TECHNOLOGY SCORECARDS

Aligning IT Investments with Business Performance

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endorsement.

Acronyms and Abbreviations

APO: Advanced planner and optimizer
Avg: Average
BBP: Business blue print
BCD: Business case development
BPR: Business process reengineering
CAD: Computer-aided design
CAE: Computer-aided engineering
CAM: Computer-aided machining
CAPE: Computer-aided process engineering
CAPP: Computer-aided process planning
CIM: Computer-integrated manufacturing
CIMing: Usually means tasks related to computer-integrated manufacturing
Collabn: Collaboration
Config Mgmt: Configuration management
CPG: Consumer packaged goods
CPM: Collaborative project management
CRM: Customer relations management
CSF: Critical success factors
DDC: Direct digital control
DFA: Design for assembly
DFM: Design for manufacturing
EH&S: Environment, health, and safety
Env: Environment
ERP: Enterprise resource planning
fabs: Fabrication units; usually refers to chip-making plants
FI: Finance
iPPE: Integrated product and process engineering
IT: Information technology
KPI: Key performance indicator
LCM: Life cycle management
MES: Manufacturing execution system

MM: Materials management
mySAP: SAP's software product begun in 1999
mySAP SCM: SAP's Supply Chain Management
OA: Opportunity assessment
PM: Project manager, also program manager
Psft: Peoplesoft
R3: SAP software system
SAP: Software Application Products (usually refers to SAP Ag of Germany)
SCM: Supply chain management
SD: Sales and distribution
SEM: Strategic enterprise management
SIS: Semiconductor integration services; also strategic international services
SKU: Stock keeping unit
SOA: Supply chain opportunity assessment
Sr: Senior
SRM: Sourcing relations manager
SWOT: Strength, weakness, opportunity, threat
WBDS: Work break-down structures
WF: Work flow
WFM: Work flow modeling

PART I

Introduction

CHAPTER 1

Why Projects Fail, Scorecards, and How This Book Is Organized

Today's Environment

Since the dot-com bust in the year 2000, information technology (IT) and IT people have been under an unprecedented squeeze. Today's high-tech industry has come close to being a $10 trillion behemoth, of which software is fully more than 25%. There was a time when software was a forgotten appendage to the mighty mainframe, but such is not the case anymore. Now software, even if only 25% of the total content, is the tail that wags the dog.

As paradigm after paradigm is changing in the high-tech landscape of our world, software is increasing in importance and is contributing more business benefits than ever before. But this is not enough.

It seems the honeymoon days for IT are over. The free rein that chief information officers (CIOs) enjoyed not too long ago are gone. Instead, we find ourselves in the midst of very tight operating conditions. In today's software environment, CIOs must:

- Reduce total cost of ownership.
- Increase value to the corporation.
- Contribute to improve bottom and top line.

And the normal things that CIOs were expected to do in addition to the top-level goals continue:

- Decrease complexity in increasingly heterogeneous environment.
- Contribute to creating a real, real-time enterprise.
- Manage resources.
- Do a lot with the little that is available.
- Produce miracles without budget growth.

The champions of IT, the CIOs and their staffs, try to deal with these issues while the project world is delivering the other messages:

- New technologies are being introduced at a more rapid rate than before.
- There are too many vendors to choose from.
- All claim to have practically the same offerings, so it is difficult to differentiate among them.
- So-called neutral consultants are too eager to take your money without contributing much value.
- Requirements are not understood. Promises are made to be broken later.

• And to make matters worse, when projects are finished, chief executive and chief financial officers complain that:

- Expectations are not met.
- Too much money was spent for too little return.
- They want to sue the vendor because it failed to deliver as promised.

When a new technology is first implemented by a group of trailblazer companies, success is far from guaranteed. Success and satisfaction are seldom found in this group of companies. However, as the technology gets old and commonplace, the success rate generally goes up. In fact, the larger the company and larger the project, the more likely project failure is. The frank reality is that larger projects (more than $3 million in application spend) routinely need harsh turn-around measures, or they get stalled and eventually killed by the weight of their own bureaucracy.

A survey published in 2001 in *Chaos News Letter*[1] has shed light on companies' success by taking the cumulative cost of failure, estimated by the Standish Group at $145 billion, and by the Meta Group figure at $180 billion. This amount, they believe, is the amount lost each year in the United States due to failed or challenged projects. The *Chaos* report is full of grim numbers, such as "for every 100 projects, there are 94 restarts" and "only 9% of projects for large companies come in on-time and on-budget." However, the 2004 *Chaos* report,[2] entitled "CHAOS Chronicles," found a total project costs to be $255 billion, of which a total failure cost was estimated to be $110 billion. While this is an improvement over the previous estimates, it is still a large cost of failure. And compare failure or success of a project from the perspective of the stake holders as defined by the chief stakeholders who believe that their IT investments did not give them the desired returns from their perspective.

The question is: What are the promises of technology, and how can technology deliver on those promises?

Human nature is such that first we create problems, then we search for reasons behind them, and then we try to solve them. So, having seen the current complex and heterogeneous landscape of systems, let us examine briefly the reasons for widespread failures of software projects.

A cautionary note about failure is that systems may not necessarily have failed; in the eyes of the stakeholders, however, they may not have fulfilled expectations.

Why Projects Fail

These are the messages we are getting from the media:

- Enterprise software at X Company failed to perform.
- SCM software from Y vendor failed to perform.
- Company Z is suing the vendor A for noncompliance.
- Consulting Group A was thrown out of Company B.

Here are some basic causes of these problems:

- Strategic alignment did not match the business goals.
- There were communication breakdowns.
- Up-front buy-in was not obtained.
- User involvement was inadequate.
- There were poor user inputs.
- Stakeholder conflicts existed.
- The requirements were vague.
- User requirements were not firmly nailed down.
- User requirements may have changed midway.
- Poor cost and schedule estimates existed.
- Skills did not match the job.
- There were hidden costs of going “lean and mean.”
- There was a failure to plan properly.
- Poor architecture existed.
- Failure warning signals came late.
- Company financials may have changed.
- Project manager may not have been skilled.
- The project team may have been unacceptable to management.
- The champion and executive sponsor was transferred, or left the company, or was not there.

Additional problems encountered in the field include:

- Value is not understood.
- Vendors bid without understanding the requirements well.
- Goals are not clearly and succinctly defined.
- Key performance indicators (KPIs) are neither defined nor understood.
- Change management was not practiced.
- Risk planning was not done properly.
- Most projects get initiated as automation of as-is without due business

process reengineering (BPR) or to-be views.

- The quality of external consulting was poor.

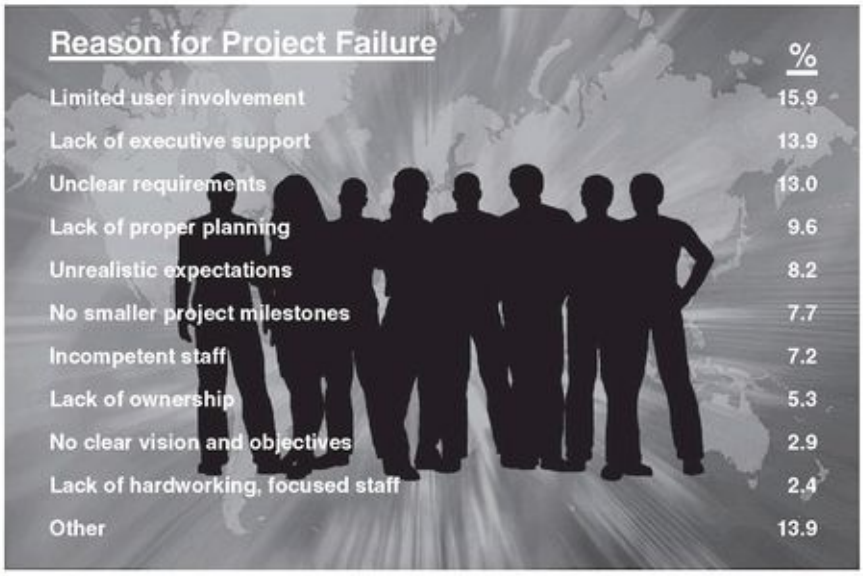
It is not my intention to discuss the causes and cures here. Suffice it to say that the literature provides plentiful basic causes. The additional causes, just enumerated, constitute the main theme of this book. They will form the key factors to unleashing the quantum improvements in cost, value, and productivity. They will form the bulk of the chapters in Part II which will deal with the technologies—their features and benefits—and in Part III the complete step-wise approach to get the projects to succeed will be discussed.

Are we investing too much money in information technology and information systems? This is a question many of today's CEOs and boards of directors ponder. Until recently, companies have made major investments in IT, trusting that this measure alone would increase productivity. Now decision makers are increasingly questioning whether IT projects actually create value.

Jurgen H. Daum, writing about adding value through IT investments,[3] cited statistics from a survey conducted by *CFO Magazine*: Only 14% of executives state that their companies' IT investments achieved the expected return on investment (ROI), whereas 74% were unsure of whether they had spent too much money on IT in the past three years. Similarly, in June 2007, as I was talking with Ajay Agrawal, a vice president of a financial services company, he mentioned that most IT projects fail the first time they are attempted. Clearly, doubts are being raised about the benefits of IT investments, and managers are becoming more careful about giving the go-ahead to IT budgets.

These reservations are apparently warranted. According to a study published by the Gartner Group in October 2008,[4] of the $570 billion that flowed into IT investments worldwide, a high percentage was spent in vain. My estimate of this wasted spending is around $246 billion. Figure 1.1 summarizes the basic reasons for the failure.

FIGURE 1.1 Why Projects Fail



Numerous studies prove this failure in IT project in particular. One important study, however, set out to understand what the projects that did succeed contribute to business performance. The survey results are discussed in the next section.

Harry’s Survey

I collaborated with Harry Sakamaki of SITA Corporation to conduct a survey of companies in the United States to provide bottom-line KPIs. We selected 16 companies in the manufacturing sector representing a mix of small- to midsize and some large companies. We solicited data from their CEOs, heads of IT, and their staff. Figure 1.2 gives the highlights of this survey.

In Figure 1.2, rows 1-14 that are in the smallest type size give the KPIs with respect to systems infrastructure; KPIs in rows 15-25 represent the same of the business performance but specifically of the supply chain; the ones in rows 26-34 are the KPIs of the business performance representing the bottom lines. The improvements shown in the extreme right column are the improvement percentages of each row. Do not add these percentages; they must be looked at as the individual performance improvements.

FIGURE 1.2 Harry’s Survey Summary

Row No	Key Performance Indicator	Best practice improvement
1	**Systems Infrastructure**	
2	Rely on enterprise resource planning (ERP) system to provide analytical/business intelligence information	3%
3	Utilize additional applications such as SAP SEM, Oracle OFA, PeopleSoft EPM, Hyperion or Cognos tools	10%
4	Use spreadsheets and manual processes to provide information	5%
5	Utilize balanced Score Card/metrics	10%
6	Utilize daily key measures	5%
7	Enterprise-wide standard management reporting exists	3%
8	Analytics and business intelligence are integrated into the entire enterprise	
9		
10	Fully integrated ERP system	3%
11	Limited numbers of ERP/legacy systems with modest integration	10%
12	Disparate information systems with multiple ERP systems and applications	5%
13	Utilize balanced Scorecard and SCOR Card metrics	10%
14	No ERP; use legacy system	5%
15	**Business Performance/Supply Chain Performance**	
16	Increase in customer fill rate	3%
17	Increase in on-time delivery to request	10%
18	Increase in on-time delivery to commit	5%
19	Days Sales Outstanding (DSO) via increasing invoice accuracy etc.	10%
20	Increase in sales via better forecasting and production planning	5%
21	Reduce excessive inventory carrying cost	3%
22		
23	Total days of raw material	3%
24	Total days of work in process	10%
25	Total days of finished goods	5%
26	**Bottom Line Business Performance**	
27	Product margin improvement via increase in yield, better production planning, increase in machine uptime, etc.	3%
28	Production yield improvement by improvement plant scheduling, reducing scrap, etc.	10%
29	Production cost reduction	5%
30		
31	Reduction in head count (full-time equivalent basis)	3%
32	Cost of goods sold (COGS)	10%
33	Cash flow	5%
34	Profit	10%

Highlights from Figure 1.2 are that bottom-line performance improvements are in the 3% to 10% range. This is a very low number. In fact, it is lower than the earlier number, which said that fully 75% of firms do not fulfill stakeholders' expectations. Whether the figure is 3% to 10% or 25%, it is clear that the success rate as measured by performance improvement is very low. I have tacitly recognized the sad state of affairs of low returns for a long time. My conversations in the field always confirmed that some regular culprits will raise their ugly heads whenever one's guard is down. When I pondered why I often succeeded in delivering values via projects yet sometimes did not, a pattern emerged. This pattern was based on the best practices I employed by design or sheer luck. This is what I want to share with you. The rest of this chapter describes the scorecards and how the major parts of this book are organized. After reading the next section, you will understand the technologies and how to create scorecards that are based on aligning investments and can drive the achievement of business performance.