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## DEVELOPMENTS IN PRACTICE VII: DEVELOPING AND DELIVERING THE IT VALUE PROPOSITION

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### ABSTRACT

In spite of many years of effort, we are still not able to articulate and deliver IT value accurately. Unfortunately, “silver bullet thinking” still predominates (i.e., plug in technology and deliver bottom line impact) in organizations today. IT value is a multi-layered concept, far more complex than it first appears. To examine this complex concept and how it is understood in IT organizations, the authors convened a focus group of practicing IT managers from a number of different industries. This paper, using the inputs from the focus group, explores how organizations are attempting to determine and develop effective IT value propositions. It describes the three components of this proposition: identification of potential value, effective conversion, and realizing value. The paper then derives a number of principles of delivering IT value. We conclude that there is no single agreed-on notion of business value. Therefore, it is important to make sure that both business and IT managers work to a common value goal whether traditional cost reduction, process efficiencies, new business capabilities, improved communication, or any other objectives. We also suggest that technology is being used as a catalyst to drive many different types of organizational transformation and strategy. Therefore, IT value can no longer be viewed in isolation from the other parts of business, namely people and information.

**Keywords:** IT value, IT value identification, IT value conversion, IT value realization, IT payback, IT benefits, IT costs.

### I. INTRODUCTION

It's déjà vu all over again. For at least twenty five years, business leaders have tried to figure out exactly how and where IT can be of value in their organizations. And IT managers tried to learn how to deliver this value. When IT was used mainly as a productivity improvement tool in small areas of a business, this process was relatively straightforward. Value was measured by reduced head counts – usually in clerical areas – and/or the ability to process more transactions per person. However, as systems grew in scope and complexity, so unfortunately did the risks. Few companies escaped this period without making at least a few disastrous investments in systems

that didn't work or didn't deliver the bottom line benefits executives thought they would. Naturally, IT was blamed.

With the advent of the strategic use of IT in business, it became even more difficult to isolate and deliver on the IT value proposition. It was often hard to tell if an investment paid off. Who could say how many competitors were deterred or how many customers were attracted by a particular IT initiative? More recently, with the dot.com "bubble", many companies were left with a substantial investment in e-business and little to show for it. While over the years many improvements occurred in where and how IT investments are made and good controls were established to limit time and cost over-runs, we are still not able to articulate and deliver accurately on a value proposition for IT when it comes to anything other than simple productivity improvements or cost savings.

Problems in delivering IT value can lie with how a value proposition is conceived or in what is done to implement an idea, i.e., selecting the right project and doing the project right [McKeen and Smith, 2003; Cooper et al., 2000]. While most firms attempt in some way to calculate the payback of an IT investment before making it, few actually follow up to ensure that value was achieved or to question what needs to be done to make sure that value will be delivered.

To explore how organizations are attempting to determine and develop effective IT value propositions, the authors convened a focus group of practicing IT managers from a number of different industries. To help guide the discussion, the managers were given a series of questions to prepare in advance. These questions included:

- What factors are important in justifying your IT investments, e.g., cost savings, strategic value, 'soft' benefits?
- What business and IT factors make a difference (either positively or negatively) at each stage of an IT project?
- What formal mechanisms does your organization have in place to ensure value is delivered?
- What have you observed are the important elements that can deliver extra unanticipated value or leverage an investment in IT?

This paper first looks at the nature of IT value and "peels the onion" into its different layers. Then it examines the three components of delivering IT value:

- value identification,
- conversion and
- value realization.

Finally, we identify five general principles for ensuring IT value is achieved.

## II. PEELING THE ONION: UNDERSTANDING IT VALUE

Thirty years ago, the IT value proposition was seen as a simple equation – deliver the right technology to the organization and financial benefits will follow [Marchand et al., 2000; Cronk and Fitzgerald, 1999]. In the early days of IT, when computers were most often used as direct substitutes for people, this equation was understandable, even if it rarely worked this simply. It was fairly easy to compute a bottom line benefit when X dollars of technology could be invested to save Y dollars in salaries.

Problems with this simplistic view quickly arose when technology came to be used as a productivity support and as a strategic tool. Under these conditions, managers had to decide if an IT investment was worth making. Did the investment save people time? Did it help them make better decisions? Did it improve service? Thus, other factors, such as how well technology was used by people or how IT and business processes worked together became important considerations in how much value is realized from an IT investment.

These issues long confounded our understanding of the IT value proposition. They led to many opinions (often negative) about how and where technology contributed to business value. More than a decade ago, Stephen Roach [1989] made headlines with his macro-economic analysis that IT investment resulted in absolutely no impact on productivity in the services sector in the 1980's. More recently, many companies felt they were lured into spending millions on web sites and online shopping with very little payback [Earle and Keen, 2000].

These perceptions, plus ever-increasing IT expenditures, mean business managers are taking a closer look at how and where IT delivers value to an organization [Ginzberg, 2001]. As they do this, they are beginning to change their understanding of the IT value proposition. While unfortunately, "silver bullet" thinking still predominates (i.e., plug in technology and deliver bottom line impact), increasingly IT value is seen as a multi-layered concept, far more complex than it first appeared (Figure 1). This view suggests that before an IT value proposition can be identified and delivered, managers should first "peel the onion" and understand more about the nature of IT value itself .

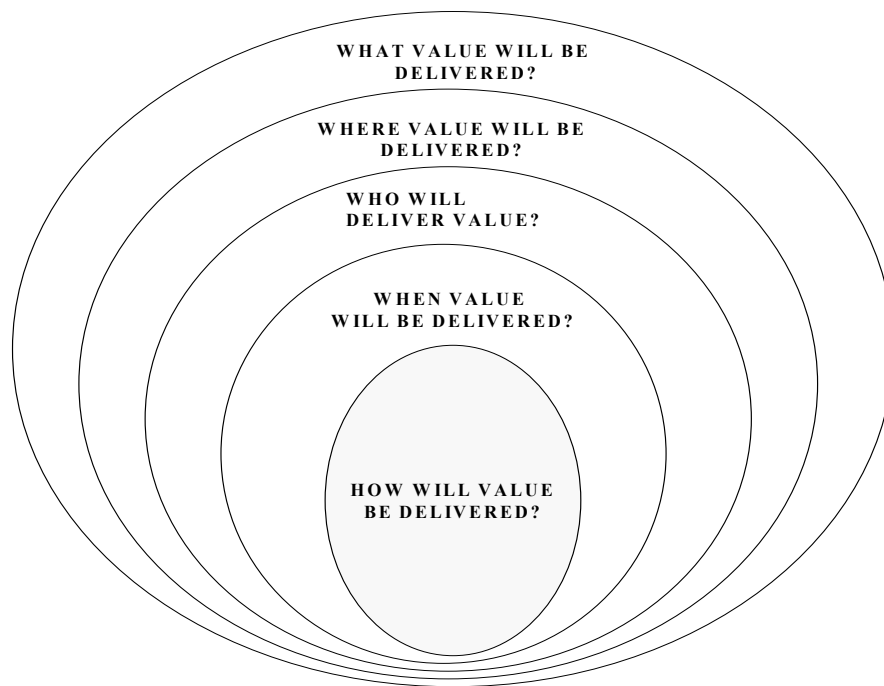


Figure 1. IT Value is a Many-Layered Concept

### WHAT IS IT VALUE?

"Value" is defined as the worth or desirability of a thing [Cronk and Fitzgerald, 1999]. It is a subjective assessment. While many believe it is not, the value of IT depends very much on how business and its individual managers choose to view it. Each company and even each executive will define value differently. Strategic positioning, increased productivity, improved decision-making, cost savings or improved service are all ways value could be defined. Today, most businesses define value broadly and loosely, not simply as a financial concept [Ginzberg, 2001]. Ideally, it is tied to the organization's business model since adding value with IT should enable a firm to do its business better.

In the focus group:

- one company saw value resulting from all parts of the organization having the same processes;
- another defined value by ROI;
- still another measured it by a composite of key performance indicators.

In short, no single measure of IT value is agreed upon. As a result, misunderstandings about the definition of value can lead to feelings that value was not delivered, either between IT and business or among business managers themselves. Therefore, a prerequisite of any IT value proposition is that everyone involved in an IT initiative agree on what value is to be delivered and how it will be recognized.

### WHERE IS IT VALUE?

Value may also vary according to where one looks for it [Davern and Kauffman, 2000]. For

#### BEST PRACTICES IN UNDERSTANDING IT VALUE

- Link IT value directly to your business model.
- Recognize value is subjective and manage perceptions accordingly.
- Aim for a value “win-win” across processes, work units and individuals.
- Seek business commitment to all IT projects.
- Manage value over time.

example, value to an enterprise may not be perceived as value in a work group or by an individual. In fact, delivering value at one level in an organization may actually conflict with optimizing value at another level. Decisions about IT value are often made to optimize firm or business process value, even if they cause difficulties for business units or individuals.

*“At the senior levels, our bottom line drivers of value are*

*cost savings, cash flow, customer satisfaction, and revenue. These are not always visible at the lower levels of the organization.”* Manager in Focus Group

Failure to consider value implications at all levels can lead to a value proposition that is counterproductive and may not deliver the value anticipated. Many executives take a hard line with these value conflicts. However, it is far more desirable to aim for value that is not a narrow win-lose proposition, but is a win-win at all levels. This approach can leverage overall value many times over [Chan, 2001].

### WHO DELIVERS IT VALUE?

Increasingly, managers realize that is the interaction of people, information and technology that delivers value, not IT alone<sup>1</sup>. Recent studies have confirmed that strong IT practices *alone* do not deliver superior performance. It is only the combination of these practices with an organization’s skills at managing information and people’s behaviors and beliefs that leads to real value [Marchand et. al, 2000; Ginzberg, 2001]. In the past, IT bore most of the responsibility for delivering IT value. Today, however, members of the focus group felt there is a growing willingness on the part of business managers to share responsibility with IT to ensure value is realized from the organization’s technology investments. Most focus group companies now

<sup>1</sup> These interactions in a structured form are processes. Processes are often the focus of much organizational effort in the belief that streamlining and reengineering them will deliver value. In fact, Chatterjee and Seagars [2002] show that without attention to information and people, very little value is delivered. In addition, attention to processes in organizations often ignores the informal processes that contribute to value.

expect to have an executive sponsor for any IT initiative and some business participation in the development team. However, many IT projects still do not receive the degree of support or commitment from business that IT managers feel necessary to deliver fully on a value proposition [Thorp, 1999].

### WHEN IS IT VALUE REALIZED?

Value also involves a time dimension. It has long been known that the benefits of technology take time to be realized [Chan, 2001]. People must be trained; organizations and processes must adapt to new ways of working; information must be compiled; and customers must learn what new products and services are offered. Companies are often unprepared for the time it takes an investment to pay off. Typically, full payback can take between three and five years and can have at least two spikes as a business adapts to the deployment of technology. Figure 2 shows this 'W' effect for a single IT project. Initially, companies spend a considerable amount in deploying a new technology. During this 12-16 month no benefits occur. Following implementation, some value is realized as companies achieve initial efficiencies. This period lasts for about six months. However, as use increases, complexities also grow. Information overload can occur and costs increase. At this stage, many can lose faith in the initiative. This period is dangerous. The final set of benefits can only occur by making the business simpler and applying technology, information, and people more effectively. If a business can manage to reach the end of the W cycle, it can achieve sustainable long-term value from its IT investment [Chatterjee and Seagars, 2002]. If it can't, value from technology can be offset by increased complexity.

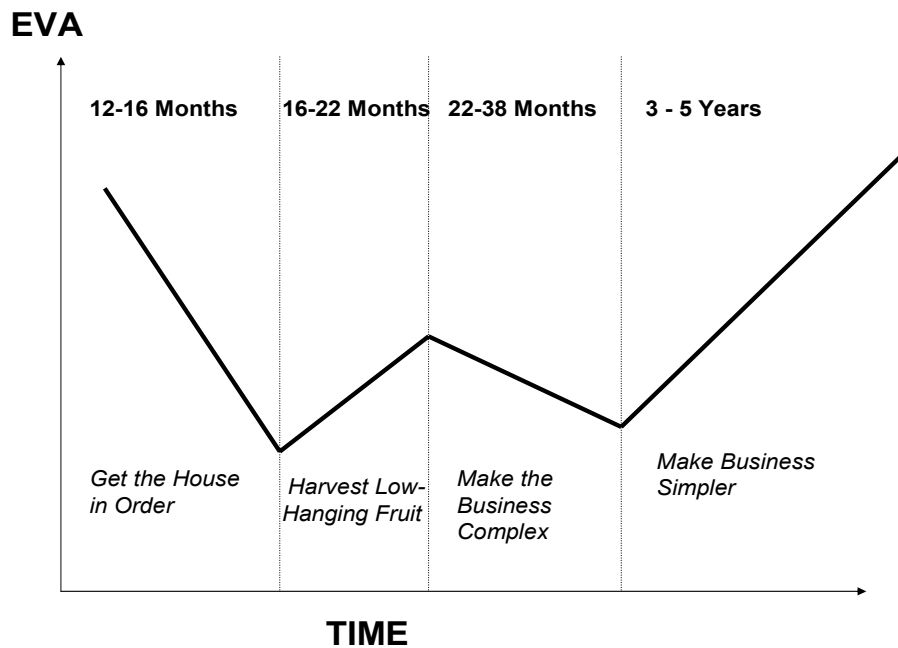


Figure 2. The 'W' Effect in Delivering IT Value  
(after Chatterjee and Seagars, [2002])

Time also changes perceptions of value. Many IT managers can tell stories of how an initiative was initially vilified as being of little or no value when first implemented, only for people to say only a few years later they couldn't imagine running the business without it. Similarly, most managers can identify projects where time led to a clearer understanding of the potential value of a project. Unfortunately, in cases where anticipated value declines or disappears, projects aren't always killed [Cooper et al., 2000].

Clarifying and agreeing on these different layers of IT value is the first step involved in developing and delivering on the IT value proposition. All too often, this work is forgotten or given short shrift in the organization's haste to answer the question, "how will IT value be delivered?" (Section III). As a result, misunderstandings arise and technology projects do not fulfill their expected promise. It will be next to impossible to do a good job developing and delivering IT value unless and until the concepts involved in IT value are clearly understood and agreed on by both business and IT managers.

### III. THE THREE COMPONENTS OF THE IT VALUE PROPOSITION

Developing and delivering an IT value proposition involves addressing three components.

- First, potential opportunities for adding value must be identified.
- Next, these opportunities must be converted into effective applications of technology.
- Finally, value must be realized by the organization.

Together, these three components comprise the fundamentals of any value proposition (Figure 3).

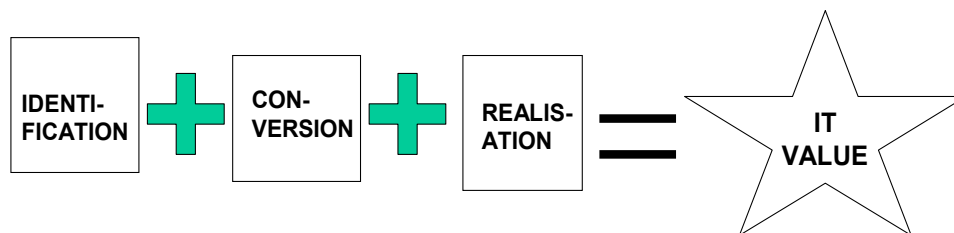


Figure 3. The Three Components of the IT Value Proposition

### IDENTIFICATION OF POTENTIAL VALUE

In most organizations, identifying opportunities for making IT investments is typically a fairly informal activity. Few companies use well-organized means to do research into new technologies or strategize about where these technologies can be used [McKeen and Smith, 2003]. More companies use mechanisms for identifying opportunities within business units. Sometimes, a senior IT manager will be designated as a "relationship manager" for a particular unit with responsibility for working with business management to identify opportunities where IT could add value [Agarwal and Sambamurthy, 2002]. Many other companies however, still leave it up to business managers to identify where they want to use IT. Growing evidence demonstrates that

relegating the IT organization to a passive role developing systems according to business instructions is unlikely to lead to high IT value. Research is beginning to show that involving IT in business planning can, directly and positively, influence the development of successful business strategies using IT [Marchand et. al, 2000; Ginzberg, 2001]. These findings suggest that organizations should establish joint business-IT mechanisms to identify and evaluate both business and technical opportunities where IT can add value.

Once opportunities are identified, companies must then make decisions about where they want to focus their funds to achieve significant value. Selecting the right projects for an organization always involves balancing three fundamental factors:

#### BEST PRACTICES IN IDENTIFYING POTENTIAL VALUE

- Joint business-IT structures to recognize and evaluate opportunities
- A means of comparing value across projects
- A portfolio approach to project selection.
- A funding mechanism for infrastructure

- cash,
- timing and
- risk [Luehrman, 1997].

In principle, every company wants to undertake only high return projects. In reality, project selection is based on many different factors. For example, pet or political projects or those mandated by government or competitors are often part of a company's IT portfolio [Carte et. al, 2001]. Focus group members noted that

disagreement at senior levels about which projects to undertake can arise because of a lack of a coherent and consistent mechanism for assessing value between projects. All organizations need some formal mechanism for prioritizing projects in this way. Without one, it is very likely that project selection will become highly politicized and hence ineffective at delivering value. The focus group companies established a variety of means to select projects, ranging from using strictly bottom line metrics, to comparing balanced scorecards, to adopting a formal value assessment methodology. However, while these approaches continue to help weed out higher cost/lower return projects, they are not a foolproof means of selecting the right projects for an organization. Using strict financial selection criteria for example, can exclude potentially high-value strategic projects with less well-defined returns, longer payback periods and more risk [Cooper et al., 2000]. Similarly, all focus group members find it difficult to get important infrastructure initiatives funded even though these projects may be fundamental to improving organizational capabilities [Byrd, 2001].

Therefore increasingly, organizations are taking a portfolio approach to project selection. A portfolio allocates resources and funding to different types of projects, enabling each type of opportunity to be evaluated according to different criteria [McKeen and Smith, 2003]. One focus group company identified three different classes of IT (infrastructure, common systems, and business unit applications) and then funds them in different proportions. In other companies, funding for strategic initiatives is allocated in stages so their potential value can be re-assessed as more information about them becomes known [Luehrman, 1997]. Almost all companies found it necessary to justify infrastructure initiatives differently than more business-oriented projects. In fact, some remove these types of projects from the selection process altogether and fund them with a "tax" on all other development [McKeen and Smith, 2003]. Other companies allocate a fixed percentage of their IT budgets to a technology renewal fund.

Organizations are far along in formalizing where and how they choose to invest their IT dollars. Nevertheless, room for judgment, based on solid business and technical knowledge, is still considerable. In an ideal world, all executives involved would think strategically and systematically, as well as financially, about identifying and selecting projects.



## EFFECTIVE CONVERSION

Since their inception, “conversion” from idea/opportunity to reality is what IT organizations were all about. A huge amount of effort went into this central component of the IT value proposition. As a result, many IT organizations have become quite good at developing and delivering projects on time and on budget. Excellent project management, effective execution, and reliable operations are essential parts of IT value. However, they are not, in and of themselves, sufficient to convert a good idea into value or to deliver value to an organization.

Today, both managers and researchers recognize that more is involved in effective conversion than good IT practices. Most important, organizations can set themselves up for failure by not providing adequate and qualified resources. Many companies start more projects than they can deliver effectively with the resources available. Without enough time or resources to do the job, people are spread too thinly and end up taking short-cuts which are potentially damaging to value [Cooper et al., 2000]. Resource limitations on the business side of a project team can be equally as damaging to conversion as a lack of technical resources.

### BEST PRACTICES IN CONVERSION

- Availability of adequate and qualified IT and business resources.
- Training in business goals and processes.
- Multifunctional change management.
- Emphasis on higher level learning and knowledge management.

*“[Value is about] far more than just sophisticated managerial visions about how technology can be leveraged.... Training and other efforts ... to how to obtain value from IT investments are often hamstrung by insufficient resources”* [Chircu and Kauffman, 2000].

Inadequate business resources can lead to poor communication and ineffective problem-solving on a project [Ginzberg, 2001]. Focus group companies are beginning to recognize that the number and quality of the staff assigned to an IT project can make a difference to its eventual outcome and to insist that the organization’s best IT and business people be assigned to critical projects.

Other significant barriers to conversion becoming more apparent now that IT improved its own internal practices include:

- **Organizational Barriers.** The effective implementation of IT frequently requires extensive redesign of current business processes [Chircu and Kauffman, 2000]. However, organizations are often reluctant to make the required, difficult, complementary business changes and investments [Carte et al., 2001].

*“When new IT is implemented, everyone expects to see costs come down. However, most projects involve both business and IT deliverables. We therefore need to take a multi-functional approach to driving business value.”* Focus Group Member

In recognition of this fact, some companies are beginning to put formal change management programs in place to help businesses prepare for the changes involved with IT projects and to adapt and simplify as they learn how to take advantage of new technology.

- **Knowledge barriers.** Most often, new technology and processes require employees to work differently, learn new skills, and develop new understanding of how and where information, people and technologies fit together [Chircu and Kauffman, 2000]. While training is an established part of new IT implementations, more recently businesses recognized that delivering value from technology requires a broader and more coordinated learning effort [Smith and McKeen, 2002]. Focus group members were unanimous that lasting value comes from people and technology working together as a

system rather than discrete entities. Research results confirm that high performing organizations are those:

- with strong IT practices
- with good information management practices for people, and
- who are able to use the information they receive effectively [Marchand et al., 2000].

## REALIZING VALUE

The final component of the IT value proposition is the most frequently ignored. This component is the work involved in actually realizing value after technology is implemented. Value realization is a proactive and long-term process for any major initiative (e.g., the W curve in Figure 2) [Thorp, 1999]. All too often, after an intense implementation period, a development team is disbanded to work on other projects and the business areas affected by new technology are left to sink or swim. As a result, a project's benefits can be realized imperfectly. Technology must be used extensively if it is to deliver value. Poorly designed technology can lead to high levels of frustration, resistance to change, and low levels of utilization [Chircu and Kauffman, 2000].

Some focus group members suggested that the root cause for resistance to change can be an assumption or an action that doesn't make sense in the everyday work people do. Sometimes, implementers must challenge workers' understanding of work expectations or information flows. At other times, it requires doing better analysis of where and how a new process is causing bottlenecks, overwork, or overload. As one manager put it:

*"if value is not being delivered, we need to understand the root causes and do something about it."*

His company takes the unusual position that it is important to keep a team working on a project until the expected benefits are realized. Focus group members agreed that this approach is ideal but pointed out that it can also be very costly and therefore, must be managed carefully. Some companies try to short circuit the value management process by simply taking anticipated cost savings out of a business unit's budget once technology is implemented, thereby forcing the unit to do more with less whether or not the technology is as beneficial as anticipated. However, most often, organizations do little or no follow-up to determine whether or not benefits were achieved.

Measurement is a key component of value realization [Thorp, 1999]. After implementation, it is essential that all stakeholders review outcomes systematically against expected value and take appropriate actions to achieve benefits. In addition to monitoring metrics, measurement includes:

- a thorough and ongoing assessment of value and information flows at all levels of analysis: individual, team, work unit, and enterprise, and
- efforts to understanding and improve aspects of process, information and technology that act as barriers to achieving value.

A significant problem with not paying attention to value realization is that areas of unexpected value or opportunity are also ignored. This is unfortunate since it is only after technology is installed that many business people can see how it could be leveraged in other parts of their work. Realizing value should therefore also include provisions to evaluate new opportunities arising through serendipity.

### BEST PRACTICES IN REALIZING VALUE

- Plan a value realization phase for all IT projects.
- Measure outcomes against expected results.
- Look for and eliminate root causes of problems.
- Assess value realization at all levels in the organization.
- Provide for acting on new opportunities to leverage value.

#### **IV. PRINCIPLES OF DELIVERING VALUE**

In addition to clearly understanding what value means in a particular organization and to ensuring that the three components of the IT value proposition are addressed by every project, the members of the focus group identified five principles that are central to developing and delivering value in every organization.

##### **PRINCIPLE 1. USE A CLEARLY DEFINED PORTFOLIO VALUE MANAGEMENT PROCESS.**

Every organization should use a common process for managing the overall value being delivered to the organization from its IT portfolio. This process would begin as a means of identifying and prioritizing IT opportunities by potential value relative to one another. It would also include mechanisms to optimize enterprise value (e.g., through tactical, strategic and infrastructure projects) according to a rubric of how the organization wants to allocate its resources.

A portfolio value management process should continue to follow up on projects as they are being developed. It should not only ensure that projects are meeting schedule and budget milestones, but also that other elements of conversion effectiveness are being addressed, e.g., business process redesign, training, change management, information management, and usability. A key barrier to achieving value can be an organization's unwillingness to revisit the decisions made about its portfolio [Carte et al., 2001]. Yet, such revisits are particularly important for strategic and infrastructure initiatives. Companies may need to approve investments in these types of projects based on imperfect information in an uncertain environment. As they develop, improved information can lead to better decision-making about an investment. In some cases, the new information might lead to a decision to kill a project; in others, to speed it up or to reshape it as a value proposition becomes clearer.

Finally, a portfolio value management process should include an ongoing means of ensuring that value is realized from an investment. Management must monitor for expected outcomes at appropriate times following implementation and hold someone in the organization accountable for delivering benefits [Thorp, 1999].

##### **PRINCIPLE 2. AIM FOR CHUNKS OF VALUE**

Much value can be frittered away by dissipating IT investments on too many projects [Marchand et al. 2000]. Focusing on a few key areas and designing a set of complementary projects that will really make a difference is one way companies are trying to address this concern. Many focus group member companies are undertaking larger and larger technology initiatives that will create a transformational and/or strategic impact on the organization. However, unlike earlier efforts which often took years to complete and ended up being of questionable value, these initiatives aim to deliver major value through a series of small, focused projects which, linked together, will result in both immediate short-term impact and longer term strategic value. For example, in one focus group company 300-400 projects are underway linked to one of a dozen major initiatives.

##### **PRINCIPLE 3. ADOPT A HOLISTIC ORIENTATION TO TECHNOLOGY VALUE**

Since value comes from the effective interaction of people, information, and technology (Section II), organizations must aim to optimize their ability to manage and use them together [Marchand, 2000]. Adopting a systemic approach to value where technology is not viewed in isolation and interactions and impacts are anticipated and planned contributes to perceived business value [Ginzberg, 2001]. Managers should therefore aim to incorporate people and information management as an integral part of an overall program of business change, rather than dealing with them as afterthoughts to technology [Thorp, 1999]. One focus group company, for example, did this by taking a single business objective (e.g., "increase market penetration by 15% over five years") and designing a program around it which includes a number of bundled technology projects.

#### **PRINCIPLE 4. AIM FOR JOINT OWNERSHIP OF TECHNOLOGY INITIATIVES.**

This principle covers a lot of territory. It includes the need for strong executive sponsorship of all IT projects.

*“Without an executive sponsor for a project, we simply won’t start it,”* Manager in focus group

It also emphasizes that everyone involved in a project must feel they are responsible for the results.

*“These days, it is very hard to isolate the impact of technology; therefore, there must be a ‘we’ mentality.”* Another manager in focus group

This perspective is reinforced by research that found that the quality of the IT-business relationship is central to the delivery of IT value. Mutual trust, visible business support for IT and its staff, and IT staff who consider themselves to be part of a business problem-solving team all make a significant difference in how much value technology is perceived to deliver [Ginzberg, 2001].

#### **PRINCIPLE 5. EXPERIMENT MORE OFTEN**

The growing complexity of technology, the range of options available, and the uncertainty of the business environment each makes it considerably more difficult to determine where and how technology investments can be made most effectively. Executives naturally object to the risks involved in investing heavily in possible business scenarios or technical gambles that may or may not realize value. As a result, many companies look for ways to firm up their understanding of the value proposition for a particular opportunity without taking too much risk. Undertaking pilot studies is one way of doing so [Thomke, 2001]. Such experiments can prove the value of an idea, uncover new opportunities and identify more about what will be needed to make an idea successful. They provide senior managers with a greater number of options in managing a project and an overall technology portfolio. They enable potential value to be re-assessed and investments in a particular project to be re-evaluated and re-balanced against other opportunities more frequently. In short, experimentation enables technology investments to be made in chunks and makes “go/no go” decisions at key milestones much easier to make.

#### **V. CONCLUSION**

This paper explored the concepts and activities involved in developing and delivering IT value to an organization. In their efforts to use technology to deliver business value, IT managers should keep the maxim, “value is in the eye of the beholder” clearly in mind. Since a single notion of business value is not agreed-on, it is important to make sure that both business and IT managers work to a common goal. The goal could be traditional cost reduction, process efficiencies, new business capabilities, improved communication, or a host of other objectives. While each organization or business unit approaches value differently, increasingly this goal includes much more than the simple delivery of technology to a business unit. Technology is being used as a catalyst to drive many different types of organizational transformation and strategy. Therefore, IT value can no longer be viewed in isolation from the other parts of business, namely people and information. Thus, it is no longer adequate to focus simply on developing and delivering IT projects in order to deliver value. Today, delivering IT value means managing the entire process from conception to cash.

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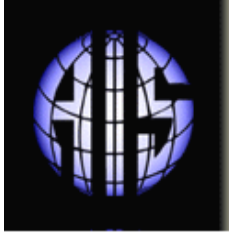
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