

Controlling a Permanent State of Change – IT Management Framework (ITMF)

Janelle R. Pollard and Shane R. Geisler

Abstract—In acknowledgement that organisations are in a permanent state of change; that IT needs to deliver change at the pace of business; and the rejection of ‘one size fits all’ delivery model resulting in hybrid methodologies, a blended and encompassing management partnerships across an organisation have become even more pertinent in business.

To this goal the IT Management Framework (ITMF) has established a framework that provides the organisation with the ability to identify and capture information across multiple level throughout the organisations structure without impacting delivery.

ITMF forms a single delivery orientated ICT Environment which establishes methodology independent framework, without being prescriptive about the execution methodologies; simultaneously empowering leadership teams simplification of the governance touch points and reporting obligations into the delivery environment

Index Terms—Governance, IT development lifecycle, management framework, project management, portfolio management, organisational structure.

I. INTRODUCTION

The adaptation of the Information Technology Management Framework (ITMF) into a delivery orientated Information and Communication Technology (ICT) Environment establishes a customizable, cross-platform lifecycle management framework that consolidates multiple delivery methodologies into a simplified / singular management framework.

The ITMF establishes minimalistic governance touch points into multi discipline delivery environments through the simplification of enterprise management and reporting of change initiatives and projects. The implementation of a singular, cross platform methodology empowers organizations to successfully implement a stable, adaptive reporting matrix at a strategic management level. The ITMF allows the company or organization to concentrate on the development of a highly adaptable, reactive and delivery orientated workforce and promotes the management of projects within any exiting business delivery capability. It provides timely monitoring and control along the change from inception to execution and beyond.

The purpose of this paper is to define the IT Management Framework and how the organization’s company structure currently influences the IT delivery methods and functional efficiency across the organisation. This will enable readers to make informed decisions about how the structure of an

organisation can assist or restrict delivery efficiency and how best to implement the correct structure to align with the business’s core delivery products.

II. BENEFITS OF THE IT MANAGEMENT FRAMEWORK

Driving the creation of the framework was the need to establish a framework that seeks to remove governance silo’s and which can be easily deployed across multiple delivery methodologies. The ITMF diverges from a centralized delivery model pivoting upon a ‘one size fits all’ delivery model and establishes a simplified governance framework designed to generate informative reporting across existing delivery frameworks.

As business in the Information Technology sector continue to adopt formal Portfolio Management structures there is also a growing acknowledgment that ‘one size does not fit all.’ [1] The increase in scope / scale of Program and Portfolios across multiple business sectors has lead to a consolidation of non-standard business initiatives. In recent years, a business would typically seek to group like projects into a program, a primary example being the upgrade of a of several business functions across multiple operating platforms. As Program funding has been drawn back into corporate budget in line as a result of the Global Financial Crisis [2] (GFC), Portfolio and Program managers have sought to establish end-to-end delivery lines. The emergence of this trend has is a direct response to the centralization of operational budgets, the presentation of a whole of life Portfolio / Program is designed to demonstrate tangible outcomes to the senior executives of that organisation – thus increasing the potential for that activity to be funded through the deployment lifecycle.

The IT Management Framework has been specifically designed to deliver standardisation; governance and performance based reporting across the organisation. The ITMF has been developed from the ground up as a customizable, cross platform governance and reporting framework that is complimentary to extant delivery methodologies within the organisation. By accurately mapping the recognised methodologies that utilise delivery cycles centered upon a phase / stage / tranche approach, the ITMF has established a framework that provides the organisation with the ability to identify and capture information across multiple level throughout the organisations structure without impacting delivery. In addition to the increased reporting capabilities, the ITMF also presents a number of additional benefits across multiple business-orientated functions including:

- Increased Organisational Efficiency
- Increased utilisation of existing Project Resources

- Significant increase in Portfolio Governance and Reporting
- Promotes an environment of continual improvement and increased utilisation of ‘lean’ processes and procedures

The IT Management Framework has been specifically designed to increase reporting and governance efficiency across multiple delivery arms.

III. OVERVIEW OF THE IT MANAGEMENT FRAMEWORK

The basis of this research was to analysis a cross section of development methodologies/orientations and models to locate the common themes, which could be leveraged to create a general overarching lifecycle management framework.

The ITMF has been constructed from the analysis of the following development methodologies/orientations:

- 1) System/Software development Lifecycle [3]
- 2) Agile [4], [5]
- 3) Project Management [6], [7]

These orientations take into account the lifecycles associated with the following software develop models:

- 1) Waterfall [8]
- 2) Iterative [9]
- 3) SCRUM [4]
- 4) Spiral [10]
- 5) IBM Rational Unified Process (RUP) [11]
- 6) Dynamic Systems Development Method (DSDM) [12]
- 7) Microsoft Solutions Framework (MSF) [13]
- 8) Prototype (Throw away, Extreme, Incremental and Evolutionary) [14]

In addition to the above development frameworks the two most prevalent project management methodologies have also been taken into consideration in the development of an overarching IT Management Framework.

- 1) Prince 2 [6]
- 2) PMBOK [7]
- 3) Agile [5]

Analysis of multiple industry standard methodologies and over a decade of first hand experience in the delivery of ICT programs across multiple industry sectors has lead to the creation of the ITMF. The ITMF delivers a singular management methodology designed to encompass the iterative processes typically found within applications development projects, along with the linear cases found in outsources contracting projects and infrastructure project delivery.

This paper will not to analyze the strengths and weaknesses of each of the most prevalent delivery methodologies, rather, we will be presenting the Information Technology Management Framework for review and discussion.

Fig. 1 outlines to overall structure of IT Management Framework, and the following fives sections with define to meaning of each of the sections of the framework.

A. Request Stage

The objective of the request stage is to obtains business level buy in to the change and define the objectives/goals and the reason why the change needs to occur (benefits).

Concept approval, most typically manifests itself in the form of a business case artifact.

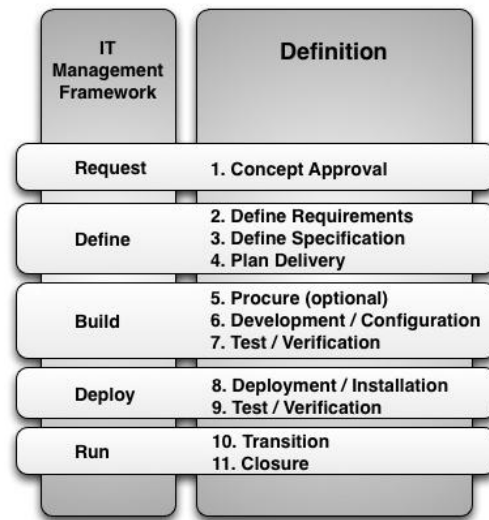


Fig. 1. IT management framework

B. Define Stage

The objective of the define stage is to specify what needs to be done (requirements) and how (planning the execution strategy). The outcome of is a common agreed position between business stakeholders and delivery areas (be them in the form of in-house requirement documents, workshop outcomes, Story board cards, etc. or vendor statement of works contract for external parties, as a few examples.)

C. Build Stage

The objective of the build stage to create the commonly agreed set of goals. Build contains the construction of the deliverable/s, be it

- 1) Physical, where this includes the procurement of hardware and assets, and the arrangement of them into tangible functional unit.
- 2) Virtual where the artifact being constructed is done so by purely by personal labour and thus procurement is the purchase of personal time to create a functioning artifact.
- 3) Abstract were a service is being purchased and the build is the management of execution of a contract.

For infrastructure projects the build stage will include the procurement of hardware, followed by the hardware configuration and verification of the configuration. Alternatively for application based changes the focus is on the development and testing of code. Procurement may still be applicable in application developments, in terms of the procurement of labour resources, or equally not application in different resourcing contexts, which is why this sub category is optional.

D. Deploy Stage

In simplistic terms this is the launch of the functioning artifact. At the roots this is the release of the item/code/change to be visible outside of IT and testing areas so that it as appears in the business domain. (Note that the objective may also the decommissioning of applications or content.)

Following on from the build stage the framework

accommodates for the terminology nuances of application versus infrastructure changes with the interchangeable wording of deployment, referring to code release and installation, for hardware. At an activity based level they are equivalent with the common outcome being the change becomes Live.

E. Run Stage

The objective is to transition the completed objectives / goals to Business ownership and the ongoing support maintenance arrangement. Additionally the closing down of projects teams.

IV. ALIGNMENT WITH CONTEMPORARY DELIVERY METHODS

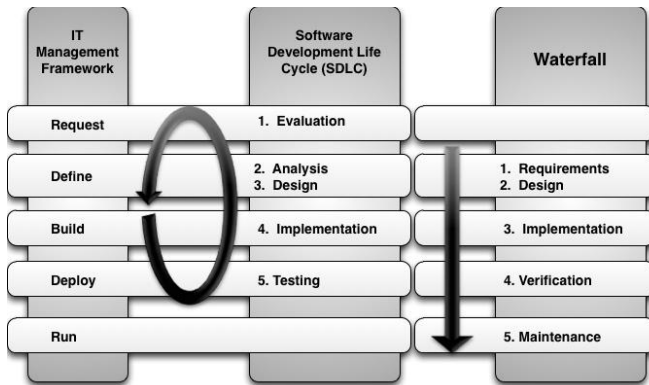


Fig. 2. ITMF alignment with traditional application development lifecycles – SDLC and waterfall

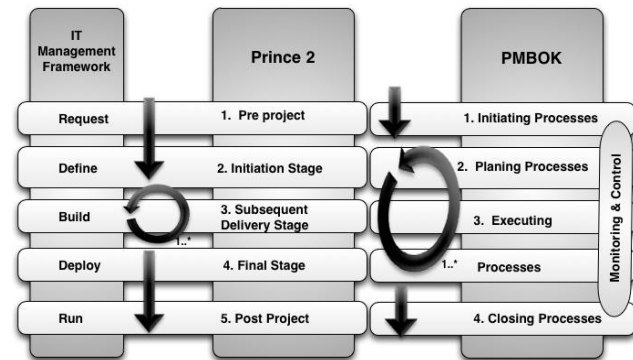


Fig. 3. ITMF comparison with project management methodologies – Prince 2 and PMBOK

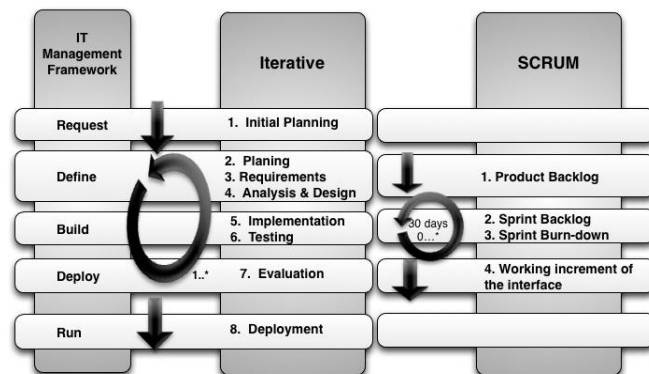


Fig. 4. ITMF alignment with contemporary application development - iterative and SCRUM

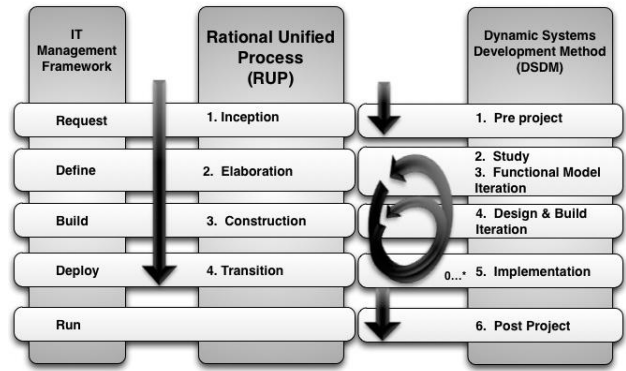


Fig. 5. ITMF alignment with contemporary application development - RUP and DSDM

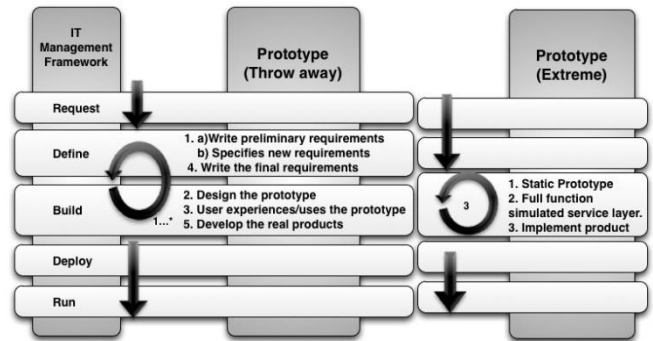


Fig. 6. ITMF alignment with contemporary application development - prototype throw away and extreme

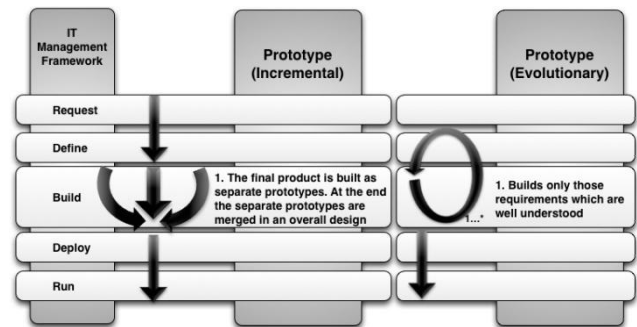


Fig. 7. ITMF alignment with contemporary application development - prototype incremental and evolutionary

IT Management Framework is independent of the methodology in which the projects are executed by, the structure of the companies' sub departments, contracting models, and whether the delivery is liner or cyclic. The framework removes the ambiguity of terms used to have different meanings within the various methodologies. A notable example is the meaning of the word Implementation in the various models, where it can refer to the creation / development and/or the release of the coding.

Fig. 2-Fig. 7 demonstrate how popular development and project methodologies/lifecycles can be mapped to this generic framework.

In a standard business structure, an organisation will attempt to implement a single methodology for each of their delivery functions. The net result of which, when the exception cases are taken into account, is the deployment of multiple methodologies, governance structures, artifacts and deployment tools. Exemplified in the industry papers calling

out the trend of blending agile and waterfall to form a hybrid approach [15], combination of agile and stage-gate project management [16], to name but two examples of the prevalence of hybrids and customization of methodologies.

Most IT development models take into account the development and implantation work, but discount the request phase where the concepts are priorities by business areas and after the code is deployed and is operating in Business As Usual (BAU) Run Phase, for example,

- 1) System / Software development Lifecycle cycles through the Request to Deployment phase without taking into account after the software is in BAU. (Fig. 2)
- 2) Waterfall starts from defining the requirements, discounting the business prioritisation of work before it becomes an official project. (Fig. 2)
- 3) Scrum focuses on the Define to Deploy phases with cyclic sprints in the Build phase. (Fig. 4)
- 4) Prototype models are the most narrowly focused with their details predominantly in Build phase. (Fig. 6 and Fig. 7)

However these narrow development models are very flexible to be inserted into established mature Project Management Office (PMO) frameworks as their focus is specialising within one phase.

V. DEPLOYMENT APPLICATIONS

Depending on the maturity [17] of the organization, operational category and volume of projects, the framework can be simplified within an organisation to suit the purpose of the change/s. The emergence of offshored delivery models and software as a service has seen a rapid restructuring of how organisations deliver and the speed of delivery. Post GFC, businesses have sought to leverage all available delivery options, with current preferences given to delivery by existing staff, contracting, out sourced managed projects, shared infrastructure and out sourced delivery (including software / compute as a service).

The development of preferred delivery models within the business sector has lead to a requirement for greater flexibility and efficiency from existing governance models. In a complex contractual environment, the extant governance framework has three primary objectives;

- 1) To support BAU / operational staff in the delivery of procured software / services;
- 2) To support finance teams in the management and administration of contracted services; and
- 3) To support senior management in the delivery of computing services.

This section will step through how ITMF is applicable as a framework the various management lenses.

A. Project Management

The deployment of the ITMF within the Project Management capability is regarded as a business enabler owing to the increased emphasis on business intelligence in the context of organisational efficiency. In many delivery teams, there are a number of 'delivery centric' approvals and stage gates that are cleared prior to formal engagement of the delivery team. Recent analysis of emergent delivery trends [17] has indicated a distinct trend away from the simplistic

delivery objectives of being on time / on budget with greater consideration now being afforded to the requirements of the business arm delivering the core service. Acknowledging the significance of successful business delivery, the ITMF deliberately structures multiple engagement points with the business representatives of the project, the primary of which are:

- 1) Project Proposal;
- 2) Project Initiation / Funding;
- 3) Product / Deliverable Design;
- 4) Business Acceptance Testing; and
- 5) Product / Deliverable Deployment.

The use of regular, structured touch points with multiple business representatives assists in the development of a business-orientated delivery culture; a clear demarcation between existing delivery frameworks and the ITMF.

B. Portfolio / Programme Management

The implementation of the ITMF within the Portfolio / Programme Management capability is the key to successfully executing changes within organizations. One of the greatest lessons from the GFC has been the forced requirement to deliver capability in a lean, efficient manner. The ITMF has been designed from the ground up as a decoupled governance framework, specifically designed to work with extant delivery models to deliver useful governance reports and optimize delivery models within the organisation. The strength of the ITMF lies in its ability to work across multiple complex corporate environments, ranging from:

- 1) Strategic business development;
- 2) Increasing the likelihood of project success through greater resource engagement and utilisation; [18]
- 3) Management of out sourcing agreements;
- 4) Development and maintenance of delivery provided by Strategic partnerships;
- 5) Development and maintenance of market position metrics; and
- 6) Optimization of the existing organization structure.

C. Business as Usual (BAU)

In a mature state, it is anticipated that an organisations business as usual delivery arm must possess the experience and skill to deliver end-to-end support / break fix services to the business arm and small software / hardware upgrade and maintenance capabilities. Whilst the BAU environment is typically regarded as technologically low risk division, it must be noted that BAU, in particular break fix, maintenance and service desk functions, represent the greatest number of internal stakeholder touch points within the organisation. The deployment of the ITMF within the BAU space is designed to provide an effective snapshot of the end to end efficiency of the BAU function from a holistic perspective, identify existing and future state pain points and assist in the construction and assist in the development of workflows that are indigenous to each delivery team.

VI. CONCLUSION

The power of the IT Management Framework is that it provides a methodology independent framework simplifying of the governance touch points into the delivery environment,

without being prescriptive about the execution methodologies and creates a framework in which organizations can grow and contract with the needs of the individual changes.

ITMF acknowledges that organizations are in a permanent state of change where one style of delivery methodology is rarely suitable and breaks down the silos of organizational hierarchical structures by allowing the governance touch points and reporting obligations to be able to handed across boundaries, as long and the leadership teams of the organization agree at a strategic level to five terms: Requests, Define, Build, Deploy, Run.

REFERENCES

- [1] A. A. Shenhar, D. Dvir, T. Lechler, and M. Poli, "One size does not fit all – True for projects, true for frameworks," in *Proc. International PMI Research Conference*, 2002, pp. 1.
- [2] "World economy: EIU forecast - Downgrading the euro zone and the US," in *The Economist Intelligence Unit*, October 20th 2011, pp. 1.
- [3] W. Royce, *Software Project Management: A Unified Framework*, 1st ed, NJ: Addison Wesley, 1998.
- [4] S. Ambler and M. Line, *Disciplined Agile Delivery: A Practitioner's Guide to Agile Software Delivery in the Enterprise*, U.S.A: IBM Press, 2012.
- [5] J. C. Goodpasture, *Project Management the Agile Way: Making It Work in the Enterprise*, U.S.A: J. Ross Publishing, Inc., 2010.
- [6] C. Bentley, *PRINCE2: A Practical Handbook*, 3rd ed. Routledge, 2012, pp.1.
- [7] Project Management Institute Inc, *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)*, 4th ed. Pennsylvania, USA, 2008, ch. 2, Section 2.1.3.
- [8] W. Royce, "Managing the development of large software system," in *Proc. IEEE WESCON*, August 1970, pp. 1-9.
- [9] W. Royce, *Software Project Management: A Unified Framework*. Addison Wesley, 1999, ch. 1.
- [10] B. W. Boehm, "A spiral model of software development and enhancement," *IEEE Computer*, vol. 21, no. 5, pp. 61-72, May 1988.
- [11] P. Kruchten, *Rational Unified Process - An Introduction*, 1st ed. Cupertino, USA: Addison Wesley, 2000.
- [12] J. Stapleton and P. Constable, *DSDM: Dynamic Systems Development Method: The Method in Practice*, 1st ed. Addison - Wesley, July 1997.
- [13] M. S. V. Turner, Microsoft® Solutions Framework Essentials; *Building Successful Technology Solutions*, Microsoft Press, November 2009.

- [14] M. F. Smith, *Software Prototyping: Adoption, Practice and Management*, McGraw Hill Software Engineering Series, March 1991.
- [15] C. M. M. Chin and A. C. Spowage, "Project Management Methodologies: A Comparative Analysis," *Journal for the Advancement of Performance Information and Value*, vol. 4, pp. 110, table 1, October 2012.
- [16] D. Karlstrom , U. Lund, and P. S. Runeson, "Combining agile methods with stage-gate project management," *Software IEEE*, vol. 22, Issue 3, pp. 43-49, May-June 2005.
- [17] PricewaterhouseCoopers, "Insights and trends: Current portfolio, programme, and project management practices," pp. 12, October 2012.
- [18] Project Management Institute Inc., "PMI's pulse of the profession," *Driving Success in Challenging Times*, pp. 3, March 2012.



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