BUSINESS CASE DEVELOPMENT & ANALYSIS

Michael J. Stratton
The Boeing Company
P.O. Box 3707, MC 7A-44
Seattle, WA 98124-2207 USA

ABSTRACT

Making decisions about potential actions associated with investments can be a volatile and chaotic process for any company. Demonstrating the true value of the investment to the company is at the heart of these decisions. A key device in this decision process is the business case. Documenting the reasons for the investment, the options available and describing the value of the investment goes a long way toward obtaining the necessary decision and funding. Developing and analyzing business cases requires the use of effective tools such as Crystal Ball.

1 INTRODUCTION

Often times the terms Business Case and Financial Case are used interchangeably. This may be the result of many people's emphasis on the financial elements, or models, involved in the business case. However, a business case considers more than just the financial aspects of the decision under consideration. Some folks will think they require a business case, but really need a project plan, business plan or operating budget to address the given situation. All too often, people will bring forward a "business case" for consideration, when what they really are supplying is a sales presentation for a specific idea that explores only one option.

The business case should present clear evidence and reasoning which supports the conclusions presented in terms which can be understood from a business, technical and financial perspective. A key component in any business case is the financial model constructed to simulate the business problem or opportunity, as well as the expected results of following the ultimate recommendation.

2 STRUCTURING THE BUSINESS CASE

Structuring the business case is critical. During this first stage of the business case process all the people involved develop a shared understanding of the business problem, or opportunity, and the existing situation and objectives. It is crucial that this understanding be clear to all parties.

The way in which we state the problem and decision "frames" the way we will think about the business case. A decision frame "is what we call the mental structures people create to simplify and organize the world" (Russo and Schoemaker, 1989). It determines what options we will consider as well as the way we will evaluate them. "Posing the right problem drives everything else" (Hammond, Keeney and Raiffa, 1999).

3 A BUSINESS CASE

A ***Business Case*** is a decision support and planning tool that documents the predicted effect of actions under consideration to solve a problem or take advantage of an opportunity. A true business case includes financial, strategic and other commercial, industrial or professional outcomes of the change.

The action under consideration must have more than one option to be considered ***and*** the need for a decision to be made from among the options for the business. The business case should include a recommendation from among the options. Ultimately, it elicits a business decision from those individuals with the responsibility, authority and accountability for the resources to be allocated to achieve the desired outcome.

4 WHY DO A BUSINESS CASE?

A business case is in order any time there is a decision to be made regarding an investment of the company's money either through distribution of capital or use of other company resources, including labor. Documenting the reasons for the investment, the options available and describing how the investment helps the company reach its goals goes a long way toward obtaining the necessary decision and funding.

5 DEVELOPING A BUSINESS CASE

Developing a business case is really best done by following a simple, systematic process. ***Please note***: the fact that this paper presents the development of a business case as a process which can use multiple tools does not equate to being a bureaucratic and time-consuming endeavor. A business case developer can move through all the process steps and use the tools quite quickly and efficiently, especially if they are well-versed in the mechanics of the tools and process steps. Figure 1 illustrates a simple Business Case Process used within the Shared Services Group (SSG) of The Boeing Company,

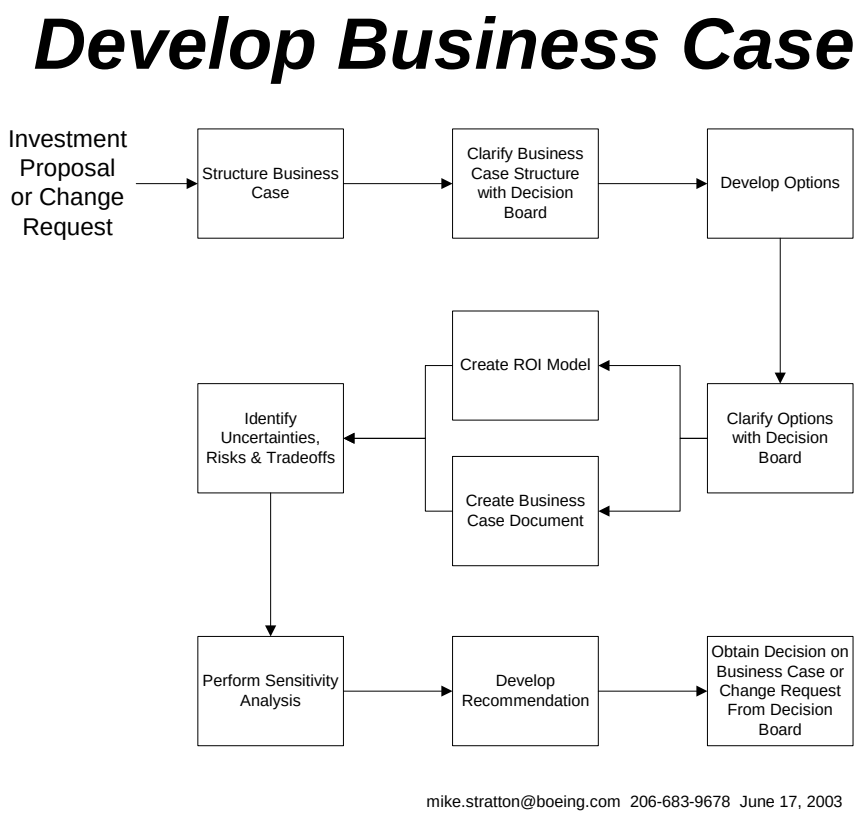

Figure 1: The Business Case Process

Table 1 briefly describes the various steps in the Business Case Process.

Table 1: Business Case Process Steps Briefly Described

Step	Action
Structure Business Case	This step deals with understanding and clarifying the business case under consideration. This is sometimes called "framing the problem and decision." The use of various artifacts and their associated processes may aid in this structuring. Among the tools to use at this stage include the following: • A Purpose Statement, or vision statement, charter or Statement Of Work (SOW) • A Decision Hierarchy
Clarify Business Case Structure with Decision Board	Meet with the Decision Board to assure the business case is on the right track. Obtain agreement on the artifacts used.
Develop Options	Develop the options that must be considered for the business case. One option that is often forgotten in a business case is the "Do Nothing" or "Business As Usual" (BAU) option for any decision. Maintaining the status quo when faced with a decision is a decision in itself. The implications of this action, or inaction, must also be understood. Among the tools to use at this stage include the following: • Influence Diagram • Decision Matrix • Force Field Analysis • SWOT Analysis
Clarify Options with Decision Board	Meet with the decision board to clarify the options. This may include identification of new options.
Create ROI Model	Create the ROI (Return On Investment) model based on the influence diagram. The model usually takes the form of a spreadsheet.
Create Business Case Document	Draft the initial Business Case Document using the information developed thus far in the process.
Identify Uncertainties, Risks & Tradeoffs	Identify those elements in the ROI model where uncertainties about the values exist. Assess the risks and tradeoffs identified in the ROI model and business case document.
Perform Sensitivity Analysis	Run a sensitivity analysis of the variables identified in the ROI model. Isolate the key variables that have the greatest impact on the values for the options. Among the tools to use at this stage include the following: • Crystal Ball • Analytical Hierarchy Process • Decision Tree • Monte Carlo Analysis • Probability Chart • Tornado Diagrams • Waterfall Chart
Develop Recommendation	Develop and document a recommendation for the business case to present to the decision board for consideration. Among the tools to use at this stage include the following: • Decision Checklist • Options Comparison Matrix
Obtain Decision on Business Case From Decision Board	Request a decision on the business case or change request from the decision board.

6 BUSINESS CASE DEVELOPMENT TOOLS

The following table defines the artifacts used throughout the Business Case Process. Artifacts are the tools used in the business case process. The purpose of the tools and associated processes is to gain clarity of the factors that must be considered to make a wise business decision. Table 2 lists the artifacts which may be used in developing a business case.

Table 2: Business Case Artifacts

Artifact	Description
Analytical Hierarchy Process	This technique looks at the decision, or decisions, to be made and builds a hierarchy of variables to compare based on the goals and objectives of the business case. Through mathematical formulas the importance of each variable is calculated and used in the determination of the best outcome.
Business Case Document	Vehicle that records the detailed, pertinent data related to the business case.
Business Case Metrics	Mechanism that collects status for the business case during its lifecycle. The metrics put forth in the business case will be the minimum status required by the project back to the Portfolio Management Process as it progresses through its lifecycle.
Business Case Presentation	Vehicle that summarizes the detailed data and information in the Business Case Document. The presentation is intended for the Decision Board, decision-makers and stakeholders. The Portfolio Management Process utilizes the presentation as a basis to place and score an investment proposal in the Investment Portfolio.
Crystal Ball	A software tool used with a spreadsheet program. The tool enables numerous analyses. It can aid in: Monte Carlo analysis, distribution fitting, correlated assumptions, sensitivity analysis, tornado diagrams, time-series forecasting, plus other capabilities. Please see the Decisioneering Web Site for more information (http://www.decisioneering.com/).
Decision Checklist	A form that contains a series of questions to help determine if a business case is ready to go to the decision board.
Decision Hierarchy	Vehicle to achieve clarity in the decisions under consideration. This distinguishes between decisions made, decisions to be made currently, and decisions to be made in the future.
Decision Matrix	Vehicle that summarizes the key set of decisions being addressed in the business case. The matrix highlights the key decision criteria needing to be addressed by the business case options. The key criteria are those items that differentiate the various options from one another.
Decision Tree	Vehicle that graphically illustrates decision paths, including the probability of each branch occurring, for the continuous variables in the cost model.
Force Field Analysis	Vehicle used to delineate the forces moving in support and opposition to the decision and business case under consideration.
Histogram	Vehicle that graphically plots the discrete variables according to the probability for the expected outcomes of the continuous variables in the cost model
Influence Diagram	Vehicle that records the various factors and their relationship to each other that may influence the subject of the business case.
Investment Proposal	Vehicle that puts forth an investment idea. The proposal will need to develop, or analyze, a business case describing the Investment Proposal. Input for an Investment Proposal is a standard form.
Issues List	Vehicle that summarizes the issues involved in the business case.
Monte Carlo Analysis	Technique that utilizes estimated probability distributions of selected variables in an ROI model to understand the resulting expected outcome value.
Options Comparison Matrix	Vehicle that summarizes the options being considered in a Business Case to solve the documented problem. The matrix highlights key elements of each option. These elements range from financial conclusions (e.g., NPV, IRR) to unique items of comparison.

Probability Chart	Vehicle that graphically illustrates the cumulative probability of the continuous variables in the cost model for the expected outcome.
Purpose Statement	Vehicle that documents key parameters of the business case project. This may also be termed a charter, vision statement or statement of work (SOW).
Return On Investment (ROI) Model	Vehicle that quantifies the costs and benefits associated with the various options being considered in the business case. This is generally accomplished utilizing spreadsheets and associated tools.
SWOT Analysis	SWOT stands for Strengths, Weaknesses, Opportunities and Threats. This analysis is done to understand the business environment in which the business case operates. This vehicle helps identify factors which may influence the outcome of a business case.
Tornado Diagrams	Vehicle that graphically illustrates the contribution of the various variables in the cost model to the expected outcome. The diagram arranges the variables according to size of contribution.
Waterfall Chart	Vehicle that shows contributions of various variables, or factors, to the final expected financial outcome of an option.

There is a logical order to using these tools. Each tool provides understanding to the problem or opportunity that the business case is addressing. The tools can often support one another in arriving at the final version of the business case.

The business case process is a key element in the success of the SSG Portfolio Management Process. This paper will not describe the Portfolio Management Process, but simply mention it.

The following two diagrams show the interrelationship of the various tools, or artifacts, used in the Boeing SSG Business Case Process.

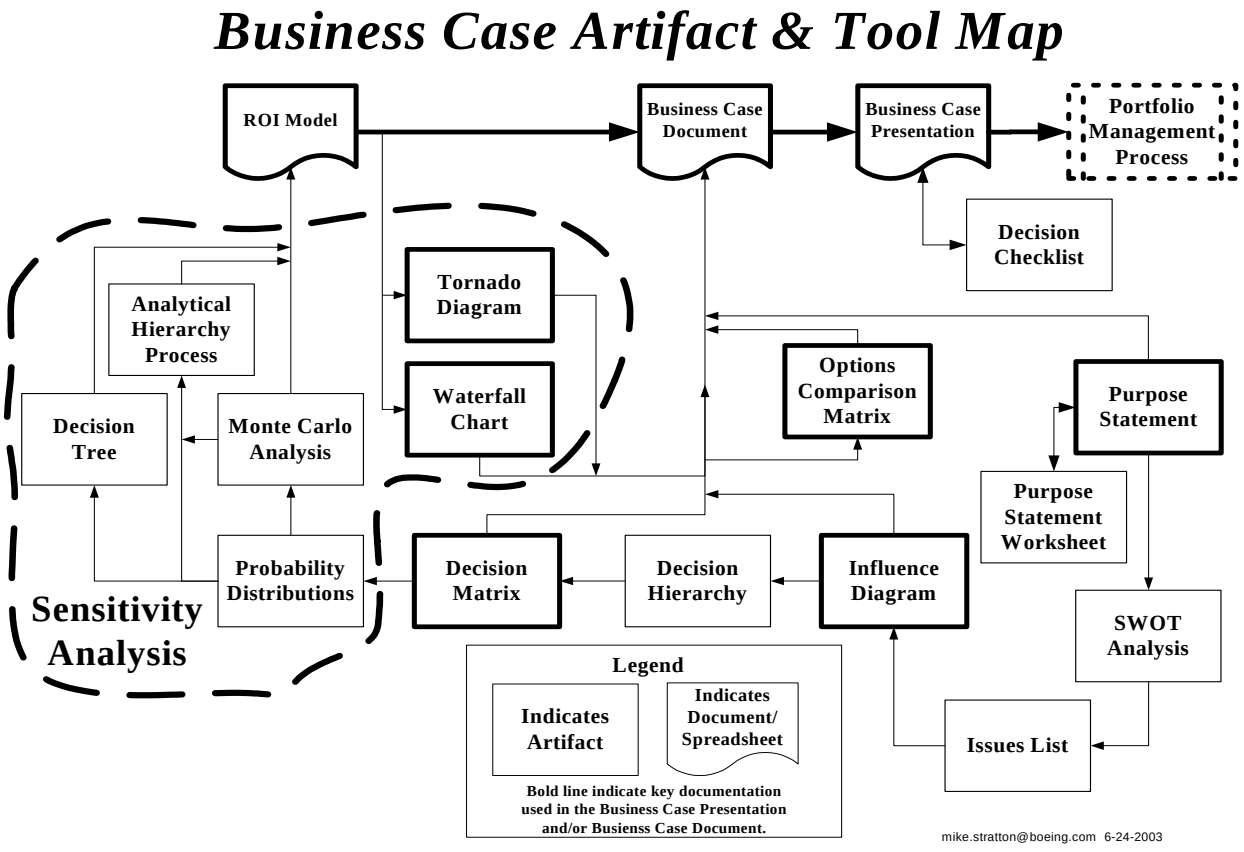

Figure 2: Business Case Artifact and Tool Map

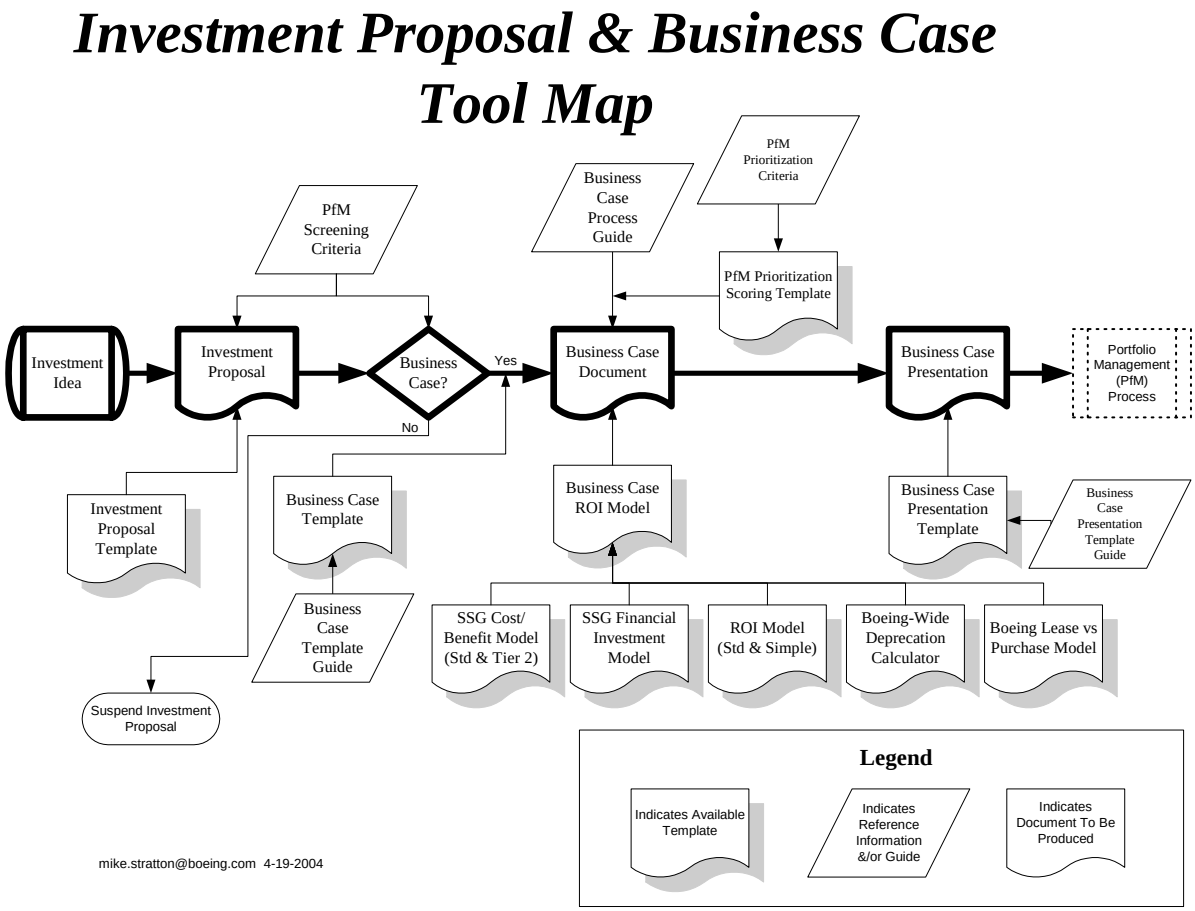

Figure 3: Investment Proposal and Business Case Document and Template Map

7 FINANCIAL ASPECTS OF A BUSINESS CASE

Certainly the financial aspects of a business case cannot be ignored, but neither should they be considered as the sole data from which to make a decision.

The key to a successful financial analysis is the construction of a sound cost/benefit model, also called an ROI (Return On Investment) Model. The ROI Model is usually a template done in a spreadsheet format. There should be either a work-sheet for each option, or a view of all options together in the model. The model usually has two distinct parts: one that builds the values based on the specific variables and factors pertinent to the business case and the other which summarizes the data into a standard format for ease in comparing options and supplying the necessary data for the decision-makers. The gathering of the correct data is essential in producing a plausible and acceptable business case.

The ROI Model is a separate spreadsheet done in a computer program such as Microsoft® Excel and may be available in multiple template formats dependant upon the complexity of the financial analysis required. There are primarily two types of models which can be developed:

1. Deterministic
    - This model identifies variables, but "determines" a single outcome value for each one.
    - The values are determined using assumptions about the variables. Assumptions may be established through "what if" techniques, or by specific predictions based on experience or expertise.
    - The combinations of assumptions for all the variables in the model are referred to as scenarios. Each scenario will produce a single outcome.

2. Stochastic (pronounced "stow-kastic")
    - This model identifies the variables which are uncertain and uses statistical methods to produce a range of values. This range of values uses probability distributions in establishing the limits of those values. These probability distributions model the understanding of risk and uncertainty about the variable's possible values.
    - These stochastic variables can also be referred to as random, chance, probabilistic, or uncertain quantity variables.

The combinations of these variables and their probability distributions will produce forecasts of possible outcomes based on a selected number of trials when using Monte Carlo Analysis. The forecasts will give a range of values along a confidence interval (e.g., 80% confident the value will be $X or greater).

The financial model should include the following:

1. Financial Measures: ROI, Net Present Value (NPV), Internal Rate of Return (IRR), Modified Internal Rate of Return (MIRR), before-tax net cash flow, and after-tax net cash flow. These should be totaled in a specific location on the spreadsheet, preferably at the top.
2. Major financial headings: Benefits/Gains, Operating Expense Items (including various forms of labor), Capital Assets Purchased, Cash Flow Summary (including depreciation as applicable).
3. Graphical charts: annual net cash flow, cumulative net cash flow, payback..
4. Key metric chart updated throughout the lifecycle of the investment: total cumulative planned investment compared over the same time period with total cumulative planned return; and total cumulative actual investment compared over the same time period with total cumulative planned return. This chart works best when it shows both a table of values and a graphical representation of the data.

This model will be driven by the isolation of the necessary data which drives the business. This allows correlations to be established, estimates done and values calculated.

The financial model will aid in a key part of the business case analysis, that of the sensitivity analysis. A Sensitivity Analysis, in a nutshell, asks:

- "What variables (values) can change the option's outcome?""Are these values reasonable?"

This analysis reveals the variables which contribute the most to the final outcome. This information is important in the decision being made for the business case. The analysis provides insight as to the impact of these key variables on the value of the options under consideration in the business case. This is where a tool such as Crystal Ball becomes invaluable. This analysis tests limits, strengths and weaknesses. It also identifies threats and opportunities, calculates ranges of possible outcomes, and provides other insights.

The goal of this analysis is to provide decision-makers with the facts, data and analysis required to make an informed decision. The decision support tool also should clearly delineate the tradeoffs in making the decisions associated with the business case. Completing this analysis will aid the decision-makers in concentrating on the right issues surrounding the business case and not waste time "majoring on the minors."

8 BUSINESS CASE DOCUMENT COMPONENTS

The business case document is the artifact that collects the facts and data surrounding the problem to be solved or opportunity from which the company may benefit. The document becomes useful in the implementation of the project, or program, by providing the necessary scope of the work and its ultimate purpose.

This business case document should explain why the funds are needed, and provide sufficient information to help weigh this requirement against other needs (or investment proposals) that are competing for the same funds and other resources. The business case also should explain the root causes or drivers of the situation, list the stakeholders for this proposal, and itemize relevant environmental considerations or factors.

The document should show the business value of the proposed investment by examination of the facts and data that are both tangible (often financial) and intangible. In writing the document, be sure to make your conclusions explicit; ***don't assume*** everyone will be able to draw a conclusion, or will draw the same conclusions you did. Finish strong; close with a specific recommendation, especially if the case involves a funding request. Make it very clear that "the ball is now in the decision-makers' court." Then, assure them that the progress of both the investment and the benefit noted in the proposal being

considered by the company will be measured. Be sure to show the decision-makers how the measures will be communicated back to them.

The document contains eight major sections. Each major section includes many subheadings that guide the business case developers through a logical progression of questions, answers, and thought by using the tools noted elsewhere in this paper.. The following major sections should make up the business case document:

- Executive Summary
- Business Case Overview
- Current Situation
- Assessment of Options
- Sensitivity and Risk Analysis
- Contingencies and Dependencies
- Recommendations and Conclusions
- Metrics

9 BUSINESS CASE PRESENTATION COMPONENTS

The business case presentation is a distilled version of the business case document. Its intended purpose is to set forth the key facts, data and analysis to the decision-makers about the situation and actions under consideration. The ultimate goal of the presentation is to obtain a decision about the stated recommendation. The presentation is done in a graphical, but standardized format.

The presentation should include the following charts:

- Title Page
- Background (words and graphics)
- Problem/Opportunity (words and graphics)
- Purpose (words and graphics that should answer the questions: “Why are we doing this Business Case?” and “Why should we make this investment, both from a company viewpoint and a business unit viewpoint);
- Decision Matrix (tabular content)
- Options Comparison (tabular content)
- Recommendation (words and graphics; this is the crux of the presentation)
- Portfolio Management Prioritization (shows scoring of this investment proposal using the standard Portfolio Management Process decision criteria – not shown in this paper)
- Financial Conclusions (key metric chart noted above)
- Schedule (usually high-level and tentative until detail planning is completed after approval to go forward);
- Benefits, Risks and Assumptions (tabular content)
- Background Information (may take a variety of formats based on the necessary facts and data surrounding the investment proposal)

10 BUSINESS CASE ANALYSIS

Analyzing existing business cases, or those under development, follows essentially the same process noted for developing a business case. The only variation in the process is that the development of the various documentation and models is already complete, or at least underway. Therefore, it is essential to apply the principles of sound business case development to the resulting artifacts to ensure they meet the business need.

11 CONCLUSION

Decisions surrounding the use of scarce resources in our businesses today require facts and data coupled with sound analysis in order to arrive at valid conclusions and recommendations. Following the simple, systematic process described in this paper shows us how to use the right tools in the right way to develop and analyze a true business case. Presenting a true business case to our company’s key decision-makers enables them to see the big picture with sufficient detail to make wise choices. It is incumbent upon each of us to understand what, why and how we can use the business case to help our company’s leaders invest our resources wisely.

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Russo, J. Edward, Schoemaker, Paul J.H. 1989. *Decision Traps: The Ten Barriers To Brilliant Decision-Making And How To Overcome Them*. Simon & Schuster.(entire book).

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APPENDIX A: DEFINITIONS

Assumptions -- Factors that, for planning purposes, are considered true, real or certain. Assumptions usually involve a degree of risk. The factors involved are often variables which are difficult to predict.

Benefit -- The cash or cash equivalent value of resources attributable to the attaining of an objective or goal. Benefits may consist of either an inflow of resources or a decrease in the expected outflow of resources.

Business Case is a decision support and planning tool that documents the predicted effect of actions under consideration to solve a problem or take advantage of an opportunity. A true business case includes financial, strategic and other commercial, industrial or professional outcomes of the change. The action under consideration must have more than one option to be considered ***and*** the need for a decision to be made from among the options for the business. The business case should include a recommendation from among the options. Ultimately, it elicits a business decision from those individuals with the responsibility, authority and accountability for the resources to be allocated to achieve the desired outcome.

Business Drivers – Those variables within and outside the business entity that affect the efficiency and effectiveness of business investments. These may take the form of internal strategies, goals, objectives, and values. The variables may also involve customer and stakeholder requirements. Other drivers may include environmental factors such as governmental or agency regulations, anticipated impact of items identified as risks to the business, competitor's actions and plans, and other market influences.

Cash Flow -- Dollars that enter or leave the company. Cash flow may be analyzed before or after taxation.

Decision Support – facts, data and analysis which aids in the decision-making process.

Decision Criteria – Those standards which guide decisions. There are several types of decision criteria including: qualifying or screening and evaluation or prioritization.

Internal Rate of Return (IRR) -- The rate that discounts future cash flows so that the present value of future cash flows equals the initial investment. The IRR assumes reinvestment of cash inflow or savings at the same rate of return as the investment.

Investment -- A commitment of resources that is designed to enhance the company's value or net worth, or comply with regulatory requirements through product changes or process improvements.

I**nvestment Analysis** -- An assessment process that defines the costs and benefits of an investment and forecasts its financial impact over a specified time period. This analysis includes: definitions of the measurements used, disclosure of any exceptions to the guidelines contained in this procedure and documentation of all assumptions, values and interpretations.

Investment Proposal -- The documentation of a potential allocation of company resources for a estimated return. Implementation of an investment proposal becomes a project or program.

Modified Internal Rate of Return (MIRR) -- MIRR is the rate that discounts the future cash flows to an NPV that equals the initial investment, assuming returns are reinvested at the discount rate. The discount rate reflects the company's current cost of capital.

Net Present Value (NPV) -- Projected cash flows expressed in current period dollars using a standard discount rate.

Payback Period -- The time required for the investment to be recovered from the returns. This is often measured in years. This is sometimes referred to as the break-even point.

Resource -- Anything needed to implement an investment, project or program. This could include: people's skills, money, raw materials, parts, assemblies, design tools, non-design tools, time, facilities, and other equipment.

Return On Investment (ROI), Simple -- The expected gains of an investment. This is determined by dividing the costs by the benefits of the investment. It is expressed in a percentage format. Positive percentage values represent a net gain from making the investment.

BIOGRAPHY

Michael J. Stratton is a senior project manager for The Boeing Company. He presently works in the Finance organization of the Shared Services Group, one of the major business units within Boeing. Mr. Stratton has been a key player in launching

the Portfolio Management Process within his business unit and has developed an extensive Business Case Process Guide and array of templates and tools for use within Boeing. He regularly contributes his expertise in the development of Business Cases throughout the company for projects worth millions of dollars to Boeing.

Mr. Stratton will celebrate 25 years with Boeing in August 2004. His career at Boeing includes working in the Boeing Commercial Airplanes business unit on nearly all of the commercial jetliners in a variety of positions including planning and implementing projects valued in the hundreds of millions of dollars. Mr. Stratton holds a B.A. in Communications, specializing in Journalism with a minor in History, from Washington State University and an MBA from City University.

He is certified as a Project Management Professional (since 1991) through the Project Management Institute and has presented and published several technical papers in conjunction with that organization's annual North American Global Congress. Mr. Stratton's other certifications include: IT Project + through CompTIA and Configuration Management II through the Configuration Management Institute and the University of Arizona He is currently pursing certification as a Certified Management Accountant and Certified Financial Manager through the Institute of Management Accountants. Mr. Stratton may be contacted at the following email address: mike.stratton@boeing.com.