CFAR

Through the Financial Lens: Making IT Investment Decisions

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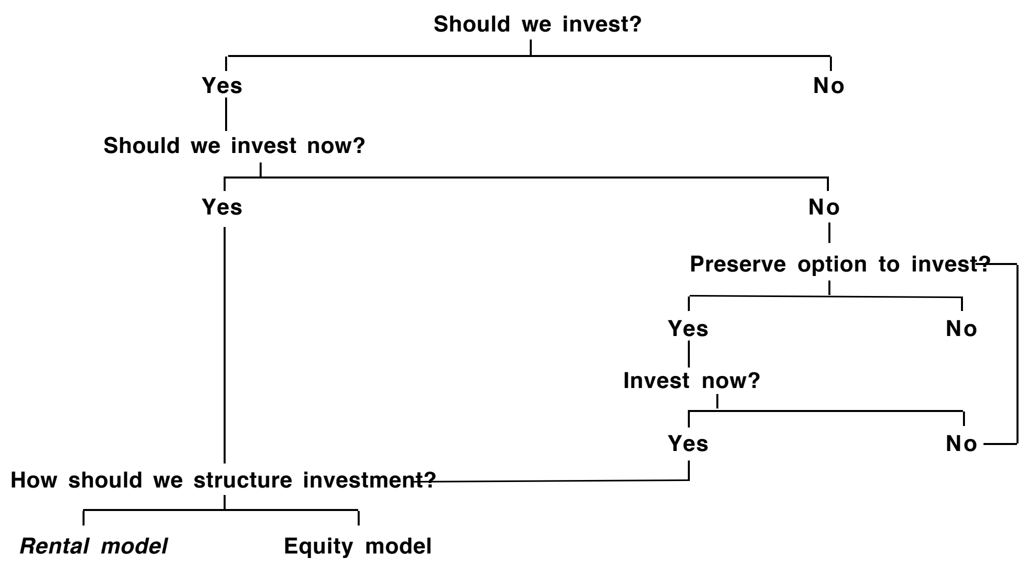
Frank dreaded his staff meeting. As CIO, he knew he would get questions about whether or not the university was going to make three key investments his staff had recommended. He was not sure how to explain the responses he had gotten from the Provost and the EVP. He knew technology investments were difficult everyplace, but in higher education they seemed almost impossible. He wished he could structure these decisions more effectively—everyone would benefit.

If you are like Frank—or one of the staff who recommends investments—learning how senior leadership makes IT investment decisions can help you do your job more effectively. We will begin with a simple framework, then use real cases and real experiences to demonstrate how a simple framework gets complicated in real life. For each e-commerce or other IT investment we can ask three deceptively simple questions:

1. Should we invest?
2. Is it the time to invest?
3. If we are committed to investing now, how should we finance that investment?

These questions can be structured into a decision tree.

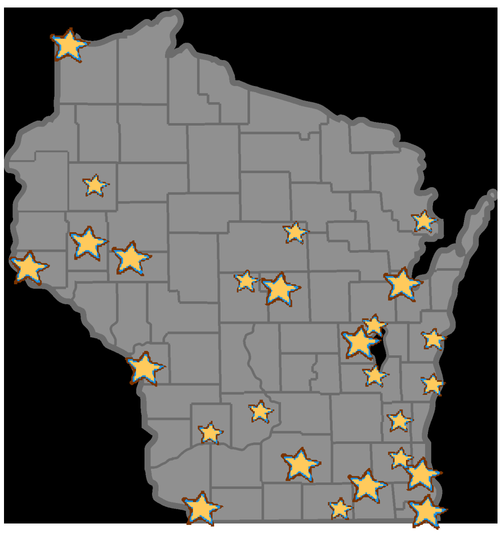


Should We Invest?

Strategic imperative

We often think of investments as ways to make money—we look at the investment and its likely return. In some cases, an institution must invest—going forward in a certain direction is a *strategic imperative*. The case of the Learning Innovations Center of the University of Wisconsin—Extension illustrates this. UW Extension is a separate institution within the larger system, with a mission to coordinate outreach throughout the system. It traditionally includes cooperative extension with county agents as well as Wisconsin Public Television and Radio—administratively housed within the Division.

About the University of Wisconsin System



- UW-Madison
- UW-Milwaukee
- 11 Comprehensive Universities
- 13 Two-Year Colleges
- UW-Extension

UW Universities
UW Colleges

The University of Wisconsin has made a system-wide strategic investment in *Learning Innovations*, a center whose purpose is to provide students with an opportunity to get a credit certificate in a degree program online. The Regents charge in creating Learning Innovations was “to remove time and place as barriers to higher education through digital delivery.” The Regents also anticipate Wisconsin’s ability to “export” education beyond the state borders.

Learning Innovations is a partnership between the UW-System Administration and the Extension Division that attempts to leverage the resources of the whole system to provide on-line services more effectively or efficiently than many of the campuses could provide on their own. Its three basic functions are course development, course distribution and support of campus members (students, faculty and staff) across the system.

Learning Innovations operates in two markets, an internal market—campuses and departments across the UW system—and an external market—corporations and organizations that want to deliver their own in-house training.

- In serving the internal markets, Learning Innovations supports development efforts of programs or departments but not individual faculty.
- The external markets will help fund the internal development of UW products, resulting in cross-fertilization as well as cross-funding. For example, a company training program may help UW identify a pocket of employees that could benefit from a credit certificate program. In turn, it helps apply content from the University to a focused problem.

Example: The World Bank. Learning Innovations developed on-line training for the Bank's purchasing managers—individuals who develop purchasing contracts for the grantees of the institutions around the world that get money from the World Bank. The World Bank used to bring people from around the world to Washington twice a year to get training. This is not UW "content" as in a course, but the skills in putting the course together can be used to develop UW content courses as well.

Example: UW-Platteville is among the leading campuses that put degree programs online. It now offers on-line versions of two baccalaureate degrees that are available on campus, in business and criminal justice. In addition, it is building a brand new program not offered on campus but exclusively online—a Masters in Project Management.

Sustainable strategic advantage and brand creation

For an investment to succeed, even a strategic imperative must carry with it a sustainable strategic advantage. For Learning Innovations that sustainable strategic advantage takes the form of the Learner Relationship Management System (LRMS), an on-line student support system. The quality of the support system will distinguish the UW offerings from "fly by night" certificate and degree programs. It will be consistent with, and reinforce, the University of Wisconsin brand.

UW has had a long tradition of distance education, revolving around its large system of campuses. The new technologies help support this system: if one campus cannot supply a need, another campus is likely to. Increasingly, the system becomes an integrated digital education venture. It is further integrated with Wisconsin Public Television and the likely convergence of TV and computer.

What does it take to fund this venture?

Up-front funding for Learning Innovations from System Administration and Extension was $2.2 million in direct one-time funds, plus redirected salaries of several staff—hundreds of thousands of dollars in additional money each year. As students enroll in certificate and degree programs, revenues from their tuition start to come back into the system. Learning Innovations will keep 30 percent of this money, and 70 percent will stay with the campus or campuses that are offering the program.

This form of funding—dependent on revenues from early offerings—restricts growth. It is hard to get the product built quickly enough to get revenue coming in at the other end to funnel back to product development. The development of these courses and programs is time-consuming, labor-intensive work involving lots of different kinds of talent: computer folks, faculty, instructional designers, etc. This had led to a number of discussions about financing options, which will be addressed later in the paper.

If it is not a strategic imperative?

Not every good investment is *essential* to the mission of the institution. However, an investment that does not contribute to the mission—directly or indirectly—is an unlikely bet. Among the criteria for investment are:

- Consistent with overall strategy of the institution
- Sustainable strategic advantage
- Consistent with brand or identity
- Reinforces relationships with current "markets"—faculty, students, alumni, donors

When an investment does not contribute directly to the strategy and mission, then it becomes a "business investment." The university or college then needs to look at the investment with the same rules—and the same rigor—as would any other provider of capital.

When to Invest

An investment is decision is made harder by the uncertain path of technology. This is the dilemma faced by Lehigh University in deciding when and how to invest in its telecommunication system, currently a PBX.

The current system:

- Largely exhausted expansion capability
- Showed random problems
- Installation in 1984 raised questions of reliability
- Enhancements no longer offered
- Students wanted analog service
- Easier maintenance of analog service
- Knowledgeable technical support dwindling
- Maintenance discontinued in 2003

We speak easily about the convergence of voice, data and video, but it is less clear when and how they will converge. Voice over IP may not be ready for prime time. How does wireless technology affect our willingness to invest in a PBX?

At the same time, market reactions to alternative technologies are uncertain. Will e-mail continue to replace long distance telephony? What services will students prefer? How long can you wait before students will buy services “outside the system?” Internal political considerations are often in play at the same time. Telephony, which has been a source of revenue for many institutions, has often been grouped with other services. At Lehigh, telephony is budgeted with library services—and the cost increases in library materials acquisition is increasing. An investment that decreases telephony revenues leaves the CIO worrying how to fund other pieces of his operation. Can you delay the difficulty?

In addition to operating budget concerns, many institutions have capital budgeting rules that are inconsistent with the demands of information technology. An amortization schedule reaching out over seven years makes it harder to justify technology investments with a half-life of three years. Will waiting making it easier?

The particular alternatives Lehigh confronts are shown below:

Alternatives	Financial Implications
(A) Stay with current technologies and await new technologies	One time cost of $436K
(B) Upgrade but stay with basic framework and current vendors	Transition cost of $2.31 million
(C) Move to new vendor with flexible architecture and potential for ATM and IP capability	Transition cost of $3.2 million
(D) Integrate voice, data and wireless (phone and LAN)	Costs not known at this point

Whatever the particulars, deciding whether to invest now in an uncertain technology (alternative D) or buy a “real option” (Alternative C) to preserve opportunity is clearly not simple.

How to Invest

When we are convinced we must invest, and invest *now*, then we need to determine how to structure this investment. We discussed above two examples of investment decision making at two institutions, but electronic commerce pushes almost every institution to consider these issues. Electronic commerce radically escalates customer expectations and sets new criteria for quality service, off-line as well as on-line. As a result, institutions must re-capitalize either to meet higher service requirements in traditional markets (Lehigh’s student phone services) or to exploit opportunities in new markets (UW’s Learning Innovations). It is difficult to continue existing businesses, while at the same time fund these new investments out of current revenue or out of the endowment.

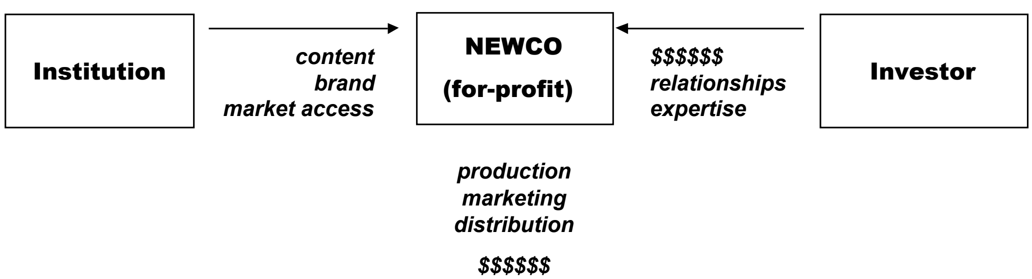
In our discussion here of avenues to capital, we acknowledge the ideas of Michael Goldstein, Esq. of Dow Lohnes Albertson, an attorney who has been dealing in the area of public–private ventures and access to capital.

Avenues to capital

"Rent" (Use an Outsource Partner)	**"Buy"** (Sell Equity in a For-profit Venture)
Use other's plan, equipment, expertise, resources ▪ e.g., on-line curriculum hosting (eCollege.com) ▪ e.g., campus telecommunications (Lehigh case)	Create for-profit, spin-off vehicles ▪ e.g., technology transfer startups (Lycos) ▪ e.g., distributed education outlets (UW case)
Features ▪ Exchange lumpy capital costs for continuing service payments ▪ Retain control over your customer base ▪ Shift some/all technology risk to outsourcer ▪ Control service levels through contracts ▪ Do not share in equity appreciation (accrues to outsourcer's shareholders)	Features ▪ Gain access to private capital ▪ Gain flexibility in: ◆ Employment relationships ◆ Profit and risk sharing ◆ Partnering opportunities ▪ Can realize appreciation via a liquidity event ◆ Acquisition by another firm ◆ Initial public offering (IPO)

In the standard *equity or venture model*, the institution provides to the "new company" its content, brand and market access, while the investor provides funds, strategic business relationships and operating expertise. The new venture thus formed is typically responsible for production, marketing, distribution and funds.

The Standard Equity Model



Adapted from M. Goldstein, "Capital Ideas," ***University Business,*** *October 1999*

In the equity model, an institution can benefit from appreciation via a liquidity event and can use the funds realized from that appreciation for other institutional purposes. But what can institutions expect from the capital markets?

"We're living in a world of piranha economics in regard to education. Every Wall Street firm, seemingly, has an education department. Venture capitalists are moving into this area very quickly. Any nonprofit that fails to recognize both the opportunities and the challenges that come from the digital world is destined for extinction."

Arthur Levine, President
Teacher's College, Columbia University
New York Times, 9/25/99

Public equity

Education stocks have not yet played a major role on Wall Street. As of the date of this presentation, the market has demonstrated a preference for large-capitalization technology companies such as Microsoft and Intel, whereas education companies so far have been low tech and relatively small cap.

Private equity

While the public stock markets are at present not very hospitable to education, private equity is still available for earlier stage investment. [Private equity comes either from individuals ("angels") who will typically help a company from an early stage; from venture capital funds investing other people's money; and from strategic investors.} These strategic investors tend to be larger companies in related businesses, who might help a young company develop because there is going to be future business relationships that will be productive for them.

Private equity investors in education have been more interested in post-secondary education and corporate training. They pefer Internet business models over bricks and mortar because the former are inherently more scalable. The key criteria these investors look for include:

- A "Killer" product or service
- Mass market growth potential
- A superior, experienced management team
- Commercially proven, scalable business model
- Early-mover advantages and competitive barriers to entry

If you are interested in "buying" or "renting" capital, it is important to take a business approach to your venture. You should:

- Make a realistic assessment of the value of your brand and content as well as the time and expense needed to develop the market for your new product or service.
- Identify, secure and retain entrepreneurial talent.
- Seek strategic partners who bring expertise and business relationships as well as money, not just financial investors.
- Manage the partnership closely, be it an investor or an outsourcer.

If you want to attract private capital, it is also important to fund start-up costs internally or with grants—this demonstrates institutional commitment. You should also seek equity appreciation over current revenues.

Using This Approach

In this presentation, we have identified three deceptively simple questions:

- Whether—Should we invest in this?
- When—Should we invest in this now? Preserve an option?
- How—How should we finance this investment?

Should we invest?

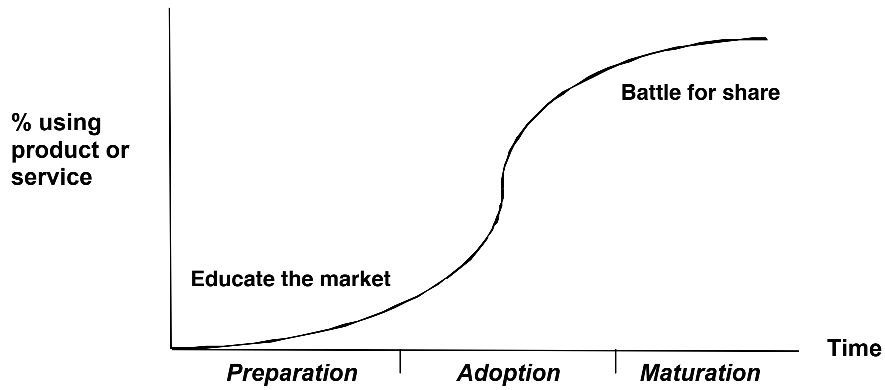
Before thinking about whether or not an investment will reap financial rewards, think strategically: Is this something we have to do as an investment? The UW Regents answered that question in the affirmative. Not all institutions should, but UW Extension has had a particular mission for years—extending that mission to incorporate new technology was a natural move, and the decision to develop the student support system in house reflected its commitment to the "customer."

Before thinking about direct returns to investment, think about the how you serve your students or other customers or stakeholders. At Lehigh one of the questions was how students experience the telecommunications services at the institutions. With cellular phones, students can now obtain voice services elsewhere—does Lehigh, as a technologically oriented institution, gain or lose by unbundling the service? What signal does that send to the student market?

If there is no compelling strategic reason to invest, and the market the institution serves is indifferent to the supplier's identity, then the question becomes simpler: Can you make money on this investment? This is a business question, enabling you to step back and use the standard business questions an outsider might raise.

Should we invest now?

Unfortunately, it is often easy to *imagine* that something is necessary or a great business idea, so "fools rush in where angels fear to tread." There is both market and technological risk for the kinds of services and products we are talking about.



- *Market risk*—It is very difficult, slow and expensive to open a new market for an innovative product or service. A typical market diffusion curve is shown above. The horizontal axis is time and the vertical axis is the percent of the market that is using a particular product or service. When an idea is new, it is key to educate the market to its value and availability. The left portion of the curve reflects that this process is slow and expensive. In the right portion, you see what happens to late entrants into a market—they have to battle early entrants for share of the market. Thinking about the diffusion of new products and services helps match the risk to the institution's capabilities.
- *Technological risk*—If there is technological uncertainty—you do not want to invest in a technology when the standard will be set on something else—you can take a "real option" on technology. This hedges risk in the same way that a financial option hedges risk in the stock market. In taking a real option, you invest some money to enable your institution to get to the point where you can respond quickly if you have to. This is hedging, spending some money—for example, to sustain a legacy system—in order to accrue the money you might need to make a larger, more profitable investment later. Over time, you can continue to buy options or you can let your options expire—for example, do not invest in a technology if it looks as if its promise is not being met.

How should we structure the investment?

If we are ready for the investment, then the question is how to finance, in a rental model or equity model, with many choices within each. There are now many more choices for institutions for investment capital when that capital is directed toward ventures that can be expanded beyond the institution itself.

Taking the Lessons Home

For technology professionals the challenges are many.

- *Know the technology*—Educate colleagues within your institutions to the technological choices—and the constraints on those choices.
- *Understand the decision process*—By gaining a broader perspective on how the institution views investment, you can inform those decisions more effectively
- *Build the bridge*—As you understand more about the "business of education" as well as technology, you can help build a bridge between technology and mission, technology and markets and technology as a business.

However, you cannot do this alone. If you come to a meeting like EDUCAUSE, you are immersed in a whirlwind of change. It is easy to walk out and assume that everyone understands these issues, but on many campuses, two groups do not understand this, faculty and top management (often including the board of trustees).

In the future, IT is not a sideshow—it is in the main tent, and people do not necessarily understand that. They know that they need information technology, but they are not always sure exactly why. It makes little sense to export our competence in technology in distance learning, and not have it affect what happens on campus in terms of teaching students. Profound changes will happen on campus and in the market that we are in—convincing students to come to us for four years and pay us for the privilege of being with us for four years will be important, since it is not a necessity. Managing up, then, becomes very important. It is not simply important to present good technological choices or good technological decisions, but it behooves people in IT to help the general management of the institution understand the implications of those choices and decisions.

At a recent CIO forum a simple question was asked: How many of you have searched the Web? Only one hand in forty went up. They had no idea of how the Web could change marketing if they had no sense of the game and its possibilities. The same may be true the higher you go in your university administration. If you do not use the tools, it is hard to begin to understand how they may transform the fundamental business we are in. Invite your institution's leadership to the next EDUCAUSE Conference.

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