Project Management Standards, Guides and Methods: A Critical Overview

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The project management (PM) discipline has been developed worldwide through the practice and theories implemented in various types of projects. Prominent organizational bodies such as Project Management Institute (PMI), International Project Management Association (IPMA), Central Computer and Telecommunications Agency (CCTA), Association for Project Management (APM), Engineering Advancement Association of Japan (ENAA) and International Organization for Standardization (ISO) have outlined ways to practice project management. This study aims to highlight the differences between standards, guides and methods developed by these bodies and to evaluate their contribution to the project management profession using comparative analysis of documentary review approach, the differences were discussed through four aspects: approach, life cycle, procurement, and stakeholders. The study found that all six renowned project management standards and guides which is the Project Management Body of Knowledge (PMBOK) by PMI, International Competence Baseline (ICB) by IPMA, Project In Control Environment (PRINCE2) by CCTA, Association of Project Management Body of Knowledge (APMBOK) by APM, Project and Program Management (P2M) by ENAA and ISO10006 by ISO have one common focus area of project management which is the project quality management. The other revealing finding is that four from the six project management guides which are the APMBOK, *PMBOK*®. ICB and P2M embrace most of the PM elements (representing over eighty percent of the total PM elements). The four guides provide comprehensive materials for managing projects using best practices and the main project success factors.

Keywords*:* Project Management, PMBOK, PMBOK®, ICB, PRINCE2, APMBOK, P2M, ISO1006

1.0 INTRODUCTION

The project management body of knowledge (PMBOK) is a set of processes and knowledge fields that are widely recognized as best practices in project management (Jamali and Oveisi, 2016; Cleland,1995). The practice of project management (PM) has rapidly evolved over the years since it was formally introduced in 1957. It has evolved into a vital element of project development tools (Matos and Lopes, 2013). The right PM practices and methodology are of crucial importance for project success (Kononenko and Lutsenko, 2019). The theory of PM is derived from different practices over years of managing projects. As such, this evolution goes across the Method, Guides, and Standard documents for project management since it was first introduced in 1987 (PMI, 2008: Ghosh and Varghese, 2004). Subsequently, the arrangement of the structure of the theory and practices of PM is derived from different organizations worldwide (Ghosh, Forrest, DiNetta, Wolfe, and Lambert, 2015). The organizational bodies, which most significantly contribute towards developing PM theory and practices, are the Project Management Institute (PMI), International Project Management Association (IPMA), American National Standards Institute (ANSI) and International Organization for Standardization (ISO). These organizations have outlined standards, guidelines and methodologies that created common practices of project management to achieve project success.

This study is imperative as it identifies the similarities and differences of the project management standards and guides. By knowing the differences, the project management fraternity and industry professionals know the areas of focus and specialization of each respective standard and guide. This will be vital knowledge for projects managers to adopt the appropriate standard and guides which are suitable for a particular sector or industry. By knowing the similarities, the study reveals the key and major knowledge areas that have been emphasized by every standard and guide and this would be of paramount importance in project management.

This study aims to highlight the structure of the theory and practices in project management that are available worldwide. A comparative analysis was conducted and revealed that there are productive differences among the methods, guides, and standards. The various methodologies and practices address the issues and areas of PM practices differently. Another aspect that this study highlighted is the issue of interpretation of the goals and objectives, transparency, accountability, and ethics, which require further deliberation by the available documents.

There are six methods, standards and guides in the theory and practice of PM, namely the PMBOK (PMI, 2017), ICB (IPMA, 2015), PRINCE2 (AXELOS, 2017), APMBOK (APM, 2019), P2M (ENAA, 2017), and ISO1006 (ISO, 2017). The organizational bodies, which have the most significant activities in developing PM, are the PMI, IPMA, ANSI and ISO (APM, 2019; Ilieş, Crişan, and Mureşan, 2010).

2.0 LITERATURE REVIEW

What Lies in the Methods, Guides, and Standards of Project Management?

The organizational bodies and their PM approaches differ in terms of type and the purpose of which the approach has been developed (Abyad, 2019; Joslin and Muller, 2015; Karaman and Kurt, 2015: Walta, 2005). The rigorous and comprehensive review of literature conducted revealed that the theories and practices of PM are further comprised of three categories which are namely, standards, guides, and methods (manual). Although Ilieş et al. (2010) classified PM approaches (as best practices) into two categories, namely, Standards and Guides. These studies considered Method the same as Guides and listed them in one category. However, the ISO10006 is just a standard for PM.

A guide is the 'generally accepted' technique of PM, which contains processes to evaluate and assist project managers in the management of the project (Albert, Balve and Spang, 2017; Haass and Azizi, 2019). A guide is therefore more theoretical and it is used as a reference (PMI, 2017). A method is a detailed process, which provides a step by step guidance on how to organize and run a project (*Office of Government*

Commerce, 2009). In a sense, a method is more practical than a Guide or Standard. A standard provides guidance on the application of a specific area and it does not cover the different aspects of PM like a Guide does in the PMBOK.

The summary of the project management standards, guides and methods and the classification are illustrated vividly in Table 1.

Based on this table, PMBOK, ICB, APMBOK, P2M are identified as Guides while PRINCE2 and IS01006 are Method and Standard respectively. The subsequent sections are overviews of the six Standards, Guides and Methods practices of PM. The elements of PM are also discussed in these Standards, Guides and Methods of PM

Table1: Summary of Classification of Project Management Standards, Guides and Method

Project Management Practices	Type of Classification of Project Management	Organization Issued	Country of Origin	Language Used	First Edition	Latest Edition Available (as 2021)
PMBOK®	Guides	PMI	USA	English	1987	6th edition 2017
ICB	Guides	IPMA	Switzerland	English	1999	4rh edition 2015
PRINCE2	Method	CCTA	UK	English	1989	6th edition 2017
APMBOK	Guides	APM	UK	English	1992	7th edition 2019
P2M	Guides	ENAA	Japan	Japanese	2003	3rd edition 2017
ISO10006	Standard	ISO	Switzerland	English	1997	3rd edition 2017

2.1 Overview of PMBOK®

The Project Management Institute (PMI), in an attempt to standardize generally accepted project management information and practices, published the Project Management Body of Knowledge (PMBOK®) Guides for the first time in 1987 (Ilieş, et al., 2010). Evolving from the time it was first introduced, now the latest PMBOK is the sixth edition which was released in 2017. PMBOK® by PMI is one of the most widely used guides in project management. PMBOK® is a collection of processes and knowledge areas generally accepted as best practices within the project management discipline (Ruiz-Martin and Poza, 2015). Besides, PMBOK® is also an internationally recognized standard that provides the fundamentals of project management as it applies to a wide range of projects. It comprises ten knowledge areas that are described in detail.

The Sixth Edition of PMBOK® (PMI, 2017) did not have any addition of new knowledge areas unlike the Fifth Edition (PMI, 2013), however, the name of the knowledge area Project Time Management has been changed to Project Schedule Management and the Human Resource Management has been changed to Project Resource Management. The talent area of a project manager is a new section that has been added in the Sixth Edition, this section outlines the project manager's role in a team and emphasizes project managers competence in strategic business management skills, technical project management skills and leadership skills, which is known as PMI's Talent Triangle (Karanja and Malone, 2021; PMI, 2017). The structure of PMBOK Sixth Edition contains the ten areas of knowledge and five process groups as shown in Figure 1.

Knowledge Areas	Project Management Process Groups				
	Initiating Process Group	Planning Process Group	Executing Process Group	Monitoring and Controlling Process Group	Closing Process Group
4. Project Integration Management	4.1 Develop Project Charter	4.2 Develop Project Management Plan	4.3 Direct and Manage Project Work 4.4 Manage Project Knowledge	4.5 Monitor and Control Project Work 4.6 Perform Integrated Change Control	4.7 Close Project or Phase
5. Project Scope Management		5.1 Plan Scope Management 5.2 Collect Requirements 5.3 Define Scope 5.4 Create WBS		5.5 Validate Scope 5.6 Control Scope	
6. Project Schedule Management		6.1 Plan Schedule Management 6.2 Define Activities 6.3 Sequence Activities 6.4 Estimate Activity Durations 6.5 Develop Schedule		6.6 Control Schedule	
7. Project Cost Management		7.1 Plan Cost Management 7.2 Estimate Costs 7.3 Determine Budget		7.4 Control Costs	
8. Project Quality Management		8.1 Plan Quality Management	8.2 Manage Quality	8.3 Control Quality	
9. Project Resource Management		9.1 Plan Resource Management 9.2 Estimate Activity Resources	9.3 Acquire Resources 9.4 Develop Team 9.5 Manage Team	9.6 Control Resources	
10. Project Communications Management		10.1 Plan Communications Management	10.2 Manage Communications	10.3 Monitor Communications	
11. Project Risk Management		11.1 Plan Risk Management 11.2 Identify Risks 11.3 Perform Qualitative Risk Analysis 11.4 Perform Quantitative Risk Analysis 11.5 Plan Risk Responses	11.6 Implement Risk Responses	11.7 Monitor Risks	
12. Project Procurement Management		12.1 Plan Procurement Management	12.2 Conduct Procurements	12.3 Control Procurements	
13. Project Stakeholder Management	13.1 Identify Stakeholders	13.2 Plan Stakeholder Engagement	13.3 Manage Stakeholder Engagement	13.4 Monitor Stakeholder Engagement	

Fig. 1- Overview of Project Management Knowledge Areas and Process Groups (PMI, 2017)

These ten areas of knowledge are implemented through the whole Project Life Cycle (PLC). The PLC defines the phases that connect the beginning of a project to its end (Figure 2). For example, when an organization identifies an opportunity to which it would like to respond, it will often authorize a feasibility study to decide whether it should undertake the project. The PLC

definition can assist the project manager to clarify whether to treat the feasibility study as the first project phase or as a separate, stand-alone project (Paton and Andrew, 2019). Where the outcome of such a preliminary effort is not identifiable, it is best to treat such efforts as a separate project (Wang, Sasanipoor and Wang, 2018). The PLC is explained explicitly in the Project Management Process Groups, which are (PMI, 2017):

- Initiating Process Group: Defines and authorizes the project or a project phase.
- Planning Process Group: Defines and refines objectives and plans the course of action required to attain the objectives and scope that the project was undertaken to address.
- Executing Process Group: Integrate people and other resources to carry out the project management plan for the project.
- Monitoring and Controlling Process Group: Regularly measures and monitors progress to identify variances from the PM plan so that corrective action can be taken when necessary to meet project objectives.
- Closing Process Group: Formalizes acceptance of the product, service, or result and brings the project or a project phase to an orderly end.

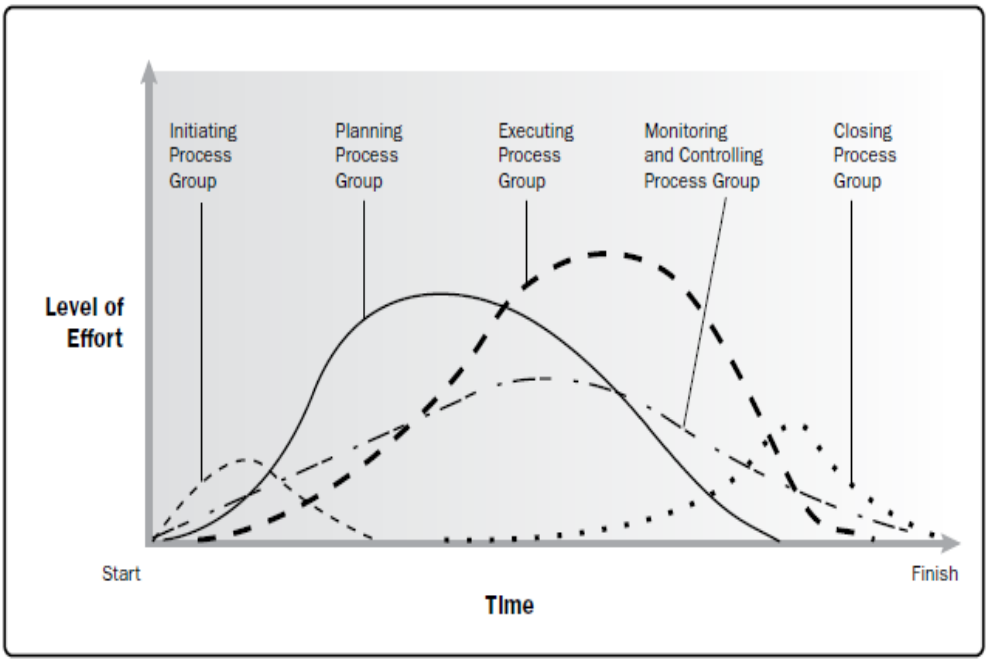

Fig. 2 - Process Groups Interact in a Project (PMBOK, 2017)

2.2 Overview of PRINCE2

The other PM method is Projects in Controlled Environments 2 (PRINCE2), which is the developed version of Projects in Controlled Environments (PRINCE). The Central Computer and Telecommunications Agency (CCTA) established PRINCE in 1989 as a structured method for effective PM (McGrath and Whitty, 2020). It is a "de facto" tool used extensively for managing projects either by the UK Government or by the private sector, both in the UK and internationally (Caupin, Knöpfel, Koch, Pannenbäcker, Pérez-Polo, and Seabury, 2004). PRINCE defines a project as a management environment that is created for delivering one or more business products according to a specified business case (Islam and Evans, 2020; Office of Government Commerce, 2009).

PRINCE2 is a process-based approach to PM and is well known as a generic project management method neither a guide nor a standard (Wang, Sasanipoor and Wang, 2020; Office of Government Commerce, 2009). In 2013, the ownership PRINCE2 2013 was transferred to AXELOS Ltd. In May 2017, AXELOS Ltd released the PRINCE2 2017 PRINCE2 consists of integrated elements of principles, themes, processes, and the project environment.

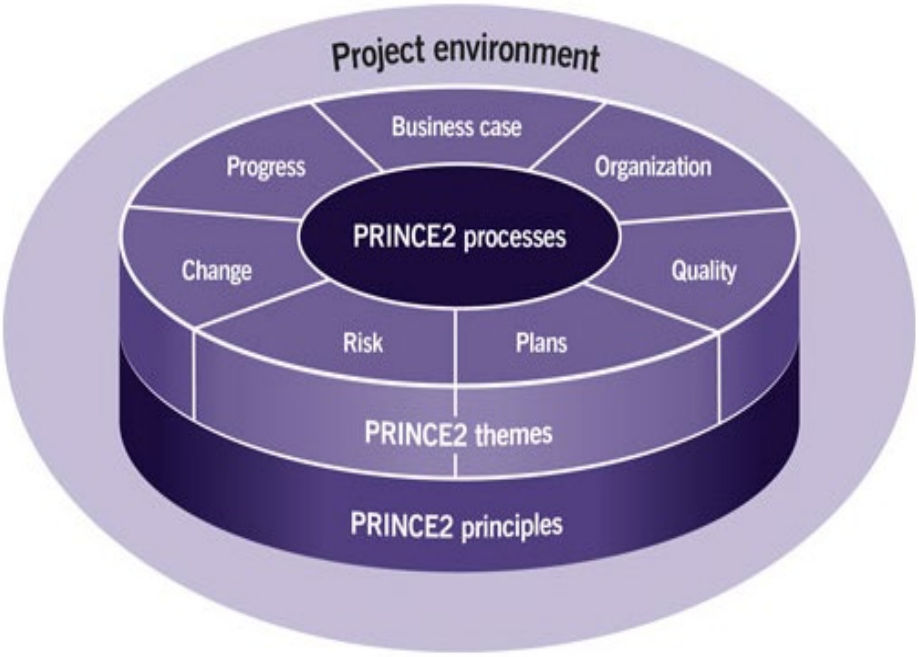

Fig. 3 - PRINCE2 components (AXELOS,2017)

As shown in Figure 3, the PRINCE2 process model consists of seven distinctive themes, covering the activities from setting the project off on the right track, right through controlling and managing the project's progress, to the completion of the project (AXELOS, 2017). The seven themes in PRINCE2 are detailed out as below:

- Business Case
- Organization
- Quality
- Plans
- Risk
- Change
- Progress

As shown in Figure 3, the PRINCE2 process model consists of seven distinctive principles which are the guiding requirements and good practices which determine whether the project has been managed genuinely by using PRINCE2, (AXELOS, 2017). The seven principles in PRINCE2 are detailed out as below:

- Continues business justification
- Learn from experience
- Defined roles and responsibilities
- Manage by stages
- Manage by expectation
- Focus on products
- Tailor to suit the project environment

The process of directing a project is shown in Figure 4 as a process diagram.

This process model consists of seven PRINCE2 processes detailed out as below:

- Starting up a Project
- Initiating a Project
- Directing a Project
- Controlling a Stage
- Managing Product Delivery
- Managing a Stage Boundary
- Closing a Project

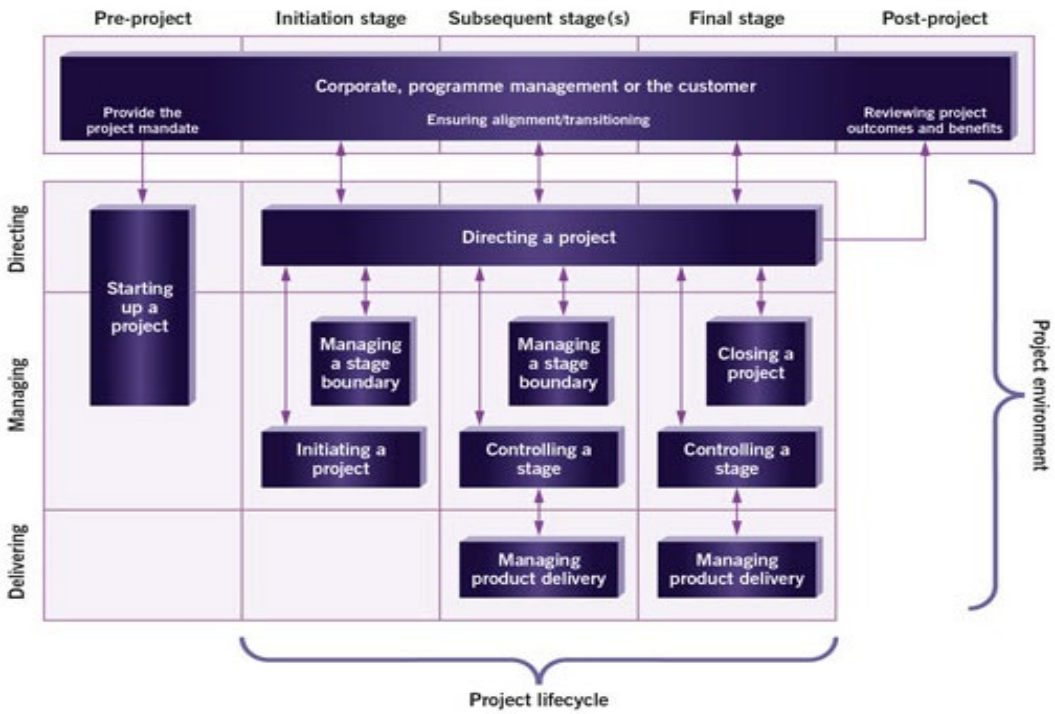

Fig. 4 - PRINCE2 Process model (AXELOS,2017)

2.3 Overview of ICB

The other popular PM Guideline is ICB. It was first published in 1999 and in 2006 the third edition was made available with a major change to the content (Ahlemann, Teuteberg, and Vogelsang, 2009). The ICB provides the official definition of the competencies expected from PM personnel by the International Project Management Association (Silvius, 2016; IPMA, 2006). During the IPMA World Congress 2015 in Panama, the fourth version of the IPMA Individual Competence Baseline for Project, Program and Portfolio was launched (IPMA, 2015).

The competence baseline brought forward by ICB4 is presented in the form of an "eye-opener" as shown in Figure 5. ICB4 (IPMA, 2015) describes competence elements in the three ranges: people, practice, and perspective, which subsequently are broken down into twenty-nine competence elements (Vukomanović, Young, and Huynink, 2016). These elements cover the following: the technical aspects of managing projects, programs and portfolio (fourteen elements), the personal and interpersonal competencies required to succeed in projects, program and portfolio (ten elements), the contextual competencies that must be navigated within and across the broader environment (five elements).

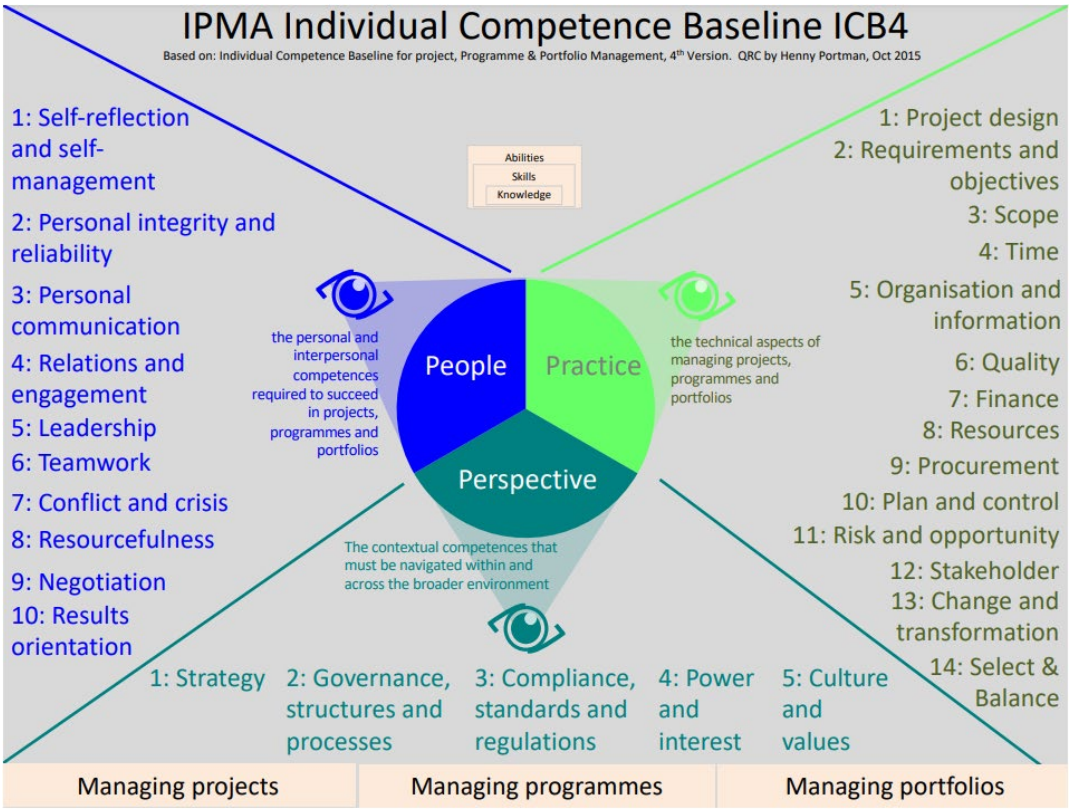

Fig. 5- Eye of competence ICB4 (IPMA, 2015)

The eye of competence represents the integration of all the elements of PM as seen through the eyes of the project manager when evaluating a specific situation. The eye also represents clarity and vision. After processing the information received, the competent and responsible professional in PM takes appropriate action. The contextual competencies, technical competences, and behavioral competencies are described as follows (IPMA, 2015):

1. Technical competence range: describes the fundamental PM competence elements. This range covers the PM content, sometimes referred to as the solid elements. The ICB contains fourteen technical competence elements.
2. Behavioral competence range: describes the personal PM competence elements. This range covers the project manager's attitudes and skills. The ICB contains ten behavioral competence elements.
3. Contextual competence range: This section describes the concepts of project, program, and portfolio and the linkage between these concepts and the organization or organizations that are involved in the project.

2.4 Overview of P2M

A Guidebook of Project and Program Management for Enterprise Innovation (P2M) is another reference for project managers. It was developed and first published in 2003 by the Engineering Advancement Association of Japan (ENAA). The evolution of the project management model is represented in Figure 6. Project Objectives Management consists of eleven elements as follows (P2M, 2017):

1. Project and Program Management
2. Integration Management
3. Stakeholder Management
4. Scope Management
5. Resource Management
6. Time Management
7. Cost Management
8. Risk Management
9. Quality Management
10. Procurement Management
11. Communication Management

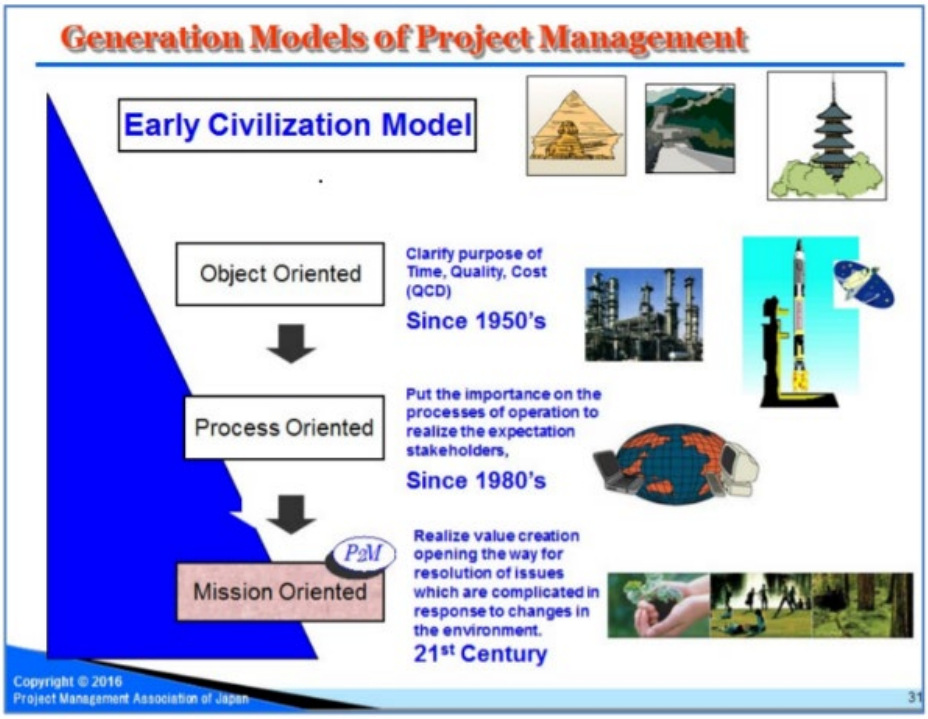

Fig. 6 - Generation Model of Project Management (ENNA,2017)

Business management areas in the P2M (ENNA, 2017)

1. Business Management (Business Management Foundation)
2. Knowledge Management (Knowledge Management Foundation)
3. Human Resource Management (Human Capital Foundation)

Program management areas in the P2M (ENAA,2017)

1. Program and Program Management
2. Program Integration Management
3. Program Strategy and Risk Management
4. Value Assessment Management

2.5 Overview of APMBOK

The other popular Guide for PM is the Association for Project Management Body of Knowledge (APMBOK) from The Association for Project Management (APM), a project management professional association headquartered in the United Kingdom. APMBOK is updated to represent changes in the discipline, such as emerging practice patterns, changing terminology, studies, and publications (Morris, Patel and Wearne, 2000; Morris, Jamieson and Shepherd, 2006). It was first published in 1992 by the Association for Project Management (APM) in the UK (Willis, 1995). The latest version of the Guide (Seventh Edition) has been available since 2019. The APM Body of Knowledge identifies sixty-eight areas of knowledge, each of which is covered in a topic.

The primary structure of this Guide is well established in the following four sections considering that there is nothing fixed about this structure in its format or sequence. The four sections are (APM, 2019):

1. The organizational perspective
2. Organizing the change
3. People and behaviors
4. Delivering projects

The four knowledge areas are indicated and explained in Figure 7. Each of these areas describes further the breakdown to sections and elements of PM within the context Guideline of APMBOK. The organizational perspective has three sections and eighteen elements, organizing the change has three sections and seventeen elements, people and behavior have three sections fourteen elements, and the delivering project has three sections and eighteen elements.

The Organizational Perspective		Organising the change		People and behaviour		Delivering Project	
The role of project-based working in implementing strategy		Shaping and funding		Working Together		Defining Products	
1	Organisational environment	19	Projects	36	Teams	51	Objectives and requirements
2	Strategic implementation Investments in planned change	20	Programmes	37	Stakeholders	52	Scope
3	Organisational change	21	Portfolios	38	Social systems	53	Options and solutions
4	Benefits to the organization	22	Best-fit contracting strategy	39	Culture and cultural differences	54	Success and benefits
5	Delivery options – projects, programmes and portfolios	23	Investment decisions	40	Diversity and inclusion		
		24	Business case				
	Governance		Assurance, learning and maturity		People Skills		Integaring planning and reporting
6	Governance principles	25	The PMO	41	Engaging and influencing	55	Estimating
7	Sponsorship	26	Decision gates	42	Leading	56	Scheduling
8	Steering groups	27	Assuring performance	43	Teamworking	57	Resource optimization
9	Aligning and balancing temporary and permanent organisational structures	28	Knowledge and knowledge management	44	Communicating	58	Cost planning
10	Operational adjustments during project-based working	29	Maturity of practice	45	Negotiating	59	Identifying and analysing risk
11	Sustainability			46	Resolving Conflicts	60	Contigency determination
12	Strategic sourcing			47	Dealing with stress	61	Delivery Baseline
						62	Progress reporting
	Delivery options and choices		Transition into use		Being Professional		Managing Delivery
13	Delivery philosophy	30	Business readiness	48	Ethics and standards	63	Awarding, monitoring and managing contracts
14	Linear project life cycle	31	Handover of project outputs	49	Continuing professional development (CPD)	64	Managing risks
15	Iterative (and evolutionary) life cycles	32	Adoption and benefits realization	50	Regulatory environment	65	Managing issues
16	Hybrid life cycles	33	Early closure of projects			66	Managing variations (change control)
17	Extended life cycle	34	Administrative closure of projects			67	Managing the configuration
18	Product life cycle	35	Closing programmes and portfolios			68	Ensuring product quality

Fig. 7 - The APM body of knowledge (APM, 2017)

2.6 Overview of ISO10006

The ISO 10006 is the standard in the part of PM practices, primarily in Quality Management (ISO, 2017). This Standard was first published in 1997 and then was updated in 2003 as the second edition and the latest edition so far is the third edition which was updated in 2017 (ISO, 2017). ISO 10006 guides quality management in projects. It outlines quality management principles and practices, the implementation of which are important too and have an impact on, the achievement of quality objectives in projects (ISO, 2017). It supplements the guidance given in ISO 9004.

This Standard is intended for a wide spectrum of audiences. It is also applicable to projects, which can take many forms, from small to very large, from simple to more complex, from being an individual project to being part of a program or portfolio of projects.

Besides, it can be used by personnel who have experience in managing projects and need to ensure that their organization is applying the practices contained in the ISO 9000 Family of Standards, as well as those who have experience in quality management and are required to interact with project organizations in applying their knowledge and experience to the project. Inevitably, some groups will find that material presented in the Standard is unnecessary to detail. This Standard gives guidance on the application of quality management in projects. It applies to projects of varying complexity, size, duration, in different environments, and irrespective of the kind of product or process involved. This can necessitate some tailoring of the guidance to suit a particular project (ISO, 2017).

3.0 METHODOLOGY

Six renowned methods, standards and guides in the theory and practice of PM were selected in this study. They are PMBOK® (PMI, 2017), ICB (IPMA, 2015), PRINCE2 (AXELOS, 2017), APMBOK (APM, 2019), P2M (ENAA, 2017), and ISO1006 (ISO, 2017). A comparative analysis between the six PMBOKs was conducted to understand the gaps and differences between them. Critical elements of project management were identified and were compared across the six Standards, Guides and Methods. The nineteen critical elements across the six Standards, Guides and Methods are the product life cycle, project management, program management, portfolio management, product management, interpersonal skills, tools and techniques, leadership, conflict and negotiation, safety, health and environment, scope management, integration management, time management, cost management, cost management, risk management, communication management and stakeholder management.

4.0 DATA COLLECTION

This study employed the qualitative data collection method. The data in this study are the elements of PMBOK which were gathered from the six methods, standards, and guides of PM (PMBOK®, ICB, PRINCE2, P2M, APMBOK, and ISO 1006). Qualitative data provides insight into the PM elements adapted in the various method, standards and guides. There are nineteen elements across the six methods, standards, and guides. These elements are the product life cycle, project management, program management, portfolio management, product management, interpersonal skills, tools and techniques, leadership, conflict and negotiation, safety, health and environment, scope management, integration management, time management, cost management, cost management, risk management, communication management and stakeholder management

5.0 ANALYSIS AND RESULT

Comparative Matrix of the Standards, Guides and Methods

There contrast differences among the project management standards, guides, and methods. The underlying difference can be translated in form of a comparative matrix. This matrix is described in terms of scope developed through comprehensive analysis based on the review of the literature. Table 2 illustrates the matrix of the analysis of PM approaches, which have been introduced in this study. There are over nineteen (19) elements across the six standards, guides, and methods of PM (PMBOK®, ICB, PRINCE2, P2M, APMBOK, and ISO 1006). These elements are product life cycle, project management, program management, portfolio management, product management, interpersonal skills, tools and techniques, leadership, conflict and negotiation, safety, health and environment, scope management, integration management, time management, cost management, cost management, risk management, communication management and stakeholder management.

Quality Management covers all the six standards, guidelines, and methods. While time management, cost management, risk management, resource management, scope management, communication management and stakeholder management are covered by all the five Standards, Guides, and Methods of PM, except the ISO 1006. It is observed in this matrix that six elements of a PM are covered by each of the six Standards, Guides and Methods. Program management and portfolio are covered only by PMBOK®, ICB4, PRINCE2, and P2M. Product management is covered only by PRINCE2, while integration management is only covered by PMBOK® and P2M. This indicates the uniqueness of each standard, Guides, and Methods that serve the unique purpose of each PM element.

Table2: Comparative Matrix of Scope of Coverage of Theories and Practices of Standards, Guides and Method of Project Management Elements

PM THEORIES and PRACTICES	PMBOK ®	ICB	PRINCE2	P2M	APMBOK	ISO10006
CLASSIFICATION PM ELEMENTS	GUIDES	GUIDES	METHOD	GUIDES	GUIDES	STANDARD
Project life cycle	✓		✓	✓	✓	
Project Management	✓	✓	✓	✓	✓	
Program Management	✓	✓	✓	✓	✓	
Portfolio Management	✓	✓		✓	✓	
Product Management			✓			

Interpersonal Skills	✓	✓		✓	✓	
Tools and techniques	✓				✓	
Leadership. Conflict. negotiation	✓	✓		✓	✓	
Health, Safety and Environment		✓		✓	✓	
Scope Management	✓	✓	✓	✓	✓	
Integration Management	✓			✓		
Time Management	✓	✓	✓	✓	✓	
Cost Management	✓	✓	✓	✓	✓	
Risk Management	✓	✓	✓	✓	✓	
Communication Management	✓	✓	✓	✓	✓	
Quality Management	✓	✓	✓	✓	✓	✓
Human Resources Management	✓	✓	✓	✓	✓	
Procurement Management	✓	✓		✓	✓	

6.0 DISCUSSION

Differences among the Standards, Guides and Methods of PM

The organizational bodies and their PM approaches differ in terms of type and the purpose of the approach which has been developed (Wirth and Tryloff, 1995). The PM approaches can be listed into three main categories, namely Standards, Guides and Method (Manual).

A guide is the 'generally accepted' technique of PM, which contains processes to evaluate and assist a project manager to run the project. It is, therefore, more theoretical and more frequently used as a reference. On the other hand, a method is a detailed process model, which gives step-by-step guidance on how to organize and run a project. Therefore, it is more practical than a guide or standard. Finally, a standard gives guidance on the application of a specific area and it does not cover the different aspects of PM as a Guide does.

PMBOK®, APMBOK, ICB, and P2M are considered as Guides. On the other hand, PRINCE2 is recognized as a methodology while ISO 10006 is a standard on Quality Management. Since this International Standard is a guidance document, it is not intended to be used for certification or registration purposes. This standard only covers Quality Management. Hence, it is not recommended as a comparison with other guides and methods, which cover more areas in PM.

The differences between the five Standards, Guides and Methods are highlighted in major areas in PM. The review of the literature revealed that the areas that are significant to the structure of PM theory and practices are approach (guide versus methods), life cycle, procurement, and stakeholders.

6.1 Approach (guide versus method)

Firstly, there is considerable misunderstanding about the differences between the two approaches. They are not competing PM approaches, for instance, PRINCE2 and

PMBOK® adopt two different approaches in managing a project. The PMBOK® provides information on what a project manager needs to know whereas the PRINCE2 methodology helps to apply this knowledge in a structured and consistent manner.

PMBOK is a group of processes provides the fundamentals and can be applied to a wide range of projects meanwhile PRINCE2 is a group of the process provide the fundamentals for public domain (Jamali et al., 2016). The PRINCE2 approach is clear and concise meanwhile PMBOK in-depth approach can be used in various project settings but may be a challenge for a beginner (Siegelaub, 2017). PRINCE2 is a process-based approach which is scalable and tailored to cater for various types of project inclusive of agile and predictive projects (Hamad, Fadhil and Rasul, 2018).

PRINCE2 and PMBOK® take very different approaches to the presentation of the material (Wideman, (1995). Indeed, these two references serve different purposes and of different platforms and are therefore not directly comparable. The PMBOK® takes the best approach to teach the subject content of each knowledge area but is not so effective when it comes to guiding running a particular project (Wideman, 2002). Whereas, PRINCE2 is a practical PM methodology and suitable for a particular project or area like information technology (IT). Unlike PMBOK®, a more comprehensive source of information covers all aspects of PM and provides general information, which is suitable for all types of projects.

6.2 Life Cycle

PRINCE2 is based on the project life cycle, running from "Starting up a project" to "Closing a project". "Planning" and "Directing a project" are continuous processes supporting the other processes. Each of these stages has its respective sub-process. PRINCE2 describes three techniques namely: "Product Based Planning", "Quality Review" and "Change Control". The project life cycle in PRINCE2 starts with no original need, solution generating and feasibility studies – these are considered as inputs for the project life cycle. For example, PRINCE2 describes a product's life span as having five phases: Conception, Feasibility, Implementation (or realization), Operation, and Termination. However, the only Implementation is covered by PRINCE2 (Ghosh and Varghese, 2004). Therefore, PRINCE2 is an implementation methodology, particularly for IT projects, rather than a whole PM methodology.

Throughout the project, the PRINCE2 life cycle incorporates seven inter-linked processes which describe the activities performed during the project lifecycle (Coppola, D'Ambrogio and Gianni, 2016). Throughout the lifecycle of the project, PRINCE2 emphasizes seven principles of the PRINCE2 methodology which is the project must have continued justification, teams should learn from the experience, roles and responsibilities need to be clearly defined, work is planned and managed in stages, manage the team by exception, stay focused on the products and tailor the approach to meet the project requirement (Jaziri, El-Mahjoub and Boussaffa, 2018).

6.3 Procurement

PRINCE2 states that a project is running under the context of a contract. However, it suggests that contracting and procurement are specialist activities, which can be managed separately using the method, and do not cover project procurement management. Whereas procurement management is covered in PMBOK and seems to make the differences between the two approaches highlighted.

PRINCE2 project management approach in the area of project procurement management is well-tailored and applied practical methodology which is the strength of PRINCE2 (Ershadi, Jefferies, Davis and Mojtahedi, 2021). Proper decision-making in procurement processes is essential and emphasized in the PRINCE through various techniques which are included in the planning theme (Hubner, Volk and Schultmann, 2018).

6.4 Stakeholder

PMBOK, ICB4, PRINCE2, P2M, and APMBOK deals with stakeholders, albeit not mentioning a specific technique for their analysis. ISO 10006 specifically does not deal with stakeholders.

Project stakeholder management is an important area of project management (Eskerod, Huemann and Savage, 2015). Stakeholders are important in a project and managing the stakeholders diligently is crucial for project success (Mok, Shen and Yang, 2015). Project stakeholder management processes and methodologies are emphasized by the project management guides and standards to ensure stakeholders are well managed throughout the lifecycle of the project (Oppong, Goodenough, Albert and Ayirebi, 2017).

6.5 Uniqueness of ICB

The uniqueness of ICB can be identified by comparing the other methodology and standards. In the first place, the following topics are not covered in ICB:

1. Product management
2. Organizational learning
3. System management
4. Safety, Health, and Environment

The other important aspect is ICB describes technical elements concisely and does not provide elaborated information. Behavioral elements stated in ICB are all considered soft skills in PM. Procurement management is covered in all methodology and standards except ISO10006. ICB emphasizes behavioral competencies, which are the personal relationships in a team.
The PMBOK® focuses on technical skills rather than interpersonal (Eberle, Meyer, and Rosen, 2011). It does not however address PM's skills, attitudes, portfolios, or programs (Caupin et al., 2004; Ohara, 2003). ICB puts more emphasis on people skills while PMBOK® has more focus on process skills. Since both skills are important in a project, the right balance between them is critical.

7.0 CONCLUSION

There is a total of six Standards, Guidelines, and Methods covering the different project management elements, which are PMBOK®, ICB, PRINCE2, P2M, APMBOK, and ISO16000. The review of the literature revealed nineteen elements, including Project Life Cycle, Project Management, Program Management, Portfolio Management, Product Management, Interpersonal Skills, Tools and Techniques, Leadership, Conflict and Negotiation, Safety, Health, and Environment, Integration Management, Scope Management, Time Management, Cost Management, Quality Management, Risk Management, Communication Management, Human Resource Management, Procurement Management and Stakeholder Management. Of all the nineteen elements, only one element has been covered in all standards, guidelines, and methods, which is Quality Management. Other elements that have been covered in most standards, guides, and methods are Scope Management, Time Management, Cost Management, Risk Management, Human Resource Management, Communication Management, and Stakeholder Management. These elements are crucial in managing projects and are required to define project success from the managerial team perspective. The other revealing finding is that both AMBOK, PMBOK®, ICB, and P2M guides embrace most of the PM elements (representing over eighty percent of the total PM elements). Both guides provide comprehensive materials for managing projects using best practices and the main project success factors.

One of the future studies which researcher may explore is into merging and integrating the standard, guides, and method available for particular industries. Perhaps this effort may open up a new horizon on how PM standards, guides and methods can be used to manage projects, which are getting more complex day after another.

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