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# **Value on Investment in Higher Education**

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## Overview

Enterprises of all kinds are evolving new notions of what creates value for 21st-century organizations, embracing the importance of “soft” or intangible initiatives and outcomes in addition to the tangible outcomes reflected in traditional measures, such as return on investment (ROI). The transformative power of collaboration, innovation, knowledge management, business process reinvention, communities of practice, and productivity enhancement is becoming widely recognized as an essential determinant of value and competitiveness for today’s enterprises.

Today, a great deal of attention is being paid to the value of information technology itself and the information technology investments that higher education has made. Does this attention reflect some or all of the following?

- Growing accountability pressures
- Waning end-user satisfaction
- Reaction against the hype associated with new information technology initiatives and products
- A weak economy and tight budgets
- A manufactured, transitory, or permanent concern

The ongoing debate over the value of information technology is at the center of larger questions: How is value defined for 21st-century colleges and universities? Where does value reside? How can value be maximized and used to create strategic differentiation?

In 2001, a Gartner researcher opined that in the late-20th century only the most progressive enterprises understood the importance of intangible outcomes and predicted that by 2006, “50 percent of Fortune 1000 companies will identify an owner for workplace initiatives, formally track and manage intangible assets, and measure investment versus value creation.”<sup>1</sup> Gartner introduced the concept of value on investment (VOI) to measure such developments and to hold enterprises to a higher standard of performance and aspiration from their investments in information and communications technologies.

The potential importance of VOI was further illustrated in *Transforming e-Knowledge: A Revolution in the Sharing of Knowledge*,<sup>2</sup> which asserted that successful Knowledge Age enterprises will need to dramatically enhance the capacity of individuals and organizations to acquire, assimilate, and share knowledge. To achieve such a significant leap in capabilities will require not only new infrastructures and reinvented processes but also fundamental changes in the knowledge culture of organizations of all kinds. VOI is the benchmark of this transformation, serving two purposes. It provides

- a standard for measuring the tangible and intangible returns from investing in technology, organizational development, and cultural change; and

- a goal that encourages enterprises to leverage investments in technology and human resources to change organizational dynamics, creating new sources of value that will become the new gold standard for the Knowledge Age.

The current economic doldrums force many enterprises to seek new sources of competitive advantage, as well as reduce the costs and enhance the productivity of their current operations. Higher education has been hit especially hard. The effective use of information and communications technologies will be an important instrument of cost reduction/productivity enhancement, as well as a means to transform processes and practices to achieve new levels of performance. Put simply, institutions may not be able to justify investing in technology if they are not willing to transform their practices, processes, and organizational dynamics, as measured by VOI. In this context, VOI is both a benchmark and a call to action.

Potentially, VOI can bring the chief information officer (CIO) and the chief financial officer (CFO) into a productive partnership. The CFO has an institution-wide perspective on funding, valuing, and resourcing institutional processes. CIOs also have an institution-wide perspective: they understand how new technologies enable applications to be loosely coupled and stitched together in new ways, further enhancing the potential for aggressive process reinvention. Both have valuable perspectives on where latent value resides in institutional processes, infrastructures, services, and programs. Working together and with other administrators and grassroots leaders, the CIO and CFO can optimize VOI to achieve competitive advantage.

The goal of this research bulletin is to describe how higher education leaders can achieve VOI from their investments in technology and human resources and leverage those investments to deal with tough times. This work is based on analysis of Knowledge Age enterprises of all kinds—corporations, colleges and universities, associations and other nonprofits—as they seek to leverage intangible assets. It is also based on case studies and exemplary practices of leading-edge colleges and universities that are enhancing both their ROI and VOI through insightful investments in technology and human resources. Case studies describing these efforts, as well as a meta-analysis of the outcomes, are contained in *The Business Value Web: Resourcing Business Processes and Solutions in Higher Education*.<sup>3</sup>

## Highlights of Value on Investment

The differences between ROI and VOI are simple. ROI is based on return, which is generated by tangible outcomes, such as conventional enhancements of productivity, cost reduction, enhanced revenues, and opening new markets. ROI is objective, based on concrete, traditional measures, although the assumptions driving ROI may be highly subjective and judgmental. On the other hand, VOI measures the total value of “soft” or intangible benefits derived from technology initiatives in addition to the “hard” benefits measured by ROI. VOI is subjective and difficult to measure with the same precision as ROI. Yet VOI is critical to the kinds of competitive differentiation that will be important to colleges and universities over the next decade.

The key question regarding VOI is, What is value and where does it reside? Value is the benefit derived from an institution's assets by its stakeholders. Students and other stakeholders derive value through experiencing the institution's programs, services, and knowledge assets. The gateways for engaging these resources are the multitude of academic and administrative processes and the media through which they are experienced. Value is like the energy in a coiled spring, waiting to be released by new approaches and innovation. It lies in the interstitial spaces between processes, programs, and people, and it becomes evident through innovation, invention, and creativity—the business of higher education.

ROI and VOI intersect and dynamically interact. Today's enhancement in VOI can drive greater ROI in the future, and greater ROI today can support innovation that will lead to VOI tomorrow.

### **Elements of Value on Investment**

Gartner described VOI using five measurable elements or outcomes across three dimensions. Value-building initiatives change an organization's dynamics by encouraging

- business process reinvention and innovation;
- cultivation, management, and leveraging of knowledge assets;
- collaboration and increased capabilities to learn and develop communities;
- individual and organizational competencies; and
- new kinds and levels of leadership.

Deconstructing VOI into these five elements is useful in understanding how particular outcomes drive organizational change and thus increase value. Institutional initiatives most likely to optimize value contain a mixture of these five elements, with strong synergies among them.

The University of Delaware, for instance, has reinvented student support services to enable one-stop shopping and student self-service. These enhancements required process reinvention, collaboration, innovation, and development of new competencies. The University of Minnesota used the development of its portal to reinvent the manner in which students experience the university's back-office processes and to streamline some processes. Some institutions leverage their "knowledge assets" by developing institutional knowledge repositories and promoting a culture of knowledge sharing, such as The Ohio State University's Knowledge Bank,<sup>4</sup> the Massachusetts Institute of Technology's Durable Digital Repository (Dspace),<sup>5</sup> and the University of California System's eScholarship.<sup>6</sup> To achieve their potential, these initiatives require new competencies and leadership. The Boston Consortium for Higher Education,<sup>7</sup> discussed extensively in this bulletin, has comprehensively and aggressively provided professional development and process reinvention opportunities for staff members in 13 participating institutions. These efforts resulted in greater collaboration; the establishment of nearly 20 communities of practice; the development of individual, team, and enterprise

competencies; and a new kind of grassroots leadership focusing on defining and pursuing opportunities for reinventing processes and enhancing the value of investments.

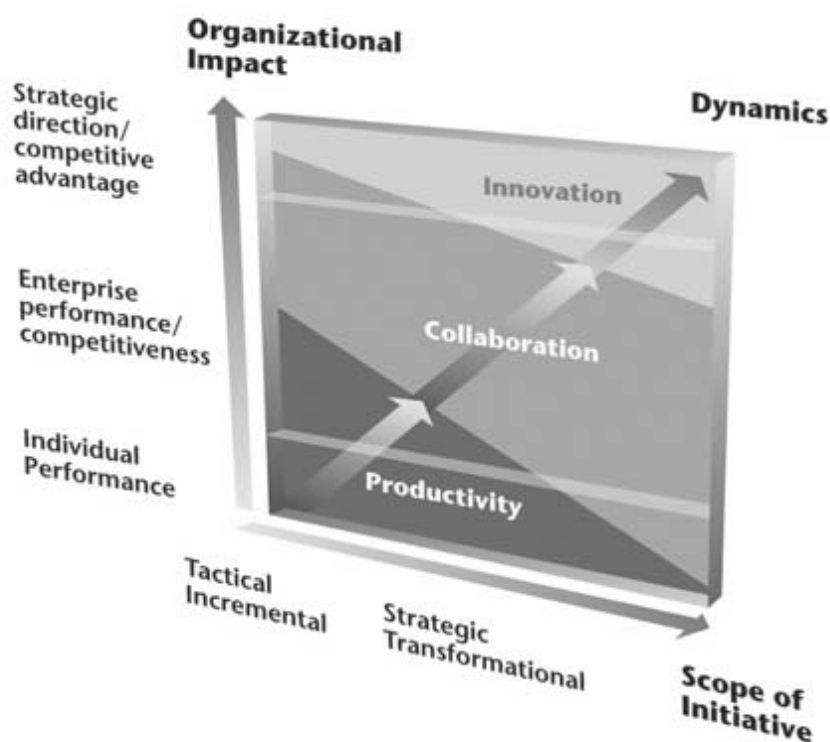
## Dimensions of Value on Investment

In addition to describing VOI through the five outcomes above, Gartner suggested that VOI operates simultaneously across three primary dimensions:

1. Scope of initiative
2. Organizational impact
3. Organizational dynamics

Figure 1 illustrates the dimensions of VOI in terms of the dynamics of productivity, collaboration, and innovation as initiatives and organizational impacts move from the tactical to the strategic.

Figure 1. The Dimensions of Value on Investment<sup>8</sup>



Source: Gartner Research

Tactical initiatives tend to be operational in impact, improving the efficiency of the current operating environment and generating incremental value. Strategic initiatives focus on broadly increasing the effectiveness of the current environment and/or inventing capabilities for the future environment; they intentionally aim for transformative results. Clearly, VOI increases as initiatives become more strategic.

Tactical initiatives include “point solutions” limited to individual departments or particular subprocesses, such as bill presentment or tuition payment management. Tactical initiatives also include enterprise projects that fail to generate changes in organizational dynamics. Early-stage enterprise resource planning (ERP) systems memorialized existing institutional processes and enabled some improvements in individual productivity and communication, but they did not achieve comprehensive process reinvention. As such, they failed to articulate or deliver on transformative possibilities. On the other hand, many current ERP implementations are more strategic, fostering the use of workflow and process reinvention to effect comprehensive and systemic changes in organizational dynamics. Eastern Michigan University is consciously using IT investments to reinvent current processes and practices. Loyola Marymount University has made a strategic investment in information and communications technology to enhance its use of IT and its competitive position.

### Organizational Impact

Impacts can range from those that affect individual performance to those that shape enterprise performance/competitiveness to impacts that affect strategic direction/competitive advantage. If the organizational impact of a particular initiative is on individual performance, VOI tends to be tactical in nature, and value lies in the improvement of personal job performance. While some strategic impact will result from the uncoordinated efforts of individuals, such results will be uneven. Enterprise performance initiatives are designed to have an impact at a higher level and can produce a combination of strategic and tactical VOI. These initiatives target large groups and can create competitive parity. Strategic direction initiatives begin with the intention of providing VOI that is strategic and transformative. They generate value through achieving the vision embodied in the institution’s strategic direction, and they push beyond mere parity to genuine competitive advantage.

When they first appeared in higher education, learning management systems (LMSs), ERP, and even enterprise portal developments were credited with helping to improve the performance of individuals, but over time such initiatives have been leveraged more effectively and comprehensively to achieve enterprise-wide results. Most institutions are still settling for competitive parity with their peers rather than genuine competitive advantage. However, there are notable exceptions. The institutions in The Boston Consortium focus on broad-based efforts to enhance quality and reduce the cost of education while building competitive advantage. Loyola Marymount University has pledged institutional investment in the use of IT to support its goal of becoming the preeminent Catholic university in the Western United States.

### Dynamics

As the scope of an initiative grows from tactical to strategic, and as the organizational impact grows from changes in individual performance to strategic advantage, the dynamics of VOI range from enhancing productivity to producing collaboration and inspiring innovation. As VOI dynamics expand, the magnitude of the value-creating energy released increases exponentially rather than linearly. Productivity is about

greater efficiency or doing more with less. Collaboration integrates quantity and quality in terms of outcomes and deliverables. Innovation has the greatest capacity to create value because it reveals new ways of doing old things and new experiences that create competitive advantage. Innovation in organizational dynamics redefines products, services, relationships, and experiences.

The University of Delaware and the University of Minnesota have changed how students experience institutional processes and engage in problem solving and management of their schedules, activities, and personal affairs. The Boston Consortium has changed the dynamics of staff development and leadership and created innovative shared-services approaches to risk management, IT training and procurement, and other services. Loyola Marymount University changed the dynamics of its entire IT enterprise through outsourcing. A variety of business process outsourcing and technology solution providers (Tuition Management Systems, Affiliated Computer Services, BearingPoint) have significantly improved productivity and customer service through providing innovative solutions to particular processes. While some of these innovations are targeted, others are enterprise-wide and systemic. The prospects for even greater innovation in these cases are substantial.

Taken as a whole, however, institutions of higher education are not facile with enterprise-wide innovation. Many nurture pockets of innovation, including department-based experiments with change, but they do not demonstrate sustained, enterprise-wide innovation. They deploy technology to support individual-centric innovation; target particular processes for reinvention; or fund pilot projects in learning communities, student engagement, or technology-based course reinvention. But the diffusion of innovations is sporadic and uneven. Mary B. Marcy suggested in a recent Point of View in the *Chronicle of Higher Education* that many foundations have cut back on their financial support of higher education research partially because even successful innovations do not become mainstream practice.<sup>9</sup>

## What It Means to Higher Education

Higher education has been hit, all at once, by an unusual combination of new challenges and opportunities:

- Declining economic conditions that affect public and personal finances
- A flood of red ink that requires cutbacks and tough decisions
- Increasing enrollments and demands for new student services
- Demands for greater accountability and use of technology to expand access and reduce costs
- Enhanced alternatives for resourcing business processes and solutions, using new technology tools and solution provider relationships
- New opportunities, new markets, and new competitors

Institutional leaders know that traditional, piecemeal solutions are inadequate to the magnitude of today's challenges. Successful new strategies and solutions have not yet burst upon the public conscience. However, the problem is as much developmental as it is strategic and programmatic. Even if the right solutions were more obvious than they are, they would prove difficult to implement. The experience and capacity of institutional leadership are not adequate to the challenge. Moreover, enhancements are needed in the capacities of grassroots staff to innovate, change organizational dynamics, and creatively resource business processes. Campus management teams must develop the ability to craft new solutions and to engage grassroots leadership in winning support for substantial change, both on and off campus.

VOI can play an essential role in illuminating alternatives in at least three essential decision processes facing institutions. In each of these processes, VOI "raises the bar" for institutional aspirations to enhance value and provides methods and metrics to assess progress and adjust performance. First, VOI can shape the development of enterprise technology and human resources infrastructures, focusing on the need for commitment to transformative change, not just greater productivity. For example, VOI can be used to create "stretch goals" for institutions considering a major investment in ICT infrastructure (ERP, LMS, enterprise portal, or knowledge repository), human resources, or program development. If leaders cannot commit to the level of collaboration and innovation necessary to reach the stretch goals, they should defer making the investment.

Second, VOI can be an essential element in resourcing the institution's business process portfolio and creating innovative solutions. Through ongoing assessment of the effectiveness of its processes, an institution can maximize VOI while minimizing institutional investment. Such continuous reinvention is the key to building ongoing value.

Third, VOI can inspire and guide the efforts of institutions to craft strategic responses to the mixture of challenges and opportunities that currently confront higher education. Institutional leadership needs to conceive of ICT as a strategic integrator and enabler of collaboration and innovation, yielding strategic differentiation. Institutions must aggressively and persistently use ICT to pursue a combination of strategic and tactical activities that maximize VOI and build strategic differentiation. This will require committed leadership from trustees, presidents, institutional managers, and grassroots leaders.

### **Development of Enterprise Infrastructures**

Institutions need to access significant new technology and human resources capabilities in order to build value. They do so either through institutional investment or partnership with solution providers. Some enhancements deal with enterprise-wide infrastructures. Others enhance technology and human resources supporting specific processes. Development of these infrastructures and capabilities can take years. IT outsourcing, business process outsourcing (BPO), and other resourcing options are providing institutional leadership with new alternatives to developing infrastructure and business



process solutions. If planned and implemented well, these alternatives accelerate development and provide greater certainty about likely outcomes and VOI.

Institutions that aggressively use new infrastructures and relationships to reinvent their processes, innovate, and change organizational dynamics are most likely to realize VOI. Such commitments need to be continuously reaffirmed. It is difficult to predict the VOI resulting from investment in infrastructure because the real action occurs through ongoing process reinvention and innovation that can require substantial time to unfold. However, VOI is excellent for setting targets and stretch goals.

### **ICT Infrastructures and Process Support**

VOI plays a powerful role when an institution is contemplating major ICT investments, such as ERP. VOI should raise the bar for the level of process reinvention that the institutional leadership and grassroots users should expect, shaping institutional plans. Today, most institutions considering a major ERP investment should undertake that investment only if they are willing to commit to pervasive and ongoing reinvention. Otherwise, they are missing a singular opportunity. At the front end of the selection process, equivalent energy should be invested in preparing the campus community for process resourcing and reinvention when evaluating the qualifications of the solutions providers.

IT outsourcing, BPO, and a range of other resourcing options are likely to expand. The development of Web-services-based applications enables flexible, loosely coupled, tightly integrated applications and business process solutions. Many of the process reinventions of the 1990s were hard-wired and did not provide the flexibility and continuous adaptation required of expeditionary business process solutions. A new generation of flexible, best-of-breed solutions and “digital utilities” will likely emerge, based on Web services. Mark Olson, executive vice president and chief operating officer of NACUBO, and I use the term “business value web” to describe how decision makers will be able to stitch together infrastructures and processes, selecting from legacy systems and applications, other tightly coupled applications, loosely coupled best-of-breed solutions and digital utilities, BPO solutions, and the skills and capabilities of both staff and external business solution providers.

### **Human Resources Capabilities**

Technology enhancements cannot succeed in delivering VOI without substantial enhancement of the human resources available to institutions, both internally and through partnerships. Perhaps the greatest challenge facing higher education is the development of genuine communities of practice, in particular administrative and academic service areas, dedicated to building value through innovation and continuous process improvement at the grassroots level.

One leading-edge example is The Boston Consortium for Higher Education, a group of 13 private institutions formed by the CFOs of those institutions who serve as its board of directors. The CFOs have created an emerging, collaborative, developmental environment dedicated to the development of individual, team, and institutional

capacities. They use collaboration to create innovative solutions to a wide range of administrative and academic support services. The Consortium deploys working groups to launch feasibility studies for initiatives. These endeavors are designed to (1) improve the quality of the academic and administrative experience and (2) provide services for students, faculty, staff, and all other stakeholders at a reduced cost. These working groups are emerging communities of practice that not only determine solutions to problems but also define the nature of the problems to be solved. They learn how to deconstruct and reinvent processes, separating the impact of institutional cultures from genuine stakeholder needs.

The Boston Consortium has created many useful solutions, including the aforementioned shared-services approach to risk management, with internal audit and legal affairs solutions to be included. It has taken six years to develop this model for grassroots human resource development, which is poised to undertake some truly substantial challenges.

### **Resourcing the Portfolio of Campus Processes**

Substantial VOI cannot be achieved without innovation, changes in organizational dynamics, and process reinvention. The institution's assemblage of business processes should be orchestrated like an investment portfolio, with the goal of enhancing value. Individual processes should be continuously deconstructed, reconstructed, combined, reinvented, and resourced through the full variety of means available using the business value web. Targeting ROI and VOI to be expected from enhancements to particular business processes is an important element of both the resourcing decision and of the allocation of IT resources.

The importance of focusing IT investments on business processes and setting process accountability standards was articulated by Jeanne W. Ross and Peter Weill in their *Harvard Business Review* article, "Six IT Decisions Your IT People Shouldn't Make."<sup>10</sup> This article, and Nicolas Carr's "IT Doesn't Matter"<sup>11</sup> in the May 2003 issue, capture the backlash sweeping through corporate offices against IT spending, prompted by disappointing returns on IT investment. Carr goes on to argue that as information technology's power and ubiquity have grown, its strategic importance has diminished. IT is on its way to commoditization; he asserts IT is available to all and has lost its power as a strategic differentiator. Carr contends that enterprise leadership should work hard to control IT costs and reduce risks, rather than make significant investments in IT.

Carr's article provoked a number of strong responses, including one from John Hagel III and John Seeley Brown, whose full letter<sup>12</sup> appeared in the July issue. Hagel and Brown believe that Carr missed the mark because IT-based strategic differentiation is grounded on the following three principles:

- **Extracting business value from IT requires innovations in business practices—IT alone provides no strategic advantage.** Extracting value requires innovation in institutional practices, enhancing knowledge assets, establishing communities of practice, building new competencies, and providing tools for institutional leadership.

- **The economic impact from IT comes from incremental innovations rather than big-bang initiatives.** A process of rapid incrementalism enhances learning potential and creates opportunities for further innovations.
- **The strategic impact of IT investment comes from the cumulative effect of sustained initiatives to innovate business practices in the near term.** The strategic differentiation emerges over time. It is based less on any one specific innovation in business practice and much more on the capability to continuously innovate around the evolving capabilities of IT.

Seely Brown's formulation of radical incrementalism captures the potential of using Web-services-based, flexible solutions to progressively discover new sources of value through perpetual process reinvention. This debate further emphasizes the importance of focusing on business process reinvention and innovation in business practice, for which VOI can be used as a target and a benchmark.

### **Strategic Reaction to Tough Times, Big Choices**

Put simply, higher education needs to discover how to respond to tough times, not only with tough choices but also with big choices that will

- Position information technology as an intellectual integrator rather than a "utility." Innovative application of new technologies in higher education can be a major differentiator as it moves from research, through development, to sustained innovation.
- Develop the capacity of institutional leadership to mobilize support behind comprehensive, transformative initiatives that develop human resources, leverage institutional assets, and change organizational dynamics.
- Overcome traditional barriers to dramatic change, both internal and external, changing institutional cultures.
- Engage both academic and administrative grassroots leadership, working together, in efforts to leverage resources and maximize value.
- Rejuvenate current revenue streams and discover new ones.
- Reinvent programs, services, offerings, processes, and relationships.
- Use technology and human resources to reduce costs, reach new markets, and enhance relationships.

VOI is a helpful concept in crafting a strategic response to these challenges. It encourages institutional leadership to reach beyond competitive parity to establish genuine competitive advantage, serving both existing and new markets. VOI supports continuous attention to enhancing quality and controlling costs, at all levels of the institution. But even leading-edge practitioners like The Boston Consortium have not reached the plane of achievement that will be required over the next decade. Groups like the Project on the Future of Higher Education<sup>13</sup> have suggested that institutions

must reinvent their academic and administrative processes, creating more learner-center environments and reducing costs by 10–15 percent in the process.<sup>14</sup> Arguably, higher education has not achieved such a level of innovation—yet.

Using VOI to craft a strategic reaction to “tough times, big choices” builds on the uses of VOI to develop enterprise infrastructures and to resource and continuously enhance campus process portfolios. Yet success will require a long-term, continuous commitment to change, marshalling institutional leadership at all levels from the board of trustees to grassroots staff and faculty. Understanding where value resides and how to unleash it is the new challenge for our time in higher education.

## Key Questions to Ask

Leadership in higher education can combine ROI and VOI to raise the stakes in using information and communications technology and human resource development to change the dynamics of institutional processes, services, and experiences. Several key questions emerge. Answers to these questions may hold the key to the future of VOI in higher education.

- What are the returns on information technology investments in terms of efficiency, effectiveness, customer satisfaction, reduced business risk, and accountability?
- How do we operationalize VOI in dealing with infrastructure development, resourcing business processes, and strategically responding to “tough times, big choices?”
- Is VOI the responsibility of senior leadership and ROI the responsibility of grassroots staff, or are responsibilities shared? How can we raise the understanding of “value” among grassroots staff and faculty and among other leaders?
- What lessons can we learn from other industries that place greater stock than does higher education on innovation and competitive advantage? How are they measuring the value from innovation, collaboration, process reinvention, leveraging knowledge, and other elements of VOI?

## Endnotes

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