First Principles of Project Management – Part 1

By R. Max Wideman

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Editor's note:

This paper sets out a philosophical discussion of the fundamentals of project management and earlier versions of this paper generated some vigorous discussion eight years ago. Unfortunately, some of these concepts that emerged appear to have got lost in the mists of time since then. So, we feel it is time to bring the paper back out into the open, dust it off so to speak, bring it up to date, and re-expose *The First Principles of Project Management.*

Introduction

> "Principles that are established should be viewed as flexible, capable of adaptation to every need. It is the manager's job to know how to make use of them, which is a difficult art requiring intelligence, experience, decisiveness and, most important, a sense of proportion."
>
> Henri Fayol, General & Industrial Management

Project management is a complex activity with multiple dimensions. Depending on the type and class of project this management activity can be very complex, not least because the typical project environment echoes the "fractal"[1] form of the common garden snail's shell, see Figures 1 and 2. That is to say, the same approach can be applied at every level of the process hierarchy and only the size and branch of the activity changes.

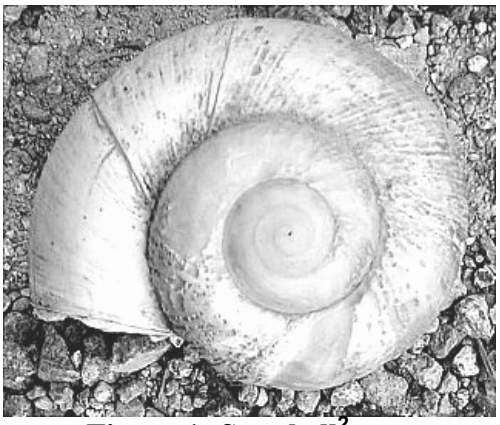

Figure 1: Sea shell[2]

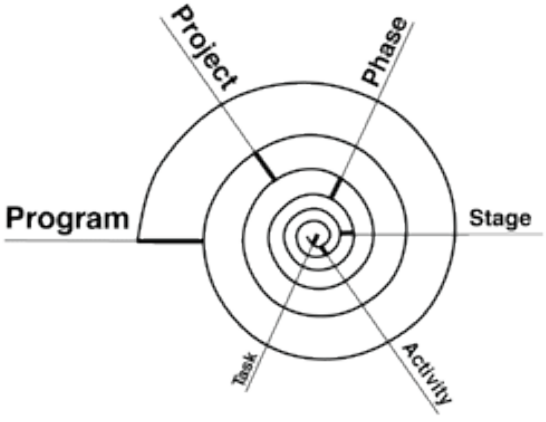

Figure 2: Project management[3]

For example, a "very large project" may well be subdivided into 'sub-projects' each of which is managed as a project in its own right. Such a project may be identified as a *program* (of projects), in which case the distinction is clear, but the fractal analogy is not limited to large projects. The elements of any sized project that are parceled out to separate areas of responsibility can be considered, from the point of view

of each area, as an obligation that is separately owned and managed as a project. Under these conditions, it is not too difficult to see that the problem of different agendas can arise and, as a result, the true objectives of the project can become obscured.

However complex the activity of project management may be, at is very core is the simple concept: "Plan before Doing". Some prefer to elaborate on this a little and refer to it as: "Envision – Explore – Adapt". Which ever you prefer, this is the whole rational and justification for instituting project management. Without this fundamental concept, there is no point in undertaking this management activity and incurring the resulting cost since it is simply an overhead. This idea is covered in the Strategy Principle as we shall see later.

In the literature, there is a wealth of information describing projects in all areas of application, what was achieved, how it was achieved and how successful were the results. Similarly, there is a wealth of literature providing advice on how to do project management – and presumably do it better. Based on this experiential material, various attempts have been made to assemble *bodies of knowledge* and thereby articulate the role and content of project management.[4],[5],[6] Such documents have been used in several countries for the development of individual certification and competence testing, and/or by enterprises for establishing corporate standards of practice.

In explaining "project management", the term *principle*[7] is sometimes bandied about, but there appears to be very little content establishing *fundamental* principles with corresponding theories to support them. This absence suggests that the building of a project management discipline is presently based only on experiential records and opinion and not on any reasonably logical or theoretical foundation. Ideally, what is needed is a generally agreed and testable set of *elemental principles* of project management that provide a universal reference basis for a set of 'generally acceptable practices'.

Meaning of project management

In order to discuss *fundamental principles* of project management, we need to be clear on what we mean by *project management* – not in terms of the traditional definitions[8] but in terms of the scope and limitations of this management activity. So, for purposes of this examination of principles, it is useful to draw a distinction between *management of the project* and *management of the primary technology* required to produce the product of the project. That is, a distinction between *project management* and *technology management*. This idea of separation is illustrated graphically in Figure 3.

Of course, while we may draw this distinction, in the real world the two must be fully integrated and the balance in the combination of the two varies between different project management application areas. But with this distinction, we see that the management of the technology obviously varies considerably according to the type of product. However, project management on its own is relatively stable and uniform across all types of projects. This enables the identification of a number of common principles of project management across the majority of project management application areas and throughout the project life span.

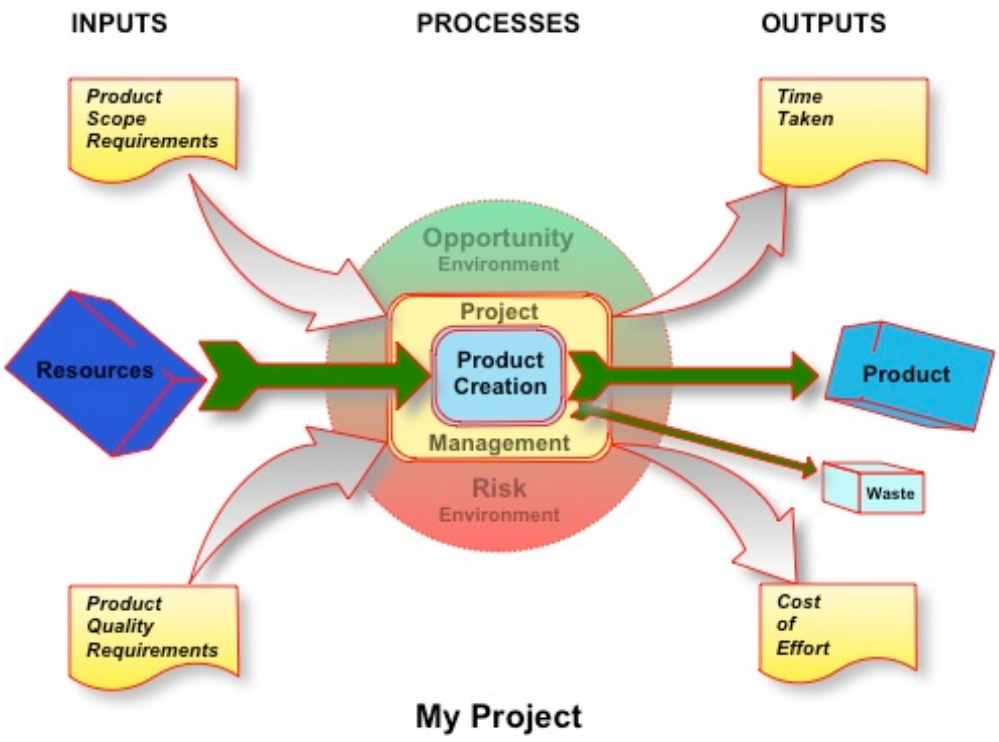

Figure 3: Separation of project management from product creation

To emphasize that we wish to focus on the *founding* principles of project management, we will use the term *First Principles*.

It may be asked: "Do we really need a set of *First Principles of Project Management*"? The problem is that in general management, and especially in a competitive corporate environment, understaffing is generally considered good business practice. This is not the case with projects. On the contrary, projects require contingency allowances to accommodate the inevitable uncertainty involved. Consequently, the practice of under-resourcing is a recipe for failure and hence the need to promulgate a set of generally agreed fundamentals.

So what should be included as a *First Principle*? The key appears to be whether or not the principle is universally fundamental to project success. (See additional comments under Discussion: First Principles Generally.) However, the meaning of project success, like a number of other key terms, is debatable. So, in order to lay a foundation for this discussion, we commence with definitions for the leading terms used in this paper.

Definitions

We are well aware of the many and varying nuances arising from different definition wordings, but it is the intent, rather than the detail, that we are concerned with here. For more on this topic, please refer to the *Introduction* to the *Wideman Comparative Glossary of Common Project Management Terms*.[9]

First Principles

In general usage, there appears to be some ambiguity when it comes to the use of the words "principles and practices". Moreover, in the marketplace generally, the term "principle" appears to be used indiscriminately to mean either.

Webster defines a "Principle" as "a general truth, a law on which others are founded or from which others are derived; provides a guide to conduct or procedure . . . "[10]

Cleland and Kerzner go further in defining "Principle" as follows:[11]

1. A fundamental rule or law of action based upon desirable ends or objectives. A principle is more basic than a policy or a procedure and generally governs both.

2. A fundamental truth, or what is believed to be truth at a given time, explaining relationships between two or more sets of variables, usually an independent variable and a dependent variable; may be descriptive, explaining what will happen, or prescriptive (or normative), indicating what a person should do. In the latter case, principles reflect some scale of values, such as efficiency, and therefore imply value judgments.

Webster defines "Practice", on the other hand, as "customary use, method or art of doing anything . . .". Cleland and Kerzner do not include a definition for this term.

Thus, "Practice" is a way of doing things and "Principles" and "Practices" may be distinguished by the difference between "What" and "How". In Cleland and Kerzner's second definition there appears to be some overlap perhaps reflecting the confusion evident in the marketplace.

At first glance it would appear that the use of the qualifier "First" with "Principle" is redundant. However, in scientific circles, the idea of *First Principles* is a common concept describing root or axiomatic ideas that provide the absolutely essential foundations for further thought and analysis. Since we are interested here in the very origin of project management, we use the term *First Principle* advisedly.

Project

There are many and varying definitions of the term *project*. For our purposes: "A *project* is a novel undertaking to create a new product or service the delivery of which signals completion. Projects are typically constrained by limited resources."[12] Also for our purposes, such a project is viewed from the perspective of the owner or sponsor of the project. It begins when the sponsor dedicates resources to the project's specific objectives, commencing with activities such as Idea Development; Concept Exploration; Proposal Writing; Inception or Conception, etc.

Project Life Span

Typically, but in our view incorrectly referred to as *project life cycle*, a well-managed project[13] is essentially a project management process that progresses in an orderly fashion through its individual and logical *life span*. This project *life span* starts with a *concept* that is justified by a *Business Case*. This *Business Case* is an essential documentation that establishes the justification for the project in the first place and drives the process through the subsequent phases to the finished product. A typical, generic life span is illustrated in Figure 4.

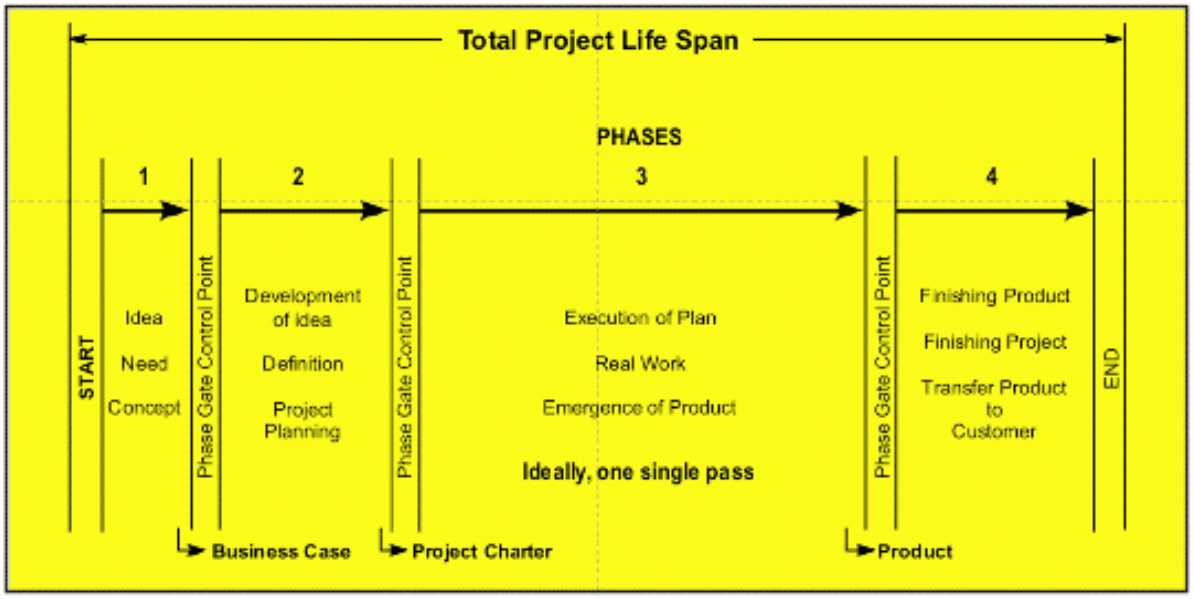

Figure 4: Typical generic high-level project life span

Product Scope

Product Scope, typically but loosely just referred to as *scope*, is used in the narrower sense of "The definition that describes the project's product deliverables".[14] This is not the same as the *Scope of Work* that describes "The work involved in the design, fabrication and assembly of the components of a project's deliverable into a working product".[15] The term *product* includes the delivery of a *service*.

Quality Grade

We use the term *Quality Grade* to distinguish it from the term *Quality* which is typically taken to mean "The totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs".[16] *Quality Grade* on the other hand is "A particular attribute of an item, product or service, which meets all minimum project requirements but which may be delivered according to a class ranging from 'utility' (purely functional) to 'world class' (equal to the best of the best)".[17] As such, *Quality Grade* is a separate variable. It is also the most enduring in terms of *product* success.

Project Stakeholders and Constituents

Project *stakeholders* are sometimes segregated into *stakeholders* and *constituents*. The former are those that are the direct recipients of the product of the project while the latter are those that are indirectly

affected by the results of deploying the product. However, rather than project stakeholders and constituents, we would much prefer the use of the more focused terms *customer* and *community*. The resulting product's *customer* is its immediate recipient, the person who will use the product and is therefore in the best position to evaluate its acceptability after a suitable period of learning. The customer may be more than one person. Community, on the other hand, includes anyone who is impacted by project activities or its product, either directly or indirectly and for better or worse.

Project Management Success

What is project management success? Is it the success of the *project* or the success of the *product*? The two are not necessarily the same. It is also important to note that the impression of success can change with time. That certain objectives, e.g. that the "traditional measures" of being on time and within budget were not met, does not necessarily mean that the *product* of the project was a failure. Conversely, just because the management of the project was viewed as a great success does not mean that the resulting product will necessarily be viewed as a success if the expected benefits are not realized. There are many examples of such situations in the project management literature.

Therefore*, Project Success* is a multi-dimensional construct[18] that inevitably means different things to different people. As a matter of good practice, *Success* is best expressed at the beginning of a project in terms of key and measurable criteria, referred to as *metrics*, upon which the relative success or failure of the project may be judged. For example, those results that:[19]

- Meet the key objectives of the project such as the business objectives of the sponsoring organization in the realization of benefits for the owner or user, and
- Elicit satisfaction with the project management process, i.e. that the deliverable is complete, up to standard, is on time and within budget, and
- Reflect general acceptance and satisfaction with the project's deliverable on the part of the project's customers-at-large and/or the majority of the project's community at some time in the future.

Although also known as Key Performance Indicators, we like to refer to these criteria as Key Success Indicators (KSIs).[20] KSIs should clearly relate to the project's key objectives and help in evaluating customer satisfaction and overall, the success of the project. KSIs are usually expressed as "SMART" statements, i.e. Specific, Measurable, Attainable/Achievable, Realistic and Time bound.

Note that KSIs are not the same as Critical Success Factors (CSFs).[21] CSFs are those measurable factors that when present in the project's environment are most conducive to the achievement of a successful project. Examples include: Project objectives aligned with corporate mission; Top management support; A culture of open communication, and so on. The difference between KSIs and CSFs is that KSIs are dynamic and within the control of the project's management while CSFs are static and generally outside the direct control of the project's management.

Project Management Success is closely linked to *opportunity* and *risk*. Projects by their nature are risky endeavors and some project hazards cannot be entirely avoided or mitigated even when identified. Since project success may be impacted by risk *events*, it follows that both opportunity and risk are necessarily shared amongst the participants.

Criteria for Establishing a First Principle

To identify a set of *First Principles of Project Management* we must set criteria for their acceptance or exclusion. To this end, the following criteria have been identified.

A *First Principle of Project Management* must:

1. Express a general or fundamental truth, a basic concept applicable to most projects most of the time.
2. Make for a high probability of project success as defined above. The corollary is that the absence of the condition will render project success on a majority of the key criteria as being highly improbable.
3. Provide the basis for establishing logical processes and supporting practices that can be proven through research, analysis and practical testing.

In addition and ideally, a *First Principle* should:

1. Be universal to all areas of project management application.
2. Be capable of straightforward expression in one or two sentences.
3. Be self-evident to experienced project management personnel, and
4. Carry a concise label reflecting its content.

Coming next

In Part 2 of this paper we will present eight *First Principles of Project Management* together with explanations and discussions on some of the issues that surround this topic.

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3/4/09

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[1] See the definition in the Wideman Comparative Glossary of Project Management Terms: http://www.maxwideman.com/pmglossary/index.htm

[2] Wideman, R. M., *A Management Framework for Project, Program and Portfolio Integration*, Trafford, Figure 5-4: Sea shell showing fractal geometry, p52

[3] Ibid, Figure 5-3: The fractal nature of project management, p52

[4] CRMP Guide to the Project Management Body of Knowledge, Centre for Research in the Management of Projects, University of Manchester, 1999.

[5] A Guide to the Project Management Body of Knowledge, Project Management Institute, USA, 2008

[6] IPMA Competence Baseline, International Project Management Association, Germany, 1998.

[7] See the Wideman Comparative Glossary of Project Management Terms: http://www.maxwideman.com/pmglossary/index.htm

[8] See the Wideman Comparative Glossary of Common Project Management Terms: http://www.maxwideman.com/pmglossary/index.htm

[9] See http://www.maxwideman.com/pmglossary/intro.htm

[10] The New Webster Encyclopedic Dictionary of the English Language

[11] Cleland, David, & H. Kerzner, A Project Management Dictionary of Terms, Van Nostrand, New York, 1985, p187.

[12] See the definition in the Wideman Comparative Glossary of Project Management Terms:

http://www.maxwideman.com/pmglossary/index.htm

[13] See definition of *Well Managed Project* in the Wideman Comparative Glossary of Project Management Terms: http://www.maxwideman.com/pmglossary/index.htm

[14] Centre for Research in the Management of Projects (CRMP), University of Manchester, UK, 1999.

[15] Turner, R. Interpreted from the Gower Handbook of Project Management, 3rd. Edn, Ch 1.

[16] ISO 8402, International Organization for Standardization, Geneva 20, Switzerland.

[17] Project Management Guidelines (Private BC Corporation), 1995.

[18] Shenhar, Aaron J., Dov Dvir andOfer Levy, Project Success: A multidimensional Strategic Concept, Research paper, University of Minnesota, MN, June 1995.

[19] This is a composite of ideas reflected in various success factors and indicators quoted in the Wideman Comparative Glossary of Common Project Management Terms: http://www.maxwideman.com/pmglossary/index.htm

[20] For a definition of KSI, see Key Success Indicators in the Wideman Comparative Glossary of Common Project Management Terms: http://www.maxwideman.com/pmglossary/index.htm

[21] For a definition of CSF, see Critical Success Factors in the Wideman Comparative Glossary of Common Project Management Terms: http://www.maxwideman.com/pmglossary/index.htm