AGILE ANALYSIS – AVOIDING PARALYSIS: AN INTEGRATED FRAMEWORK FOR RESPONSIVE PROJECT ANALYSIS[1]

The Business Case formally documents and baselines the change project. It provides the framework within which the project manager will deliver the project, and documents the key performance indicators against which the project will be reviewed after closure.

Whilst methodologies such as PRINCE2 (Bentley 2005) hold that "a project should be driven by its business case", and as well that it "focuses on the products to be produced", little guidance is available on how to integrate this product focus with the business case. Typically the task of determining requirements is separated from project initiation and planning. However, analysis provides two key inputs to the Business Case. The first is a specification of the requirements, which documents what the project will deliver, independent of implementation, and which is the basis for all future product-based planning, including costing. It must be developed with, and informed by, the plan for benefits realisation, which is the second input, and which documents the financial benefits of the project, or why the proposition should proceed.

Given the dynamic nature of organisations, societies, economies and the environment, the Business Case cannot be a static document. It must be updated whenever necessary to reflect the new realities of the change project, and as soon as possible, to enable effective project approval and review. A dynamic approach is needed to ensure both that the analysis is integrated with project planning and that it can adequately support the Business Case.

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ABN: 97 081 830 499

GPO Box 2785
Canberra ACT 2601

fax: +61 3 6257 2081
www.blackcircle.com.au

An effective model is to retain the basic approach of Structured Analysis over multiple iterations, and to vary the weighting of the analysis on different aspects each time. There are four key aspects to be considered.

Firstly, there is the focus. Structured Analysis documents first the "now"—the current business model—and derives the business objectives from that understanding. Then the "new"—the proposed or future state—is modeled, to resolve the problems and opportunities in the "now". The focus can be varied from being fully on the "now", through to being fully on the "new" (especially in the special case of the new business proposal), or with more or less equal weighting on them both.

Secondly, there is the depth. This moves from the corporate level through the business level to the operational level.

At the corporate level the emphasis is on scoping the proposal, and documenting the business relationships. A useful tool for this is the technology-independent Context Level Diagram. This documents the scope of the activity under study, identifies key interfaces and interactions, and models the business relationships with parties external to the activity under study.

At the business level the emphasis shifts to the flow of the transaction. The Data Flow Diagram documents this unambiguously from the internal perspective, showing the connection between processes and persistent data stores, regardless of technology. It links the external parties to the flow of the transaction across the activity or organisation. It may be supplemented by the State Transition Diagram to document the external perspective and to include formal documentation of the triggers for each process.

The operational level emphasises the detailed sequence of procedures and decisions, documented using the Flow Chart.

Thirdly, the accuracy can be varied. Forecasting of benefits is increased in accuracy and sensitivity as more detailed research is undertaken.

The various aspects are interlinked to some extent. As the emphasis shifts on focus and depth, so does the possibility of accuracy increase.

Thus, benefits can be calculated more accurately once the Data Flow Diagram is in place than at the earlier "concept" stage.

The Data Dictionary will increase in detail and accuracy as analysis proceeds. At the corporate level only the dataflows involving external parties will be documented in detail, whilst detailed documentation of all data will be needed eventually to complement the Data Flow Diagram and Flow Charts.

This increased detail and accuracy in documentation will assist in obtaining more accurate costings.

Conversely, more accurate calculation of benefits or costs may lead to revising earlier decisions about the attractiveness of some business models over others, and accordingly require re-development of some transactions.

A fourth aspect to be manipulated is the number of iterations, which may vary depending on the overall size and complexity of the project. Thus a small-scale project—low risk, a few weeks long, and involving a handful of experienced people—may only require two iterations: a concept definition and a detailed proposal. At the other end of the scale, a high risk project with a large project team extending over a year or more may require half a dozen iterations or more to document and manage it adequately through to development approval.

Typically, a medium risk project will fall half way between these two scenarios, with three iterations. Many project models give these three special names or labels, such as: "Initiation", "Concept", "Charter", or "Brief", followed by "Feasibility" or "Demonstration", and then "Proposal" or "Plan". The significant risk with this labeling is that it locks in the idea of a fixed documentation path that must be followed in all cases, rather than supporting an appropriate depth of documentation and an appropriate number of iterations to enable decisions to be made as early as possible. And if the labels are used or understood inconsistently then there will be confusion and uncertainty as well as misplaced effort.

Recognising that each iteration simply gives more certainty about essentially the same concepts, it may be more useful to use the familiar concept of version control to label them as Version 1, Version 2, etc and to use dot point numbers for change control within each iteration. If the proposal enters development then this version sequence can continue throughout the life of the project.

Take, for example, a medium risk transaction-oriented project with significant business impact. The Business Case could develop as outlined in Figure 1.

Version		1	2	3
Project Management Considerations (Note 1)				
Scope		100% agreed (no matters unresolved)	100% agreed (may differ from previous version)	100% agreed (may differ from previous version)
Costs		-	Request for Proposal	Request for Tender
Risk		Short Risk Analysis	Detailed Risk Analysis	Mitigation & Containment strategies in place
Business Analysis Inputs (as detailed in the Benefits Realisation Plan)				
Benefits	***Scenario***	Short (1-2 sentences) scenarios outlined	Scenarios developed and documented	Scenarios developed into State Diagrams
	$ benefits	-	$ calculation	$ confirmed
	KPIs	-		Identified
	BRR (Note 2)	-	-	Proposed
Business Analysis Inputs (as detailed in the Business Requirements Specification)				
Focus		Now	Now & New	New (Note 3)
Depth	***CLD***	✓	✓ (may differ from previous version)	✓ (may differ from previous version)
	DFD		✓	✓ (may differ from previous version)
	FC			✓
Data (Note 4)	**Elements**	data flowing across the boundary documented	all data items flowing into the business activity defined	all data items, including derived data for reports, etc, defined
	Stores	-	unnormalised data stores documented	datastores attributed and normalised

Figure 1: Development of the Business Case (Refer next page for Notes)

Notes to Figure 1:

1: For the sake of example, only Scope, Cost and Risk are developed here: in reality a broader range of considerations would be developed.

2: BRR: Benefits Realisation Review. the schedule for these reviews would be documented in the Benefits Realisation Plan, along with the assumptions, key performance indicators to monitor, research data and detailed calculations.

3: The Focus would be likely to be on the "New": however, some documentation of the previously documented "Now" may be provided as background.

4: The data constructs here are logical or conceptual stores. Physical table design and database considerations will come later.

Each iteration allows the opportunity to calculate the investment of money and resources necessary to deliver the next iteration, without expectation that costs will be calculated to a high level of accuracy for full project delivery years in the future and for an uncertain project scope.

As each iteration is approved, the previous documentation—Business Case, Benefits Realisation Plan and Business Requirements Specification—are reviewed for use as a starting point.

This review reduces re-work. It also reduces the possibility of "dropping the ball" between iterations: anything incorporated into an earlier version of the project documentation will be brought forward unless explicitly removed. Finally, it also enables changes and updates to be systematically incorporated into the next version.

The model proposed is highly responsive. It allows for variation across project, organisation, culture and environment, as the emphasis can be varied on some aspects and not others.

Thus it would be feasible, for example, to vary the emphasis on the depth aspect, without varying the emphasis on the focus aspect. This would give rise to an equally detailed Context Level Diagram for both the current and future states at the first iteration, followed by equally detailed Data Flow Diagrams for both at the next iteration, and so on. For highly

conservative organisations or projects implementing minimal business change, this may be very appropriate.

Equally, focus could be varied without varying depth. For a more dynamic project in a fast moving industry, documentation of the current state may be reduced at the early stages, and only detailed closer to the time of specification for rollover into the specification of requirements.

Of course, there will be no documentation of the current state in the "special case" of the completely new proposal, and the depth of documentation required will depend on the organisation's cultural expectations. Conversely, for audit and review purposes there will be no documentation of the proposed state, yet the highly detailed documentation of the current state produced by compliance checking will fit seamlessly into a change project commenced to resolve any problems identified.

The tools of structured analysis can equally be applied across a multi-project program, as has been demonstrated successfully in delivery of projects with ICT outputs over many years. What is proposed here, however, is earlier use of structured analysis at increasing levels of detail, during the initiation and planning stages. Initial scope for the proposal would be documented as agreed, and then the iterative tools of structured analysis can be applied to decompose into more detailed definitions for each project, sub-project, sub-sub-project.....

The specific aspects to be varied must be negotiated, agreed and documented for the project. This clarifies for both stakeholders and project team the agreed deliverables that signal the end of each planning effort. For project control, clarity about the aspects to be varied means that the reliability of the proposal can be assessed at any time and taken into account in making decisions. The reliability of structured analysis is thus achieved without compromising agility.

This iterative approach differs significantly from the "all-in-one" approach commonly taken to developing a single specification of requirements. Typically, documents to initiate the project may be completed in the absence of structured analysis, because of the effort involved. However, one impact of this is that the documents may vary in reliability. There is

then a detailed effort to undertake the full system analysis, with consequent risk of analysis-paralysis.

The approach outlined here integrates structured analysis with the initiation and planning of projects, with the following effects.

1. Only where success is more likely is more effort applied. A new version of the Business Case can be prepared after each deliverable and accordingly the project control structure (Steering Committee, Project Board, Sponsor, etc) is informed more frequently. It can determine to cancel or re-direct the proposal earlier, and to re-direct resources onto more productive projects more rapidly.

2. It integrates well with iterative and ongoing project planning. It enables changes of scope and requirements to be incorporated easily and rapidly into "real time planning" (Thomsett 2002) or "rolling wave planning". Equally, managing the analysis itself is undertaken on a "real time" basis, as detailed planning is only undertaken for the immediate analysis tasks.

3. Analysis paralysis is avoided. It allows for progressive elaboration as only sub-sets of the full analysis are required at each iteration. Deliverables are therefore achieved in a shorter timeframe and with minimal analysis effort.

4. The deliverables required of the analysis adhere to ANSI/PMI 99-001-2004. Once agreed, they are clearly measureable and verifiable (they can be confirmed to be correct and satisfactory). Completion of a project phase is thus made unambiguous.

5. The rigor of structured analysis is achieved without loss of agility. Analysis can be varied to meet the requirements of the project context, but because it is varied on specified and agreed aspects it is possible to understand the reliability of the data presented.

Conclusion:

Simple to understand, this model of structured iterations offers a practical alternative to the traditional model of requirements analysis. It has been presented to business people and project practitioners over eight years, and has been overwhelmingly accepted by them. The formal approach integrates analysis with project management, and enables agile responses to a dynamic environment without loss of rigor.

References

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