
Series on Project-related contributions to organisational objectives¹

1. Some existing project-related supplier-organisation services in owner-organisations' strategic and operations management contexts

²

By Alan Stretton

INTRODUCTION

For some years I have been advancing the case for viewing the roles of projects in the broader contexts in which they are undertaken, rather than simply focusing on the projects themselves. In particular, I have written quite extensively about the role of projects in the most immediate context for most of them, namely the organisation within which they are undertaken (the Owner Organisation) – and particularly their role in helping that organisation achieve its strategic objectives (as viewed by that organisation). This kind of user-oriented perspective has been largely absent from much of the project management (PM) literature, most noticeably in the mainstream PM standards and similar guidelines. Their focus has been dominantly on the project, rather as if it were the end in itself, rather than as it being a means of helping someone else – generally an organisation – achieve broader end objectives.

However, the 7th edition of PMI's *Standard for Project Management and a Guide to the Project Management Body of Knowledge* (PMI 2021) has changed its focus quite markedly, and in several respects. Importantly, for the purposes of this series of articles, these changes include a shift from a focus on governing projects etc., to a concern with their broader contribution to advancing organisational strategy and the achievement of business objectives. This is illustrated in the following quotation from PMI 2021:xi, which relates to its change to what it describes as “a systems view of project management”.

A systems focus for value delivery changes the perspective from one of governing portfolios, programs, and projects to focusing on the value change that links those and other business capabilities to advancing organizational strategy, value, and business objectives.

¹ This is the first article in a series by Alan Stretton, PMWJ honorary global advisor, life member of AIPM in Australia and one of the world's true pioneers in the project management professional field. This series builds on his previous articles and papers related to projects and project management in the context of organizational strategic and operational management. View his profile and previous works at <https://pmworldlibrary.net/authors/alan-stretton/>

² How to cite this work: Stretton, A. (2022). 1. Some existing project-related supplier-organisation services in owner-organisations' strategic and operations management contexts, Series on project-related contributions to organisational objectives, *PM World Journal*, Vol. XI, Issue I, January.

This change in PMI's focus has prompted me to, first, link my previous models of organisational strategy and objectives with a broadly corresponding figure in PMI 2021. The strategic management stages of an abbreviated version of this linked model will then be used as basic reference points for all three articles.

This three-part series of articles will then discuss the following project-related contribution topics in seriatim.

1. Some existing project-related supplier-organisation services in owner-organisations' strategic and operations management contexts
2. What's in a name? Portfolios, programs and projects in owner-organisations' strategic and operations management contexts
3. From project outputs to organisational outcomes and benefits, and the roles of user groups, and of program/project management (PPM)

Before getting into details on the topics in item 1 above, we will briefly discuss the linear version of my previous models of organisational strategic management, link it with a broadly corresponding figure in PMI 2021, and propose an abbreviated version of this linked model, to be used as basic reference points for all three articles.

LINKING MY BASIC ORGANISATIONAL STRATEGIC MANAGEMENT MODEL WITH A CORRESPONDING FIGURE FROM PMI 2021

My basic linear organisational strategic management model

I first developed a basic linear organisational strategic management framework in Stretton 2017k and 2017l. An updated version of this framework is shown in Figure 1-1.

A BASIC ORGANISATIONAL STRATEGIC MANAGEMENT MODEL				
1. Establish/ re- establish org. strategic objectives	2. Develop strategic initiative options, evaluate, choose best	3. Elaborate/consolidate strategic initiatives	4. Execute strategic initiatives	5. Achieve organisational strategic objectives.
Establish and shape both deliberate and emergent strategic objectives; Confirm desired outcomes/ benefits	Develop alternative strategic initiatives to achieve strategic outcomes / benefits; Evaluate alternatives; Choose the best	Elaborate and define chosen strategic initiatives; Confirm feasibilities; Prioritise and consolidate	Execute strategic initiative component projects/programs	Achieve strategic outcomes and realise benefits

Figure 1-1: A basic organisational strategic management sequence

The components of this sequence comprise a combination of many articles in the project management and general management literature, and my own direct seven-year involvement with organisational strategic planning with Lend Lease Corporation. As Booth 2018 has observed, no one representation of organisational strategic

management sequences can cover all types of organisations and their strategies. However, hopefully the above can be seen as a reasonably representative sequence.

Projects are represented as components of strategic initiatives in this model

[A strategic initiative is] 'a project, portfolio of projects, other discrete programme or series of actions undertaken to implement or continue the execution of a strategy, or that is otherwise essential for the successful implementation or execution of a strategy'. (Cooke-Davies 2016:259)

It will be noted that I have elected to use strategic initiatives rather than projects in the basic organisational strategic management model, for two reasons.

One reason is because I am giving primary attention to the strategic management processes of the owner organisation, rather than on associated projects – therefore strategic-related descriptors appear to be more appropriate.

The other reason is because, as indicated in the above quotation from Cooke-Davies, strategic initiatives cover not only projects, but also other associated components that are needed to successfully implement organisational strategy, and which I specifically wish to provide for.

Linking PMI 2021: Figure 2-3 with the basic organisational strategic mgt. model

I start by arraying PMI 2021's *Figure 2-3. Example of information flow*, below the corresponding five stages of the basic organisational strategic management model, as shown in Figure 1-2.

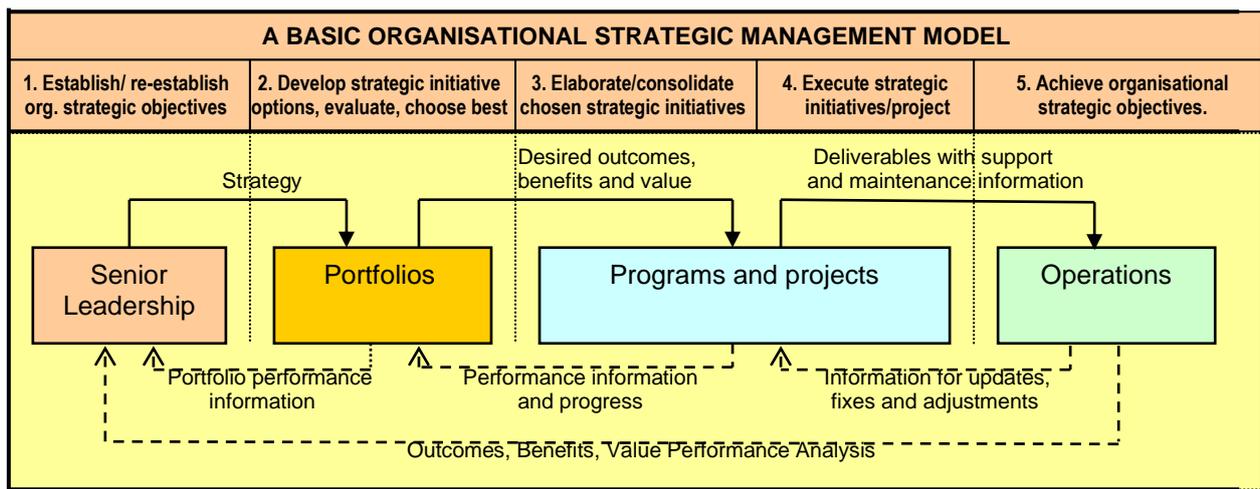


Figure 1-2: Linking PMI 2021 Figure 2-3 with corresponding organisational strategic mgt. stages

The main elements in these two representations correspond quite closely, so I have chosen to use an abbreviated version of the above linked figure as a basic reference point for later discussions, as shown below in Figure 1-3. However, before doing so, this seems an appropriate point to introduce another topic which will be very relevant in

later discussions – namely the need to distinguish between two types of organisations that undertake projects, as now discussed.

Distinguishing between owner organisations (OO) & supplier organisations (SO)

Various writers have distinguished between two types of organisations that undertake projects. These have been identified by a variety of descriptors, but I have chosen those used by Taggart 2015 – namely *Owner Organisations (OOs)* and *Supplier Organisations (SOs)*. I have borrowed from Archibald et al 2012 (who use different descriptors) in describing these two types of organisations, and from Cooke-Davies 2002 in adding the often-used descriptors *production-based* and *project-based* organisations, as follows.

- **Owner organisations (OOs)** (aka *Production-based organisations*) derive most (if not all) of their revenue and/or benefits from producing and selling products and services. They utilize projects to create new, or improve existing, products and services; enter new markets; or otherwise improve or change their organizations.
- **Supplier organisations (SOs)** (aka *Project-based organisations*) derive most (if not all) of their revenue and/or other benefits from creating and delivering projects / programs to external customers.

The relevance of identifying these two types of organisations will increasingly emerge in the following preview of the ensuing more detailed discussions.

An abbreviated linked organisational strategic management reference model

As foreshadowed above, I will use the following abbreviated version of the linked representations in Figure 1-2 as a reference point to these, and later, discussions.



Figure 1-3: An abbreviated version of a linked organisational strategic management model

As indicated above, this first article of the three-part series will first discuss some existing external project-related organisational strategic planning services; and then internal strategic investment portfolios – the first in the context of Stages 1 and 2, and the second in the Stage 2 context. We start with the first major topic.

SOME EXISTING EXTERNAL PROJECT-RELATED ORGANISATIONAL STRATEGIC PLANNING SERVICES [IN THE CONTEXT OF STAGES 1 & 2]

We first make some general observations about organisational strategies which have some relevance for later discussions about both of these stages.

Deliberate and emergent organisational strategies

Stretton 2017k noted that writers on project management tend to discuss how projects are initiated in two different contexts – the first in the context of organizational strategic business planning, and the second in basically ad hoc contexts, via an idea, or perceived opportunity, or similar.

That article went on to discuss an organisational strategy continuum proposed by Mintzberg & Waters 1985, which represented formally planned strategies as being at the *deliberate* end of the continuum, and ad hoc opportunistic-type strategies at the opposite *emergent* end. It was also recognised that *emergent* strategies eventually become actual or de facto *deliberate* ones.

On this basis, ad hoc emergent strategic initiatives to improve an organization's well-being come to have the same status as formally planned ("deliberate") ones.

The relevance of increasingly VUCA environments

I first discussed establishing organisational strategic objectives in some detail in Stretton 2018d. A substantial part of that article discussed the need for more dynamic flexible approaches to strategy management in the increasingly VUCA (Volatile, Uncertain, Complex, Ambiguous) environments of recent times, and the consequent need to react rapidly to changing circumstances or emerging opportunities. This has become even more relevant in the Covid-19 environment. In this context, we discussed a model of drivers for developing a strategic plan from Booth 2018, which provides for both *deliberate* and *emergent* strategies, from both internal and external sources. We also briefly discussed some examples of emergent strategies.

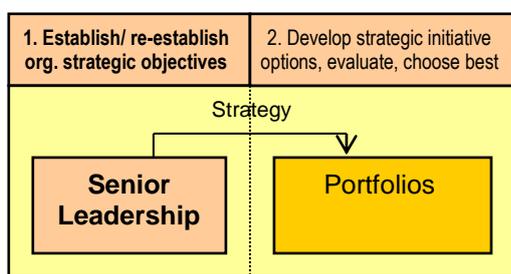
Putting the project cart before the organisational strategic objective horse?

There are countless reminders in the project management literature that one must ensure that proposed projects are in harmony with their organisation's strategic objectives. This project-centric approach seems to me to be putting put the project cart before the organisational strategic objectives horse. If one looks at things from an organisational strategic management perspective, there can never be any question of a significant project being undertaken without first being scrutinised and sanctioned as an integral part of the organisation's strategic objectives – i.e. as an approved emergent component of the organisation's strategy. In other words, the organisational strategic objectives occupy the leading role. Projects are important means of helping achieve

certain of these objectives, along with many other components needed to finally achieve them. In other words, projects are still essentially support players.

It is also noted that, whenever emergent strategies are introduced and approved, the existing strategic objectives need to be re-established, and the whole strategic planning process correspondingly revised. This is one reason for including this in the Stage 1 descriptor *Establish/ re-establish organisational strategic objectives*.

SOME PROJECT-RELATED SUPPLIER ORGANISATION SERVICES TO STAGE 1: ESTABLISH/ RE-ESTABLISH ORGANISATIONAL STRATEGIC OBJECTIVES



If we look at the first two stages as represented in Figure 1-2 above, this PMI representation essentially shows Senior Leadership handing its decisions on strategy over to Stage 2. It certainly implies that there is no internal involvement by project management in any aspect of Stage 1: *Establishing or re-establishing organisational strategic objectives*.

However, in some application areas there is often substantial involvement by external strategic planning support services, as now discussed.

External strategic planning support services by some EPC organisations

Pre-FEL contributions: “Studies” and/or “shaping” by EPC organisations

For some decades, many EPC (Engineering, Procurement, Construction) organisations have been helping customers’ senior leadership re-establish and develop their organisational strategic objectives, particular in the context of FEL (Front End Loading). The latter is particularly relevant to Stages 2 and 3 of the organisational strategic management sequence, and will be discussed in more detail later.

However, many EPC organisations also become involved in pre-FEL activities, which are directly concerned with helping organisational clients establish/ re-establish and/or shape their overall strategic objectives, as now discussed.

In Archibald et al 2012, Prieto notes that,

In today’s large capital projects, the FEL phases ... are preceded by an extensive “Conception” period during which extensive and often time-consuming activities are undertaken. In some instances these may be synonymous with FEL 1 but in other instances they will include pre-FEL efforts often referred to as “studies”. These activities typically include: a) Computer models, b) Conceptual level estimates, c) Environmental studies, d) Feasibility studies, e) Labor and wage studies, f) Master plans, g) Permitting, h) Project financing, i) Scope definition, j) Siting, k) Technology/ licensor selection, l) O&M readiness reviews.

Dalcher 2016b introduces the useful descriptor *shaping*, broadly in the above context, and highlights its importance as follows.

[Mullaly 2016]...highlights the importance of *shaping*, or sponsoring organisational undertakings and [finding] the balance between process, politics and agency in the initial shaping of new undertakings.

....organisations could shape themselves through decisions that in turn shape our change projects, and inevitably alter the way we organise for them.

Shaping activities inevitably overlap the actual establishment of strategic objectives. Prieto 2009 describes the involvement of an EPC organisation in helping the owner organisation in these processes as follows.

Most importantly, the owner requires a partner that can help it translate its programmatic vision and broad objectives into a well defined set of specific business objectives that underpin an actionable and implementable strategic plan for the “giga” program [super-large mega-programs/project].

I have not seen any data about the incidence of this type of involvement of EPC organisations, but the many articles in this journal by Prieto in the context of large complex projects and mega-projects indicate that it may be very substantial.

Direct assistance with organisational strategic planning by Civil & Civic

The above types of activities are not confined to EPC organisations, or the very large complex projects which are typical of their operational domains. In earlier articles I have quoted from Clark 2002:93 about the involvement of my old employer, Civil & Civic, in helping a Sydney Catholic school develop its strategic objectives, and had helped them

....come up with an integrated business plan for the school's complete building and expansion – supported by the first structured financial plan in the Catholic education sector

There are doubtless many other supplier organisations which have provided similar services, which I have labelled *External Strategic Planning Support Services*, as shown in Figure 4 below. In view of the fact that I have more EPC-related materials than any other, I have attempted to summarise the two types of EPC supplier services discussed above, as shown in that figure.

Adding these Stage 1-related strategic planning support services to Figure 1-3

We can now add summaries of these existing external strategic planning support services related to Stage 1 of the organisational strategic management framework to Figure 1-3, as follows.

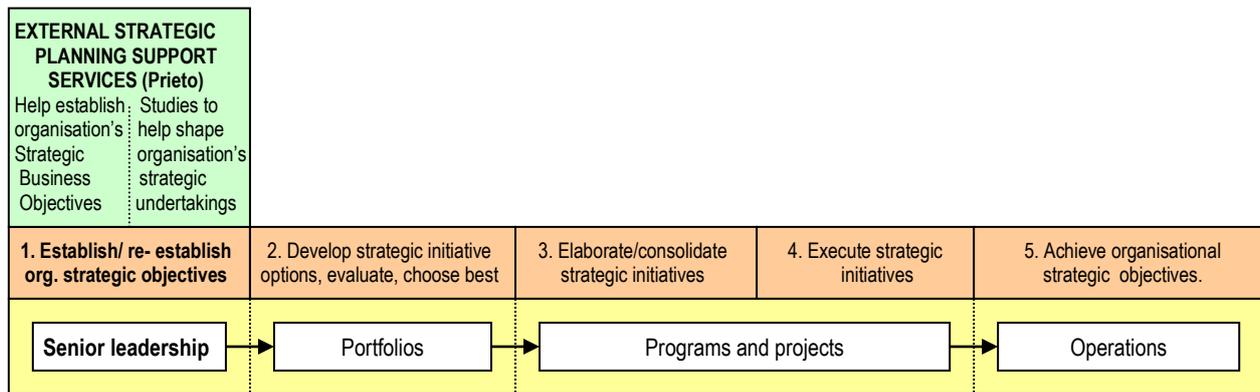


Figure 1-4: Adding Stage 1-related external strategic planning support services to Figure 1-3

We now move on to look at the second of these two stages in more detail.

EXTERNAL SERVICES TO STAGE 2: DEVELOP STRATEGIC INITIATIVE OPTIONS, EVALUATE, CHOOSE THE BEST – AND LATER STAGES

Existing external project-related supplier organisation services

There are many substantial external project-based supplier organisations which have been providing specific services in the Stage 2 sector, and beyond, for a very long time. The most prominent of these are those EPC (Engineering, Procurement, Construction) firms whose involvement specifically includes FEL (Front End Loading) activities (discussed below). Such EPC involvement is often associated with large complex projects and mega-projects producing major capital assets, and is widely used in such industries as oil, gas and minerals. However, as will be seen later, these types of project-related involvement are not confined to these particular domains, nor to EPC organisations.

EPC organisations and Front-End Loading (FEL) services

For some decades, many EPC organisations have been helping customers achieve their strategic objectives via particular focus on relevant Front-End Loading (FEL) activities. Morris 2013:60 describes FEL as follows:

IPA [Independent Project Analysis], the oil, gas and minerals project benchmarking company, coined the useful term 'Front-End Loading': ...(FEL) is a tool for determining which is the "right" project to meet the needs of business. The FEL tool assesses the level of definition of a number of critical items that are used to determine what, if any, asset should be built to meet a particular business need.

Gasik (in Archibald et al 2012) describes FEL as follows:

As stated by the Independent Project Analysis (IPA) group (2012): “Front-End Loading (FEL) of a [facilities design and construction] project can be described as the process by which a company (and project team) translates its marketing and technological opportunities into capital projects.

The goal of the total FEL phase is to secure a detailed definition of a project’s scope needed to satisfy the business objectives for the capital investment. The FEL phase is defined as the period from when a business opportunity is identified ... to the point at which a project capitalizing on the business opportunity is authorized”.

Prieto (in Archibald et al 2012) notes that FEL terminology varies by owner and even by EPC firm. He followed this with a chart which showed his project phases (including three FEL phases, and beyond), two different owners’ definitions of these phases, and an EPC contractor’s definition of these phases. All four versions are shown in Figure 1-5 below, and are vertically aligned with the five stages of my organisational strategic management model (marked A.S.), and the corresponding abbreviated PMI 2021 shown in Figures 1-3 and 1-4).

Aligning Prieto’s phases and owner/contractor definitions with the five stages of the linked strategic management framework

It can be seen that I have abbreviated Prieto’s Stage 1 strategic planning support contributions as shown in Figure 1-4 to *Establish SBOs* and *Studies phase*. His FEL Phases 1 & 2 relate directly to Stage 2, whilst his FEL Phase 3 relates to Stage 3, and his other two phases directly with the corresponding linked model. His “Contractor Definition” of this phases is shown directly beneath them, and both Owner A and B definitions immediately below those of the contractor.

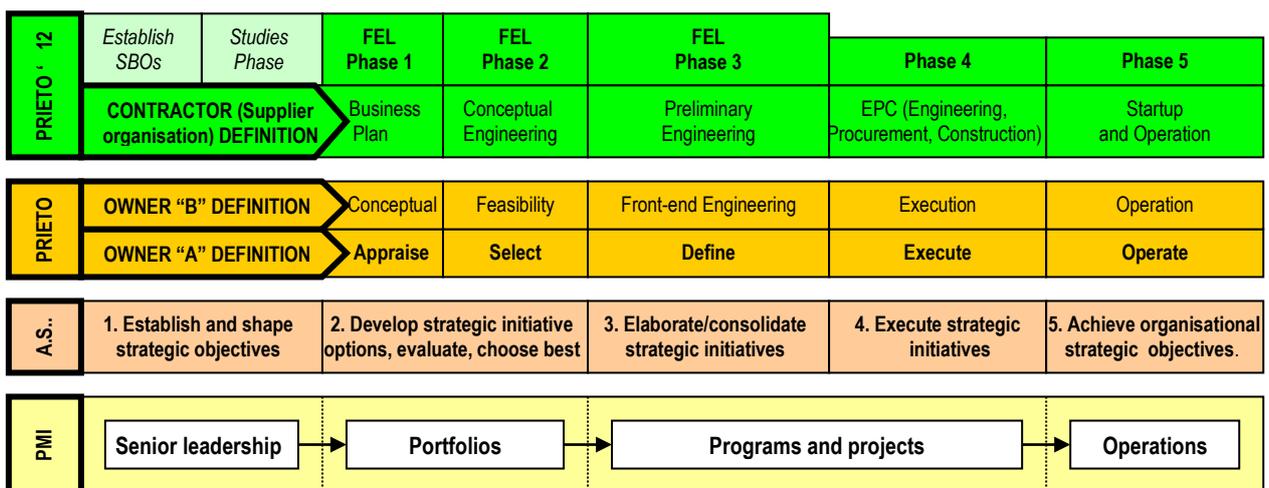


Figure 1-5: Aligning Prieto’s phases and owner/contractor definitions with the five stages of the linked strategic management framework

It can be seen that the vertical alignments of all the above components is very good indeed. Additionally, the cumulation of the Prieto-sourced components gives an excellent snapshot of their composition in a very compact way.

A note on developing strategic initiative options – Prieto's "optioneering"

In relation to Stage 2 (but also often applicable in Stage 1), Prieto makes the following note about developing strategic options, for which he has coined the descriptor "optioneering" (in Archibald et al 2012).

Optioneering is a technique of growing importance as complexity grows and trade-offs become multi-dimensional through the consideration of non-financial bottom lines in addition to more conventional optimization points such as NPV or ROI.

This seems to be at the core of the earlier FEL processes, which are concerned with helping ensure that the "right" project/s is/are chosen. The adoption of such approaches would almost certainly help overcome findings by Young et al 2012 that "...there is a systemic weakness in the way projects are selected". Also, I recommend two particular books on mega-projects & FEL not referenced above, but which cover these topics in substantial detail; namely Merrow 2011 and Prieto 2015.

We have been discussing these types of project-related contributions to strategic management stages in the context of services by EPC-type supplier organisations. However, contributions are not confined to EPC firms, nor to the domain of very large construction-type projects – as now discussed, initially in the context of my experience with Civil & Civic.

Civil & Civic and Client Needs Determination (CND) services

In Civil & Civic we found that the customer's choice of project was often sub-optimal, and over the course of a few years developed a formal process which we called Client Needs Determination (CND), which is a slight misnomer for the actual process we developed for helping the customer organisation clarify and consolidate its business (or equivalent) needs, before going on to help define the project(s) to best satisfy these needs (sometimes labelled Product Requirement Determination). Guidelines for these processes occupied some twenty pages in a 1987 update of its project management procedures (Civil & Civic 1980).

This service is evidently very similar to FEL services provided by some EPC organisations – but was developed quite independently, in response to a perceived need for such services by a substantial number of customers. I believe that some other supplier organisations have also expanded the range of their services to provide similar support, but have not seen any substantiated data on their incidence.

Adding further support services by supplier organisations to Figure 1-4

In figure 1-6 below I have shown materials specifically from Prieto (in Archibald et al 2012) in darker green, and those deriving from both Prieto and Civil & Civic in lighter green. I have also anticipated some of the discussions in the second article of this series by adding both *External project development-and-delivery services*, and *External project delivery-only services*, as customary extensions to earlier strategy-related support services – as well as being individual types of services in their own right.

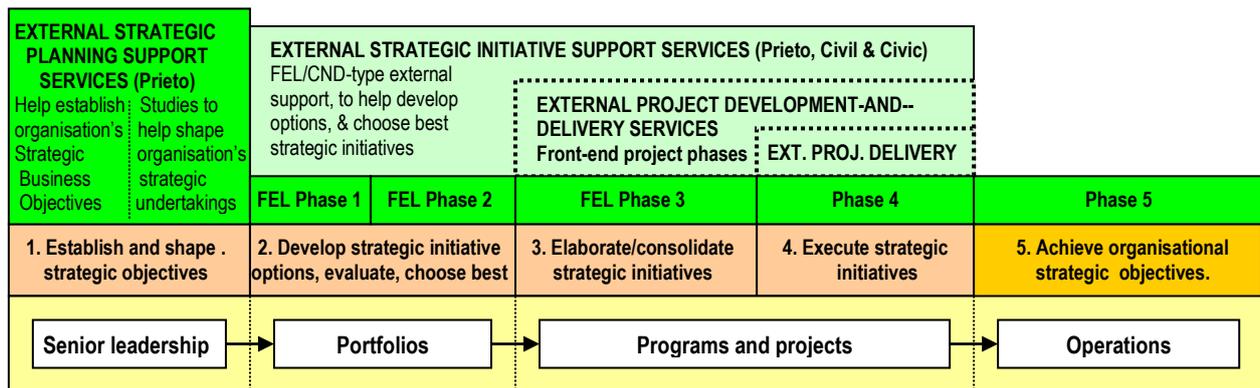


Figure 1-6: Adding further support services by supplier organisations to Figure 1-4

This concludes current discussions on some existing project-related supplier organisation services in owner organisations' strategic and operations management contexts. I will be discussing their potential involvement in helping users convert project outputs to organisational outcomes and benefits in the third article of this series

SUMMARY/DISCUSSION

Figure 1-6 effectively summarises the extent of external project-related services relating to the linked organisational strategic management model discussed in this first article.

In the context of sharing knowledge within the avocation, one of the key points about external project-related services provided by some supplier organisations is that they have been available and utilised for many decades in some project management application areas. However, their existence has not been publicised to the extent that their prominence, particularly in large complex fixed asset projects, appears to warrant.

I have used the term *project-related services* to indicate that these “front-end” strategic support services have been provided by supplier organisations which have extended the range of their services well beyond the conventional range of project management services. They have evidently done this, as we did in Civil & Civic, in response to the perceived and actual needs of client/ owner organisations in certain application areas.

This, in turn, appears to suggest that there may be many opportunities for other supplier organisations in other application areas to expand the range of their services to

help owner organisations respond appropriately to changes in our increasingly VUCA (Volatile, Uncertain, Complex, Ambiguous) environment.

The second article of this series will be on quite a different topic, focusing mainly on discussions of terminological differences in the usage and understanding of portfolios, programs, and indeed projects, coupled with some suggestions about describing them more explicitly, particularly where they have certain key roles in the context of organisational strategic and operational management.

REFERENCES

ARCHIBALD, Russell D, Ivano DI FILLIPO & Daniele DI FILLIPO (2012). The six-phase comprehensive project life cycle model in the project incubation/feasibility phase and the post-project evaluation phase. *PM World Journal*, Vol I, Issue V, December.

<https://pmworldlibrary.net/wp-content/uploads/2013/08/PMWJ5-Dec2012-ARCHIBALD-DI-FILIPPO-Featured-Paper.pdf>

BOOTH, David (2018). Advances in project management series: How strategy happens. *PM World Journal*, Vol. VII, Issue II, February. <https://pmworldlibrary.net/wp-content/uploads/2018/02/pmwj67-Feb2018-Booth-how-strategy-happens-advances-series-article.pdf>

CIVIL & CIVIC (1980). *Project management for the 80s*. Sydney, Civil & Civic Pty. Limited (Mimeo)

CLARK, Lindie (2002). *Finding a common interest: The story of Dick Dusseldorp and Lend Lease*. Cambridge, UK; Cambridge University Press

COOKE-DAVIES, Terry (2016). Managing strategic initiatives . In the *Gower Handbook of Programme Management*, 2nd Edition, Eds Dennis Lock and Reinhard Wagner. Chapter 18, pp 259-267.

COOKE-DAVIES, Terry (2002). The 'real' success factors on projects. *International Journal of Project Management*, Vol 20, pp 185-190.

DALCHER, Darren (2016b). Business cases, benefits and potential value: The impact of planning fallacy, optimism bias and strategic representation on the road to success. *PM World Journal*, Vol V, Issue VI, June. <https://pmworldlibrary.net/wp-content/uploads/2016/06/pmwj47-Jun2016-Dalcher-business-cases-benefits-potential-value-Series-Article.pdf>

MERROW, Edward W. & Neeraj S. NANDURDIKAR (2018). *Leading complex projects: A data-driven approach to mastering the human side of project management*. USA, John Wiley & Sons

MINTZBERG, Henry & James A. WATERS (1985). Of strategies, deliberate and emergent. *Strategic Management Journal*, Vol 6, pp 257-272.

MORRIS, Peter W. G. (2013). *Reconstructing Project Management*. Chichester, West Sussex; Wiley-Blackwell

PMI (PROJECT MANAGEMENT INSTITUTE) (2021). *The Standard for Project Management and A Guide to the Project Management Body of Knowledge*. 7th Edition, Newtown Square, PA; Project Management Institute

PRIETO, Bob (2015). *Theory of management of large complex projects*. E-book published by Construction Management Association of America (CMAA)

PRIETO, Bob (2012). In "Some comments on the comprehensive life cycle model by reviewers of earlier versions of this paper" - . i.e. *Archibald et al 2012; The six-phase comprehensive project life cycle model in the project incubation/feasibility phase and the post-project evaluation phase*. *PM World Journal*, Vol I, Issue V, December.

PRIETO, Robert (2009). Strategic Program Management: Key to "giga" program delivery. *PM World Today*, Vol XI, Issue VII. <https://pmworldlibrary.net/wp-content/uploads/2020/08/pmwj97-Sep2020-Prieto-strategic-program-management-key-to-giga-program-delivery-2nd-ed.pdf>

STRETTON, Alan (2018d). Series on organisational strategic planning and execution: Stage 1. Establish organisational strategic objectives. *PM World Journal*, Vol VII, Issue IV, April. <https://pmworldlibrary.net/wp-content/uploads/2018/04/pmwj69-Apr2018-Stretton-strategic-planning-series-article1.pdf>

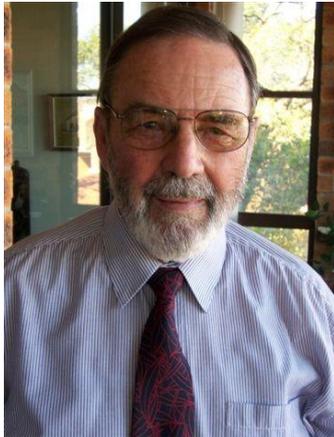
STRETTON, Alan (2017l). An organizational strategic framework, and project and other contributions to achieving strategic objectives. *PM World Journal*, Vol VI, Issue XII, December. <https://pmworldlibrary.net/wp-content/uploads/2017/12/pmwj65-Dec2017-Stretton-Organizational-strategies-and-project-management-featured-paper.pdf>

STRETTON, Alan (2017k). Deliberate and emergent strategies and origins of projects. *PM World Journal*, Vol VI, Issue XI, November. <https://pmworldlibrary.net/wp-content/uploads/2017/11/pmwj64-Nov2017-Stretton-deliberate-and-emergent-strategies-and-project-origins.pdf>

TAGGART, Adrian (2015). Advances in project management series: Does one size really fit all? *PM World Journal*, Vol IV, Issue V, May. <https://pmworldlibrary.net/wp-content/uploads/2015/05/pmwj34-May2015-Taggart-does-one-size-really-fit-all-Series-Article.pdf>

YOUNG, Raymond, Michael YOUNG, Ernest JORDAN & Paul O'CONNOR (2012). Is strategy being implemented through projects? Contrary evidence from a leader in New Public Management. *International Journal of Project Management*.

About the Author



Alan Stretton, PhD

Faculty Corps, University of Management
and Technology, Arlington, VA (USA)

Life Fellow, AIPM (Australia)



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. He 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 230 professional articles and papers. Alan can be contacted at alanailene@bigpond.com.au.

To view other works by Alan Stretton, visit his author showcase in the PM World Library at <http://pmworldlibrary.net/authors/alan-stretton/>