Comparing PRINCE2 with PMBoK®
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Introduction

From time to time we are asked to recommend project management systems and methodologies, or to compare them as part of some selection process. This month we have been taking an in-depth look at PRINCE2, a widely recognized de facto standard used extensively by the UK government and in the private sector.[1] As a basis for comparison, and because we are located in North America, we will refer to the Project Management Institute's so-called "PMBOK" which actually refers to their publication "A Guide to the Project Management Body of Knowledge" (2000 Edition).

"PRINCE" stands for **P**rojects **IN** **C**ontrolled **E**nvironments and is described as a structured method for effective project management for all types of project, not just for information systems, although the influence of that industry is very clear in the methodology. The 2002 version has been through a number of incarnations in the past and is now the result of the "experience of scores of projects, project managers and project teams." The 408-page document, like the Guide (216 pages) is copyright, but the content is clearly generic common sense. The PRINCE2 Introduction lists a significant set of reasons why projects fail, and the methodology sets out to remove these causes.
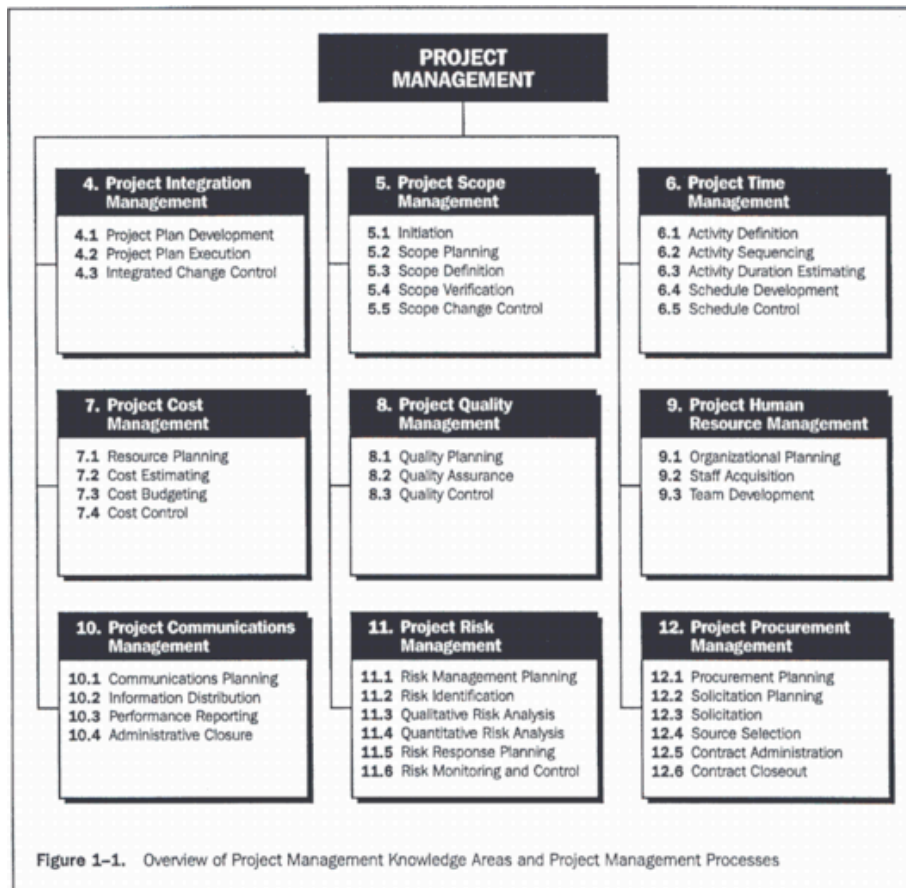

Figure 1

Figure 1 above shows the knowledge areas and processes of the Project Management Institute's Guide to PMBOK and Figure 2 below shows the comparable PRINCE2 content and usage.
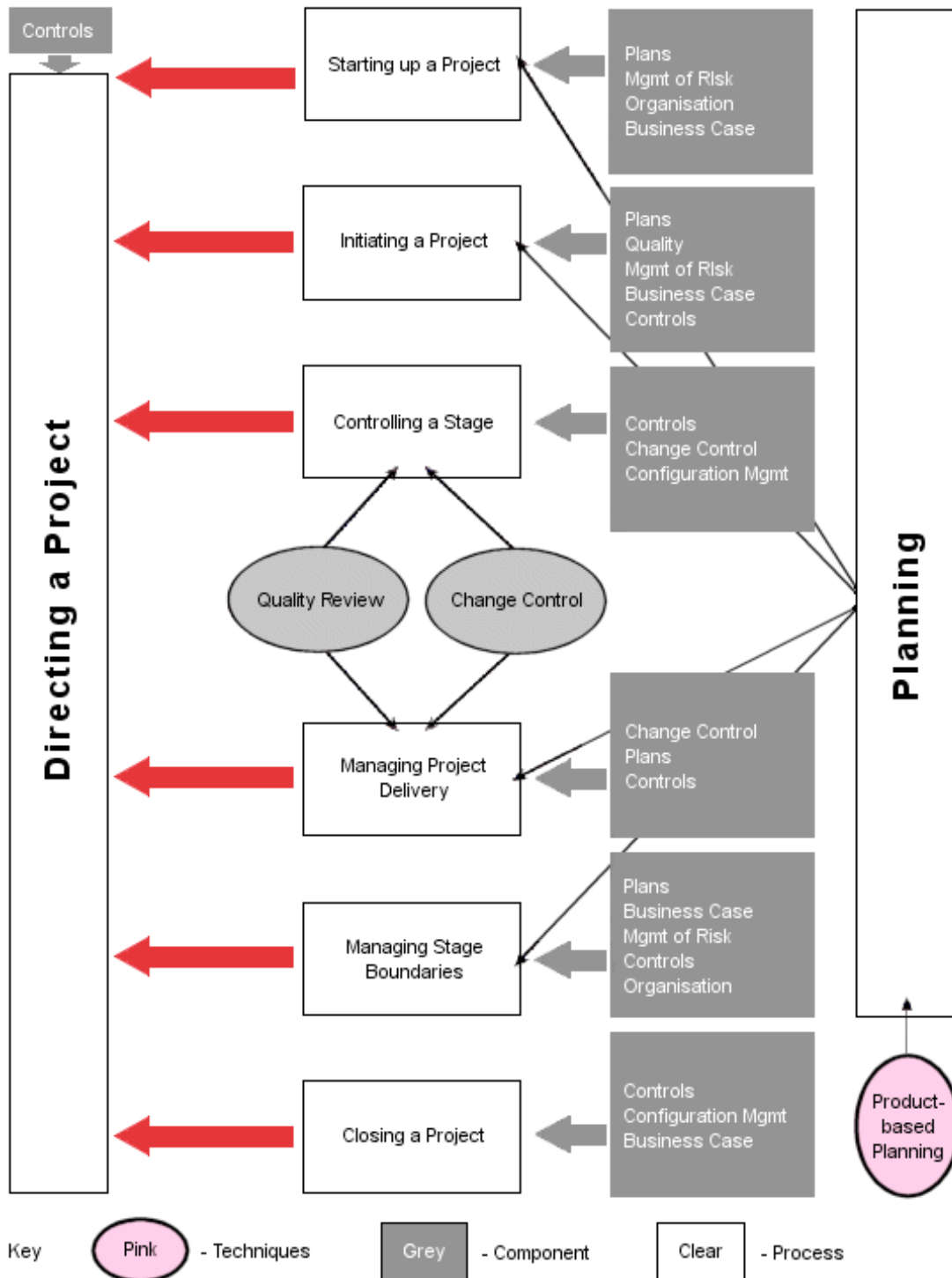

Figure 2.6 Use of PRINCE 2 components and techniques in the processes

Figure 2

It must be born in mind that both sets of documentation must be tailored to suit the occasion. For example, PMBOK is not intended to tell people how to do any of the techniques or use any of the tools described. It only lays out the processes, how they link together and the tools and techniques that can be invoked. Somewhat similarly, the application of PRINCE2 must be scaled for the size and needs of the project. Indeed, scalability is a topic specifically included in the description of each process.

Project Life Cycle and Major Processes

The first difference to notice is that PRINCE2 is clearly project life cycle based with six out of eight major processes running from "Starting up a project" to "Closing a project". The remaining two, "Planning" and "Directing a project" are continuous processes supporting the other six. Each of these have their respective sub-process totaling 45 in all. Then, feeding into the system, are six "Components" some of which are documents and others that are themselves processes. Finally, PRINCE2 describes three techniques namely: "Product Based Planning", "Quality Review" and "Change Control".[2] The whole document is presented as an easy-to-follow narrative, bulleted checklists, process diagrams and timely "Hints and Tips". By comparison, the Guide consists of twelve chapters describing function-based knowledge areas[3] with illustrations of their respective project management processes and narrative descriptions in the form of inputs, tools-and-techniques, and outputs.

There are a number of interesting differences between the Guide and PRINCE2 philosophies. PRINCE2 speaks of "stages" rather than "phases" and states that while the use of stages is mandatory, their number is flexible according to the management requirements of the project.[4] PRINCE2 also differentiates between *technical* stages and *management* stages.[5] Technical stages are typified by a particular set of specialist skills, while management stages equate to commitment of resources and authority to spend. The two may or may not coincide. The Guide defines a project phase as: "A collection of logically related project activities, usually culminating in the completion of a major deliverable."[6] It does not distinguish between phases and stages and in the text uses either indiscriminately.

The PRINCE2 project life cycle does not start with original need, solution generating and feasibility studies – these are considered as inputs to the project life cycle, perhaps as separate projects in their own right. For example, PRINCE2 describes a product's life span as having five phases: Conception, Feasibility, Implementation (or realization), Operation and Termination but, of these, only Implementation is covered by PRINCE2. Indeed, the manual states "Most of what in PRINCE2 terms will be stages will be divisions of 'implementation' in the product life span."[7] Thus, PRINCE2 is an implementation methodology, somewhat akin to construction management, rather than a whole project management methodology.

Indeed, PRINCE2 assumes that the project is run within the context of a contract and does not include this activity within the method itself.[8] However, it suggests that since contracting and procurement are specialist activities these can be managed separately using the method. The Guide, on the other hand, recognizes that the project needs assessment or feasibility study may be the first phase of the project,[9] although it also defers to other life cycles used in various industries. The presumption in the Guide is that Project Procurement Management, where required, is part of the overall project management process and is viewed from the perspective of the buyer in the buyer-seller relationship.[10]

Management Levels and Responsibilities

PRINCE2 recognizes four parallel levels of management:[11] "Corporate or Programme Management", "Directing a Project" (i.e. the Project Board, chaired by the "Executive", more often called "Project Director" in North America), "Managing a Project" (i.e. the project manager's level) and "Managing Product Delivery" (i.e. team-level technology management.) In this way, the corporate business or program management interests are closely integrated with both project management at the project level as well as with the management of the project's technology at the team level.

Another interesting feature is the responsibility of the project manager. The Guide defines project manager simply as "An individual responsible for managing a project."[12] The Software Engineering Institute goes further and calls it "The role with total business responsibility for an entire project; the individual who directs, controls, administers, and regulates a project . . . [and] is the individual ultimately responsible to the end user."[13]

In sharp contrast, under PRINCE2 the project manager is "The person given the authority and responsibility to manage the project on a day-to-day basis to deliver the required products within the constraints agreed with the Project Board."[14] These constraints are referred to as "tolerances" and prescribe the ranges of acceptability of each of scope, quality, time and cost within which the project manager must manage. Any trend beyond these limits becomes an "issue" and must be brought to the attention of the project board.

The project board is chaired by a person referred to as "executive" and it is this person who has the real responsibility for the project. This individual ensures that the project or programme maintains its business focus, that it has clear authority and that the work, including risks, is actively managed. The chairperson of the project board, represent[s] the customer and [is] owner of the business case."[15]

To us, this sounds very much like a project director, who provides the leadership on the project, while the project manager provides the managership. By comparison, the Guide does not recognize either "executive" or "project director" but uses the term "sponsor". The sponsor is one of the project's stakeholders and is defined as "The individual or group within or external to the performing organization that provides the financial resources, in cash or in kind for the project."[16] So, one can conclude that under the Guide, it is the project manager who is firmly in charge.

Authority Documentation

PRINCE2 tends to be heavy on documentation. A project has a set of progressive governing documents in its series of processes, a sequence that we had a little difficulty in following. The very first document is the "Project Mandate".[17] As PRINCE2 states, this document may come from anywhere, but should at least come from some level of management that can authorize the cost and resource usage[18] commensurate with the size and type of project. It must contain sufficient information to trigger the first "Starting up a Project" (SU) process and in that process is converted into a "project brief". The Guide recognizes neither business case nor project brief.

The SU process is intended to be of short duration and is designed to ensure that all the necessary

players, and pieces, are in place prior to the real start of the project. It assumes that a provisional "Business Case" exists, although if it does not, it is created during the SU process. The business case justifies the undertaking of the project in terms of reasons, benefits, cost, time and risk and the source of this information is the project mandate or the project brief, the project plan and information from the customer. [19] The business case is a dynamic document that is updated throughout the project to reflect changing conditions, although it is "baselined" during the subsequent "Initiating a project" process.

The output of the SU process is an "Initiation Stage Plan" that ensures the required people are identified, and that the information they will need is contained in a project brief. The project brief is a relatively simple document providing background, project definition (i.e. what the project needs to achieve), the outline business case, the customer's quality expectations, acceptance criteria and any known risks.

This documentation feeds into the "Initiating a project" (IP) process, the output of which is a "Project Initiation Document" (PID).[20] Unlike the business case, which is updated, the PID is a substantial and stable document, except for the background attachments such as the business case. The PID is intended to define all of the questions what, why, who, when, and the how of the project. It is the base document against which the project board will assess progress, the change management issues, and the ongoing viability of the project.[21] Concurrently with the preparation of the PID, the first project stage is planned leading to the authorization by the project board of the project's first stage.

The Guide's equivalent of the PID is the "Project Charter" which is an output from the Initiation process under the knowledge area of Project Scope Management. The Guide defines project charter as "A document issued by senior management that formally authorizes the existence of a project. And it provides the project manager with the authority to apply organizational resources to project activities."[22]

Special Project Management Roles

PRINCE2 does not define management *jobs*, instead preferring to define *roles,* that may be allocated, shared, divided or combined according to the project's needs.[23] In addition to the usual roles of project board, project manager, team manager and so on, and executive as described earlier, PRINCE2 introduces a number of other distinctive roles to facilitate its methodology. For example:

Project Support Office (PSO) is conceived as a central pool of skilled resources, such as clerical, configuration librarians and even PRINCE2 consultants serving a number of projects.[24] The manual states that a PSO is not essential, but it can be useful to support managers with their administrative tasks and ensure proper use of PRINCE2 across all projects. To the above list we would add other expertise such as planning and scheduling, estimating, forecasting and project accounting. In fact a number of other special responsibilities are suggested in the role description.

Executive, as noted earlier, is the person who chairs the project board. Supported by the senior user and the senior supplier, executive is the single individual with ultimate responsibility for the project. He or she ensures that a project or programme meets its objectives and delivers the projected benefits.[25]

Senior User, a member of the project board, is responsible for the specification of the needs of all those who will use the product(s), for user liaison with the project team and for monitoring that the solution

will meet those needs within the constraints of the Business Case in terms of quality, functionality and ease of use.[26]

Senior Supplier, also a member of the project board, represents the interests of those designing, developing, facilitating, procuring, implementing and possibly operating and maintaining the project products.[27] The senior supplier is accountable for the quality of products delivered by the supplier(s) and must have the authority to commit or acquire supplier resources required.

Note that both these roles may each be represented by more than on person, and that they liaise directly with the team members who are responsible for producing the project's products. Therefore, great care must obviously be taken to ensure that the project manager's authority on the project is not circumvented and that his or her ability to manage the project is not thereby undermined.

Project Assurance covers all interests of a project, including business, user and supplier.[28] PRINCE2 requires that this service is independent of the project manager and therefore cannot be delegated there. Project assurance is a responsibility shared between the executive, senior user and senior supplier.

Configuration Librarian is a role responsible as custodian and guardian of all master copies of the project's products. It also maintains the project's issue log.[29] Although this refers primarily to management documents and product documentation, rather than physical objects, nonetheless it is not a trivial task on most projects. It includes controlling the receipt, identification, storage and retrieval of all such documents, providing information on the status of all projects, as well as numbering, recording, distributing and maintaining the project's issues records. The role is part of project support.

PRINCE2 does not discuss the ever-popular-in-North-America subject of people management, as does the Guide in its chapter "Project Human Resources Management".[30] However, PRINCE2 does describes in detail the responsibilities of ten project management team roles that are included in its methodology.[31]

Document Description Outlines

PRINCE2 includes descriptions of thirty-three standard management "products" that are invoked through the PRINCE2 methodology.[32] Many of these documents are standard fare, such as various plans and reports, for which it is most useful to have detailed listings of required contents. However, in addition to those mentioned earlier, certain unique documents are worthy of special mention in the context of managing projects successfully. For example:

Acceptance Criteria, defines in measurable terms what must be done for the final product to be acceptable to the customer and staff who will be affected.[33] This is either provided by program management, or is developed during the starting-up-a-project process. It seems to us that this is essential information often overlooked in many projects.

Configuration Item Record: Configuration management is defined as the discipline that gives management precise control over its assets (including the products of a project), covering planning, identification, control, [etc].[34] The configuration item record provides the required information about

the status of each and every item and makes reference to the product breakdown structure, stage and team plans, relevant work packages, the quality log and change control.[35]

The *Issue Log* is the repository of a summary of all issues raised on the project that need to be brought to the attention of the project and that require an answer. Issues may range from a question or statement of concern, to an off-specification (e.g. a deficiency) to a request for scope change. Such issues may be raised by anyone associated by the project at any time.[36] In PRINCE2 the issue log is an essential part of controlling project stages by capturing all queries, problems and similar events in a consistent way before their proper disposition has been determined. Each item can then be followed up until the required action has been taken and the item cleared

Similar to the issue log, the *Risk Log* provides a repository for the identification of all project risks, their analysis, countermeasures and status.[37] PRINCE2 recognizes risk as a major component to be considered during the management of a project and is factored into all of the major processes. Project management must control and contain risks if it is to stand a chance of being successful.[38]

The *Lessons Learned Log* is a repository of any lessons learned, both good and bad, that cover management experiences or use of specialist products and tools, and so on that can be usefully applied to other projects. Captured during the project, these items provide the basis for writing up a formal lessons learned report at the end of the project.[39] We recognize this as an essential feature of the "Learning Organization".

With the exception of lessons learned, these documents are not discussed in the Guide.

Planning and Scheduling

Product-based planning is a key feature of PRINCE2, providing a focus on the products to be delivered and their quality. It forms an integral part of the Planning (PL) process and leads into the use of other generic techniques such as network planning and Gantt charts.[40] It provides a product-based framework that can be applied to any project, at any level, to give a logical sequence to the project's work. A "product" may be a tangible one, such as a machine, a document or a piece of software, or it may be intangible, such as a culture change or a different organizational structure.[41]

PRINCE2 describes three steps to the PL technique: (1) Producing a Product Breakdown Structure (PBS); (2) Writing Product Descriptions; and (3) Producing a Product Flow Diagram. Each step is described in detail and excellent examples are provided as illustration. In step 2, writing a clear, complete and unambiguous description of products is a tremendous aid to their successful creation. The corollary is, of course, that if it is not possible to write the description, then more work, or another iteration, is necessary to ferret out the necessary information. In step 3, the products are re-ordered into their logical sequence to form a product flow diagram.

The original PBS can become very detailed because the links between the products in the product flow diagram represent the activities required to create them, and every product must be included to capture every activity. The converse is that no activity is necessary unless it contributes to the final outcome. A correctly formed product flow diagram, therefore, not only identifies the activities involved but also

leads to a network dependency-based schedule or Gantt chart.[42] PRINCE2 provides a good explanation of the technique and specifies the associated documentation to go with it.

In the Guide, planning generally is seen as part of key general management skills,[43] is one of the five process groups applied to each phase[44] and is therefore recognized as an ongoing effort throughout the life of the project. Planning is discussed in the chapter Project Integration Management, and the essence of which is to create a consistent, coherent document that can be used to guide both project execution[45] and a baseline against which changes will be controlled.[46] However, planning also appears in each knowledge area and must be integrated across all of them. [47] Because of this fragmentation, an attempt is made for ease of reference to map the Guide's various content to the planning process.[48]

Control

In PRINCE2, control of the technical work is exercised through the authorization of work packages. According to the manual, control is all about decision making and is central to project management. Its purpose is to: Produce the required products, meeting the defined quality criteria; Carry out the work according to schedule, resource and cost plans; and Maintain viability against the business case.[49] We have some concern over this last item because the business case is a "dynamic" document, updated from time to time. There could, therefore be a tendency to match the business case to the current reality rather than controlling the current reality to the business case justification.

The work package control is used to allocate work to individuals or teams. It includes controls on quality, time and cost and identifies reporting and hand-over requirements. The individuals or teams report back to the project manager via checkpoint reports or other identified means such as triggers, and by updating the quality log.[50]

In the context of control, PRINCE2 establishes a good distinction between "tolerance", "contingency" and "change control". Tolerance is the permissible deviation from plan allowed to the project manager without having to bring the deviation to the attention of the project board.[51] Contingency, in PRINCE2 terms, is a plan including the time and money set aside to carry out the plan, which will only be invoked if a linked risk actually occurs.[52] Change control is a procedure designed to ensure that the processing of all project issues is controlled, including submission, analysis and decision making.[53] The process is described in detail starting with project issue management.[54]

In the Guide, like planning, Change Control is discussed as part of Project Integration Management[55], and, also like planning, is to be found referenced in many of the other Guide chapters.[56]

Summary

PRINCE2 and the Guide take very different approaches to the presentation of their material. Indeed, they really serve different purposes and are therefore not directly comparable. We believe that the Guide takes the best approach for purposes of teaching the subject content of each knowledge area, but is not so affective when it comes to providing guidance for running a particular project. Of course the corollary is also true. In a life-cycle-based presentation like PRINCE2, it is difficult to do justice to each knowledge area.

For example, as we discussed under planning and scheduling, PRINCE2's approach is a single unified methodology starting from developing the initial product breakdown structure through to identifying the corresponding network schedule. In our view, this straight forward and well-explained proposition should clearly lay to rest the controversies that we have seen in North America. That is, over whether a work breakdown structure should be product or activity based, which comes first, and how they are related.

While PRINCE2 is designed for a variety of customer/supplier situations, the manual has been written on the assumption that the project will be run for a customer with a single (prime) supplier involved throughout. This has a bearing on both the organization and the details of control.[57] The implication is that PRINCE2 is in the hands of the supplier rather than the sponsoring organization. The manual as such does not cover the situation of multiple prime contracts (i.e. trade contracts) directly under the control of an owner as is the case, for example, with a developer using construction management techniques. In such cases, the issues of work coordination responsibility is much more complex.

In describing a project, the Guide explains that "Projects are often implemented as a means of achieving an organization's strategic plan" and "Projects are undertaken at all levels of the organization."[58] The Guide is generally written from this perspective throughout, that is to say, from the project owner's perspective rather than from that of a supplier or seller. Consequently, the Guide covers more ground than does PRINCE2.

Nevertheless, within its self-prescribed limitations, PRINCE2 provides a robust easy-to-follow methodology for running most projects, that is, where the objectives are clear and the deliverables are either well described, or capable of being so.

It seems to us that both PRINCE2 and the Guide have chicken-and-egg problems in the area of documentation for project initiation. Our strong preference is for the generic project example to start with a "conception" phase. This phase, short or long, is the opportunity to assemble the owning organization's needs that could be potential projects, and analyze and select the best opportunity for serious study. This is the time to articulate that best opportunity in terms of big picture, vision and benefit. It should result in a viable business case as the stage-gate measure.

Following approval of the business case, the project then moves into its second major phase. In this phase the project's concept is developed by studying and testing alternatives and conducting feasibility studies. At the same time, the intended products are defined as far as possible through the necessary customer/user input. With the products defined, an implementation plan can be formulated that covers the project's scope and quality grade, and time and cost tolerances.

The whole can then be assembled into a formal project brief or project charter and presented to management for approval of a major commitment of cash and resources. Such a life cycle design represents a simple straight forward progression with only two major project documents as stage-gate controls. Considering that it is in the conception and definition phases that the most critical project decisions are made, it is surprising that more focus is not given to this part of the project life cycle by both the Guide and PRINCE2. Indeed, as PRINCE2 observes, "A lot of time can be wasted in producing

a very good plan to achieve the wrong objective"[59] and "Finding out that a product doesn't meet requirements during its acceptance trials is expensively late."[60]

While on the subject of project life cycle, there is room for improvement in both documents for dealing with the final phase of a project in which the product(s) are transferred into the care, custody and control of the customer or user. The product resulting from the project may be excellent and fully up to specification, but if the final transfer is not handled with appropriate delicacy, the reaction to it may still be negative and the project seen as a failure. We use the term "delicacy" advisedly, because this part of the project is often fraught with political overtones. After all, who wants to change the way they do things anyway?

Clearly, both the front and back ends of the project are fruitful territories for academic research and improved best practices: the front end for better project identification and selection, and the back end for better communication and training in the use of the project's product. If these aspects were properly recognized and documented in standard methodologies, perhaps sponsors would be more willing to set aside the necessary funding to ensure higher chances of project success.

Footnotes

[1] PRINCE2 p1
[2] PRINCE2 p19
[3] Guide p8
[4] PRINCE2 p234
[5] PRINCE2 p235
[6] Guide p205
[7] PRINCE2 p234
[8] PRINCE2 p8
[9] Guide p12
[10] Guide p147
[11] PRINCE2 p21
[12] Guide p205
[13] The Software Acquisition Capability Maturity Model Glossary, Carnegie Mellon Software Engineering Institute, Pittsburgh, PA, 1999
[14] PRINCE2 p315
[15] PRINCE2 p311
[16] Guide p16
[17] PRINCE2 p26
[18] PRINCE2 p352
[19] PRINCE2 p321
[20] PRINCE2 p46
[21] PRINCE2 p348
[22] Guide p204
[23] PRINCE2 p197
[24] PRINCE2 p378
[25] PRINCE2 p367

[26] PRINCE2 p369
[27] PRINCE2 p371
[28] PRINCE2 p375
[29] PRINCE2 p377
[30] Guide p107
[31] PRINCE2 p365
[32] PRINCE2 p319
[33] PRINCE2 p319
[34] PRINCE2 p310
[35] PRINCE2 p324
[36] PRINCE2 p334
[37] PRINCE2 p359
[38] PRINCE2 p239
[39] PRINCE2 p335
[40] PRINCE2 p277
[41] PRINCE2 p279
[42] PRINCE2 p173
[43] Guide p21
[44] Guide p30
[45] Guide p42
[46] Guide p48
[47] Guide p32
[48] Guide p38
[49] PRINCE2 p217
[50] PRINCE2 p219
[51] PRINCE2 p222

[52] PRINCE2 p224

[53] PRINCE2 p310

[54] PRINCE2 p271

[55] Guide p41

[56] Guide p38

[57] PRINCE2 p219

[58] Guide p4

[59] PRINCE2 p169

[60] PRINCE2 p259

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