

## Project Management: An Overview

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### Body of Knowledge

Earlier this month, the Project Management Institute<sup>1</sup> (PMI) released the much awaited 5<sup>th</sup> edition of its Project Management Body of Knowledge (PMBOK). Established in 1969 as an association in US, Pennsylvania, the Institute issued *A Guide to Project Management Body of Knowledge (PMBOK Guide)* as a white paper in 1983 in an attempt to document and standardise generally acceptable project management practices. The first PMBOK edition was published in 1996 with the 4<sup>th</sup> Edition released on 31 Dec 2008.

Besides the linear-based process-driven project management methodology advocated by the PMI, other popular project management methodologies include PRINCE2<sup>2</sup>, PRiSM<sup>3</sup>, Critical Chain and Event Chain Management just to name a few.

While many authors pointed out that the systematic adoption of traditional project management began in the 1950s to manage the many complex engineering projects; some practitioners<sup>4</sup> argued that military strategies (Art of War) developed by Sun Tzu<sup>5</sup> provided the foundation for a number of management and planning methodologies that are embodied in the modern project management framework. Ms Chin-Ning Chu noted that "every battle is a project to be first won; then fought"<sup>6</sup>. Other authors such as Patrick Weaver<sup>7</sup> and Mark Kozak-Holland<sup>8</sup> proposed that projects in one form or another have been undertaken for millennia including the Pyramid of Giza in Egypt some 4,500 years ago.

### Traditional Project Management Approach

Many of the linear-based process-driven project management methodologies centred on a phased approach that involves a sequence of steps to complete a project which is defined as a temporary endeavour undertaken to deliver specific and unique goals and objectives. Such traditional project management approach typically involves five distinct process groups:

- Initiating
- Planning
- Executing
- Monitoring and Controlling
- Closing

Many of the tools and techniques used in project management were introduced from the early 1990s. For instance, the ever popular Gantt chart adopted by practically most Project Management Office (PMO) was developed by Henry Laurence Gantt<sup>9</sup> before 1910. Gantt charts were first used on large construction projects such as Hoover Dam in 1931. Critical Path Method (CPM) another indispensable project management tool was developed in 1950s. Around the period, the Program Evaluation and Review Technique, popularly known as PERT were the joint efforts of the US Navy and Booz Allen Hamilton. According to Wikipedia<sup>10</sup>, CPM was developed by Morgan R Walker (DuPont) and James E Keller, Jr (Remington Rand) and Kelley attributed the term "critical path" to the developers of PERT. CPM was put into practice by DuPont from 1940 and contributed to the success of the Manhattan project.

Discussion on project management would be incomplete without mentioning Frederick Taylor and Henry Ford. In his book<sup>11</sup> "The Principles of Scientific Management" published in 1911, Taylor wrote that systematic management prevails before man and instead of trying to search for some unusual or extraordinary man to alleviate the great loss of

nature resources of the country through inefficiencies, Taylor advocated the application of scientific management to all kinds of human activities, from the simplest individual acts to the work of great corporations. Taylor's approach also known as "Taylorism" was an attempt to apply science to engineering of processes and to management. Although scientific management became obsolete by the 1930s as a distinct theory, most of its theme are still important parts of industrial engineering and management even till today.

Henry Ford<sup>12</sup> on the other hand was concerned about how to bring down product cost, improve productivity and manage the high turn-over of production workers in his factory. After analysing how the workers were performing at the various car assembly operations, Ford was able to breakdown complex jobs into smaller parts (decomposition) allowing unskilled labour to carry out the job with little training or experience. Not only the method reduces production cost by using lower wage workers, it also allowed the Ford management to replace workers easily. Although there appeared to be no direct linkage between Taylor and Ford, much of Taylor's work can be seen in the operation of the assembly line and many of Ford's operations.

Given the majority of the criticism against Taylor and Ford were in their approaches of correlating the productivity of the human worker with machines thereby ignoring the human elements of feelings and motivation, this give rise to the emergence of various types of motivation theories such as Maslow's hierarchy of needs, Frederick Herzberg's two-factor theory, William Ouchi's Theory Z, etc.

*Although many of the earlier management studies, tools and techniques have evolved and updated, can the linear-based process driven project management methodology still meet the current demands of more complex projects?*

### **Managing Complex Projects**

Late last year, McKinsey's study<sup>13</sup> covering about 5,400 IT projects showed that on average, large IT projects run 45 percent over budget and 7 percent over time, while delivering 56 percent less value than predicted. In 2010, KPMG was involved in the first ever study conducted in New Zealand focusing on the area of project management. The study<sup>14</sup> covered over 100 organisations and key findings include the following:

- 70 percent of New Zealand companies have experienced at least one project failure in the past 12 months
- 60 percent of these companies are failing to measure the return on their investments in projects
- Over 50 percent of respondents stated that they do not consistently achieve stated project deliverables

These are but some studies amongst many others showing that notwithstanding the rigour and disciplines of project management and other governance methodologies, many projects failed to deliver their original project objectives.

Although traditional project management support sequential, overlapping and iterative relationships of small to mega-sized projects; the governance framework requires the project manager, project team and stakeholders to be able to predict to a fair degree of certainty during the planning stage a number of project attributes such as risks, detailed activities, duration required for each activity, cost estimation for each component, down to the number, types and frequencies of meetings and reports required.

While it is acknowledged that the key hallmark of a successful application of project management is progressive elaboration through an iterative process over the project lifetime; projects have been getting more complex involving more multi-disciplinary team members across regional locations, enlarged base of stakeholders with differing needs made more complex through a maze of confusing matrix reporting structures. Moreover, the nature of projects planned or undertaken are also often one of its kind; i.e. developing cutting edge technology not tried before; building infrastructures in unsecured terrains or delivering projects with thousands of interfaces and dependences in compressed time frame that conventional techniques in crashing and fast tracking could not work.

### Collective Actions

Recognising that the current project management methodologies have limitations in managing complex projects, collaboration amongst international bodies and government agencies have taken place since 2005.

For instance, The International Centre for Complex Project Management<sup>15</sup> (ICCPM) was established in 2007 as part of an initiative that started in 2005 when Australian, UK and US Government bodies and defence industry organisations launched an initiative designed to improve the international community's ability to successfully deliver very complex projects and manage complexity across all industry and government sectors. Other organisations such as the Australian Institute of Project Management (AIPM) have initiated a special interest group focusing on managing complex project since 2006; the Knowledge Centre at the Project Management Institute (PMI) has numerous articles and resources dedicated to complex project management.

It is a given that projects can only become more complex in nature and hence, it is increasingly important for project management practitioners to continue to share, collaborate and research on the various aspects of complex project management.

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### References:

<sup>1</sup> Project Management Institute (PMI) is one of the world's largest professional membership associations, with half a million members and credential holders in more than 185 countries. Visit PMI website at: <http://www.pmi.org/default.aspx>

<sup>2</sup> PRINCE2® (PProjects IN Controlled Environments) is used extensively by the UK government and is widely recognised and used in the private sector, both in the UK and internationally. Its official website can be found at: <http://www.prince-officialsite.com/>

<sup>3</sup> PRISM is a structured project management method developed by GPM Global to align organizational sustainability initiatives with project delivery... In Nov 2011, GPM became a NGO service provider to the United Nation. GPM website is at: <http://www.greenprojectmanagement.org/>

<sup>4</sup> [Managing Project the Sun Tzu's way](#) and [The Art of War and Project Management](#)

<sup>5</sup> The Art of War is an ancient Chinese military treatise attributed to Sun Tzu. Check out Wiki at [http://en.wikipedia.org/wiki/The\\_Art\\_of\\_War](http://en.wikipedia.org/wiki/The_Art_of_War)

<sup>6</sup> Ms Chin-Ning Chu at the PMI Global Congress (Bangkok, 2006). Chin-Ning Chu (朱津寧, pinyin: Zhū Jīnníng, 1947– December 10, 2009) was a Chinese American business consultant, and business management author in Asia and the Pacific Rim

<sup>7</sup> Patrick Weaver author of the article "Origins of Project Management": [http://www.mosaicprojects.com.au/Resources\\_Papers\\_050.html](http://www.mosaicprojects.com.au/Resources_Papers_050.html)

<sup>8</sup> Mark Kozak-Holland, author of the book "History of Project Management": <http://www.mmpubs.com/catalog/the-history-of-project-management-book-p-394.html>

<sup>9</sup> Henry Laurence Gantt (1861-1919) was a mechanical engineer, management consultant and industry advisor <http://www.ganttchart.com/history.html>

<sup>10</sup> Critical Path Method: [http://en.wikipedia.org/wiki/Critical\\_path\\_method](http://en.wikipedia.org/wiki/Critical_path_method)

<sup>11</sup> The Principles of Scientific Management by Frederick Winslow Taylor, M.E., Sc. D (1911) at: <http://www.eldritchpress.org/fwt/t1.html>

<sup>12</sup> Henry Ford (1863-1947), an American industrialist and founder of the Ford Motor Company: <http://www.hfmqv.org/exhibits/hf/>

<sup>13</sup> McKinsey Quarterly (Oct 2012): "Delivering large-scale IT projects on time, on budget, and on value": [http://www.mckinseyquarterly.com/Delivering\\_large-scale\\_IT\\_projects\\_on\\_time\\_on\\_budget\\_and\\_on\\_value\\_3026](http://www.mckinseyquarterly.com/Delivering_large-scale_IT_projects_on_time_on_budget_and_on_value_3026)

<sup>14</sup> KPMG, NZ Project management survey

2010: <http://www.kpmg.com/nz/en/issuesandinsights/articlespublications/pages/project-management-survey-2010.aspx>

<sup>15</sup> The International Centre for Complex Project Management: <http://www.iccpm.com/content/cpm-competency-standards>

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