product development team is overlaid.

This appears to reflect a common type of situation in matrix organizations which undertake projects, where the project team basically overlies the main functional organization.

In summary, these three dimensions of Mohrman's model depict projects as one of several different types of organizational teams – i.e. temporary teams involved in process improvement, and being overlaid on the functional structure – as indicated in the coloured sectors in Figure 2.

PROJECT MGT. GOING BEYOND ONLY EXECUTION & OUTPUTS TO ACTIVELY CONTRIBUTE TO BROADER BUSINESS & STRATEGIC OUTCOMES

A somewhat broader representation of project management goes beyond seeing project management as simply an execution-only activity, with its focus on outputs, to seeing it as contributing to broader business and/or strategic outcomes, but being very actively involved in both pre-execution and post-execution activities.

From Februay 2016 I wrote a series of four articles in this journal (starting with Stretton 2016b) on actual and potential project management contributions to achieving broader ends, which involved both pre- and post-execution contexts, and extended the former into organisational strategic planning context.

The full context of potential (and often actual) involvement in these contexts is shown in Figure 3. The thinner firm arrows indicate the natural progression of activities from establishing organisational strategic objectives to their realisation. The dotted arrows indicated progressively greater involvement by project management in helping achieve these broader outcomes.

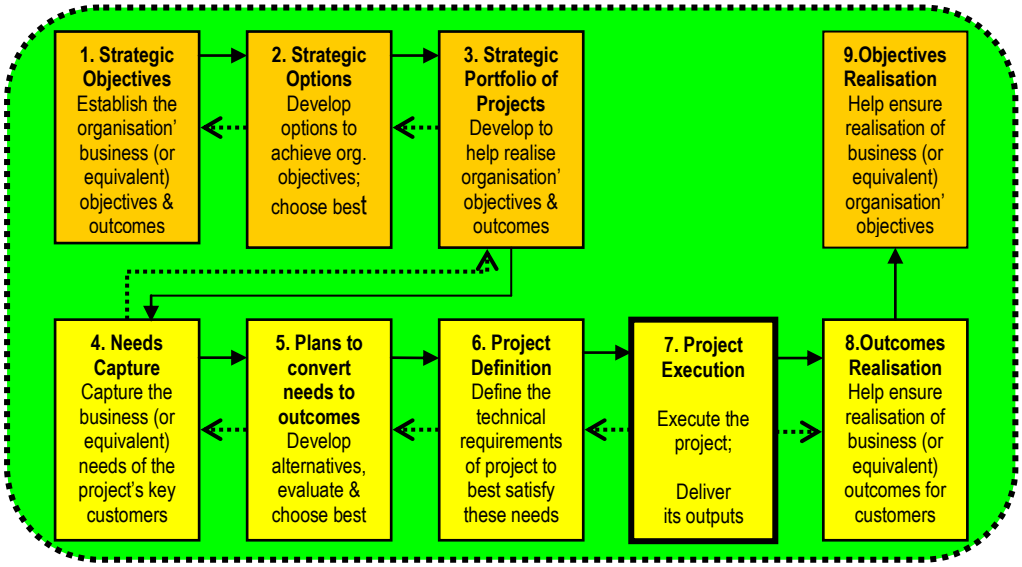

Figure 3: Full context of potential project management involvement in pre-execution and post-execution phases of a broader project life cycle, and strategic planning and realisation

It can be seen that there are several different combinations of progressively greater involvement.

- The execution-only context is, of course, represented by text box 7;
- Adding involvement in converting project outputs to customer outcomes is represented by a combination of items 7 and 8;
- Adding involvement in initiation activities for individual projects is represented by progressive combinations with items 6, 5 and 4;
- Adding involvement in organisational strategic planning is similarly represented by progressive combinations with items 3, 2, and 1;
- Finally, item 9 completes this broadening context for project management involvement.

The overall picture is perhaps better represented by the following figure, which my colleague Terence Blythman developed to describe the broader context of projects to his team, and to his internal and external customers (reproduced with his permission).

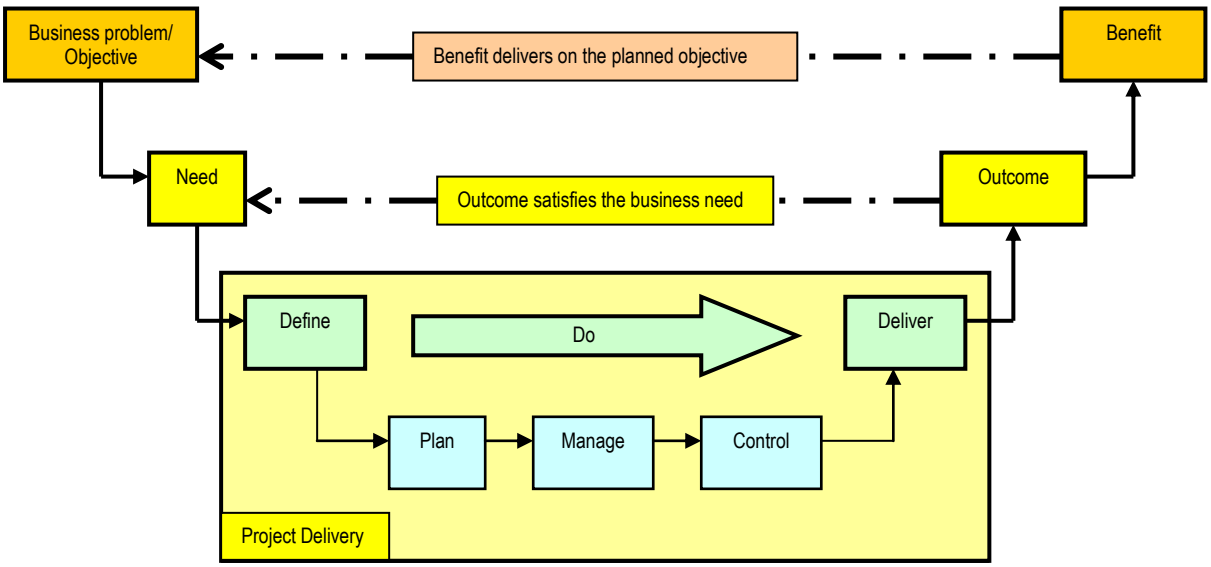

Figure 4: Management of Projects – adapted from Blythman 2016

PROJECT MANAGEMENT GOING BEYOND PROJECTS WITH RELATIVELY LOW LEVELS OF UNCERTAINTY, COMPLEXITY, PACE TO ALSO COVER HIGH LEVELS

Turner & Cochrane's goals-and-methods matrix

Turner & Cochrane 1993 were concerned with two types of uncertainty dimensions, namely those associated with project goals, and/or methods of achieving them. They developed a goals-and-methods matrix in an article subtitled "coping with projects with ill defined goals and/or methods of achieving them" (i.e. at the start of the project), which is illustrated in Figure 5 below. It can be seen that Turner & Cochrane's matrix results in four types of projects, which are described as follows.

- Type 1 – Both goals and methods are initially well defined
- Type 2 – Goals are initially well defined, but methods of achieving them are not
- Type 3 – Goals are not initially well defined, but the methods are
- Type 4 – Neither the goals, nor the methods of achieving them, are well define

As Turner & Cochrane have said, the traditional view of projects is characterised by the existence of clear well defined goals at the outset, together with well defined methods. In other words, the traditional paradigm is firmly represented by Type 1 projects in Turner & Cochrane's matrix model.

The other three types of projects are markedly different from Type 1, and from each other. As such, they require correspondingly different project management techniques for effective start-up and implementation, and I will discuss these further next month in this journal.

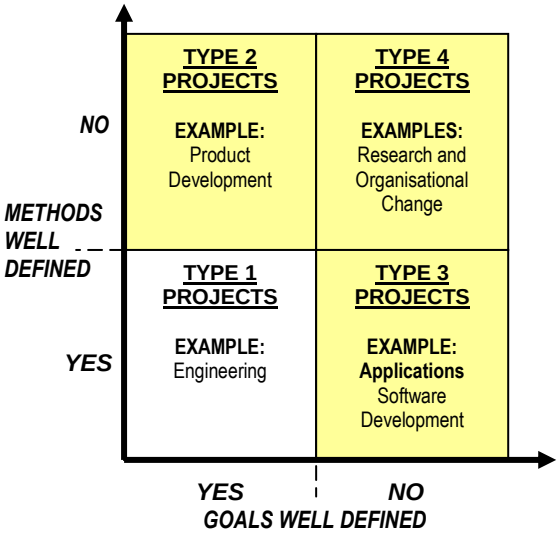

Figure 5: Based on Turner & Cochrane 1993 – Goals-and-methods matrix

The NTCP models of Shenhar and colleagues

Since the early 1990s Shenhar and colleagues have been progressively developing what is currently called their NTCP model. These initials stand for four particular dimensions of projects, which were described by Shenhar et al 2016 as follows.

> ***NOVELTY: Market Innovation –*** How new is the product to the market, users, and customers. Novelty level impacts market-related activities and the time and effort needed to define and freeze requirements (a higher novelty would delay this freeze).
>
> ***TECHNOLOGY: Technological Innovation –*** How much new technology is used. It impacts product design, development, testing, and the requisite technical skills. (A higher technology level requires additional design cycles and results in a later design freeze).
>
> ***COMPLEXITY: Level of System Innovation –*** Represented by the complexity of the product or the organization. Complexity impacts the degree of formality and coordination needed to effectively manage the project
>
> ***PACE: Urgency of the Innovation –*** How critical is your time frame. It impacts the time management and autonomy of the project team

In what I believe is the latest version of this evolving model, each dimension has four levels, as indicated in Figure 6 (described in more detail in Shenhar et al 2016).

In Figure 6 I have outlined two diamonds. The inner diamond is a highly proximate indicator of the extent to which "traditional" project management guidelines might extend along each dimension. The areas between it and the dashed outer diamond represent the areas in which "non-traditional" guidelines would be applicable.

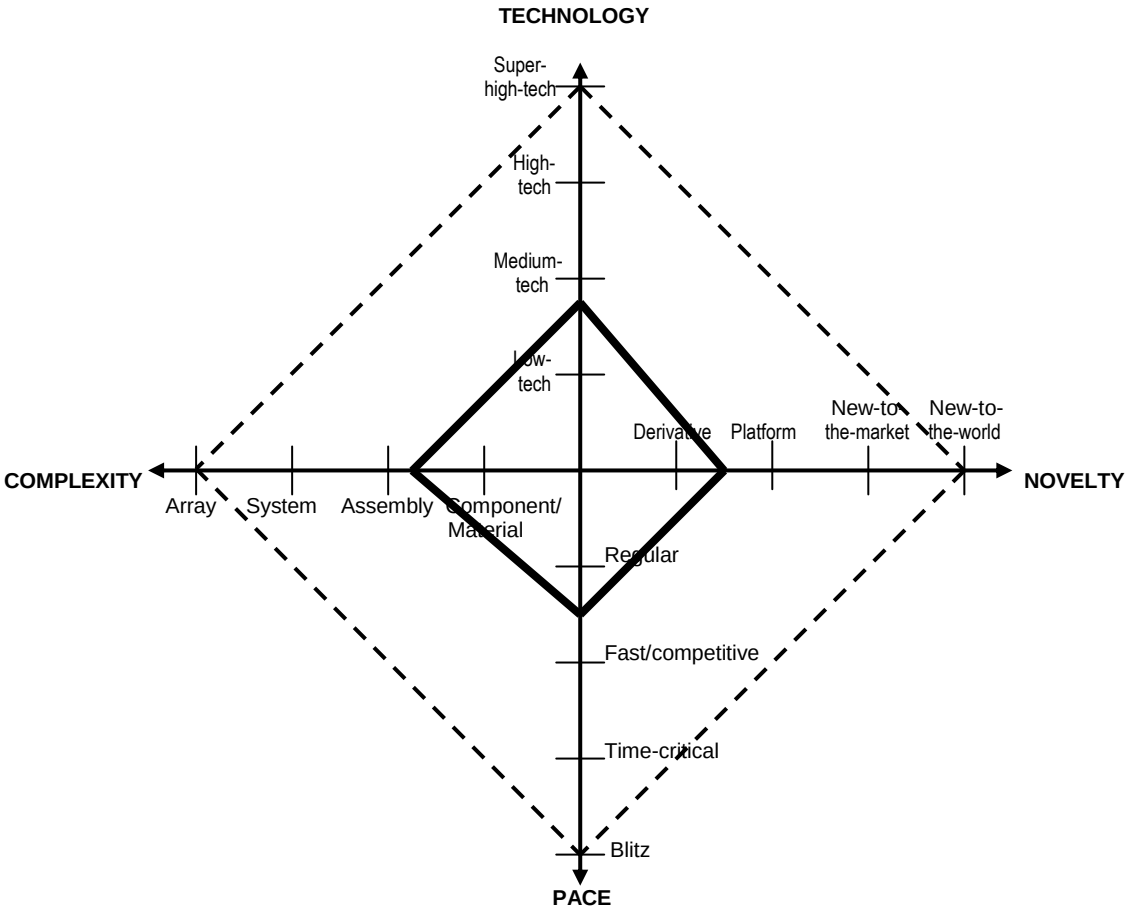

Figure 6: Adapted from Shenhar at al 2016, showing approx. "traditional" diamond in solid outline, and maximum extent of "non-traditional" diamond in dashed outline

Shenhar and colleagues continue to develop very substantial tables which I regard as being substantially guidelines for managing projects at each level of each dimension, thus covering both traditional and non-traditional territories.

It is noted here that the novelty dimension is broadly similar to Turner & Cochrane's *Goals Uncertainty* axis (both mention goals), and the technology dimension to the *Methods Uncertainty* axis (here equating task uncertainty with methods uncertainty).

Before moving on to the next section, I should also note that readers of this journal will know of the many contributions by Bob Prieto on "non-traditional" large complex projects, later consolidated into his book Prieto 2015.

Whilst Prieto directly compares many attributes of managing large complex projects with "traditional" project management practices, he does not have the types of intermediate "non-traditional" project configurations of Turner & Cochrane, and Shenhar and colleagues.

PROJECT MANAGEMENT SEEN NOT ONLY AS A DISTINCTIVE DISCIPLINE, BUT ALSO AS AN INTEGRAL COMPONENT OF BROADER MANAGEMENT

A personal historical note

My personal experience has been that I became acquainted with the discipline of general management quite a while before project management came to my attention as a coherent discipline (although I had been a practitioner in the construction industry for some twenty years prior to this). Consequently, I have naturally seen this discipline as the management of projects, in the context of its being a sub-set of the much broader domain of management at large. This is not dissimilar to the way Peter Morris has been portraying the discipline for decades (e.g. Morris 1994, 2013).

Two schools of thought – specialist and generalist proponents

However, as Terence Blythman and I discussed in this journal (Stretton & Blythman 2012), the real-world situation appears to be that there are two schools of thought about the contextual scope of project management, namely

- Those who advocate increased specialisation of project management as a distinct and separate avocation, and
- Those who advocate having project management increasingly integrated with the management of organisations at large

I believe the reality is that we need both specialist project managers and generalist project managers. However, doubtless because of my own background, I am very much of the school that thinks of the management of projects in the context of a broader management domain, and have been writing about this for years – for example Stretton 2010h, 2011g, 2013j.

Articles about links between general management and project management

In more recent times I have written a series of seven articles in this journal on general management functions and activities, and their relevance for the management of projects, starting with Stretton 2015g.

The feedback I have had has been positive, as responders generally had not seen any general management principles articulated in the project management literature, let alone how such principles applied to projects.

SUMMARY

The main purpose of this article has been to show a variety of perceptions of how different contributors have depicted how projects and/or their management relate to a variety of different contexts. This does not, of course, claim to be anything more than a sampling, but I have included a couple of models (Figures 1 and 2) which, as far as I know, have not previously appeared in the project management literature.

We moved from rather particular representations to more generalised ones.

- The first representation was Webster's "Process Matrix" model, in which projects were represented as a particular type of work processing, within a context of multiple modes of work effort, diversity in processing, and differences in batch sizes.

- We then moved on to Mohrman's "Team Typology" model, which represented projects as being one of several types of teams that can operate in organizations. In this model (from a non-project source) projects are represented as temporary teams, involved in process improvement, and as being overlaid on a functional organizational structure.

- The next representation saw project management as going beyond execution-only and output-focused activities, by contributing to broader ends, including realisation of business outcomes, and achievement of organizational strategic objectives. I presented my own model from a recent series in this journal, and a model developed by Blythman, to indicate approaches to enhancing such increased contribution.

- We then moved to a different type of generality, which represented project management as being not only concerned with traditional contexts of relatively low levels of uncertainty, complexity and pace, but also as covering both medium and high levels of these types of dimensions. This was illustrated with models by Turner & Cochrane, and Shenhar and associates.

- Finally, at a very broad level of generalisation, project management can be represented not only as being a distinctive discipline in its own right, but also as an integral component of broader management contexts.

In this article, I have summarised some different approaches (models) of how several writers have represented projects and/or their management in various contexts. In a somewhat different context to this article, Shenhar et al 2016 made the observation that different models may be complementary to one another, and if used together, they may compensate for weaknesses or limitations of any single model alone.

Following the spirit of this observation, it is hoped that the above summaries might assist some readers in putting their own projects into more helpful or insightful perspectives.

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Alan Stretton is one of the pioneers of modern project management. He is currently a member of the Faculty Corps for the University of Management & Technology (UMT), USA. In 2006 he retired from a position as Adjunct Professor of Project Management in the Faculty of Design, Architecture and Building at the University of Technology, Sydney (UTS), Australia, which he joined in 1988 to develop and deliver a Master of Project Management program. Prior to joining UTS, Mr. Stretton worked in the building and construction industries in Australia, New Zealand and the USA for some 38 years, which included the project management of construction, R&D, introduction of information and control systems, internal management education programs and organizational change projects.

Alan has degrees in Civil Engineering (BE, Tasmania) and Mathematics (MA, Oxford), and an honorary PhD in strategy, programme and project management (ESC, Lille, France). Alan was Chairman of the Standards (PMBOK) Committee of the Project Management Institute (PMI®) from late 1989 to early 1992. He held a similar position with the Australian Institute of Project Management (AIPM), and was elected a Life Fellow of AIPM in 1996. He was a member of the Core Working Group in the development of the Australian National Competency Standards for Project Management. He has published over 170 professional articles and papers. Alan Stretton can be contacted at alanailene@bigpond.com.au.

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