

Using the Total Cost Management Tools and Technique in IT insurance Projects

ABSTRACT

Information systems (IS) or Information Technology (IT) projects are commonplace for organizations like insurance companies in today's technologically evolving and business environment. Insurance companies are faced with IT projects of varying size and technical complexity and ensuring the success of these projects is of paramount concern for both firm leaders and project managers. IT project management can be defined as the application of formal and informal knowledge, skills, tools and techniques to develop a system that provides a desired level of functionality on time and within budget.

This study presents an analysis of the Total Cost Management (TCM) tools and techniques that insurance companies should use to closely manage and monitor the scope, time, cost and quality of their IT projects. The purpose of this study is to identify and select the most relevant tools and techniques for each type of projects, whose main objectives can be whether to increase the revenues or reduce the costs.

The implementation of the TCM methodology will help top management and project managers in their decision-making, to select projects and prioritize them, and give the final decision whether to go or not, and if they decide to go whether to make it or buy it.

This analysis is all the more important than competition is tight and insurance companies are increasingly pressurized by trends like globalization, mergers and acquisitions, regulatory implications. Managing the Tetrad Trade-off with the appropriate tools, skills and understanding is a very important part of the projects' and companies' success.

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1 – Introduction

Over the past five years, with the new economy, there's been a shift toward increased technology usage and many insurance companies have embraced technology to support their business. They have seen the opportunity to use Internet as a new channel of distribution for their products in complementarily to their traditional sales channel (agents or brokers) and as a way to build a competitive advantage.

Over the last year insurers have spent between 2.5% and 3% of premium on IT. Celent¹ believes that over the next five years, this will increase to between 3% and 3.5% as IT becomes increasingly more essential to insurance company operations and consumes a larger portion of operating ratios. As overall premium grows modestly over the next five years, IT spending will correspondingly keep pace.

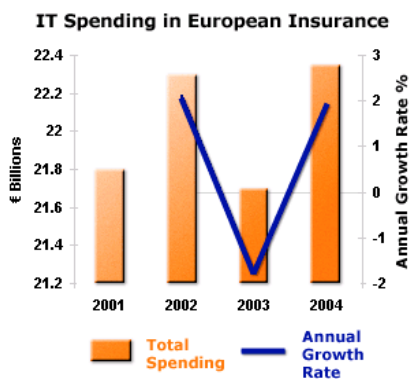


FIGURE 1: IT Spending in European Insurance
Source: Report Published by Celent

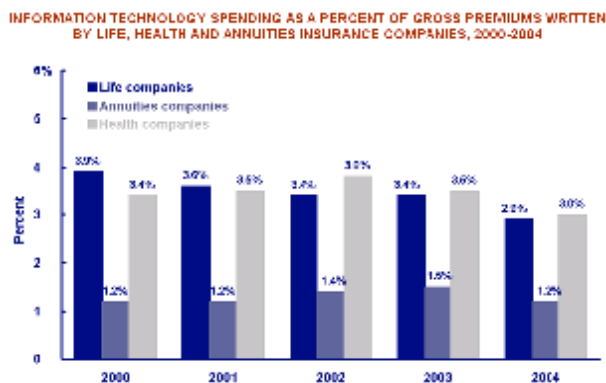


FIGURE 2: IT Spending in USA
Source: US IT Spending - Ward Group

As the main objective for companies is to continuously improve overall productivity by reducing the costs and increasing revenues, the need for comprehensive IT management has become more apparent in their strategy when you take into account that 90% of all IT projects are delivered late² and 50% of all IT projects are delivered over budget³. Increased competition and the growing need to demonstrate return on investment have dictated a new approach to managing IT. It is no longer about keeping the system running, it's about accountability and improved decision-making.

This study aims at analyzing first the IT project portfolio of insurance companies then at selectionning the most relevant tools of the TCM methodology that they can use to effectively scope, plan, schedule and manage their IT projects and finally explain why the management of the Tetrad Trade-off (scope, time, cost and quality) is so important.

¹ Celent is a research and consulting firm focused on the application of information technology in the global financial services industry

² Source : CIO Disruptors Benchmark Report: The 2005 CIO Agenda - AberdeenGroup July 2005

2 – IT Projects portfolio Analysis

2-1 The application of TCM methodology

Insurance companies need to implement a good IT management: they are often attempting to do many more projects than they have the capacity to do. Bad projects have “squeezed out” good projects. There is neither visibility of what has been done throughout the organization nor a clear view of the investments return value. Due to the adaptability of the various TCM tools, which are process-oriented, TCM methodology is not specific to sectors like construction or automobile industries... but is relevant for all kind of sectors⁴, and is equally applied to insurance companies.

TCM methodology involves a selection and implementation of various tools of cost management, which depends on the needs of the company⁴. It is therefore important to analyze the project portfolio of insurance companies to evaluate the most relevant tools that will give the highest visibility and applicability to IT projects.

2-2 Identification of the main categories of projects

The IT insurance portfolio can be divided into two broad categories: the first aims at enhancing the revenues of the company (new Products) whereas the second aims at reducing the costs. Even if their nature is different, they both follow the same management process and are under sustained pressure to be completed within budget, on time and with quality. They are directed toward the same shared value: to maximize returns.

2-2-1 New Product Development or top line projects

Insurance companies are continually developing new and more complex products with a very short lead time to better serve their customers. For many companies using information technologies, the main feature of these products is that they are fully web-based⁵.

A product development involves many processes such as strategy, organization, concept generation, product and marketing plan creation and evaluation, commercialization... and an IT project is launched to develop the product on the Internet, accessible via a trade application. The IT infrastructure allows insurance companies

3 Source: The User's View of Why IT Projects Fail - Gartner Group February 2005

4 Article from the Hindu Business Line: "The TCM philosophy - A primer on total cost management through FAQs ", available from <http://www.blonnet.com/2001/12/31/stories/213177tc.htm>

5 Glenn Coulter and Dan Laffey , " Insurance Evolution: Achieving Competitive Web-based Product and Service Delivery," Insurance & Technology , September 22, 2004, available from <http://insurancetech.com/story/news/showArticle.jhtml?articleID=47901093>

to support all aspects of the insurance product functions and to streamline processes through electronic automation. Therefore, the key challenge they are facing is to juggle multiple IT development projects while insuring the projects are completed on time and on budget and assuring that the development project's scope and quality are met.

2-2-2 Cost Reduction Projects

Most cost reduction projects concern process improvement and optimization, business processes automation, and productivity increase ... The paper cost reduction (or the Zero Paper) can be the most representative example of cost reduction projects: insurers produce paper – allot of projects are now trying to figure out how to eliminate that paper, eliminate that manual work, and eliminate the errors within a process. For decades, insurers have looked for ways to cut down on the money they spend printing, handling, distributing and storing paper⁶.

IT projects are launched to provide a solution to the content management system in order to help reducing the costs while optimizing the processes. However these projects are often very difficult to measure because of the absence of cost data. It is difficult to know which projects will have the greatest cost impact and business benefit.

3 – Identification of the most relevant tools

3-1 Tools for Scope Management

Scope definition is often a neglected area in many projects, with many IT projects being commenced before the scope of the project has been decided.⁷ Scope definition involves identifying the major tasks required to produce the project deliverables and meet the objectives defined. For example, whereas the final project deliverable may be a new web based product there is a whole set of in-process deliverables that must be prepared and approved appropriately. Some examples are: Requirements document, Technical specifications, Testing documents, Training plan...

⁶ Michael Fitzpatrick, "Firing up the Paper Chase", Risk & Insurance®, available from http://www.riskandinsurance.com/050901_feature_2.asp

⁷ Alan C. Earnshaw "Why Do Large IT Projects Fail?" © 2000 Information Management Systems - <http://www.infoms.com/wp-large.htm>

Defining the scope of a project is a very important step as it is the foundation on which the schedule, cost estimate, budget and resource plans are built. The TCM methodology warns against “poor scope definition and loss of control of the project scope” which are “the most frequent contributing factors to cost overruns”⁸

In order to manage well the scope of IT projects, the Work Breakdown Structure is the main tool suggested by TCM methodology. Other tools (Stakeholder Analysis and Brainstorming) can be taken from the PMI® methodology⁹ to make sure the companies will have all the relevant tools to accurately define their projects’ scope.

3-1-1 The Work Breakdown Structure

The most effective tool to use in ensuring that all work scope is planned is the Work Breakdown Structure (WBS). The WBS is a tree structure, which decomposes the entire project into a logical structure of tasks, and activities that are tied to deliverables and to assigned responsibilities. All planning and estimates efforts should be organized to the WBS (see Figure 3) that is developed for the project.¹⁰

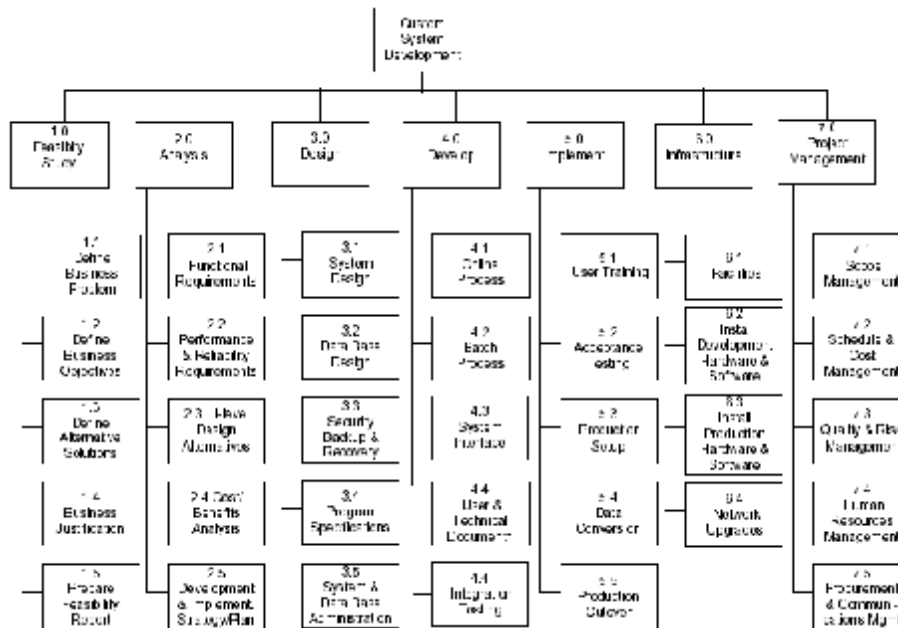


FIGURE 3: Example of WBS of an IT project¹¹

8 Skills and Knowledge of Cost Engineering Edited by Dr. Scott Amos, 5th Edition 2004, PE -Section V Chapter 20 p 20-2

9 PMBOK® GUIDE 2004

10 Skills and Knowledge of Cost Engineering Edited by Dr. Scott Amos, 5th Edition 2004, PE -Section III Chapter 12 p 12-3

11 State Services Commission and the Treasury Wellington 2001- Guidelines for Managing and Monitoring Major IT Projects, available at <http://www.ssc.govt.nz/ITguidelines>

3-1-2 Stakeholder Analysis

The first step in the stakeholder analysis is to identify who the stakeholders are. They are all the people who are affected by the projects, have influence or power over it, or have an interest in its successful or unsuccessful conclusion.¹² In insurance companies, the stakeholders can be the corporate office, the IT staff, the project manager, the technical, marketing and training departments, some experts and the users. Indeed, before starting a project, it is mandatory to take the time to work the scope with the stakeholders and users to make sure there is a shared understanding of what is included in or excluded from the project.

3-1-3 Brainstorming

Brainstorming is simply to let ideas flow, without judgment, so that everything is on the table for consideration. The purpose of brainstorming is to externalize authentic and complete ideas and facilitate innovative thinking for improving and automating business processes with IT staff, users and other stakeholders.¹³ Therefore, the most important things Insurance companies have to remember when defining the scope is to create a detailed project specification using the WBS, and make sure that all the managers, IT staff, stakeholders and users share the same definition of the scope before beginning to work.

3-2 Tools for analyzing Time Management

Sometimes IT managers are not given the opportunity to plan because most of the time the project has been started before the scope has been clearly defined. They also see planning as a waste of time because they believe that time is better spent doing something (seeing results) rather than planning (seeing ideas). However, planning is an important process as it is on this basis that an appropriate budget can be established.

Time management has two main components:

1. Planning: is a process that defines the actions and activities, the time and cost targets, and the performance milestones that will result in achieving objectives¹⁴. Usually people underestimate the amount of time needed and/or forget to take into account unexpected events or unscheduled high priority work.

¹² Rachel Manktelow, "Stakeholder Analysis & Stakeholder Management" - http://www.mindtools.com/pages/article/newPPM_07.htm

¹³ Plan, develop, and implement effective IT strategies and policies - http://www.humanrightsfirst.org/about_us/jobs/is_director.htm

2. Scheduling: is the process that converts the project work plan into a road map, which if followed, will assure timely project completion.¹⁵

3-2-1 Tools for Planning

According to the TCM methodology, the most fundamental planning tool is the experience team participants have gained during previous undertakings. For example, on a new product launch project, the time of IT development for the repetitive activities (screens, implementation of a quotation system...) is often a variable that is known.

While hard to quantify with a reasonable degree of confidence, especially for cost reduction projects, the experience can provide a basis for using another more tangible planning tool: the bottom up estimating.

This tool consists in decomposing and estimating the work within the schedule activity into more detail. The estimates are after aggregated into a total quantity, which gives the total time estimate for the project.

3-2-1 Tools for Scheduling

While numerous scheduling methodologies exist for developing project schedules, two tools can be easily applied for IT projects: Critical Path and Project Evaluation Review Technique (PERT), which is mostly used to calculate the most likely duration for networks.¹⁶

Critical Path Analysis (CPA)¹⁷ is an effective and powerful method that helps to identify and plan all tasks that must be completed on time for the whole project to be completed on time, and also identifies which tasks can be delayed for a while if resource needs to be reallocated to catch up on missed tasks.

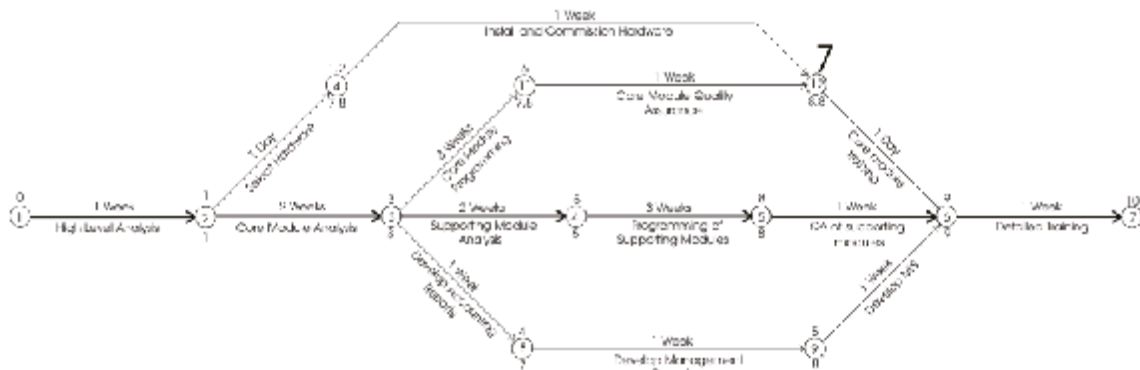


FIGURE 4: Planning an IT project with the Critical Path¹⁷

15 Skills and Knowledge of Cost Engineering Edited by Dr. Scott Amos, 5th Edition 2004, PE -Section III Chapter 13 p 13-1

16 Skills and Knowledge of Cost Engineering Edited by Dr. Scott Amos, 5th Edition 2004, PE -Section III Chapter 13 p 13-2

PERT¹⁸ is a variation on Critical Path Analysis. It takes a slightly more skeptical view of time estimates made for each project stage. It consists of estimating the shortest possible time each activity will take, the most likely length of time, and the longest time that might be taken if the activity takes longer than expected in order to calculate the most accurate time estimate for each project stage.

Formula for PERT:

$$\frac{\text{shortest time} + 4 \times \text{likely time} + \text{longest time}}{6}$$

Tools for Time management will help the insurance companies to analyze and describe each task of their IT project, identify the resources needed and define the milestones of the project (expected dates of deliverables).

3-3 Tools for analyzing/evaluating Cost Management (528)

Some IT insurance projects don't only exceed their budget because they turn out to be bigger than originally estimated. They often blow the budget because the estimates were badly managed. As a result, the profitability analyses (ROI, IRR...) are not well quantified because the estimates of future return were not accurate.

Accurate estimates turn to be really important, as they are frequently required for three principal reasons:

1. The first is to well-define the costs/budget of the project.
2. The second is to justify the project. It enables the cost to be compared with the anticipated benefits.
3. The third is to evaluate and control the actual costs vs. estimated and take corrective actions when needed to make the project succeed.

Applying Activity-Based Costing (ABC) to IT projects can help insurance companies to better understand their costs and maximize IT resources. Combined with the Earned Value Management, IT projects can be tracked and controlled effectively in terms of time and budget.

17 Critical Path Analysis & PERT Charts - Planning and scheduling more complex projects - http://www.mindtools.com/pages/article/newPPM_04.htm

18 Critical Path Analysis & PERT Charts - Planning and scheduling more complex projects - http://www.mindtools.com/pages/article/newPPM_04.htm

3-3-1 Activity-Based Costing (ABC)

Activity-based costing (ABC) is a budgeting and analysis process that evaluates overhead and operating expenses by linking costs to customers, services and products. It allows businesses to see which products or services are profitable or losing money. ABC can be a powerful tool for determining the actual costs of various IT projects, for budgeting and for planning.

The first step is to establish the activities of the project. Once they are established, the parts of each activity that costs money must be determined. Next, the data is collected and input to the application.

From there, managers can determine what changes need to be made to give a company optimal profitability. This is called activity-based management; the process of using ABC to analyze how efficiently activities are performed and how to manage them.

Going through this process shows internal customers exactly what a project costs as ABC/M reveals what the true costs are/were and the amount of resources that were required to complete IT-related tasks. The bottom line is greater accuracy and greater control over all the factors that make up costs and can result in a reduction of 5% to 6% annually in IT costs.

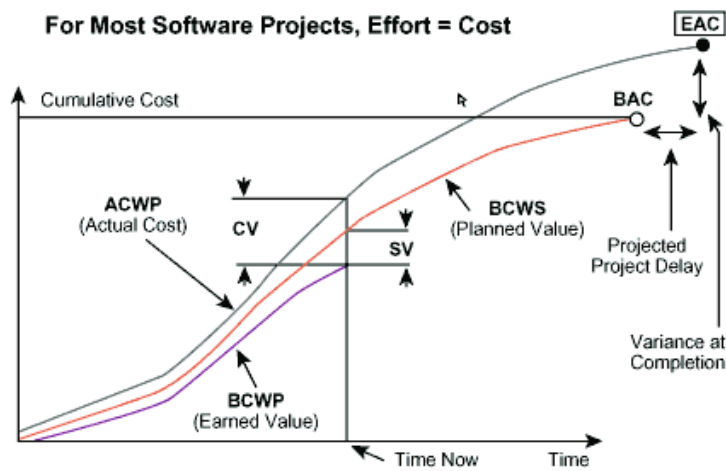
3-3-2 Earned Value Management (EVM)

The Earned Value Management (EVM) technique is a valuable tool to measure a project's progress, forecast its completion date and final cost, and provide schedule and budget variances along the way.

EVM provides consistent indicators to evaluate and compare projects and give an objective measurement of how much work has been accomplished. It lets the project manager combine schedule performance and cost performance to answer the question: "What did we get for the money we spent?"¹⁹

Using EVM process, management can easily compare the planned amount of work with what has actually been completed, to determine if cost, schedule, and work accomplished are progressing as planned. It forces the project manager to plan, budget and schedule the work in a time-phased plan.

¹⁹ What is Earned Value Management? – available from <http://www.kidasa.com/information/articles/earnedvalue/earnedvalue.html>



- § BCWS – Budgeted Cost of Work Scheduled (planned value)
- § BCWP – Budgeted Cost of Work Performed (earned value)
- § ACWP – Actual Cost of Work Performed (actual)
- § BAC – Budget at Completion
- § EAC – Estimate at Completion
- § SV – Schedule Variance = BCWP – BCWS
- § CV – Cost Variance = BCWP – ACWP (positive is

FIGURE 5: Monitoring the Earned Value with the S-curve²⁰

The principles of ABC and EVM techniques provide innovative cost and performance measurement systems, allowing productivity improvements, and therefore can enhance the IT project's profitability and performance.

3-4 Tools analyzing/evaluating Quality Management

Many IT insurance projects trade time for quality in delivering major application and don't meet the quality objectives. Quality management cannot guarantee project success, but it certainly provides a force against failure. The goal of effective quality management is to set realistic project and process quality objectives, define actionable quality expectations, ensure minimal product defects and eliminates re-work. In short, quality management is designed to help deliver the best project results within established constraints and boundaries.²¹

Several process improvement methodologies like Total Quality Management (TQM), Quality Circles, Taguchi, Statistical process control, etc. can be applied but Six Sigma appears as the most relevant one. The fundamental objective of Six Sigma (i.e. implementation of a measurement based strategy to propel process improvement and reduce process variation) is accomplished by means of two strategies – DMAIC (Define, Measure, Analyze, Improve and Control) and DMADV (Define, Measure, Analyze, Design and Verify).²²

90% of the processes in an IT project are repeatable and can be improved by the process improvement DMAIC methodology, which is an improvement system for existing products or processes:

²⁰ Gary A. Gack (2003) - Using 'Earned Value' to Keep Control of Large Projects – available at <http://software.isixsigma.com/library/content/c031210a.asp>

²¹ Available from http://www.ittoolkit.com/assessments/assess_quality.htm

²² Rajesh Naik - Leveraging Six Sigma in IT - A Patni White Paper – Available from http://www.onesixsigma.com/experience/white_papers/whitepaper_pages/patni_wp1.php

- Define – Define project goals and customer deliverables based on voice of internal customer
- Measure – Measure the process to evaluate current performance with respect to customer requirements.
- Analyze – Analyze and determine root cause(s) of poor performance.
- Improve – Devise and evaluate multiple solutions to improve performance and eliminate defects; Pilot solution and compare performance.
- Control – Quantify improvements; Implement control plans to sustain desired performance.

The DMADV methodology can be applied to the remaining 5 -10 % of the processes, which involve creativity and is used to design or re-design a new product:

- Define – Define the scope of the project and initiate the project.
- Measure – Measure internal customer needs and specify the CTQ parameters.
- Analyze – Analyze the concepts that meet customer needs (CTQs).
- Design – Develop a detailed design with respect to the customer needs and identify control plans.
- Verify – Test and verify design performance with respect to customer CTQs.

Six Sigma offers strong tools like Quality Function Deployment, Failure Mode Effect Analysis, Design of Experiments and other templates to convert high-level Voice Of Customer into measurable Critical To Quality Criteria.

4 – Conclusion

As stated in the title, this study involved using TCM tools and techniques to manage and control IT insurance projects. Throughout a project's initiating, planning, executing phases, TCM can be employed as a means of balancing a project's scope, time, expectations of quality and budget - and not just time and cost alone. The approach can be summarized as requiring the following three steps:

1. Define the scope, the time, the level of quality desired, and the budget;
2. Ensure that the scope, time, quality, and budget are aligned;
3. Monitor and manage the balance of these four components throughout the life of the project

This refers to the Tetrad-Tradeoff Principle²³, which means that the project's variables, scope, time-to-produce, cost-to-complete and quality grade are interconnected and cannot change without a corresponding, balancing change on one or more other variables. Agreements must be reached within the project organization on the balance between them, since without agreement to the balance there cannot be a reasonable commitment to achieving the project's goals.

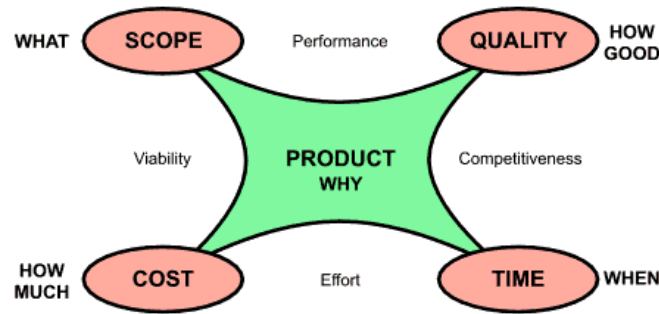


Figure 6: The Tetrad Tradeoff - Four Objectives or Constraints
 Source: Max Wideman – The Tetrad Tradeoff Principle

It is now essential that insurance companies, when initiating their IT projects, remember to anticipate any tsunami-like problems that can hit them²⁴.

Implementing TCM tools and techniques can offer many potential benefits regarding planning, control, budgeting and performance management and can provide insurance companies with the conceptual framework for effective management of their IT projects.

²³ Max Wideman -The Tetrad Tradeoff Principle – available from <http://www.maxwideman.com/guests/cupquest/tetrad.htm>

²⁴ Jason P. Charvat | How to identify a failing project – November 2002 – available from <http://builder.com.com/5100-6315-1061879.html>

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