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New Developments in Practice IV: Managing the Technology Portfolio

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NEW DEVELOPMENTS IN PRACTICE IV:

MANAGING THE TECHNOLOGY PORTFOLIO

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ABSTRACT

Due to the unrelenting pace of technological change, the task of managing an organization's IT portfolio can be formidable. Failure to accomplish this task effectively can expose an organization to technology failure and/or financial risk. This paper, based on discussions with a focus group of senior IT managers from a number of leading-edge organizations, outlines the challenges of managing the IT portfolio and presents recommended, "tried-and-true" strategies to tackle the problem.

KEYWORDS*:* technology portfolio management, technology management, technology maintenance, software/hardware management*.*

EDITOR'S NOTE: This article is the fourth in a series of articles on new developments in practice coordinated by James McKeen of Queen's University. The present article was originally prepared by the authors based on discussions by the IT Management Forum, a focus group of senior IT managers from 14 Canadian firms that meets regularly to examine advances in the state of the art. The first three articles in this series dealt with Risk Management in Information Systems, Enterprise Application Integration (EAI), and Extracting Value from Mobile Integration. Additional articles in this series will appear in CAIS from time to time

I. INTRODUCTION

In today's IT world with technology changing at an unrelenting pace, organizations find that they must continue to add new technology just to keep up. Hardware, software, languages, development tools and methodologies are all substantially different today than just five years ago. Unfortunately, new technologies don't always replace old ones. Applications dependent on old technologies may need to be kept running without significant rewrites. Unfortunately, older technology often doesn't work well with newer technology leading to extra work for IT staff who jury-rig connections to keep everything running smoothly. As a result, an organization's technology stockpile simply grows. Most IT organizations would therefore like to "sunset" older technologies, i.e., set a date to get rid of it permanently. However, for many practical reasons (e.g., cost, politics), this objective is not accomplished easily and not always possible. And so, the problem becomes bigger each year. The management challenge is to develop a strategy, not just for retiring older technology, but for managing new and old technology effectively – to ensure that a business' technology portfolio remains cost-effective.

Before such a strategy can be developed, however, it is first necessary to understand technology and the attendant problems it presents. In the next section, we examine the nature of information technology and the concepts of age and obsolescence. We then highlight examples of some of the technical and organizational issues encountered when attempting to manage a technology portfolio. Based on this understanding, the article concludes by suggesting strategies for managing technology.

This article is based on the collective insights and experiences of a focus group of senior IT managers from a number of leading-edge organizations.

II. WHAT IS "OLD" TECHNOLOGY?

Information technology is considered "old" (or at least "dated") when it is superseded by a newer version; it is considered "obsolete" when it ceases to be supported by the vendor and/or user community; and it atrophies only if it is physical/mechanical. When managing IT, the concept of age is actually irrelevant. The process of atrophying and the stage of obsolescence are important only to the extent that they contribute to the costs and risks of technology. Let's examine why this is so.

Information technology includes both hardware and software which tend to be treated differently due to the physical nature of hardware. Physical things (e.g., cell phones, data lines, monitors, servers, PCs, and storage devices) atrophy and therefore require ongoing maintenance and eventually replacement. Realizing this difference, most companies adopt an "ever-greening" approach for hardware replacement – that is, a strategy for the planned replacement of technology on a fixed schedule. One focus group company, for example, renews its desktop computers every 3.5 years, its laptops every 2.5 years, and its desktop software every quarter. However, this same company runs its primary operations on the back of a software system written in the 60s! Why is it not surprising to find 40-year old application systems?

The answer is that software, unlike hardware, does not atrophy. If it runs once, it will do so forever. It matters not that a currency conversion function is written in some long-forgotten language. As long as a need for currency conversion exists, this code will do the job. Not surprisingly, IT professionals take full advantage of this situation by encapsulating older code within newer applications. Indeed, it makes little business sense to rewrite code in a newer language only to provide the identical functionality. At some point, however, it may not be possible to add new functionality to old software, or it may be too expensive to do so. When this happens, the software should be renewed.

It follows that, based on cost-justification, hardware and software should be treated identically. The argument proceeds as follows. Both hardware and software exist to serve the organization's needs. When the cost of providing a service becomes excessive, the technology (either hardware or software) should be replaced. The fact that hardware (unlike software) may fail outright is important only to the extent that this possibility of failure is correctly reflected within the total cost structure of the hardware (i.e., the costs of backups, redundant operations, spare parts, and/or service contracts). Stated differently, information technology should be renewed when it fails to provide adequate functionality to support the business in a cost-effective manner. This time is when it should be considered obsolete.

III. DEALING WITH OBSOLESCENCE

Every organization uses obsolete technology. As one focus group member stated, "It's IT's dirty little secret"! This comment is revealing. First, why should the status of an organization's information technology be "secret"? And second, why suggest that it is "little"? When asked to *size* the problem of obsolete technologies, no one in the focus group had a confident answer because none of their organizations had undertaken to assess it. However, anecdotally, the following quotes by members of the focus group collectively reveal the significance of the problem:

"The one-time cost to replace our old technology is easily tens of millions of dollars".

"The maintenance costs associated with testing new releases, not to mention the delays, are enormous … do all 600 products work on the new operating system?"

"Because we do not actively manage our licences, we do not know the full costs of licensing obsolete technology."

"We have twice the technology we actually need."

"The skill base to maintain obsolete technology is rapidly declining and training is expensive."

"We have built over 700 medium to large applications over the last 30-40 years. They are heavily customized, running on multiple technologies, without any common architecture. Even "code ports" to accommodate hardware updates are challenging."

Sinur (2002) argues that the problem will only get worse and in fact will likely accelerate. He anticipates that core applications (i.e., those that have an impact on the stock price or value proposition) will become commodity applications (i.e., those that are available readily through multiple sources) in much shorter timeframes – a process he refers to as entropy. When members of the focus group were asked about the urgency of the problem, they expressed a general feeling that the time to address this problem is at hand, but no organization placed it in the critical zone. Some of the justifications given for inaction were as follows:

"The problem with obsolete technology has always existed."
"Obsolete applications continue to function adequately."
"It is easier to interface systems than to understand and address the underlying problem."
"If it ain't broke, don't fix it."
"We are waiting (hoping) for better vendor solutions."

In response to the question "what is your worst case scenario regarding obsolete technology?" one senior IT manager reported that his organization has 8 major databases to support. The oldest of these, written in an obscure language, supports a single customer-facing application developed in the 1960s. Worldwide expertise for this system is virtually non-existent … actually "one guy on a beeper"! Some of the other seven databases are now totally unsupported. Another organization cited its worst case scenario as a large 16-bit application currently supporting a key line of business. The huge replacement cost, estimated at $5-7 million, is due to the labor-intensive effort required. There are no available conversion tools to assist with the task. Action must be taken soon. Arguments for replacing the system are not based on an ROI calculation but rather on the risk of unrecoverable failure and the attendant loss of face with the customer base. Despite this risk, line-of-business management is reluctant to spend their IT resources on this initiative which "does nothing to facilitate new business".

These examples highlight the technical aspects of managing a technology portfolio; for example,

- contracting vendor support for technologies,
- finding/retaining people with the necessary skills/expertise to work with technologies,
- tools for bridging/migrating between technologies, and
- succession planning.

Unfortunately the difficulty with managing technology is not limited to these aspects. The following three cases highlight some of the organizational aspects of managing technology.

Case 1: The Mainframe Email System
In the late 70s, the company purchased an email system. The fact that it ran on the company's mainframe computer made it easy to control access, perform backups, and ensure continuous 24x7 availability for worldwide operations. Over the years, this system was extensively modified to add new features (such as mass-mailing and calendaring). Much of the added functionality, however, came at a high price as the original mainframe system was not designed to accommodate these new features. The system became filled with clever "workarounds" e.g., to make text terminals "more GUI-like". The ability to add features eventually came to a screeching halt in the late 1990s when the IT department tried unsuccessfully to enable attachments to e-mails with the mainframe system. It was now clear that the system had to be replaced. When the IT department suggested moving to a client-server package with all the desired features, there was of an open rebellion by the thousands of devoted business users worldwide.

This case illustrates an application system that became so ingrained within the workday lives of the business community that users actively resisted all efforts to have it replaced. As a result, the system continued well beyond its normal (and productive) life expectation. One focus group member cited another version of this phenomenon. It happens when a new system replaces an old system but users keep demanding their "OD-35" report. To supply this report, the previous application must be kept running, which postpones the benefits to be achieved by switching to the new system … and the previous system, in some cases, *is never retired*.

Case 2: The Divisionalized Company
The company was structured into semi-autonomous and geographically-dispersed divisions. Divisional management assumed profit and loss responsibility and full control over all expenditures including IT. Divisions currently ran on OS/2 servers with "green screen" applications and no IP capability. As it became obvious that this platform could not take advantage of new functionality/opportunities, corporate management strongly encouraged divisional management to update their technology base. Divisional management, with their eyes on the bottom-line, felt that IT expenditures should compete with other possible investments. While some managers could see the return of a technology upgrade, others remained unconvinced. Corporate management realized that the full advantages of an upgrade would be severely limited if some divisions did not buy in. What began as a technology issue soon devolved into a political hot potato.

This case demonstrates how technology decisions play out within the larger organizational arena. What appears to be a straightforward technology issue quickly becomes politicized as it rubs against the fabric of the organization – in fact challenging its strategy, structure and goals. The situation is not uncommon.

Case 3: The "M&A" Company
Over the years, the company grew on the basis of a number of mergers and acquisitions. To keep a "business as usual" facade, the company absorbed the hardware, software, people and systems unique to each of the newly-acquired companies. Not surprisingly, the IT staff became very creative in "bridging" these systems to provide a high level "look and feel" of cross-business integration. Underneath, it was a legacy nightmare! Any decision to retire old technology (and rationalize the IT portfolio) was exacerbated by the duplication and proliferation of systems (as well as the cross-platform bridging). Business managers were largely shielded from (and hence, unaware of) this reality and were caught surprised by the CIO's warnings of the consequences of their continued corporate growth strategy.

Organizations experience chronic difficulty when meshing various technologies. When organizations merge with (or acquire) another organization, this particular issue becomes acute. Sometimes such an event can serve to coalesce management decision-making resulting in dramatic consolidation with respect to technology. Other times, as in this case, the problem is paved over.

It can be seen from these examples that the key factor in the management of obsolete technology is the assessment of the technology's ability to continue to support the organization and meet its future needs. While technical considerations underlie such assessments, decisions regarding technology renewal must be judged against other possible demands for resources within the organization. As a result, these decisions must first and foremost be business decisions. In the next section, we outline a business approach to managing a technology portfolio.

IV. STRATEGIES FOR MANAGING A TECHNOLOGY PORTFOLIO

The realities of competitive pressure, customer demand, and the drive for increased efficiency, leave organizations few options but to follow the path of innovation. Within IT, the innovation challenge is to manage a technology portfolio so that it continues to support the needs of the business in a cost- effective manner. Faced with a relentless parade of innovative technologies and the ongoing need to be responsive to new business initiatives, this balancing act can be daunting. The solution is to manage the technology portfolio exactly the same as if it were any other valuable corporate asset.

Technology (both hardware and software) is deployed to provide valuable functionality to support the business. When more cost-effective technology becomes available, a *business* decision must be made regarding the replacement of the existing technology based on knowledge of the true costs of the technology. Unfortunately, IT management usually fails to make these costs known. In fact, one focus group manager declared that "IT does a good job of masking the problem". When business managers do not fully understand the status of their application systems and the attendant full costs of modifying them, the organization can be led into less than optimal (or poorly-timed) technology decisions. When IT initiatives compete openly with other potential initiatives for the same limited pool of resources, it becomes immediately clear that technology management must be a shared responsibility between IT and the business (McKeen and Smith, 2001).

Effective technology management involves all of the following activities:

- an ongoing inventory process;
- a technology life cycle model to enable management strategies to be tailored to individual life cycle stages;
- the development of governing policies to outline what, how, and when technology will be used;
- the appointment of technology stewards who assume management responsibilities for overseeing individual technologies;
- skills development to parallel the evolution of technology; and
- a viable funding model for technology renewal.

With these activities in place, organizations have the means to ensure that their technology continues to serve the needs of the organization in a effectively and efficiently. Each of the activities is now described in more detail.

1. Inventory your technology portfolio

Part of the Y2K exercise of locating and identifying all instances that might prove troublesome upon entering the new millennium was to create a detailed inventory of all existing applications and technology. This inventory became one of the unexpected side benefits of meeting the Y2K challenge. For many organizations, once this inventory started, it was maintained, allowing firms to identify the status of their technology assets at any point in time. As a result, many organizations now have accurate and detailed reporting capabilities for their technology including licensing and contracting information. This capability is the first vital step in managing a technology portfolio.

One focus group company maintains records for the following:

- Release and version
- Description
- Vendor
- Licensing/Contracts
- Product steward (see Management Strategy #3)
- Status (life cycle stage)
- Deployment (primary uses of product as a cross reference)

A database provides a single-source location for information on all technology products. One person within IT has the job of maintaining the database to ensure that all information is current and accurate. It is structured to provide valuable information for the active management of all technology in the firm. For example, it can be used to locate all licenses with a particular vendor, determine the age of current contracts, identify all uses of a specific technology, and list all complementary technology products to ensure that they reflect similar life cycle classifications.

2. Adopt a technology life cycle model

Technologies follow predictable life cycles – that is, sets of progressive stages that technologies pass through during their useful life. These life cycles can be based on a specific aspect of the technology (e.g., its operational efficiency) or on a specific management strategy (e.g., acquire, manage, retire) related to the technology. Although the *time* dimension is typically employed by these life cycles (see example of a cost life cycle in the Appendix), as we have pointed out, the age of a technology is less important than its current stage. Since the primary benefit of a life cycle model is its ability to represent the "status" of a particular technology explicitly, other dimensions are more important to consider.

Duggan (2002) developed a life cycle model for software consisting of four stages of deterioration:

- adult,
- mature,
- aging and
- elderly.

In addition, he identifies indicators that allow an assessment of the stage of a given technology and provide actions to be taken at each stage to manage the stage transitions.

One of the focus group companies bases its technology decisions on a life cycle model determined by the expected longevity of a particular technology and its anticipated/projected strategic value to the organization. Using these two dimensions, managers position the firm's technologies on a 2x2 matrix (Figure 1). Expected progression within this matrix is counter-clockwise beginning with the "Watch" quadrant and ending with the "Eliminate" quadrant. This matrix (internally referred to as the "WISE" grid) is used to reflect the status of all technologies – hardware (i.e., computing, storage, and communications), operating systems, business applications, languages, and methodologies. On a regular basis (at least annually), all technologies are assessed and, if necessary, migrated to the appropriate quadrants.

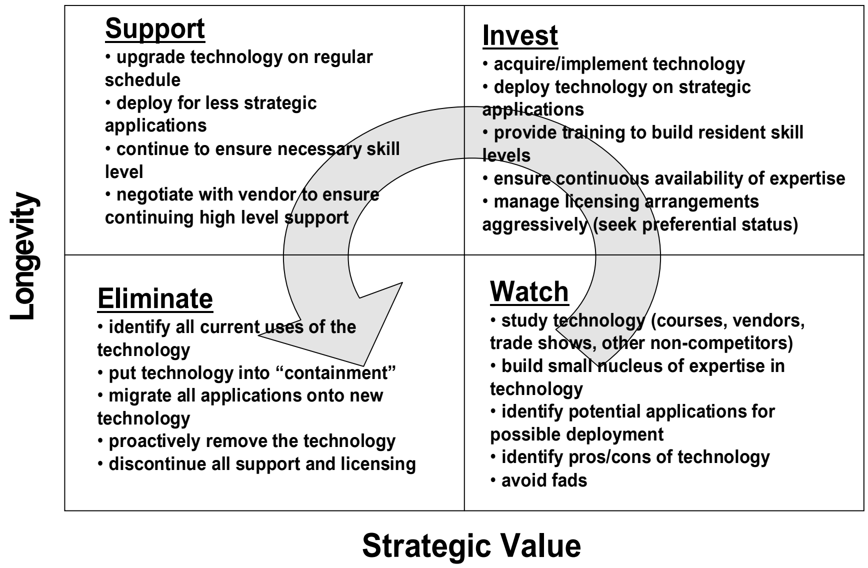

Figure 1. A "WISE" Grid for Managing Technologies

Quadrant classifications on the WISE grid have ramifications for how a technology is to be managed. As strategic applications are assigned priorities, technologies from the "invest" quadrant are identified to be deployed for their development and implementation. Technologies from the "support" quadrant would tend not to be used for these strategic applications if there was a similar technology already within the "invest" quadrant. Many of the oldest applications within the organization are based on technologies relegated to the "eliminate" quadrant. Additional functionality for these systems is implemented with newer technologies wherever possible. The WISE grid is an effective tool not only for classification but also for signalling to the whole organization (including both management and IT) the status of its application portfolio. Knowing that the firm's key business applications are built on technologies relegated to the "support-eliminate" side of the grid provides strong incentive to upgrade them. The WISE grid can also be used as a basis for risk assessment calculations for key systems.

3. Create policies to govern technology usage

An inventory lists the technology that is currently available. In contrast, a technology usage policy specifies which technology should be used and how it should be used. One focus group company developed a unique policy (which they refer to as a "blueprint") for each major type of development (e.g., client-server, mainframe, web-based). Each blueprint specifies the appropriate technologies and how they are to be used by separating the development functions into the following five categories:

- Presentation/reporting
- Logic
- Data
- Communication
- Control

These functions are color-coded on the sample blueprint shown in Figure 2: for example, green represents the presentation layer for all blueprints and yellow represents the logic layer. Technologies in the grey boxes are "in containment" indicating that they are in the process of being phased out; those in the white boxes are "mainstream". The information within a blueprint can be used in conjunction with the WISE grid shown in Figure1. That is, the graduation of technologies from stage to stage determines blueprint status. A technology within the "watch" category would not appear within a blueprint. Within the “invest” category, however, it would be represented within a blueprint. As this particular technology enters the “support” category, its blueprint status would likely change again. Finally, as the technology enters the “eliminate” stage, it disappears from any existing blueprints.

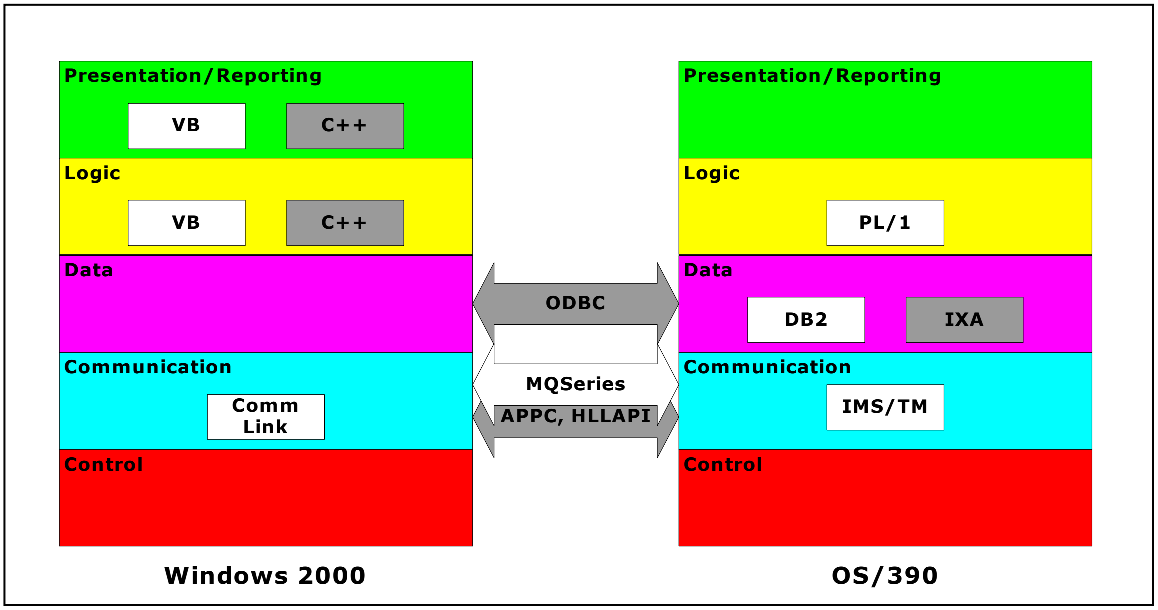

Figure 2. Sample Technology Blueprint

A technology blueprint is a convenient way to establish the preferred use of a given technology for a given type of development. It is recommended that information be cross-referenced in the inventory so that, for every technology, it is easy to find all blueprints where it applies. Finally, blueprints are useful in that they send an important signal to system developers: there are sanctioned technologies and their usage is expected. Any deviance from the prescribed technology requires special permission to be determined on a case-by-case basis.

4. Create a technology stewardship role and appoint stewards

Each type of technology should have someone responsible for its management, i.e., a steward. Since it is difficult, if not impossible, to identify someone who is expert (or even familiar) with multiple technologies, the role of stewardship is typically assigned to a number of individuals. This role is typically not full time. In most organizations, the individuals who introduce a new technology and usher it through its early stages tend to take on its stewardship role, at least initially. As the technology matures within the organization, the role can (and does) change hands.

Some of the duties assigned to a steward include:

- Monitoring new technology releases/upgrades
- Communicating important information concerning the technology (changes, new functionality, linkages with related technologies)
- Keeping abreast with the vendor community (e.g., new developments, partnerships)
- Exploring possible uses/applications of the technology within the organization
- Working with technology vendors (e.g., beta tests)
- Joining and becoming active within industry user groups

- Educating others within the organization (e.g., centre of excellence, community of practice)
- Building resident skill levels with the technology (see next section).

5. Evolve skills to parallel your technology life cycle

As a technology evolves, so too must the skills of the IT staff. One of the focus group companies developed the model shown in Figure 3 to demonstrate how new skills are identified, introduced into the organization, and distributed effectively within the organization (follow the blue arrows counter-clockwise in Figure 3). As skills are made redundant by advances in the related technology, the direction of the chart reverses (as shown by the clockwise red arrow in Figure 3). For example, a "mainstream" skill will eventually begin to move back through the "transition" stage to the "centralize" stage and then out the door. As the need for the skill declines, the skill must be centralized to ensure that the organization retains adequate (albeit minimum) skills to support its waning technology.

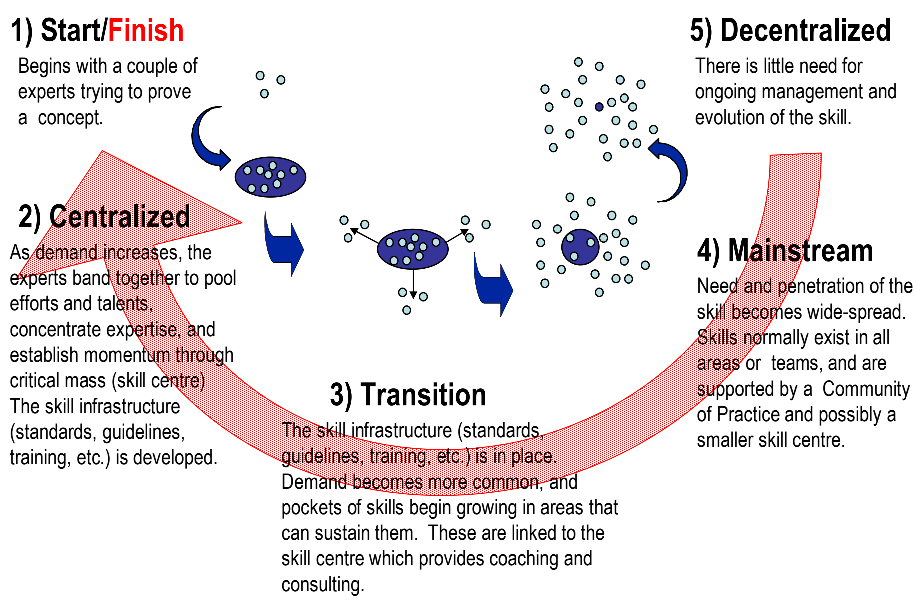

Figure 3. Skills Evolution for a Technology

The relationship between skills and technology is direct and parallel. As a new technology enters an organization, resident skill levels must by created to ensure that the technology is deployed effectively (i.e., the features and capabilities of the technology are understood and fully deployed by the members of the organization) . As a management aid, it is possible to combine the WISE grid (Figure 1) with the Skills Evolution chart (Figure 3) to demonstrate how skills development must parallel the technology life cycle (Figure 4).

A technology-skills life cycle model enables the simultaneous management of both elements. It can be used reactively to identify existing technology-skills gaps and to highlight where the organization is inadequately prepared for the introduction of a new technology. Costs are associated with these gaps. For example, developing skills too far in advance of the arrival of the technology and/or taking possession of the technology without ensuring an adequate skills base handicaps the organization and results in postponing the promised benefit stream resulting from the new technology. Technology-skills gaps may occur at the end of a technology's useful life as

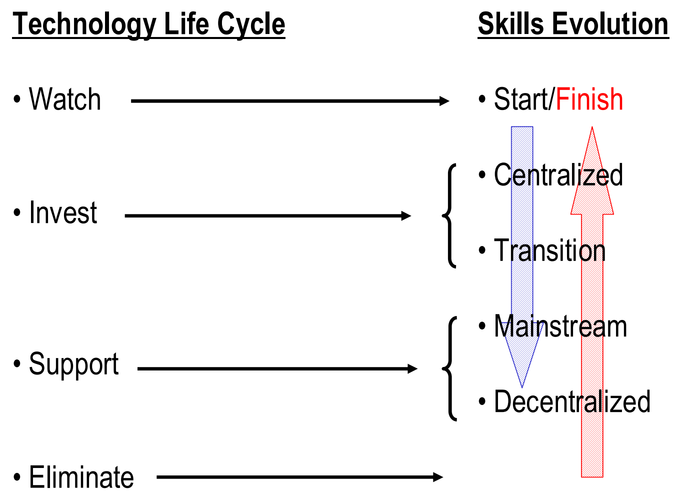

Figure 4. The Parallel Evolution of Skills and Technology

well. One organization was chagrined to discover that they were still sponsoring courses for their IT staff in a skill that had been put into "containment"!

This same model can be used proactively with equal benefit. For example, the graduation of a technology from one stage into the next can be used to trigger the associated skills development activity. By linking a technology directly with its associated skill base, an organization can articulate a migration plan to guarantee a successful (and uneventful) technology transition. In addition, the formal identification of technologies and skills within a life cycle model allows IT professionals to reflect on their careers in terms of the skills they possess and the technologies they mastered. As technologies move into the "containment" stage, individuals whose skill base is based largely on this particular technology may wish to explore some emerging technologies. Where organizations managed the evolution of skills and technologies by effectively deploying models such as these, they enabled smooth transitions to new technologies and kept resident skills current. Where organizations failed to manage their technologies actively, skills gaps can proliferate, technology transitions can be disastrous, careers can be dead-ended, and costs can skyrocket. Numerous anecdotes were provided by focus group members.

6. Create a funding model for technology renewal

The final technology management activity is funding. The effort required to manage technology effectively from the "watch" through "eliminate" stages is large and ongoing and therefore expensive. Nevertheless, the risks of letting technology age to the point of inadequacy – when it ceases to be a healthy, productive asset – are significant. As one focus group member commented, "risks are unrealized costs". Such risks include the loss of efficient support to internal business processes (e.g., sales reports delayed), the inability to provide effective customer service (e.g., web transactions unavailable), the outright failure of a key business function (e.g., a communications network collapse) and/or exorbitantly high costs to the business due to a technology platform being within the "decreasing operational efficiency" stage of its productive life. These business risks are based on technology and must be assessed by senior management in light of other business risks. The focus group agreed that if there is a consistent shortcoming across organizations, it is the failure to make technology a business decision.

If technology represents a business risk, how should it be financed? The focus group felt that the most important part of any technology funding was that it should be articulated using the same accounting procedures used for other organizational assets and should be made visible to the business. It should definitely *not* be hidden within the IT department's budget and should be clearly identified as a "technology renewal" fund to be administered by senior management. Members of the focus group suggested that the selection of a funding strategy should be in alignment with the organization's current governance model. For example, if IT is treated as corporate overhead, then a technology renewal fund should probably be established similarly. On the other hand, if all IT expenses are charged back to the business units, then a technology renewal fund should be part of these charges. The key point is that the technology renewal funding be visible, recognized by general management as a true cost of doing business and mitigating risk, debated, and costed as accurately as possible.

Two approaches to creating (and administering) a technology renewal fund were described by the focus group. . These approaches provide examples of how organizations can adopt different yet equally effective strategies for achieving the same goal – that is, funding technology renewal.

First Organization: In a presentation to senior management, the CIO argued the wisdom of continually investing in the technology that basically "ran their business". On the basis of this presentation, a designated technology renewal budget was created and the CIO was given full discretionary powers over the budget for technology upgrades. Technology renewal decisions are based on the recommendations presented to the CIO by members of the corporate architectural council. These recommendations are then presented by the CIO to the senior capital committee. The majority of technology upgrade decisions are determined on the basis of "cost to support". The amount devoted to technology renewal is not a fixed percentage but differs year by year depending on factors such as business performance, timing of vendor offerings, competing business needs, and extraordinary one-time technology upgrades.

Organization Two. A fund was created to upgrade the "hard core technology that you can't get the business to fund directly". The following set of guidelines was created to create and administer this fund.

1. The technology renewal fund is established strictly for upgrading technology. It is NOT to be used for application development, maintenance, or infrastructure nor is it to be used for R&D. It is to be used to replace technology that is "impeding the ability to deliver solutions – to get rid of something or to improve something – to facilitate projects to enable the effective delivery of business solutions".

2. Business units are "taxed" at a fixed percentage of the total IT services used by each unit. IT is accountable for how it spends the fund and all expenditures are reported to the business units. Each business unit is responsible for scheduling technology renewal projects within their annual IT planning.

3. IT is responsible for administering the fund. All applications for technology renewal must be accompanied by a business case prepared with assistance from a project management office. Decisions are made by a process review board whose membership is drawn from IT and the business.

This approach to funding technology renewal achieved a significant measure of success. One benefit is that the business units now recognize the need for technology renewal and see its direct linkage with attaining their business objectives. Due to the joint business and IT membership on the review board, decisions tend to be readily accepted and technology renewal is seen as a shared partnership. Although no one likes a "tax", there is little doubt that it sends a tangible signal to the organization indicating that, in this case, technology renewal is vital to the health of the business.

V. CONCLUSION

With the dependence of business operations on technology comes the need to ensure that this technology not only continues to function effectively, but also provides the capability to support the future needs of the business. To accomplish this goal requires a management strategy that treats IT as any other valuable corporate asset. This strategy can best be accomplished by an effective partnership between IT and the business.

This article set out to describe the difficulties in dealing with the ever-changing worlds of business and technology in order to understand how technology can be managed to provide continuing support to the business in a cost-effective manner. Based on the experiences of a group of senior IT managers from leading edge organizations, a number of successful strategies are outlined in this paper. It is anticipated that following these strategies will enable organizations to ensure the vitality of their technology portfolio.

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APPENDIX

Figure A-1 (McLean Report, 2002) demonstrates the cost life cycle of a technology platform. This particular model separates the cost characteristics into two stages: increasing operational efficiency and decreasing operational efficiency.

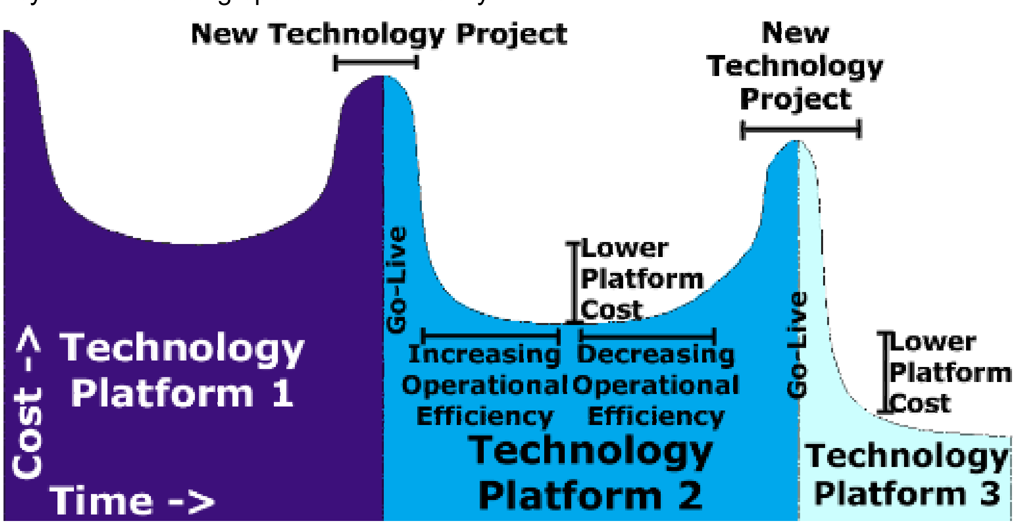

Figure A-1. Cost Life Cycle of a Technology Platform

[1] Copies of this article can be obtained from the authors. jmckeen@business.queensu.ca

This model is particularly important when it is recognized that the majority of the life-time costs of a technology (e.g. a business application) are consumed in ongoing support and maintenance often dwarfing the original acquisition costs (termed “new technology project”). While it is apparent that with successive platforms the *average* costs decrease overall, it is more important to focus on the width and depth of the U-shaped cost curve for each particular technology platform. This, of course, requires accurate costing of the particular technology platform but the benefits of such a costing model are significant. This information provides a basis for deciding when to move to a new technology platform. That is, an organization could determine how expensive the existing technology would have to become for it to decide automatically to replace it, and how inexpensive new applications would have to become in order to migrate to them. It is suspected that few organizations currently have costing models with sufficient detail to support this type of analysis.

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