

The suitability of MSP for engineering infrastructure

ABSTRACT

This paper arose from empirical investigations of practitioner views of both governance and program definitions together with investigations of practitioner reference documents. These investigations indicated that some confusion had arisen in infrastructure project management as a result of approaches used in IT. This paper contributes to the literature evaluating project standards and methodologies by conducting an examination of the suitability of one such source (MSP) for use in engineering infrastructure program management. A deductive definitional approach is taken to identify features that could cause difficulty. Eight features were examined and six were found to have difficulty in application to engineering infrastructure. The remaining two were found to be terminology differences that are unlikely to cause too much difficulty. The features causing difficulty include inappropriate definition of a program, use of a non-generic process flow unsuitable for rolling programs, confusion of transformation projects with programs, presumption of a board governance model, and confusion of large projects with programs. The paper concludes that MSP is quite poorly suited to managing rolling programs, whether they are in engineering infrastructure or IT. Various changes to MSP and PMI publications are recommended.

KEYWORDS: benefits realisation, change management, portfolio management, program management, programme management, project management, transformation, definition

1 Introduction

McGrath and Whitty (2019b) interviewed a sample of experienced project management practitioners, with backgrounds including engineering infrastructure and ICT, and found a state of confusion around what a program actually is. This had reached the level where one engineering infrastructure organisation had actually attempted to ascribe different meanings to the two different nationality spellings of the word, program and programme. Some of the practitioners from this organisation said their terminology had originated from MSP. This raised the question of the suitability of MSP for engineering infrastructure use. The paper concluded:

the notion that a program must be transformational is not generally accepted among practitioners. In some cases, in engineering infrastructure, it was unheard of and it was not even accepted by all ICT project practitioners interviewed. It also found that activities thought to be generic within ICT projects have been problematic when

transferred to other fields. This indicates a need to agree and adopt an internally consistent set of definitions of project, program and portfolio across the whole project management field.

This latter task has now been done by McGrath and Whitty (2019c) who developed a set of mutually consistent definitions of program and associated terms. They noted that adoption of these definitions would provide consistent terminology and would also require changes to all the documents examined, which included PRINCE2 and MSP. Their finding that these documents had defined the terms project and program in terms of an organisation, rather than of something to be achieved, is of concern for their application to infrastructure; it indicates an internal organisational focus, which IT projects must deal with, but this is not the case for many engineering infrastructure projects which are 'bread and butter' for their organisations and involve no process change within their organisations.

Similarly McGrath (2019, Part 2 p. 117) confirmed that the confusion in governance terminology present in academic publications was also present in their practitioner sample. They analysed factors contributing to this confusion and found altruistic desire for the greater good, mixed in with dogmatic belief in adopted frameworks being at the service of ego and promotion prospects. This is hardly a background for establishing objective truth and assertions of generality can serve the more base motives identified. This further indicates the advisability of subjecting well known IT documents to some scrutiny as to their actual universality/ genericity. They concluded there was a need to examine the definitions of governance terms in practitioner reference documents and methodologies. This was subsequently done by McGrath and Whitty (2019a) who assessed thirteen different documents and found inconsistent terminology across them. They noted that adopting the McGrath and Whitty (2015) definitions would provide consistent terminology and would also require changes to most of the documents examined including PRINCE2 and MSP.

Similarly, McGrath (2019, Part 3 p. 163) investigated practitioner use of PMMs and found explicit claims that PRINCE2 was unsuitable for engineering infrastructure. This has also subsequently been investigated by McGrath and Whitty (2020) and found many items of difficulty for engineering infrastructure. Given the problem with defining a project as an organisation in both PRINCE2 and MSP, and the problems with differing lifecycle and product versus project focus, and the lack of credible references in the PRINCE2 manual to engineering infrastructure projects and the fact that MSP was designed as a companion product for PRINCE2, this further highlights the need for independent review of MSP.

The benefits of using a project management methodology have been considered obvious, as is evident from the success of the worldwide marketing of PRINCE2, MSP and associated products. KnowledgeTRAIN (2017, p. 380) states under its FAQs for PRINCE2 online courses that "In total, more than 1.4 million examinations have been taken worldwide since 1996. Of these, almost half were taken in the UK". This comes despite a lack of empirical evidence as to their efficacy and views having been published to the contrary as noted by Wells (2012). It was not until some years later that Joslin and Müller (2015) were able to quantitatively demonstrate some positive impact of a project management methodology (PMM) on project success. They found that "the application of a PMM accounts for 22.3% of the variation in project success". This was hardly a resounding endorsement. MSP and

PRINCE2 came from the ICT area in the British Government Office of Government and Commerce (OGC). PRINCE2 evolved from PROMPT which was released in 1975 according to (McKenna & Whitty, 2012, p. 9) who noted that it was developed to save money in ICT projects. Marketing it beyond IT therefore presumes that it is suitable for universal application, yet the above references indicate the possibility this may not actually be so.

Introducing MSP into an engineering infrastructure organisation will generally involve replacing some existing method or practices, as such organisations generally have rolling programs of work. The question of replacement of methodologies is current, as the following quotation indicates:

When an organization is considering the replacement of an institutionalized project methodology (including a project methodology with derivatives), the importance of context should be understood and how this is reflected in the incumbent methodology. With this information, an informed decision can be made. For project managers using a project methodology, there is a risk of suboptimal project performance, because the effectiveness of methodology elements may be negatively impacted by environmental factors (Joslin & Müller, 2016, p. 380).

Program management standards have been published in both the United Kingdom and in the United States of America. The English MSP has had four editions - 1999, 2003, 2007 and 2011. The American Standard for program management has also had four editions - 2006, 2008, 2013 and 2017. The 2006 edition refined a rather coarse treatment of program and portfolio management in Project Management Institute (2003), which contained exactly the same processes for portfolio and program management as for projects, with word substitutions for each management type.

Dale (2007) noted "there are serious underlying, structural problems to PRINCE2 and related methodologies". MSP is a methodology closely related to PRINCE2. Wells (2012) concluded "Most project managers perceived the prime purpose of PMM to be management, control, and compliance rather than support and guidance... 47.9% of project managers... claimed that using PMMs hinders their project delivery"..

Given the doubt arising from the above sources, an explicit examination of the suitability of MSP for engineering infrastructure use appears warranted.

It goes without saying that practitioners are not academics; they therefore do not have free access to academic databases. For them to access the MSP manual, they would have to attend an ICT project management training course, a prospect with little appeal to engineering infrastructure project managers. This results in the details of its contents being outside their field of view. We therefore assess the suitability of MSP for engineering infrastructure use by examining the contents of various editions of its manual.

Before doing so, we first review the literature to see what other previous such reviews may have been undertaken. We then design the research, examine the MSP manual and report our findings.

2 Literature review

This paper contributes to the literature evaluating project standards and methodologies and so its purpose is quite narrow; it is to determine if any previous examinations of this nature have been conducted. This requires careful consideration of database search terms. We first establish the structure of a systematic literature review and then conduct it.

2.1 Search structure

Any review of the suitability of MSP for engineering infrastructure use would have to mention its acronym as well as "program management" and infrastructure or engineering somewhere in its abstract. We refer to the first two of these search terms as Group 1 and the second two as Group 2. The abstract would also have to use the word evaluate or evaluation, examine, examination, assess or review, as such an exercise could not be undertaken to the necessary depth as a by-the-by on something else. We refer to these search terms as Group 3. Group 4 search terms would then include value, effectiveness, success, define or definition, methodology. The search method was to progress through these from 1 to 4.

2.2 Search results

Searches of all EBSCO aggregator databases were conducted on 16/2/2018 for both Group 1 terms and one Group 2 term in the abstract. These returned no results for the meaning of the MSP acronym we are considering, precluding the need for further searching using any of the remaining groups.

Similar searches of Emerald databases were conducted with the same result. We also searched in Taylor and Francis, which does not support searching abstracts, so 'anywhere' was selected and the result was the same. This would seem to indicate the strong possibility that there have been no critical reviews of MSP from any perspective, ICT, engineering infrastructure or otherwise.

We then tested the search term selection by searching more generally in EBSCO for "program management" in titles and method in abstracts. This located 79 items, 42 of which were non-duplicates. All abstracts were inspected. Many evaluated program performance rather than any program management method, and none dealt with evaluating MSP. One of these papers by Todorov (2014, p. 822) was instructive on the lack of definitional agreement on program management. He noted there were many definitions of program and project management, acknowledged the need to analyse and investigate the differences between them, but said that was outside his study scope. This further and more general search did not therefore indicate any problem with the search terms.

Having therefore established as far as can reasonably be determined that there had been no previous reviews along the line we are investigating, we will proceed.

3 Research Question (RQ)

Posing a research question inductively would require establishing probabilities and confidence limits to ultimately making a subjective value judgement. This would not be appropriate for our purpose and ultimately the research question needs to be such that any features that may be unsuitable are identified. The research question is therefore posed

deductively as follows: Are there any features of MSP that make it difficult to apply to engineering infrastructure programs?

4 Research Design

As we are seeking to review using deduction rather than induction, use of a qualitative approach is appropriate.

Determination of source documents together with the methods of analysis and evaluation are set out below.

4.1 Sources selected for examination

We will principally examine the latest (2011) version of the MSP manual. We also consider the 2007 and 2003 versions where appropriate due to their impact upon current practice.

4.2 Method of analysis

We analyse key features of MSP and its definitions of terms that are likely to differ between engineering infrastructure and the ICT area where it originated.

We also compare MSP principally with the standard for program management from PMI, which we will term TSPGM, to provide an independent comparison for reference purposes. We will refer principally to the latest (2017) edition but will reference earlier editions where appropriate and will also draw from the PMBOK where necessary.

We then determine whether the particular feature being considered is actually generic, applicable to all project/ program types including engineering infrastructure, or something peculiar to the nature or content of ICT.

4.3 Evaluation method

If we cannot find anything that would make application to engineering infrastructure difficult, then the answer to the research question will be 'none that we have been able to determine'. If we do find any, then the proposition is established that there is some difficulty in applying MSP to the program management of engineering infrastructure and we will then assess the degree of difficulty they may cause.

4.4 Presentation method

Some of the features examined are interrelated and the order of reporting has been selected so there is a flow to the pattern that emerges.

The examination of each feature is presented in a format that has an analysis section with quotation(s) from MSP, quotation(s) from the Standard for Program Management (TSPGM) and other relevant sources, and analysis of these quotations followed by a discussion section to identify any inconsistencies, trace their origin and explore their implications.

This is done progressively for each feature examined. This is quite different to the conventional academic paper format of reporting numbers of observations and then discussing them collectively at the end. To have followed that format would have resulted in a disjointed presentation without flow, containing unnecessary repetition and irritation for the reader, constantly having to refer back to earlier pages. An overall summary Table 1 is then

presented before the implications are holistically assessed in the observations section at the end.

5 Examination of MSP

Eight features of MSP are considered in the following sections.

5.1 Overall structure of the manual

5.1.1 Analysis

MSP has ten chapters on ‘The Governance Themes’ (Overview, Programme Organisation, Vision, Leadership and Stakeholder Engagement, Benefits Management, Blueprint design and Delivery, Planning and Control, The Business Case, Risk and Issue management and Quality and Assurance management) and seven chapters on ‘The Transformational Flow’. This flow is given as the program process flow (Office of Government Commerce (OGC), 2011).

The Standard for Program Management (TSPGM) 2017 has sections titled program management performance domains, with these domains following on as section headings; program strategy alignment, program benefits management, program stakeholder engagement, program governance, program lifecycle management and program activities (Project Management Institute, 2017b). This was a change from the 2008 edition which had two principal sections, one dealing with the program management framework and the other dealing with the program management process. The framework set out the program lifecycle and had three themes across it (benefits management, stakeholder management and governance). The process section set out the five process groups which aligned with the PMBOK (Initiating, planning, executing, monitoring/ controlling and closing). It noted “These Process Groups are not linear and... do not bear any direct relationship to phases of a program life cycle” (Project Management Institute, 2008, Section 3.2).

5.1.2 Discussion

The principal difference is that MSP is based upon ‘transformation’ whereas TSPGM is not. This is discussed in detail under the transformation heading below.

Some of the themes, when TSPGM had themes, were common. TSPGM now has them as performance domains, but still does not label them as governance, as MSP does. MSP includes under its governance themes many things which, according to McGrath and Whitty (2015), do not constitute governance. Only part of two of the items MSP lists meet their definition of governance; these are control and assurance, with the rest being elements of either strategy or project management. MSP therefore constitutes some combination of differing, overlapping frameworks, tempting confusion of the nature documented in McGrath and Whitty (2015).

5.2 Program Definition

5.2.1 Analysis

MSP defines a Programme as:

A temporary flexible organization structure created to coordinate, direct and oversee the implementation of a set of related projects and activities in order to deliver

outcomes and benefits related to an organization's strategic objectives. A programme is likely to have a life that spans several years (Office of Government Commerce (OGC), 2011, Glossary).

MSP defines program management as: "The coordinated organization, direction and implementation of a dossier of projects and transformation activities (i.e. the programme) to achieve outcomes and realize benefits of strategic importance" (Office of Government Commerce (OGC), 2011, Glossary).

TSPGM 2017 defines a program as "Related projects, subsidiary programs, and program activities managed in a coordinated manner to obtain benefits not available from managing them individually" Project Management Institute (2017b, p. 164). TSPGM 2008 defined a program as "A group of related projects managed in a coordinated way to obtain benefits and control not available from managing them individually. Programs may include elements of related work outside of the scope of the discrete projects in the program" (Project Management Institute, 2008, Glossary).

TSPGM 2017 defines program management as "The application of knowledge, skills, and principles to a program to achieve the program objectives and to obtain benefits and control not available by managing program components individually" (Project Management Institute, 2017b, p. 166). TSPGM 2008 defined program management as "the centralized coordinated management of a program to achieve the program's strategic objectives and benefits" (Project Management Institute, 2008, Glossary).

5.2.2 Discussion

MSP provides a definition of a programme that restricts it to those large enough to require establishment of a separate organisation. This describes a program in terms of one facet of its delivery rather than reaching into, going beyond self-absorption with how we do what we do, and describing its essence. This definitional error appears to be a flow-on from the PRINCE2 definition of a project as an organisation (AXELOS, 2017; Murray, 2009).

A programme has to have some sort of purpose to produce some outcome and it is the realising or the delivering of that purpose, in other words, the activity or the endeavour to produce it, which is its essence, not the incidental organisation that happens to become an administrative necessity to deliver anything of any size. The existence of an organisation provides evidence that a program exists at the time the assets, products, services or results are being created; but this is not the essence of what it is. A program does not have to have an organisation built around it to be a program, as anyone who has single-handedly managed a program can attest. A program administered by one person does not become not a program just because there may be no recognised organisation attached to it. Of course, the important matter of studying programs from an organisational perspective is a completely different matter to actually defining them as their organisations.

This is not an encouraging start, when the definition of the very thing MSP is supposed to be about is so fundamentally flawed. It tempts the question that if MSP does not even know what a generic program is, how can it possibly be generically useful for any program at all, let alone for the whole project management world? However, to admit the possibility this may be a simple mislabelling, having little effect on the actual method, we will continue, but

we will also consider the suitability for ICT of the features examined. Given that it has taken this examination to bring this to light, the suspicion arises as to what other non-generic things may have been assumed in long-forgotten times in PRINCE2/ MSP history and propagated to the current day, and whether any of these might also not be generic to non-ICT practice. Of course, full examination of the genericity of MSP for ICT in any other of its features is outside the scope of this investigation.

The PMI definitions at least attempt to define what it is rather than how it may be implemented. The 2008 TSPGM definition of a program at least referred to a group of projects which it then qualified, unlike its 2017 edition, which effectively just says it is 'this, that and the other' and would qualify as a non-definition. Its 2017 definition of program management as an 'application of' is also non-definitional.

5.3 Process flow

5.3.1 Analysis

MSP uses a transformational flow which has steps of policy/ strategy/ vision driving identifying a programme, defining a programme, managing the tranches, delivering the capability, realising the benefit and closing (Office of Government Commerce (OGC), 2011, Section 13.1).

TSPGM 2017 contains no mention at all of process flow. TSPGM of 2008 had a process flow with three phases – definition, delivery and closure (Project Management Institute, 2008). TSPGM 2017 instead re-labels these process flow phases as program lifecycle phases in a section on program lifecycle management, with the same phases of definition, delivery and closure.

5.3.2 Discussion

Note that MSP was first published in 2003 and the first edition of TSPGM was published three years later in 2006. It therefore had the opportunity to be influenced by MSP. Both are concerned with program establishment and closing, both of which are unnecessary for and not generic to rolling programs. If a program is accepted as a collection of projects (rather than an organisational transformation), then individual projects can come into a program, be completed and go out of that program. In our experience, many engineering infrastructure programs have no recent start and no anticipated end. Organisational transformational change generally has a start and an end. This means for the term program to be generic, it must have a different timescale to a project or a transformational change and does not have to have an intended end. It may have an accounting end each financial year but not an actual end. Any power or road authority has an ongoing rolling program that will have been running in some form since its establishment and will be expected to continue indefinitely to meet increasing demands of population growth. Here, the program start or end will be so far away as to be irrelevant, so a methodology based around transformation, where such activities may well predominate is likely to be quite skewed in a non-useful direction. In these types of organisations, new names may be given to new buckets of money, but often the only establishment needed will be to allocate the charge code so that the organisation that is already established to deliver can just get on with it. So it is evident that MSP has been based on a particular program characteristic that is not generic.

While the possibility that opening and/ or closing may not be required is alluded to in Office of Government Commerce (OGC) (2011, Section 1.7), overlooking this may well lead to inappropriate adoption and to difficulties if the methodology is rigorously applied such that these establishment and closing processes are artificially created regardless of appropriateness. The technique of allowing omission of sections inapplicable to particular project types or scale does provide a means of adapting methodology to circumstances, but it can also indicate that a non-generic characteristic has been chosen as the base model. The latter is indicated if the key features selected for inclusion in the generic model are optional, as is the case here.

Any project team bringing about a change to program management (such as introducing MSP) will need to be established but whatever existing program team that is already there does not. To avoid this problem, the project introducing the change needs to be managed separately from the subject program being changed. But by regarding transformation as a program, MSP in its process flow invites management of that project into the workings of the program, where imposing artificial creation of establishment activities upon an organisation that is already established runs the risk of ridicule, convolution, confusion and organisational rejection.

The process flow effectively assumes that whatever is being done is new and that any other program management system needs to be supplanted or 'transformed', requiring this establishment or takeover activity. It does not allow for prior existence. This may have been the case within ICT at the time MSP was developed but was certainly not the case for engineering infrastructure, which was well established at the time when ICT was developing.

Any system claiming to be generic would have to have its key process applicable to either new or existing programs. We therefore conclude that the MSP process flow is not generic.

5.4 Transformation

5.4.1 Analysis

"MSP programmes are all about delivering transformational change" (Office of Government Commerce (OGC), 2011, Section 13.1). MSP's association of programs with transformation was present in the UK Government Office of Government and Commerce (2003, pp. 469,470) definition of programme management as "the co-ordinated management of a portfolio of projects that change organisations to achieve benefits that are of strategic importance". This implied a definition of programme as something that changes organisations. This definition later changed to "the action of carrying out the coordinated organisation, direction and implementation of a dossier of projects and transformation activities (i.e. the programme) to achieve outcomes and realise benefits of strategic importance to the business" (Office of Government Commerce, 2007, p. 4). This introduced transformation into the definition, which later changed marginally to "The coordinated organization, direction and implementation of a dossier of projects and transformation activities (i.e. the programme) to achieve outcomes and realize benefits of strategic importance" in Office of Government Commerce (OGC) (2011, Glossary).

TSPGM 2017 does not require a program to be transformational. It mentions the word 'transform' only once, and that is incidentally in discussing complexity (Project Management Institute, 2017b, p. 32). TSPGM 2008 did not require a program to be transformational, saying:

Managing multiple projects by means of a program allows for optimized or integrated cost, schedules, or effort; integrated or dependent deliverables across the program, delivery of incremental benefits, and optimization of staffing in the context of the overall program's needs. Projects may be interdependent because of the collective capability that is delivered, or they may share a common attribute such as client, customer, seller, technology, or resource. (Project Management Institute, 2008, Section 1.2).

5.4.2 Discussion

Engineering infrastructure projects and programs are not about changing organisations and so this basic premise of MSP is not generic.

There is a further problem with grouping. The 2003 MSP definition made it clear that the intent was to coordinate a group of projects that would change an organisation. The 2007 definition appeared to somewhat inconclusively relax this requirement, allowing inclusion of a group of projects as well as transformation activities, provided they all served some strategic intent for the business. It also corrected the earlier positioning of the portfolio level below the project level by replacing 'portfolio' with 'dossier'. The 2011 change broadened the program management ambit beyond a single organisation and removed reference to it as an action, reverting to the original coordinated management type definition. So the 2003 misconceptions appear to have cast a long shadow which still causes confusion, as is evident from this sequence of changes as well as from the data collection which prompted this examination (McGrath & Whitty, 2019b). Furthermore, the 2007 change (to accept a group of projects whether they are transformational for the business or not) appears to have been cosmetic rather than substantial as indicated by its basic reliance on programs being transformational remaining in the structure of its manual. Its statement of intent quoted at the beginning of this section clearly has not changed. It is evident that transformation was integral to the design of MSP and is still a key feature and so any suitability for application to non-transformational programs is accidental rather than by design.

While it is likely that any sizeable ICT project that may be labelled as a program will change an organisation internally, to generalise that all types of programs are transformational, is false. Engineering infrastructure projects and programs are transformative for the communities they are delivered in but are not generally so for the organisations delivering them. Engineering infrastructure projects are generally business as usual (BAU) for these organisations and so do not require some different technique appropriate for internal transformation from some other field to be inappropriately applied, regardless of whether it has been labelled as best practice within that other area or not. MSP does not use generic characteristics of programs. It uses a sub-set suitable for use in ICT programs managing development of multiple products with a common transformational purpose within a single organisation. Organisational transformation is not integral to engineering infrastructure projects and programs.

MSP's table of contents indicates that transformation is central to the document, with the only flow given being that for transformational flow. It asserts "MSP represents proven good practice in programme management in successfully delivering transformational change" (Office of Government Commerce (OGC), 2011, Section 1.1). It also says "Programmes may be set up to deliver change in parts of an organization, across the entire organization, across more than one organization, or in the environment in which the organization operates" (Office of Government Commerce (OGC), 2011, Section 1.7). There is no distinction made here between internal and external transformation. However, there is a statement on programme impacts which does differentiate between what is rather awkwardly termed "specification-led" programmes and those which are transformational: "A major capital construction programme" is given as an example of a "specification-led" programme and the following (under) statement is made: "MSP's approach can be used in this type of programme but may need to be scaled down, as some of its elements may not be required" (Office of Government Commerce (OGC), 2011, Section 1.7).

MSP is thus heavily weighted towards transformation and therefore towards an ICT environment. Its applicability within an engineering infrastructure project environment must consequently be considered limited and if it is used in that environment, then considerable caution needs to be exercised regarding underlying methodology, terminology and assumptions. MSP actually provides a process for managing organisational transformational projects and would be best labelled as such (MTP) to avoid confusion in non-ICT areas as well as non-transformational areas within ICT. Note we have deliberately used the term 'project' here rather than 'program'. Puffing up the importance of an undertaking by attaching a higher-level label to it may advantage its proponents and fascinate those being influenced but does not produce clarity. MSP has two instances of this 'upwardly mobile' labelling; one in mislabelling a transformational project as a program and another in capitalising on the label by adding some cosmetic words to make its existing process look more generic than it actually is. PRINCE2, from whence MSP came, encouraged multiple separate micro-level product development projects to be created, as noted by Wideman (2002), producing a management gap which MSP filled by bringing their management together under the banner of dealing with a single organisational transformation.

The process flow makes it obvious that it was designed for a single large organisational transformational project. It has a start and an end like a project, not a program (which, as discussed in the previous section, does not need to have a start or an end).

5.5 Specification-led projects

5.5.1 Analysis

MSP uses the term "specification-led" projects (Office of Government Commerce (OGC), 2011, Sections 1.7, 1.8) referring to engineering infrastructure projects.

TSPGM 2017 does not use this term.

5.5.2 Discussion

Infrastructure projects are not led by their specifications. They are led by some form of community need that they will fill. From an ICT perspective where the business requirements specifications (BRS) may be continually variable, it may seem that the difference between

project types relates to the characteristics of engineering specifications being fixed in advance. These projects may appear from an ICT perspective to be led by their fixed specifications, but the term is not one that would be used or even recognised by engineering infrastructure project managers. Engineering specifications ensure people don't get killed. ICT specifications ensure people don't become unhappy.

5.6 Governance board requirement

5.6.1 Analysis

MSP defines a Programme Board as "a group that is established to support an SRO in delivering a programme" (Office of Government Commerce (OGC), 2011, Glossary), and says "The SRO will be personally accountable for the programme's success. The SRO... should be appointed by the sponsoring group at the earliest opportunity" (Office of Government Commerce (OGC), 2011, Section 14.4).

TSPGM 2017 allows either a board or a steering committee (Pages 2, 61, 78, 167). It alludes to the possibility of optionality in places, for example in saying "Most organisations seek to ensure appropriate program governance by establishing program steering committees" (Project Management Institute, 2017b, p. 81), although this could also be interpreted as asserting it is universally good because most do it and so the reader should also do it. It mostly seems to presume existence of such a body, saying, for example in Section 3.2 that it authorises the program by means of the program charter and that "The program steering committee is responsible for defining the types of changes that a program manager would be independently authorised to approve" (Project Management Institute, 2017b, pp. 36,74).

5.6.2 Discussion

MSP therefore makes a similar type of presumption that McGrath and Whitty (2020) noted PRINCE2 does; that a program board is actually required for all programs. Furthermore, by saying the SRO is accountable, it is saying that the board is not. Corporate boards have accountability so labelling this committee as a board is over-labelling.

While many ICT programs may require a committee to provide advice and coordinate users, such a board or steering or advising committee is unnecessary for many small to medium sized engineering programs. In our experience, many such programs are successfully managed by one person, without a board. The governance model of PRINCE2 therefore appears to have infected MSP. The requirement for a board is not generic.

TSPGM 2017 appears to have followed a similar approach of presuming a board or steering group is necessary while admitting a small possibility of flexibility on this.

5.7 A program as a large project

5.7.1 Analysis

MSP offers Table B.2 which "will help to differentiate a programme from a corporate portfolio or a large project" (Office of Government Commerce (OGC), 2011) Appendix B2. This table lists programme characteristics as including "there will be an end point at which the programme will be focused" and "Planning will be oriented to delivering outcomes through tranches and managing project interdependencies".

TSPGM 2017 contains no mention of 'large project'. The PMBOK simply states "programs are not large projects" (Project Management Institute, 2017a, p. 11). TSPGM 2013 said:

"programs" include large individual projects or a single large project that is broken into more easily managed subordinate projects. Because these efforts are more accurately characterized as projects—not programs—they remain within the discipline of project management and, as such, are addressed in the PMBOK Guide. When the management of these efforts results in the delivery of an individual or collection of benefits, and effective control is not achievable by managing the individual projects or components as separate initiatives, the effort may be defined and managed as a program as described in this standard" (Project Management Institute, 2013, Chapter 1).

5.7.2 Discussion

These MSP statements are at odds with it being used for rolling programs where there is not a single focused endpoint, or for programs with projects that are not interdependent. MSP through its basis in the transformational process, in effect self-declares its unsuitability for these purposes.

Infrastructure programs usually have projects that are effectively competing for inclusion (= funding). The omission of any particular project may have serious consequences for individual project proponents, but the program can easily include other projects. Project independence and competition signal the existence of a program, whereas project interdependency signals the existence of a (complex) project. The notion of interdependent projects comprising a program is inapplicable to engineering infrastructure. While there may be network interdependencies between the competing projects, this is completely different to management interdependency, which is what we are considering here.

Regarding a program as a large project also risks confusion over what methodology to use – program or project. This was unnecessarily tempted by labelling an organisational change project as transformational and therefore a program, rather than a project.

Further to the observation in the transformation section above that PRINCE2 left a project level management gap for filling by MSP, we also note that although PRINCE2 gives a process for managing iterations of the production of product(s) it does not say how these might be brought together. It calls upon external means, saying "Although PRINCE2 does not prescribe the use of any particular project lifecycle, it does require that one be used" (AXELOS, 2017, p. 276). This means that PRINCE2 effectively self acknowledges it has a project level gap but has been 'upwardly labelled' as a project methodology. Re-labelling MSP as suggested above would remove the interactions between activities that industries outside ICT would regard as being within the ambit of project management and take them out of the program arena where they can cause confusion.

5.8 Use of the term infrastructure

5.8.1 Analysis

All occurrences of the word infrastructure in the document were examined. Most of these refer to the program infrastructure such as office accommodation, computers, office equipment and configuration management (Office of Government Commerce (OGC), 2011,

Section 15.2). None provide any evidence of demonstrated suitability for engineering infrastructure.

TSPGM 2017 refers many times to ‘program infrastructure’, once to financial infrastructure but not at all to engineering infrastructure. TSPGM 2008 similarly had references to “technical infrastructure to support the program” (Project Management Institute, 2008, Section 2.3.6) and no references demonstrating suitability for engineering infrastructure.

5.8.2 Discussion

This usage of the term, although unusual, is unlikely to cause serious difficulty as it stays within the bounds of what can legitimately be labelled as infrastructure, albeit over-blown or over-labelled. Simple use of the term program resources would be more appropriate. Use of the term infrastructure does not transmute into applicability for engineering infrastructure, which usage of the words may tempt the reader to believe.

5.9 Summary of findings

The results of this examination are summarised in Table 1 below.

Table 1
Summary of examination of MSP

MSP feature	Suitability/ Genericity for engineering infrastructure (EI)	Suitability/ Genericity for ICT
Overall structure	Based on a program being transformational. Governance processes include many things that are strategy or project management rather than governance, tempting confusion with overlapping frameworks.	Not designed for non-transformational ICT projects/ programs. Governance processes include many things that are strategy or project management rather than governance, tempting confusion with overlapping frameworks.
Program definition	Inappropriate definition of a program as an organisation.	Inappropriate definition of a program as an organisation.
Process model/ flow	The focus on establishment and closing activities is irrelevant to rolling programs.	The focus on establishment and closing activities is irrelevant to rolling programs.
Transformation	Inappropriate as most engineering infrastructure programs are transformational for the community and not for the organisation they are delivered within.	Inappropriate for non-transformational ICT projects/ programs.
Specification-led	Inapplicable – Engineering infrastructure specifications are mature and do not scope the projects.	

Governance requirement for a Project Board	Inappropriate for many programs that don't have or need one.	Inappropriate for any ICT project/ program not needing one.
A program as a large project	Inappropriate as large engineering infrastructure projects are not managed as programs. Confuses transformation projects with a program.	Fills the project management gap for PRINCE2 product-based component projects needing coordination but causes/ contributes to confusion on whether a large project = a program.
Use of the term infrastructure	Used to mean office accommodation, computers, office equipment and configuration management.	

Table 1 can be further summarised as follows: MSP assumes:

- Transformational projects are programs
- Programs have a similar timescale to projects, as its process requires openings and closings
- All programs require boards

None of these are generically appropriate to engineering infrastructure. MSP also uses ICT definitions that are not generic to other fields, such as program infrastructure and specification-led projects.

Given the nature and the number of areas of difficulty identified, the answer to the RQ is clearly yes, there are multiple features of MSP that make it difficult to apply to engineering infrastructure projects. Furthermore, some of the difficulties identified also extend to some ICT projects as well. MSP is not generic for engineering infrastructure and therefore cannot be considered best practice for it.

6 Observations

A pattern of sequential compounding mistakes emerged from this analysis and that of PRINCE2 by McGrath and Whitty (2020), which we now attempt to make some sense of. It appears to have commenced with PRINCE2 assuming a product rather than a project base, leading to a project level gap that MSP filled by collecting the product delivery cycles together that PRINCE2 had labelled as projects. This created the illusion that MSP was designed for the program level. The opening and closing mirrored the selection of the product delivery cycle, rather than a project cycle as the basic PRINCE2 process. The relativity of the timescales actually looks right, with program being longer than project. However, the time taken to produce any single product will always be shorter than the project which it is part of anyway, and so this does not 'transform' a project into a program. This inconsistency had to have been either not noticed or overlooked, as MSP's design for and labelling as organisational transformation meant that these projects had to then be (mistakenly) labelled as programs. This confirmed the mistake of regarding a large project as a program. Having made this mistake and based the whole framework on it, there was no turning back.

Definitions were changed in 2007 to allow groups of projects as programs, but this was cosmetic as the process it was based on did not change. This then tempted the further mistake of applying MSP to a long-standing program by looking for and creating artificial openings and closings when it is the project that is to install MSP that has the opening and the closing, not the base rolling program that it is being applied to.

MSP has assumed some things are generic to all program types that are only generic to some ICT delivery projects. This highlights the dangers of assuming things that may seem generic in one field and applying them without adequate checking across all others. This can be very difficult to detect, requiring a forensic examination such as this to uncover.

The issues identified with MSP have hidden behind the pay-wall of commercial training. We only discovered them by accident, having never found it necessary to use MSP in our practice nor having observed it successfully used anywhere in the industries we work in. We just happened to be researching project methodology effectiveness, have a focus on definitional matters, which many others would not, and had access to academic sources not generally accessible to practitioners. This meant we had free access to the materials without having to pay for and attend training that would have otherwise been unnecessary for us. This highlights the dangers of de-facto standards being under commercial control and not being readily accessible to general critical scrutiny. There was little chance of engineering practitioners paying for and then spending days attending training in a field they do not practise in, on the off-chance of finding some internal inconsistency in it. Even practitioners in the ICT field needing certificates to gain or retain employment were unlikely to even look at, let alone question, its definitions or the basis of its theory.

Our analysis here indicates that MSP should be recognised as an ICT delivery product competing for more generic application, rather than the de-facto standard that it has become in and beyond the ICT world. It is not generic for engineering infrastructure and therefore cannot be considered best practice for it.

Whether the features of using MSP identified here are viewed as just irritating or constitute show stoppers for individual prospective engineering infrastructure users or organisations attempting to use it is up to them. However, given the nature of deficiencies identified here, we would certainly not recommend its adoption for engineering infrastructure. It may not be impossible to manage an engineering infrastructure program using MSP, but it would be painfully irritating because of its transformational assumption, non-generic process flow, odd terminology, sweeping statements about project inter-relationship/ common transformational purpose, and its concomitant invitation into bureaucratic ICT micro-management. It has, of course, incorporated generic material sufficient to make it not impossible to apply, but much of the document would have to be ignored, and the user may not have the background theoretical knowledge to know which sections are inappropriate and in what way.

We also note the implications of the differences between engineering and ICT specifications. Engineering specifications result in large measure from past disasters. When people's lives are at stake, piercing research is done into the failure. The causes are identified, published widely and incorporated into future specifications. There is nowhere to hide. While some ICT specifications certainly may have similar consequences, most do not and are largely about satisfying user requirements, i.e. making people happy. When an ICT disaster occurs, the

public interest in the scandal blows over. Blame disbursement and avoidance is possible and can be subject to influence. This difference perhaps indicates a need for increased academic vigilance and investigation in these areas, together with a need for 'pracademics' in project management (Walker & Lloyd-Walker, 2016) to even locate the areas needing (perhaps unwelcome) attention.

We also note that the long period of consensus making in developing ISO21500 between 2007 and 2012 (Sadeanu, Candea, & Bodea, 2013) was primarily concerned with keeping the field together, as noted by Crawford, Pollack, and England (2007). That meant that no outcome critical of any commercially available product was likely to see the light of day at that time. However, political compromise does not necessarily produce coherent consistency, which we can now seek.

6.1 Recommendations

Our recommendations for any engineering infrastructure organisation being forced to adopt MSP to manage existing ongoing programs are as follows:

1. Ignore the definition of a program as being an organisation
2. Ignore all sections dealing with establishment, openings and closings
3. Ensure continued alignment with strategic direction
4. Continue doing what you have already found to work
5. Monitor, review and evaluate and
6. Use the new label for appearance and to appease higher management.

These recommendations will do nothing to advance the field of study (which should substantially be the province of academics anyway) but may assist practitioners to both survive organisationally and avoid creating new disasters with the changeover.

Our recommendation for MSP is that it be revised as follows:

1. The definition of a program be amended to those recommended by McGrath and Whitty (2019c) as
 - a. Program(me) = a planned series of related things.
 - b. Organizational program = a group of related projects.
2. MSP be re-labelled as MTP, Management of Transformational Projects, to reflect its true design, consistent with the product rather than project base of PRINCE2
3. The program board be made optional and re-labelled as an advisory group or co-ordinating committee to avoid dispersing accountability.

Note that use of the word 'related' rather than 'interdependent' in the suggested definitions above this leaves the nature of the relationship completely open. Note also that the suggested definitions also contain no mention of transformation.

We also recommend that PMI revise its Standard for Program Management to add optionality to the program definition and program closing processes, as well as ongoing review of effectiveness to accommodate the timescale of rolling programs. Furthermore, any establishment of a new program can be handled by a project process anyway. It is the projects that are temporary, not the programs. While engineering infrastructure programs to satisfy ongoing long-term needs may, on occasion, end up being short-lived (temporary), this is

generally the result of political mishap rather than design. We suggest inclusion of more generic activities such as ensuring a clear business need has been articulated to provide direction to the program, analysing delivery options and alternative combinations of projects, monitoring program implementation and evaluating outcomes. These all need to occur over the top of projects and to not duplicate project activities under a different framework causing unnecessary confusion. The current circumstance of having an intervening temporary program level in between temporary projects and long-term rolling programs is hair-splitting and introduces unnecessary and avoidable complexity of administration to project managers. Large projects are complex enough without introducing the complication for the project manager of deciding which management method to use – project or program – or worse still, having to alternate between them.

7 Limitations and future research

The limitation of this work is that it is based upon document review. We were unaware of any successful infrastructure applications of MSP but that does not mean that such instances do not exist. This paper may prompt identification of such cases and assessment against the issues identified here. This may also test the proposition of Wells (2012) in the literature review regarding whether frameworks themselves may have contributed to project failures.

It may be of largely academic interest to attempt to determine the scale of possible losses resulting from attempts to apply non-generic theory. This would be a considerable challenge. Furthermore, surveying past troubled or failed implementations would also require a different paradigm of thinking; one that admitted the possibility that frameworks are fallible and should not be reified. It is also likely that much of the necessary data would be unpublished, unavailable and difficult to obtain due to its potential for embarrassment and impact upon career and economic prospects. And if the data were available, it would be difficult to determine a proportion attributable to this cause. We consider it best approached by resolving definitions and standards as the past cannot be re-run, but we can rectify previous mistakes once they are realized.

This research also raises the question of what other derivative products might have similar difficulties and that is a further possible future research subject.

8 Conclusion

This paper has found that there are quite significant areas of difficulty in applying MSP to engineering infrastructure projects. These are due to three assumptions that are not generic, namely that transformational projects are programs, that programs have a similar timescale to projects, that all programs require opening and closing and that all programs require boards. MSP also uses ICT definitions that are not generic to other fields, such as program infrastructure and specification-led projects. The paper concludes that MSP is not generic for engineering infrastructure and therefore cannot be considered best practice for it.

9 References

- AXELOS. (2017). *Managing successful projects with PRINCE2*(pp. 430). Retrieved from <http://ebookcentral.proquest.com.ezproxy.usq.edu.au/lib/usq/detail.action?docID=4863041>
- Crawford, L., Pollack, J., & England, D. (2007). How standard are standards: An examination of language emphasis in project management standards. *Project Management Journal*, 38(3), 6-21. doi:10.1002/pmj.20002
- Dale, C. (2007). The underlying problems with PRINCE2. In: And related Project Management methodologies[online]. Business Transition Technologies Ltd. Available from: http://www.btt-research.com/waterfall_projects.htm.
- Joslin, R., & Müller, R. (2015). Relationships between a project management methodology and project success in different project governance contexts. *International Journal of Project Management*, 33(6), 1377-1392. doi:<https://doi.org/10.1016/j.ijproman.2015.03.005>
- Joslin, R., & Müller, R. (2016). The impact of project methodologies on project success in different project environments. *International Journal of Managing Projects in Business*, 9(2), 364-388. doi:10.1108/IJMPB-03-2015-0025
- KnowledgeTRAIN. (2017). KnowledgeTRAIN PRINCE2online courses. Retrieved from <https://www.knowledgetrain.co.uk/courses/prince2/elearning#how-many-people-have-taken-examinations>
- McGrath, S. K. (2019). *What is project governance? Disclosing the source of confusion and revealing the essence of governance*. (PhD Thesis). University of Southern Queensland, Springfield.
- McGrath, S. K., & Whitty, S. J. (2015). Redefining governance: From confusion to certainty and clarity. *International Journal of Managing Projects in Business*, 8(4), 755-787. doi:<http://dx.doi.org/10.1108/IJMPB-10-2014-0071>
- McGrath, S. K., & Whitty, S. J. (2019a). Governance terminology confusion in management and project management reference documents. *Journal of Modern Project Management*, 7(2), 146-171. doi:10.19255/JMPM02008
- McGrath, S. K., & Whitty, S. J. (2019b). A typology of meanings: Practitioners views of 'program'. *Journal of Modern Project Management*, 7(2), 228-245. doi:10.19255/JMPM02011
- McGrath, S. K., & Whitty, S. J. (2019c). What is a program: An examination of terminology in practitioner reference documents. *Journal of Modern Project Management*, 6(3), 6-27. doi:10.19255/JMPM01801
- McGrath, S. K., & Whitty, S. J. (2020). The suitability of PRINCE2 for engineering infrastructure. *The Journal of Modern Project management, Issue 22*(Vol. 7, Num. 04), 312-347. doi:10.19255/JMPM02215
- McKenna, T., & Whitty, S. J. (2012). *Reconceptualising project management methodologies for a post-postmodern era*. Paper presented at the proceedings of the Annual Project Management Australia Conference Incorporating the PMI Australia National Conference (PMOz), Melbourne, Australia.
- Murray, A. (2009). *Managing successful projects with PRINCE2, 2009 edition manual*. In N. Bennett & C. Bentley (Eds.), (2009 ed., 5th ed. ed.). Retrieved from <http://ezproxy.usq.edu.au/login?url=http://library.books24x7.com/library.asp?^B&bookid=41539>
- Office of Government and Commerce. (2003). *Managing successful programmes*. London: TSO.
- Office of Government Commerce. (2007). *Managing successful programmes*. Great Britain: The Stationery Office.
- Office of Government Commerce (OGC). (2011). *Managing successful programmes*. Great Britain: The Stationery Office.

Stephen Keith McGrath, Stephen Jonathan Whitty, (2020), " **The suitability of MSP for engineering infrastructure**", The Journal of Modern Project Management, Vol. 7 No. 4, pp. 348-368. DOI: 10.19255/JMPM02216

- Project Management Institute. (2003). *Organisational project management maturity model* (First ed.). Newton Square PA, USA: Project Management Institute.
- Project Management Institute. (2008). *The standard for program management* (Second ed.). Newtown Square, PA: Project Management Institute.
- Project Management Institute. (2013). *The standard for program management*(3rd ed.). Retrieved from <http://common.books24x7.com.ezproxy.usq.edu.au/toc.aspx?bookid=51357>
- Project Management Institute. (2017a). *Guide to the project management body of knowledge (PMBOK guide)* (Sixth ed.). Newtown Square PA: Project Management Institute.
- Project Management Institute. (2017b). *The standard for program management* (Fourth ed.): PMI.
- Sadeanu, M., Canda, S., & Bodea, C. N. (2013). ISO 21500:2012 vs. Other project management standards. In N. Grau & C. N. Bodea (Eds.), *ISO 21500 Project Management Standard: Characteristics, Comparison and Implementation*. Aachen: SHAKER Verlag.
- Todorov, T. S. (2014). Evaluating project and program management as factor for socio-economic development within eu. *Procedia Social and Behavioral Sciences*, 119(1), 819-828. Retrieved from <http://ezproxy.usq.edu.au/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=eoah&AN=34065332&site=ehost-live>
- Walker, D., & Lloyd-Walker, B. (2016). Rethinking project management: Its influence on papers published in the international journal of managing projects in business. *International Journal of Managing Projects in Business*, 9(4), 716-743. doi:10.1108/IJMPB-12-2015-0121
- Wells, H. (2012). How effective are project management methodologies? An explorative evaluation of their benefits in practice. *Project Management Journal*, 43(6), 43-58. doi:10.1002/pmj.21302
- Wideman, R. M. (2002). *Comparing PRINCE2 with PMBOK*. Retrieved from Vancouver, BC, Canada: