

Series on Categorizing Projects and Programs¹

Other categorizations, and combinations of categorization matrices

By Alan Stretton

ABSTRACT

This is the last in a series of four working/discussion papers on categorizing projects and programs. The context of these papers is overall categorizations as they have appeared in the literature. These currently vary widely, and this series is concerned with exploring possibilities for bringing them closer together.

The first paper (Stretton 2014f) focused on project categorizations, and the second (Stretton 2014g) on program categorizations. In both cases existing categorizations were found to be a mixture of industrial/ social sectors (Application Sectors) in which programs/projects are undertaken (e.g. aerospace, defence), and types of programs/projects (Program/ Project Types) which are undertaken in many, if not most, of these Application Sectors (e.g. IT, R&D). In each case the components of the categorizations were re-allocated into Application Sectors and Program/Project Types, and presented as a matrix illustrating the intersections between them.

It was further identified that programs and projects shared five key Program/ Project Types, but that the listings of Application Sectors and Program/Project Types found so far are very incomplete. The third paper (Stretton 2014h) focused on the latter, and found many additional Program/Project Types.

This final paper looks at other ways of categorizing programs/ projects, and proposes a way of relating these to Program/Project Types, via a matrix. Finally, this matrix is related to the Program/Project Types / Application Sector matrices developed in the first two papers in this series, via a three-dimensional model, which hopefully might contribute something to the development of more widely acceptable and accepted categorizations.

INTRODUCTION

We start with Program/Project Types identified in previous papers, primarily because I want to link the “other categorizations” with these Types as they are discussed. Five Program/Project Types were identified which were labelled “key”, followed by many others, which are collectively covered by the “others” bullet point below.

¹ This series of articles on the categorization of projects and programs is by Alan Stretton, PhD (Hon), Life Fellow of AIPM (Australia), a pioneer in the field of professional project management and one of the most widely recognized voices in the practice of program and project management. Long retired, Alan is still accepting some of the most challenging research and writing assignments; he is a frequent contributor to the *PM World Journal*. See his author profile at the end of the article.

- Product/service development
- Engineering/construction
- Organization/business change
- ICT systems
- Research & development
- Others

These six Program/Project Types comprise the horizontal axis of a matrix shown in Figure 4-1 on the next page, whilst many of the “other ways” of categorizing programs/ projects will be shown down the vertical axis of the matrix.

OTHER WAYS OF CATEGORIZING PROGRAMS / PROJECTS

There are several other ways in which programs / projects have been categorized, some of which are now briefly summarized.

Shenhar & colleagues

Perhaps the best known “other way” derives from the work of Shenhar and his colleagues, who have been evolving contingency approaches to categorization of projects since the early 1990s. These have developed into what is described as a Project Diamond Model in Shenhar 2012 and Shenhar & Dvir 2007.

Essentially the Project Diamond Model comprises four axes emanating from a central point. These represent four major project categories, described as project Pace (time frame), product Novelty (market uncertainty), Technology (technological uncertainty), and project Complexity (system scope). These comprise the top four entries on the vertical axis of Figure 4-1 under “OTHER”.

Each of these items has four sub-categories. These are shown in the next column of the matrix under “Product development”, because I understand that Shenhar et al’s primary area of investigation has been in new product development. I will not expand on just what each of these sub-category descriptors means, because this model is so well known. (For those who are not so familiar, the shorthand names give a broad indicator of movement from simpler to more complex sub-categories in each case).

Pells 2011 and Archibald & Prado 2014

Pells 2011 has proposed a very wide range of categories. I have included many, but not all of his categories, in the following. Archibald & Prado 2014 have suggested additional ways of categorizing projects, which I have also endeavoured to accommodate in Figure 4-1. The following is the best I could do at this stage.

First, after trying many different combinations, I have categorized the contributions of these two sets of authors into four complexity-related headings, namely geographic, risk-related, organization, and resources, plus of course an “other” category.

TYPES	Product Development	Engineering/ construction	Organization Change	ICT	R&D	Other
OTHER						
Project Pace - Time frame	Regular Fast/competitive Time critical Blitz	Traditional Fast-track Weeks, months, or years?				
Product Novelty - Market uncertainty	Derivative Platform New to market New to world	Done before, or new?				
Technology - Technological uncertainty	Low-tech Medium-tech High-tech Super-high-tech					
Project scope complexity - System scope	Component Assembly System Array	Scope well defined, or not? Multiple types? Mega-project, medium, small?				
Geographic complexity		location? Multiple locations? <i>Language/culture problems?</i> Corruption?	Old or new			
Risk-related complexity		<i>Financial risks?</i> <i>Political risks?</i> <i>Economic risks?</i>				
Organization complexity		Multiple org's involved? Outsourced team members? Virtual teams?				
Resources complexity		Previously used, or new? Many or few suppliers/sub-contractors? Multi-national supply chain?				
Other						

Figure 4-1: Matrix showing intersections of “other categorizations” with Program/Project Types

Second, I have moved to the Program/Project Type with which I am most familiar, namely Engineering/Construction, and have allocated their sub-categorizations under this heading, against the appropriate “OTHER” categorizations.

Third, the Pells entries (including Archibald & Prado, when they coincide) are in normal typeface in Figure 4-1. *Entries exclusive to the latter are in italics.*

Overall, it seems to me that Figure 4-1 provided a convenient framework for interested program/project people to develop more specific categorization materials.

In these working papers I am looking for feedback.

REVISITING PROGRAM/PROJECT TYPE / APPLICATION SECTORS MATRICES

The first paper of this series developed a Project Type / Application Sector matrix based on a project categorization by Archibald & Prado 2014.

The second paper did much the same for programs, using two categorizations in Japan’s P2M (PMAJ 2008).

Each of these matrices had only slight differences between Project Types (in the former) and Program Types (in the latter). In ensuing discussions these were amalgamated into the six Program/Project Types shown in the Introduction to this paper.

However, the Application Sectors in the two sets of matrices were organized quite differently. I have chosen the P2M Application Sectors as modified in the second paper, mainly because they include both programs and projects. I have also added “Other sectors” to allow for additional Sectors from Archibald & Prado, and elsewhere, to develop a representative matrix, as shown in Figure 4-2 on the next page.

In both of the original matrices, it was evident that some of the Program/ Project Types were much more immediately relevant to some Application Sectors than to others.

In both cases, it was observed that it would appear to be potentially useful to establish the nature and importance of such relevancies in the program/ project context, and that this might hopefully help in developing a better understanding of how individual Program/ Project Types can benefit through sharing inter-Application-Sector data.

APPLICATION SECTORS	PROGRAM/PROJECT TYPES					
	Product/service development	Engineering/construction	Organization/business change	ICT systems	Research & development	Other program/project types
Social infrastructure						
Resource development						
Production facilities						
International cooperation						
Administrative initiatives						
Education						
Medical						
Community						
Events						
Entertainment						
Other Sectors						

Figure 4-2. Matrix showing intersections between Application Sectors and Program/Project Types

This matrix does not claim to cover all Application Sectors or all Program/ Project Types. However, it does claim to provide a framework for developing much more specific information about how the various Program/ Project Types are best processed in the many different Application Sectors in which they are undertaken.

We now turn to combining the two key categorization matrices in Figure 4-1 and 4-2.

COMBINING THE MAIN CATEGORIZATION MATRICES

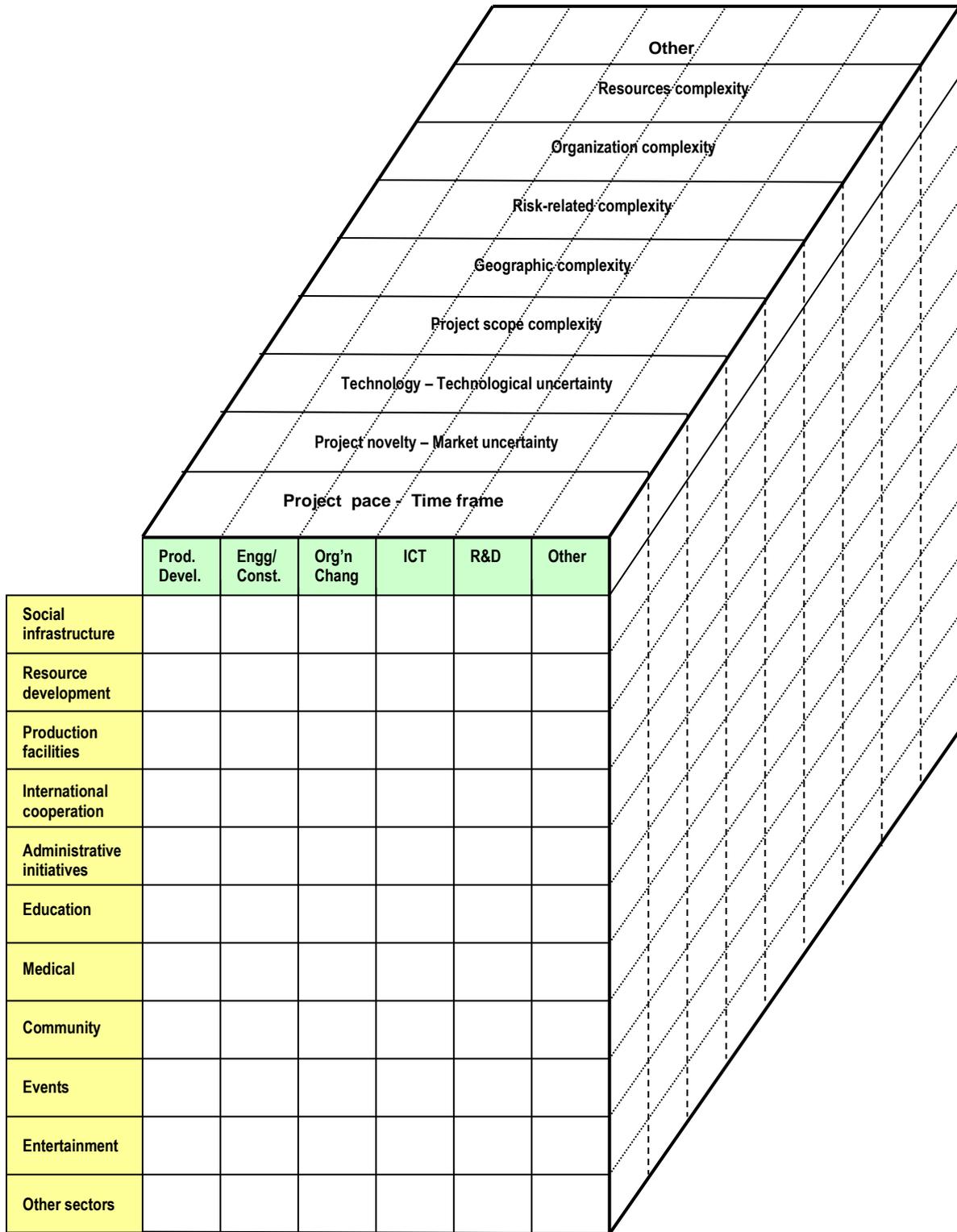


Figure 4-3: A three-dimensional program/project categorization model

Figure 4-3 appears to be a reasonably inclusive model which might, hopefully, facilitate the development of more detailed and integrated categorizations of programs and projects.

SUMMARY/CONCLUSIONS

This series of papers started by suggesting that categorizing programs/projects by the application areas in which they operate is only of limited utility. Most broad categorizations I have seen have been a mixture of what I have called Application Sectors and Program/ Project Types. The latter have been broadly defined as programs/projects that are undertaken in more than one Application Sector. As far as I can see, this basically covers all types of programs and projects, but I would welcome feedback on this.

It then appeared to make sense to further investigate how individual Program/Project Types are best executed in each Application Sector, so that program/project managers can benefit through sharing inter-application-sector data. I have proposed an Application Sectors / Program/Project Types matrix as a suitable vehicle for developing such data. This is undoubtedly easier said than done, as is indicated in ensuing discussions on developing type-specific materials for five key Program/Project Types. Further break-down of some of these Types would appear to be needed to do this effectively. I have not attempted to pursue this further in these working papers, but would welcome thoughts from others on this and allied matters.

I also looked into service industries in particular to try and identify other Program/Project Types, and in a substantial but far from exhaustive search unearthed quite a few. This is another area where I would welcome further thoughts and comments.

Looking further afield, many other ways of categorizing programs/projects have been suggested. I identified quite a few of these, and attempted to assemble them under the headings shown on the vertical axis of a matrix which illustrates their intersections with Program/Project Types. This assemblage of “other categories” headings needs much more work to be appropriately inclusive. I have progressed only far enough on details at the intersections to illustrate possibilities. There is much more work to be done here.

Finally, I combined the two major matrices above into a three dimensional matrix, which hopefully might be useful in helping assemble most broad types of categorizations into an essentially inter-connected framework. As with all other aspects of this series of discussion papers, I would welcome feedback on this.

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About the Author



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

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