

Success Measure for Statistical Failure of IT Projects – “No Cure, No Pay”

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IT Projects Failure Rates

The Standish Group research shows a staggering 31.1% of projects will be canceled before they ever get completed. Further results indicate 52.7% of projects will cost over 189% of their original estimates. The cost of these failures and overruns are just the tip of the proverbial iceberg. The lost opportunity costs are not measurable, but could easily be in the trillions of dollars in the United States alone.

On the success side, the average is only 16.2% for software projects that are completed on-time and on-budget. In the larger companies, the news is even worse: only 9% of their projects come in on-time and on-budget. And, even when these projects are completed, many are no more than a mere shadow of their original specifications requirements. Projects completed by the largest American companies have only approximately 42% of the originally-proposed features and functions [1].

The statistics all converge to establish that:

- ♣ An IT project is more likely to fail than to be successful
- ♣ About 1 out of 5 projects is likely to bring full satisfaction
- ♣ The larger the project, the more likely the failure

This raises of course a litany of questions:

- ♣ Would an organization be better off without undertaking IT projects?
- ♣ Does the attention shown by top management for strategic projects reflect the actual stakes?
- ♣ What will increase the chances of success?
- ♣ What edge does a particular project have with respect to those on the casualty list?
- ♣ What are the real objectives of an(y) (IT) project? Are these objectives measurable and is the project contributing to their evolution in the right direction?

ROI¹: The Classical Approach

ROI is a straight forward concept which is widely known and used to estimate the gains in terms of profits or cost savings that accrue from a capital IT investment. When we use this term in the commercial world particularly in the context of IT, we often, though wrongly mean return from financial investment.

In almost all IT projects in addition to the financial investment, there is also investment in terms of time and efforts. Besides the financial returns, the organization often seeks returns in terms of ease-of-use, time savings, speed, accuracy, and deeper analysis.

Most of these costs and benefits are not quantifiable in financial terms. For these reasons, ROI in just financial terms (IRR, NPV, Payback Period, and Discounted Payback Period) does not do justice

with IT projects and does not make much sense as single evaluation criterion [2].

The problem with all of these well known concepts and techniques is that they on making variations on well known themes, i.e., input and cost savings or reduction rather than output such as increase of the structural knowledge of the organization, better alliances with supplier and partners, higher customer loyalty, and the like. All of these elements are intangible and therefore difficult to grasp, let alone calculate. A collective term for these phenomena, which represents the real value of an organization, is described these days as ‘Intellectual Capital’.

What is Intellectual Capital?

Information and knowledge are the thermonuclear competitive weapons of our time. Knowledge is more valuable and more powerful than natural resources, big factories, or fat bankrolls. In industry after industry, success comes to the companies that have the best information or wield it most effectively.

Wal-Mart, Microsoft, and Toyota did not become great companies because they are richer than Sears, IBM, and General Motors, on the contrary. But they had something far more valuable than physical or financial assets. They had Intellectual Capital [3].

A business or government organization not only transmits input into output through a process of knowledge, it also creates or destroys knowledge. Most management research and consultancy services have been focusing on how to increase the input-output ratio, often called efficiency and effectiveness improvement, but have often ignored the explicit value of knowledge processing and knowledge creation within an organization.

The creation of Organizational Knowledge – either privately or publicly owned – refers to the capability of a company as a whole to create new knowledge, disseminate it throughout the organization and embody it in products, services and systems. It is through the specific use of knowledge and continuous innovation that organizations create competitive advantages over other organizations. Intellectual Capital is considered as the resource that creates invisible or intangible sources of competitive advantages such as networks and organizational systems. The value of any organization is constituted of (1) the physical tangible and financial capital which one finds on the balance sheet of a company

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¹ROI = (PV of Expected Benefits/PV of expected cost) * 100.

and (2) the intangible assets of a company which are usually described as “goodwill” on the balance sheet.

A company’s Intellectual Capital or Knowledge Base is usually determined as the sum of its *human capital* (talent), *structural capital* (intellectual properties, methodologies, software, documents, and other knowledge artefacts), and *customer capital* (client relationships). These intangible assets or Intellectual Capital are to a high extent related to relationships with the customers and suppliers, and with the employees and partners of the company. “Good will” does not fully encompass the real value of IC as we understand it. Sometimes IC is interpreted as the difference between the book value - i.e., the historic value of the assets of a company not yet amortized – and the market value which equals the perceived present value of the future cash flow of a company [4].

Intellectual Capital is the sum of everything everybody in a company knows that gives it competitive edge. Unlike the assets with which business people and accountants are familiar – land, factories, equipment, cash – Intellectual Capital is intangible. It is the knowledge of a workforce, the training and intuition of a team. It is the collaboration – the shared learning – between a company and its customers, which forges a bond between them that brings the customers back again and again.

In one sentence: *Intellectual Capital is intellectual material – knowledge, information, intellectual property, experience – that can be put to use to create wealth.*

Making the Link

If Intellectual Capital equals intellectual material which is used to create wealth, then all efforts and investments, including IT projects, should be evaluated with respect to their contribution to increasing this intellectual material. In other words, when evaluating the real added value of an IT project, instead of looking at the traditional evaluation methods, such as ROI, one might want to start looking at the degree to which the project adds to the knowledge, information, intellectual property and experience of an organization, which will contribute directly to the wealth creation capacity of that organization.

If a method or methods could be developed to measure the level of IC before and after the implementation of an IT project, then the ‘real’ value of that project could be made much more explicit. One could even contemplate the next step: if such a method or methods would exist, then the thru value of any investment – be it a training program or the implementation of an ERP system, the outsourcing of a business process or the introduction of a new data warehouse – could be calculated upfront and the effort to convince the senior management of an organization to go ahead with an initiative might become much easier.

In all the discussions around IC, most of the efforts so far have been concentrated on definitions and concepts. Some groups tried to come up with metrics and measurements, but most do not go much further than very partial calculations very often limited to performance indicators and ratios. If IC wants to make it into the business world a method or methods will have to be worked out where the entire IC value of a company can be expressed in monetary terms (euros, dollars or whatever currency is required), preferably in a format similar to what accountants and CFO’s understand easily, i.e., a balance sheet. It is all a matter of finding the right econometric translation of all the IC components and their links with other IC elements as well as the ‘tangible’ assets and liabilities of an organization. In these econometric formulas, quite a number of parameters and variables will have to be

defined, but once known they can be recorded and followed up leading to a consistent calculation of the IC value of the organization. Then, and only then, will IC break through and become a management tool.

AREOPA’s² Methodology to Measure

Intellectual capital

AREOPA has developed such a model for identifying and quantifying intangibles as components of Intellectual Capital (IC). This model serves to evaluate a company’s return on all the capital it employs, helping to explain the difference between book and market value. It also provides guidance as to how and where management should put its attention to grow the organization’s overall IC.

AREOPA positions Intellectual Capital calculation as a management tool and not as a simple financial calculation of the intangible assets of the organization and thus explaining the difference between book value and market value. Management wants to understand the value of the Intellectual Capital of their organization. By giving a monetary value to the Intellectual Capital, management starts to understand the value and the impact [5].

The Four IC Classes

The four base classes are Human, Customer and Structural Capital, plus Strategic Alliance Capital (Figure 1).

The latter gives recognition to the fact that partnerships, alliances and networks are increasingly important factors of business in the New Knowledge Economy. The strength of the alliance or network significantly impacts the leverage any one company may have in its market, and therefore affects its value.

A second crucial observation is that, apart from Structural Capital, the base IC classes are in fact *shared* capital. For instance, Human Capital (HC) is shared with its ‘owners’: when a staff member decides to leave the organization, he/she takes his/her skills and competences, reputation and potential along. Similar rules apply to both Customer Capital (CC) and Strategic Alliance Capital (SAC): when the customer takes his business elsewhere or an alliance breaks up, the customer’s revenue potential and partnership’s leverage are gone.

However, not all may be lost in such extreme but realistic scenarios

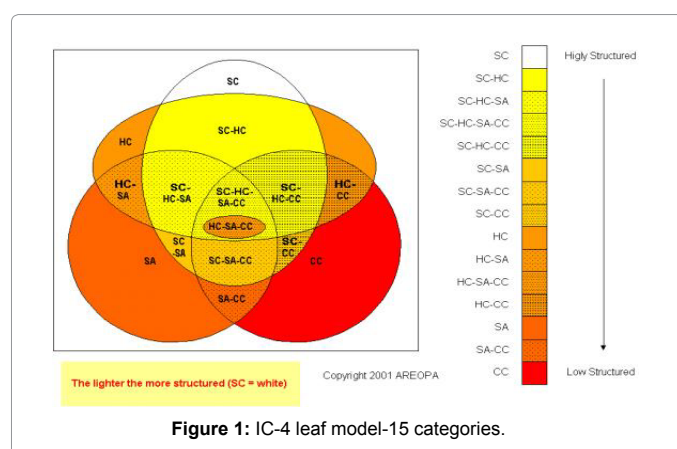


Figure 1: IC-4 leaf model-15 categories.

²AREOPA was founded in 1992 as a management consulting firm. AREOPA has built up a strong reputation over the years in the development of methods, models and tools in such areas as “Change Management”, “Intellectual Capital” and “Knowledge Management and e-Learning” and the provision of consulting services making use of these methods, models and tools. www.areopa.com

since at least the customers’ name may remain on the company’ reference list, and a former partner may still perform as an ‘at arm’s length’ supplier: these indicate that some CC and SAC has become structural, and is therefore unaffected by the departure of a customer, resp. strategic alliance.

The consequence of this is that Intellectual Capital may flow from one sector into the next. And this is where management of IC comes into play. It is important for companies to realize where their IC is situated, and which actions need to be taken to convert IC that is at risk of being lost into IC that has become structural, i.e., to structuralize its Human, Customer and Strategic Alliance Capital to the maximum extent possible.

The IC calculation (ICC) developed by AREOPA contributes to improve a better understanding of the intangible assets of an organization and its related management issues.

The End of Assets

The knowledge company travels light. When information has replaced stockpiles of inventory and when it has left its material body and taken on a business life of its own, a company ultimately becomes a different kind of creature. A traditional company is a collection of physical assets, bought and owned by capitalists who are responsible for maintaining them, and who hire people to operate them. A knowledge company is different in many ways. Not only are the key assets of a knowledge company intangible, it’s not clear who owns them or is responsible for caring for them.

Indeed, a knowledge company might not own much in the way of traditional assets at all. Just as information replaces working capital, intellectual assets replace physical ones. It is characteristic for knowledge companies to strip their balance sheets of fixed assets. The knowledge company doesn’t care about owning assets. In fact, the fewer assets, the better; so long as it has intellectual capital, the company can get the revenues without the burden and expense of managing and paying for assets.

Making allowances for thousands of exceptions, one could say that businesses are moving to one or the other side of a dividing line: asset-owners versus assets-renters. This creates enormous opportunities for companies offering services in areas such as strategic or business process outsourcing, hosting, shared services, and the like.

The Challenge

The foundations of all of the economies of the West have now shifted from an industrial base to a service and knowledge base. This shift is nearly complete, and it is irreversible. Economic theories have begun to reflect this, but theory has been slow to be translated into practice. There is currently a lack of consensus around intellectual capital definitions, management practices and accounting. This Spotlight focuses on the issues that must be addressed in an uncertain world and complex business environment to enable the enterprise to be successful in implementing intellectual capital management (ICM) practices (Figure 2).

How can ICC help you in taking decisions?

We should close one of our US subsidiaries, but which one should I close and why?: AREOPA calculates the added value of an organization and gives the possibility to benchmark. But AREOPA also gives you an idea how to increase that value so you can calculate the Return on Investment if you would decide to invest.

Year	1900	1940	1980
Production Workers	73,4%	57,2%	34,2%
Personal Service	9,0%	11,7%	13,3%
Managerial & Administrative	13,3%	23,6%	36,1%
Technical & Professional	4,3%	7,5%	16,1%
Total % of 'Knowledge Workers'	26,6%	42,8%	65,8%

Figure 2: Knowledge workers.

We are on the verge of acquiring a company, what is the value and where could I run into problems?: AREOPA has created a unique model to be able to calculate the value of a company. But by doing so, one also gets a clear view how and where the value is created and sustained. It gives a clear answer on how/where one should act when steering the company to create more added value.

When an idea pops up does the company always consider the “high” costs instead of trying to identify the benefits?: AREOPA can help in learning your organization to think in benefits instead of only thinking in costs. By combining both elements the real added value can be calculated so it will help the company to better benchmark the ideas.

How structural are my salesrep’s networks?: AREOPA can calculate the value of the existing networks and by doing so giving you ways to make those networks more structural, so they will not leave the company if the individuals leave.

Do you know what the value of the decision process is in your company?: AREOPA can calculate the value (efficiency and effectiveness). By doing so you will get a clear view on how to improve that value.

How to motivate putting intangible assets on the balance sheet?: AREOPA can help you building a sound financial motivation for putting intangible assets on the balance sheet.

Have your investments in Knowledge Management led to better performance?: AREOPA calculates the value of the use of know - how, by identifying both benefits and costs.

Is the value of your top-management candidate really one million Euro?: AREOPA has created a model to calculate the value of a candidate based on values like network, knowledge, skills, home support and other elements which are classically not found in candidate valuation models.

Quantification of Intellectual Capital

The lack of means to determine the IC value of an investment opportunity often makes investment decisions very risky. A company with a large share of IC, which is not illustrated in line with the traditional accounting principles, and which has a high future earnings potential, can easily be wrongfully valued. The consequences may be under capitalization and reduced ability for the company to perform optimally.

Measuring the acquisition and use of knowledge assets excites great interest and great skepticism. Even people who decry the inadequacy of today’s accounting worry about putting untried, possibly subjective,

non-financial measures into annual reports. Corporate financial statements are clustered enough with good will, restructuring charges, and other items, that many complain that they no longer describe financial performance clearly. Yet if it would be a mistake to mingle measures of Intellectual Capital with financial data, it would be a greater one not to use them at all. Ultimately managing Intellectual Capital depends on finding rigorous ways to track it, which correlates with financial results. The data we want should, first, allow management to evaluate year-to-year performance – to measure progress towards goals – and, second but more difficult, permit company-to-company comparisons. Undoubtedly measuring knowledge assets must be imprecise, but there is a lot of informed guesswork in “hard” numbers, too.

Value is defined by the buyer, not the seller: something is worth what someone is willing to pay for it. A company, therefore, is worth what the stock market says: price per share x total number of shares outstanding = market value, what the company as a whole is worth. The simplest, and by no means worst, measure of Intellectual Capital is the difference between its market value and its book equity. The assumption here is that everything left in the market value after accounting for the fixed assets must be intangible assets. If Microsoft is worth \$85.5 billion and its book value is \$6.9 billion, then its Intellectual Capital is \$78.6 billion. But market-to-book ratios have three problems. First, the stock market is volatile and responds, often strongly, to factors outside the control of management. Second, there is evidence that both book value and market value are usually understated. Third, while it is nice to say that Microsoft has \$78.6 billion in intangible assets, so what? What can I, as a manager or investor, do with this information?

The research regarding the measuring and visualization of IC and the intangible assets of companies and organizations have, during the last decades, resulted in various methods, models and theories concerning this area of study.

These methods can be classified into four categories of the measurement approaches, as illustrated in the Figure 2. They are: component-by-component and non-monetary, component-by-component and monetary, organizational level and non-monetary.

Some believe that IC can be quantified and precisely expressed in monetary terms, others deny that such an approach would be possible or viable. AREOPA belongs to the former, believing in the component by component direct monetary calculation. Intellectual Capital remains the Intangible Asset par excellence, volatile, invisible, impossible to count or measure at first sight. The problem was that until recently, hardly any objective measures of non-financial assets existed, and where they did, they were very specific and limited in scope.

AREOPA's Methodology to Measure Intellectual Capital

The importance of financial assets in the determination of a company's market value is decreasing fast and it is equally recognised that non-financial (or intangible) assets are now the main drivers of performance and market value. To date, however, there exist little or no objective quantitative measures of intangible assets, and where they are claimed to exist (e.g., in the valuation of brands, intellectual property, patents, etc.) they are very specific and limited in scope.

AREOPA has developed a model for identifying and quantifying intangibles as components of Intellectual Capital (IC). This model serves to evaluate a company's return on all the capital it employs, helping to explain the difference between book and market value. It also provides guidance as to how and where management should put its attention to grow the organisation's overall IC.

The way forward

The accounting community is struggling with a decrease in relevance of traditional financial information and is working on ways to recognize intangible assets in financial statements.

The IASC recognises that investments in, and awareness of the importance of intangible assets have increased significantly in the last two decades. It has worked for almost 10 years to produce International Accounting Standards on Intangible Assets.

In Europe, steps have been taken by national governments, especially in the Nordic countries, to produce some legislation to force private organizations to make public some Intellectual Capital items. The European Commission is investing heavily in the research and promotion of Intellectual Capital, which, at some point in time in the near future, will hopefully result in some general rules and instructions for the economic community at large to start reporting their Intellectual assets next to the traditional financial values.

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