Education Underlies The Transformation

In 1988, Dr. John Rockart, then Director of Sloan Management School’s Center for Information Systems Research at MIT, admonished the information systems community to step up its education efforts among line management so that these managers would take on new roles in innovating strategic uses for IT:

“There is a growing need to educate line management about its new responsibility. The need now is to get all line executives to take on this new role, and it can only be done through formal and informal education, sometimes over an extended period of time.”

British American Tobacco, a 100-year-old company, took up this challenge in 1997 and has since transformed how its executives think about IT – from a cost to be minimized to a strategic business resource to be leveraged. Table 1 contrasts the state of IT in this large, multi-national corporation in 1996 and 2001.

This transformation is no small feat considering the size and scale of BAT. The company employs almost 90,000 people worldwide in 180 markets, with 86 manufacturing and processing operations in 64 countries and 68 individual operating companies in 182 countries. For CIOs leading a similar transition, experiences at BAT demonstrate one path to addressing the challenges found in large organizations with global IT operations.
The educational efforts that underlie this transformation have been based on the Three IT Assets Model, a conceptual framework developed through academic research. This model was instrumental in targeting the educational efforts that have increased line management’s IT literacy at BAT (Figure 1). The thesis of this model is that IT can contribute to long-term competitiveness through the development and interaction of the Technology Asset, the Human Asset, and the Relationship Asset. BAT developed formal IT education initiatives to explicitly address each of these three assets.

### BAT Began Focusing Exclusively on Tobacco in 1996

British American Tobacco has grown to be one of the top three global players in the tobacco industry through organic growth and acquisitions. It ranks as number 261 in the 2000 Fortune Global 500 list of companies. Prior to 1996, BAT Industries PLC had four tobacco businesses among a number of other unrelated business interests. In 1996, this business strategy was revised to merge the four independent tobacco businesses into one. Non-tobacco businesses (financial services, retailing, and others) were divested. British American Tobacco became a stand-alone business focused only on tobacco. The company then merged with the global cigarette company Rothmans International in 1999. Today, BAT’s local and international brands are sold through five regional divisions: America Pacific, Asia Pacific, Europe, Latin America, and AMESCA (Africa, the Middle East, South and Central Asia). A sixth division, STC (Smoking Tobacco and Cigars), is global and operates in more than 120 countries.

### The Table: State of IT at BAT

<table>
<thead>
<tr>
<th>1996</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Numerous system reliability and functionality problems</td>
<td>✓ Reliable and functional IT platform</td>
</tr>
<tr>
<td>✓ Low IT investment</td>
<td>✓ Substantially increased IT investment</td>
</tr>
<tr>
<td>✓ Few global IT standards</td>
<td>✓ IT is driving business strategy convergence of processes and data to leverage global economies of scale</td>
</tr>
<tr>
<td>✓ Low IT credibility in business discussions and low trust of IT by top executives</td>
<td>✓ IT has credibility in global and operating companies’ business planning</td>
</tr>
<tr>
<td>✓ High IT staff turnover</td>
<td>✓ Low IT staff turnover and new senior IT staff positions</td>
</tr>
<tr>
<td>✓ No senior IT executive on top team</td>
<td>✓ 90% of country-level operating companies have an executive CIO who reports directly to the chief executive</td>
</tr>
<tr>
<td>✓ IT is a responsibility of Finance</td>
<td>✓ Global CIO reports directly to the chief executive</td>
</tr>
<tr>
<td>✓ Weak understanding of IT by business executives</td>
<td>✓ Business leaders now drive IT investments in capabilities and applications</td>
</tr>
</tbody>
</table>

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wheeler, marakas and brickley / educating the line to lead

while it also offers some federal autonomy to end markets.

**IT Transformation Began in 1996**

In 1996, BAT commissioned development of a global IT strategy to support the business’ change in structure and direction. The goal was a plan for IT consolidation, coordination, and standards across the tobacco businesses. This strategy marked a significant change in the role of IT. It was championed by the Chief Financial Officer, who had responsibility for the new consolidated IT group.

The idea for an IT education program began in early 1997, during the early days of the company reconfiguration. Initially, two heads of IT were appointed, one for IT architecture and one for IT strategy. One came from inside the company and the other, Peter Brickley, was recruited from outside. Both reported to the CFO. At the end of 1998, however, all IT responsibility was consolidated under Peter Brickley, Head of Global IT; but he still reported to the CFO.

Prior to 1996, BAT’s operating companies had been broadly making their own choices for IT investments. There was little common understanding of IT among senior managers and very few common technology platforms among the operating companies. The new IT strategic plan aimed to use IT to unlock some of the synergies possible with a single global platform. But the plan had to be implemented and funded through buy-in from the operating companies. Obtaining this buy-in was no small challenge given the lack of understanding of IT and the troubled history with IT by the end-market executives.

To exacerbate the problem, the IT function, both at the global level and in the end markets, also faced major “hygiene” issues. Much of the IT infrastructure was legacy and non-standard. System maintenance and achieving millennium compliance occupied enormous IT staff attention and budget. The challenge was to address these hygiene issues while simultaneously developing a more strategic focus for the IT function.

**IT Education Would Prepare the Line to Lead and IT Managers to Understand the Business**

Between 1997 and 2000, BAT chartered three IT education initiatives: the *IT Appreciation Program* (ITAP) for country-level line executives, *IT Management Excellence Program* (ITEP) for high-potential IT managers, and *Regional ITAP/e-Business Program* (Table 2) delivered in-country for country top management teams and their direct reports.
By mid 2001, over 700 BAT managers and executives had participated in at least one of these programs. Each program was customized to BAT’s objectives and continues to evolve through a living curriculum that draws on real-life BAT situations and experiences. Peter Brickley and at least one regional IT director have ensured visible top-level support by attending and participating in all the ITAP and ITEP courses. Each program’s purpose and conduct is explained in Table 2, while Figure 2 provides a timeline of the major BAT business events and a cumulative graph of participation in the programs.

### Table 2: IT Education Initiatives

<table>
<thead>
<tr>
<th>Program</th>
<th>Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IT Appreciation (ITAP)</strong></td>
<td>1. Update management on the latest impacts of IT on business.</td>
</tr>
<tr>
<td>Targeted at country-level functional directors</td>
<td>2. Raise management’s awareness of new opportunities created by IT, especially e-business.</td>
</tr>
<tr>
<td>“Reducing IT Phobia”</td>
<td>3. Create management awareness about their need to proactively identify IT opportunities to change business practices and processes.</td>
</tr>
<tr>
<td></td>
<td>4. Create awareness among senior management about the risks and rewards of managing IT projects.</td>
</tr>
<tr>
<td><strong>IT Management Excellence (ITEP)</strong></td>
<td>1. Improve the overall business acumen and skill set of senior IT managers and directors so that BAT has a higher level of integration between IT and other business functions.</td>
</tr>
<tr>
<td>Targeted at high-potential IT managers</td>
<td>2. Increase awareness of the difficulties of strategically integrating IT throughout BAT’s operating companies.</td>
</tr>
<tr>
<td>“Building Confidence”</td>
<td>3. Urge IT operations and managers to be more proactive.</td>
</tr>
<tr>
<td></td>
<td>4. Provide activity-specific tools to improve budgeting, planning, development, and integration within IT.</td>
</tr>
<tr>
<td><strong>Regional ITAP/e-Business</strong></td>
<td>Same as ITAP, but tailored to a country or region and with a heavier emphasis on e-business.</td>
</tr>
<tr>
<td>Targeted at country-level top team and their direct reports</td>
<td></td>
</tr>
<tr>
<td>“Innovating Together”</td>
<td></td>
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</tbody>
</table>

**The IT Appreciation Program (ITAP): Getting IT onto Line Directors’ ‘Radar Screen’**

BAT has an educational culture of conducting appreciation programs for various functions, such as Leaf Appreciation, Marketing Appreciation, etc. The objective of these programs is to seed cross-functional insight for managers outside that functional area. Thus, establishing an IT Appreciation Program was a natural fit. In 1997, BAT sought academic help to develop and deliver the first ITAP.
The four-day ITAP was targeted at operating company directors (marketing director, finance director, managing director, etc.) and top managers of the 68 operating companies and regional offices. In general, the target delegate had a strong business background but a weak understanding of IT.

The circumstances in the company in late 1997 provided a challenging context for the first ITAP. IT was in a state of reorganization. The IT infrastructure and software projects had numerous basic reliability problems. Spending estimates for millennium compliance were soaring. IT had little credibility in management discussions. And the IT organization was in full pursuit of implementing a global IT strategy.

ITAP addressed all these issues by looking at case studies of firms that had successfully used IT in strategic ways and had developed the capability to manage IT well. Many of the topics were similar to those typically addressed in an MBA IS course of study.

ITAP focused on how IT relates to business strategy and operations. It made extensive use of the Three IT Assets model to present the necessity for BAT to develop the Technology, Human, and Relationship Assets to achieve long-term competitiveness. The program and discussions clearly showed that BAT faced considerable work to develop each of the three IT assets. Despite many start-up challenges, the inaugural program was a success and continues to be run 1-2 times annually.

Anonymous feedback from ITAP participants conveys the following insights:

“This program has made me aware of my ignorance, and I will definitely make an effort to improve my knowledge regarding emerging technologies. It will be my priority in my new role to assess the IT knowledge, particularly in my area of responsibility and generally in the organization, and develop a plan with help of the IT team to address the gap.”

“I can now see the need for more dialogue and involvement in supporting and keeping pace with the IT agenda.”
“It has raised some challenging organization questions with potential new thinking on options.”

**IT Management Excellence Program (ITEP): Increasing IT Managers’ Business Acumen**

Within six months of the first ITAP, BAT’s IT leadership decided to develop its own Human Asset in the IT organization. Feedback from ITAP participants revealed their consistent concern about the lack of understanding of basic business issues by BAT’s IT professionals. Generally, the line executives viewed IT as a support function, which could contribute little or no value to strategic planning and prioritizing business initiatives. In addition, due to BAT’s culture of giving their end markets broad operational autonomy, global IT initiatives had little credibility.

For the line executives to further embrace IT, BAT’s IT executives had to contribute both business and technology competence. An educational program to engender these competencies had to parallel the ITAP efforts, IT leadership realized. So the IT Management Excellence Program (ITEP) was chartered in 1998 to increase the effectiveness of the IT managers by improving their business skills, operational and strategic awareness, and ability to create solid relationships with functional counterparts. It was aimed squarely at improving the Human Assets and Relationship Assets of the IT function – and responds to Rockart’s mandate to the IT community to increase their understanding of business.

Following the template already in place for other BAT appreciation programs, ITEP was targeted at high-potential senior IT staff at both the end-market and global levels. The five-day intensive program focused on effective project management, writing business cases for IT-enabled business initiatives, structured problem identification and solutions, and budgeting and funding. In addition, participants began to develop a global network with their peers, thus laying the foundation for knowledge sharing and development of IT best practices among BAT’s operating companies. Furthermore, their confidence in participating in business discussions increased; their goal became “seeding the line with innovative ideas concerning effective uses of information technology.”\(^1\) ITEP has been run 1-2 times annually since 1998.

Anonymous feedback from ITEP participants was very positive:

“The three most valuable sessions: Managing to be dependable, Managing to be efficient, and The Proactive IT Manager. It was intensive but it was important to figure out the new vision of IT in British American Tobacco. The team exercise on the case was the most valuable.”

“Proactive IT Manager session was excellent - best of all the motivational effects of pitching our contribution away from boxes and cables. There is real buy-in to the up-weighting of effort and level of contribution from those that will have to do it.”

“This training is literally the best I have ever experienced since I joined BAT over 5 years ago. I wonder why this material isn’t presented to all IT employees at all levels. Why did I have to wait until I was a manager to have the benefit of these useful tools and theories?”

One difficult challenge, however, was the widespread heterogeneity of IT and business skills among the early ITEP participants. Some were from first-world countries with years of IT experience; others were from less-developed countries that faced basic IT infrastructure reliability problems.

**The Participants Utilized IT in the Programs**

The IT education initiatives also provided an opportunity to demonstrate a value-adding use of IT: supporting learning. Prior to launching ITEP, a technology-supported learning environment (utilizing Lotus’ LearningSpace) was created for the program. Participants had notebook computers to access electronic course content, to participate in on-line case discussions, and to annotate presentations. All this content was then posted on the BAT global network for them to access when they returned home.

The technology support made the course content more dynamic because it facilitated on-the-fly adjustments in the course flow, topic focus, and relative time, as a direct result of the daily anonymous morning and afternoon feedback. This rapid feedback was electronically aggregated at the end of each topic session rather than at the more conventional end of the program.

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\(^1\) Rockart, 1988, ibid.
Participants thus learned about innovative uses of IT while immersed in a practical example of its use.

Participants’ comments affirmed the benefit of the electronic learning environment:

“Definitely, the hidden benefit is that it acts as another step forward in showing how IT can partner the business in ways that are not immediately obvious. This should develop into a Training and Development website covering all functional training at all levels.” -- Anonymous ITAP Participant

“Appeared daunting at first............but soon became obvious it is an easy to use system. I will probably use LearningSpace to take my Top Team thru an overview of the program. We should use this system for all programs in future.” -- Anonymous ITEP Participant

Integrating ITAP and ITEP Fostered Cross Learning and Collaboration

By 1999, following 2-3 runnings of each program, it was clear that BAT was making measurable progress in remedying the deficiencies in its Technology and Human Assets. The remaining challenge was to focus on the Relationship Asset. The program’s faculty from the university believed that the best approach would be to run the two programs concurrently. This parallelism would permit distinct communications to each group and some joint sessions and casework for the line managers and IT staff.

The proposal for concurrent programs was not without risks – especially political and image risks for the IT participants. Effective education programs must provide a safe learning environment, and mixing IT managers with more senior line management could create an evaluative atmosphere. Similarly, mixing non-technical executives with IT staff could cause them to refrain from asking basic IT questions for fear of embarrassment. These issues steered the decision to continue two distinct programs but run them concurrently in separate rooms in the same facility for about 75 percent of the time. Two integrated sessions would bring everyone together, and an integrated week-long team exercise would facilitate cross-functional team interaction. The concurrent ITAP/EP was initiated in early 2000.

The participants were very satisfied with the concurrent approach. It brought substantial leverage to the topics because both groups learned about IT and business issues at the same time, they shared meals, and they worked jointly on project teams. Feedback from the first joint program strongly advocated increasing the number of integrated sessions. Participants in the second joint program said to integrate even more.

Most recently, participants’ interactions with each other demonstrate that the ITEP and ITAP counterparts are building mutual respect. In addition, the IT function has hired, coached, and developed enough good talent in leading roles to hold their own in discussions with their business colleagues, and they are adding value for colleagues hungry to learn and share. As Peter Brickley noted,

“The acid test was to get our new business-savvy Heads of IT in conference with General Managers, even if only for 4 days, to show that we're winning. The moment the GMs and Heads of IT realized they could do business together, directly, was the moment the reporting line through finance dissolved. We were clearly beginning to communicate.”

Success Led to More Education and the Line Taking the Lead

The success of the integrated program along with other signals (described below) indicated an improving Relationship Asset. With this improvement, and the growing relevance of e-business throughout the organization, two new directions for IT began to emerge.

First, the Global IT function was able to successfully engage the company’s top executive board in exploring e-business as a board-level mandate.

Second, successes with ITAP led some end markets to request their own Regional-ITAP, to be delivered in-country to their top teams.

These events represented two big wins for IT, demonstrating that the improved Relationship Asset was beginning to fuel IT drives by both corporate and end-market management teams. Such levels of communication and drive from line leadership would have been

5 Quotes attributed directly to the CIO were from interviews prior to the preparation of this jointly authored case study.
difficult to imagine during the challenging days just two years prior, in 1997 and 1998.

**E-Forums and Regional ITAP/e-Business Programs Expanded the Education Program Further**

In late 1999, the Global IT function hosted an intense, week-long global e-Forum for a diverse group of 40 senior country, functional, and technical managers from all over the world. This workshop brought focus to a number of diverse supply-chain and trade-marketing e-business initiatives in various end markets. Regional e-Forum workshops were also held around the world in cooperation with the consulting firm of Ernst & Young (now Cap Gemini Ernst & Young). The global and regional forums accelerated interest in creating a broader understanding of IT. Up until this time, BAT had been cautious about embracing the Internet.

Shortly thereafter, one of the large South American operating companies requested a compact version of ITAP to be delivered in-country to its top team and their direct reports. This end-market initiative gave birth to the third program — *the Regional ITAP/e-Business Program* (ITAP-Regional). ITAP-Regional is delivered in either a two-day or three-day format depending on the objectives of the end market; and it is scheduled, coordinated, and funded entirely by the end market.

In addition to having the same ITAP objectives of reducing IT phobias among line managers, ITAP-Regional focuses in large part on understanding and acting on e-business opportunities. It has been promoted mainly by word-of-mouth and has grown quickly in popularity. It was run 18 times in 15 months on six continents, significantly accelerating the communication of ITAP’s concepts to a large body of line business managers (see cumulative participant attendance impact in Figure 1) and increasing the breadth of line understanding of strategic uses of IT.

Since the regional program was usually run in country for an entire management team, it also provided a common framework, language, and focus for action. This format avoided the challenge that occurs when only one or two people attend a management development program and then return and try and engage their peers who have not had a similar experience. It has also allowed the country-level managers to press for technology-enabled initiatives and hold the top teams accountable for action following an ITAP-Regional.

In sum, these education initiatives – ITAP, ITEP, ITAP-Regional, and e-Forums – were the primary efforts to educate cross-functional teams of senior executives (including IT managers) to reconsider the role of IT at BAT – from a back-office support function to an area of responsibility for line managerial action. For many participants, IT appeared on their managerial radar screen for the first time, joining their traditional roles of directing, planning, and operations.

**Five Impacts are Seen at BAT**

In reflecting on the impacts of BAT’s IT education programs, the authors believe the programs contributed to five important and visible outcomes at BAT:

1) The Tobacco Management Board is more engaged with IT,
2) IT governance is now more business led,
3) Business and IT have a common language and frameworks,
4) Innovation involving IT has accelerated, and
5) ITAP and ITEP have become effective global knowledge-transfer mechanisms

**Impact 1: The Tobacco Management Board is More Engaged with IT**

By mid 2000, success with the educational programs built enough IT credibility to engage the executive management board of BAT. Since 1997, the Tobacco Management Board had been placing growing energy and time in getting more from IT. In spite of this increased attention, though, maintaining a single strategic IT direction had proven difficult. By 2000, it was evident that a new approach for creating more effective dialogues was needed. A critical element of this change was a challenge to the board, “Do you possess an intuitive business technology instinct in the same way you do for brands, product, people, etc.” The board’s discussion of this question prompted them to elect to ‘go back to school’ again.

Four, intensive, two-day versions of ITAP (ITAP-Board) were run for 4-5 board members at a time, giving them a safe environment for asking and exploring IT issues. They engaged in the same exercises, frameworks, and discussions as other ITAP attendees.
They demonstrated a remarkable level of interest and engagement in the details of IT topics:

At breakfast of the second day of the first ITAP-Board, one board member came in pointing to a story in that morning’s Financial Times regarding the importance of Extensible Markup Language (XML). He was beaming as he remarked, “Now I understand what they are talking about!”

Following the event, many of the directors referred back to their ITAP learning moments in forming their ideas and shaping their debates. Perhaps the unexpected effect was it further lifted the relationship between their IT guys and themselves. By example - it wasn’t good enough to say “you [IT] can’t communicate.” Now, it has become “how can we communicate better” – this is the seed of a virtuous cycle for IT innovation.

By the spring of 2001, all TMB members had attended an ITAP-Board program, which provided a new foundation for understanding the role, opportunities, and challenges of IT for business development. Their attendance also sent a strong and clear signal throughout BAT that the senior leadership was serious about leading IT. Together with the global and regional programs, BAT has created an environment for changing its IT governance.

Impact 2: IT Governance is Now More Business Led

In 2000, many of the end markets were deeply involved in a number of IT initiatives, involving SAP, supply chain, trade-marketing systems, financials, and others. There was a growing need for executive-level IT representation on their top management teams, although there were some lingering concerns about whether the IT personnel were up to the challenge. ITAP, ITEP, and ITAP-Regional helped to assuage those concerns.

By late 2000, 90 percent of the end markets had promoted the Head of IT (country-level CIO) to be part of the top management team. This was up from zero percent in 1996. At the global level, Peter Brickley was formally appointed Chief Information Officer in April 2001, and elevated to Director level, making him a member of the Tobacco Management Board. IT’s reporting line was moved from Finance Director to Managing Director and CEO. These changes brought new engagement, visibility, and responsibility for the IT function.

Furthermore, a revised IT strategy was formulated in line with BAT’s business strategy and based on the business issues seen by top management. The Global IT function has continued to successfully attract new talent and promote many more from within (in the new IT image as Business Technologists). IT has assumed broader responsibility for global convergence (of data, processes, systems) and has begun substantive work on knowledge management. In fact, the Office of the CIO has now recruited two former end-market managing directors (country-level CEOs) to lead IT’s strategic planning. And IT has become so important at BAT that a seventh corporate strategic imperative has been added to its longstanding six: “leverage technology.”

“This momentum is moving IT from where it was to where it should be – a business technology function that aims to lead in value creation through technology,” says Brickley.

Impact 3: Business and IT Have a Common Language and Frameworks

ITAP and ITEP continue to evolve with each running. New modules, cases, and exercises are regularly added to align the course with evolving IT issues in BAT. Some modules, however, have proven to be enduring classics and are embedded in all programs (Table 3).

These frameworks are helping to develop a common language and approach among BAT’s managers. As such, the delegates from the various programs find they can more easily communicate, interact, and collaborate with BAT colleagues and counterparts around the world.

In addition to the Three IT Assets, other terms and frameworks are being consistently taught within their respective programs. For example, the ITEP program has repeatedly examined the differences in controllable outputs and uncontrollable outcomes, the Balanced Scorecard, and the concepts of Information Economics with regard to IT performance assessment. Activity-based costing has become a mainstay because it is an effective means of managing the myriad of repetitive activities in technology-enabled business initiatives. Several project management tools and techniques are examined in detail so that the participants
are aware of today’s state-of-the-art methods in software development project management. The Appendix lists the curriculum topics for each program and highlights the topics common to ITAP and ITEP. It turns out that all the common topics focus on improving the Relationship Asset through developing a mutual understanding of shared risk and responsibility in IT-enabled business initiatives. While this approach to IT education is commonly found in the modern MBA curriculum, its linkages to academic research provided new insights for many program participants.

Table 3: Enduring Curriculum Modules

<table>
<thead>
<tr>
<th>Title</th>
<th>Main Points / Pedagogy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managing the Three IT Assets</td>
<td>Long-term competitiveness cannot be achieved using an IT project mentality. Participants engage in a survey to discuss the strengths of their technology, human, and relationship assets. This session draws extensively on the Three IT Assets(^5) research.</td>
</tr>
<tr>
<td>Making the Business Case for IT Investments</td>
<td>Writing a solid business case for IT-enabled initiatives is an essential communication exercise. All arguments are rooted in facts, faith, or fear. Participants compare the strengths and weaknesses of two real IT-enabled business case documents that are seeking capital investment.(^6)</td>
</tr>
<tr>
<td>Net-enabled Business Innovation Cycle and the Management Agenda</td>
<td>An endless parade of emerging technologies is on the horizon. Companies need to develop four distinct capabilities to selectively turn these into customer value. This module includes application exercises and a technology tutorial for non-IT managers.(^7)</td>
</tr>
<tr>
<td>Activity-Based Costing</td>
<td>Participants compare conventional resource allocation costing and budgeting methods with an activity-based approach. This exercise demonstrates the ineffectiveness of budgeting for bulk resource allocation when managing at the activity level.</td>
</tr>
<tr>
<td>Issues in Lifecycle Management</td>
<td>The problems associated with large-scale, innovative technologies are not new and continue to plague current projects despite the development of sophisticated project management techniques and tools. A case study of a large-scale war ship built for the King of Sweden is used to demonstrate the problems associated with innovative technology development.</td>
</tr>
</tbody>
</table>

Impact 4: Innovation Involving IT Has Accelerated

The Global e-Forum in 1999 led to the formation of two new corporate units to accelerate innovation. The first group, named Imagine, now operates as a research and development area for e-business initiatives, and serves as a coordinating and knowledge transfer mechanism among the many end markets. The second group, Evolution, focuses on implementation and migration plans for global shared services and initiatives. By mid 2001, however, the need for this stand-alone implementation group was diminishing because the end markets accelerated their own pull initiatives for IT-enabled projects.

Other innovations have occurred as well. BAT formed an on-line market space for direct materials procure-
ment, and it entered into a joint venture (Ciberion) with CAP Gemini Ernst & Young for Trade Marketing and Distribution using Siebel systems. There are now major efforts to drive business convergence and use IT to leverage global economies of scale. One recent success was development of a Global Spares-Finder application for quickly locating rare parts for broken factory equipment. It has proven to be a great success by providing an on-line directory and marketplace to rapidly acquire parts from anywhere within the global BAT organization.

**Impact 5: ITAP and ITEP Have Become Effective Global Knowledge-Transfer Mechanisms**

The effectiveness of ITAP and ITEP as knowledge-sharing mechanisms can be seen from three results. First is depth; there are now multiple programs. Second is breadth; ITAP/ITEP’s academic faculty members do more than teach the programs, they are now called on for other functions. And third is amplification; the programs have intrinsically become effective knowledge transfer mechanisms for BAT.

Unlike one-shot or open enrollment management programs where topics are generic to many firms, BAT’s programs are set in a deep history and future for BAT. As a result, they are proliferating, creating the depth.

The academics who teach the program have been embraced by BAT employees as partners rather than suppliers or contractors. This brings breadth. For example, the faculty know the names of key individuals, the history and names of various IT projects, company war stories, issues in various countries via local experiences in the ITAP-Regional, and the wide variety of end-market organizational cultures. This BAT-specific knowledge enhances their credibility among line executive participants and allows the faculty to point to relevant insights from other parts of the company. A recent development is the use of the faculty to produce BAT teaching cases that amplify specific lessons and challenges confronted in BAT (described below).

The courses themselves facilitate knowledge sharing – via, for example, telling stories in class, during small groups, and at evening activities. The off-site venues for the programs provide an effective atmosphere for participants from all over the world to learn, network, and share insights.

In addition, LearningSpace is explicitly used in some exercises to capture best practices on topics such as supplier management, marketing the value of IT, and effectively leading an IT project. The textual versions of these accounts are then available for retrieval via the corporate intranet.

**The Costs Have Not Been Minimal**

Achieving these impacts, and the larger transition for BAT, has required considerable investment in organizational time, energy, and money in human resource development. As noted by Rockart, educating the ‘line to lead’ in a large multi-national organization requires sustained effort over a long period of time. The considerable resources invested at BAT were diverted from other uses.

Direct costs – including facilities, faculty, curriculum development, and delivery – often exceeded $20,000 per program day. Indirect costs include travel costs and “away-time costs” for high-level personnel in end markets and corporate headquarters. Often they are away from their day-to-day responsibilities for more than a week, when including travel time. Participants’ end markets directly fund their share of the program through a chargeback mechanism of $3,000 to $5,000, depending on the program, in addition to paying their own travel expenses. Given that delegates travel from six continents, such costs represent a nontrivial educational investment by the end markets.

There have also been considerable investments in political risk by the IT leadership at the global and country levels, to convince their top teams to invest the time and money in IT education. For example, there are enormous opportunity costs in assembling a country’s top twenty executives and managers for multi-day IT education programs. For BAT, the compelling motivation became “the cost of not having IT understanding among business leaders in an increasingly wired world.”

**Do External Factors Account for BAT’s IT Rethinking?**

At BAT, there has been a strategic rethinking of IT. It can be observed from the organizational, behavioral, and operational changes that have taken place. Line executives now discuss, question, and fund IT initiatives in an entirely different way from 1996. Could situational or external factors account for this transi-
tion, or is it mainly based on BAT’s IT education program?

The late 1990s saw at least two important external IT trends that influenced actions at many firms. First, many confronted enormous, unplanned IT expenses related to achieving millennium (Year 2000) readiness. Second, the dot-com e-business phenomenon caught the attention of many business leaders as they saw start-up companies quickly embrace the Internet and gain the favor of Wall Street.

Many CIOs underwent increased business scrutiny of their IT budget during this period; the business wanted to know how IT created business value. Yet most of the increased funding went to remediate legacy systems for millennium compliance, not to innovation or new development. At the same time, the executive fervor to invest in e-business initiatives had to be channeled properly, to enhance a firm’s IT-enabled abilities to serve customers. These situational factors of the late 1990s provided new IT funds, executive attention, and interest in the use of digital networks for business purposes. CIOs could manage these factors as challenges or as opportunities.

The opportunity for IT leaders was to direct this momentum towards structural improvement in all Three IT Assets. Those IT leaders who took this approach, like BAT, began the millennium with considerably stronger IT assets (Table 1). Those who only delivered millennium compliance and participated in e-business efforts found themselves still mired in the same organizational IT challenges of the 1990s, which inhibits their ability to make real contributions to long-term competitiveness.

Might BAT have achieved these results without IT education initiatives for line executives? Possibly so, but there’s no way to rerun the scenario under different conditions to find out. What can be asserted, however, is that BAT believes that its IT education initiatives have been essential in strategically repositioning IT on a global scale in a short period of time – less than five years. The timing of the IT education initiatives channeled organizational interest toward structural change. The five impacts are widely visible at BAT and now provide greater confidence for accelerating IT capabilities further.

Four Principles Emerge from BAT’s Experiences

Are there any enduring lessons from BAT’s experiences that provide guidance for other CIOs? Can the path taken by this 100-year-old tobacco company be generalized to other industries? Following are four experience-based principles that may be useful to others, especially CIOs in large, multi-national organizations who want to accelerate innovative uses of IT.

**Principle 1: For the line to lead in linking IT capabilities to business opportunities, line managers must develop a sophisticated understanding of IT, its economic/strategic impacts, and effective management of the Three IT Assets.**

It is the CIO’s job to bring education to his/her business leader peers. Programs or seminars are not the objective. Rather, the goal is to develop business colleagues’ understanding of, use of, and innovation with IT – using whatever means prove effective. Educational programs are simply tools to convey ideas that change executives’ mental models of their business, industries, and roles for IT. While some generic IT topics transcend industries and geography, effective communication of these ideas may require expressing them in the unique vocabulary and conditions of one’s industry or region of the world. For example, using the vocabulary of a dot-com services-oriented firm may not effectively communicate potential strategic uses of IT in mature product industries.

As noted below, convincing senior IT leaders to spend the time and resources on peer-level education can be a difficult sell, especially if they are still building their own credibility with their top executive team. Nevertheless, it is the fiduciary responsibility of IT leaders to lead, and educating their business colleagues is an essential part of that leadership.

**Principle 2: Educating the ‘line to lead’ may require two phases.**

The state of a firm’s Three IT Assets may direct the sequence of line IT education. If there are serious deficiencies in Technology and Human Assets, IT probably does not have sufficient political capital or a strong enough Relationship Asset to carry through bold initiatives. Even if bold line executive-led IT-enabled projects are proposed, the IT group would likely struggle to turn these into timely business value.
In these situations, the first IT education initiative for line executives should target reducing resistance to IT initiatives and investments. As Ross et al recommend, when all three assets are weak, invest first in the Relationship Asset. Reducing resistance allows the IT group to strengthen its Technology and Human Assets to be ready for action when an improved Relationship Asset leads to IT-enabled business initiatives. Major topics for reducing resistance include demystifying IT investments by writing solid business cases, using examples of IT-enabled business benefits from similar industries, and discussing how to work effectively with IT staff.

Once some business wins and credibility have been built – or if a firm begins with strong IT assets – then use executive line education to push them to drive IT innovation themselves. Topics for this education focus on how firms identify emerging or widely available IT, and how to build enduring organizational capabilities to systematically turn IT into customer value. At this point, IT has been demystified and understood as a line-executive responsibility, alongside operational control and strategic planning. Thus, education can be updated through periodic briefings on emerging technology trends and how to link them to business objectives.

**Principle 3: A new breed of Business Technologists is filling the role advocated by Rockart.**

We agree with Rockart’s (1988) assertion that exploiting IT is an essential capability of modern organizations. But we contend that leaders that exploit IT can emerge from either a traditional business background or an IT background. We believe the title Business Technologist – capital B and capital T – conveys the skills required of this new breed of business executive. The capital B means these executives understand the nuances of their business, industry, operations, and drivers of profitability. They have likely had line responsibility that has conditioned these skills. Similarly, the capital T means they are comfortable in very technical conversations. They can debate the merits of emerging technologies or IT implementation proposals from consulting firms. They can manage technical employees and they personally stay aware of IT trends.

One rarely hears business discussions that distinguish between “marketing” and “the business,” or “finance” and “the business” because both are understood to be integral to modern business. Similarly, we believe the next evolution is the line leading IT innovations, and it will come from Business Technologists who dispense with the belief that the IT organization is a support function.

**Principle 4: Financial investments alone cannot strengthen a weak Relationship Asset.**

Weaknesses in a firm’s Technology Asset may respond to large monetary investments if a strong Human Asset knows where to direct those funds. Likewise, a high-performing Human Asset can be built by purposeful hiring and investing in human resources development. However, building a strong and effective Relationship Asset is the greatest challenge to many IT leaders, especially where IT has had a troubled history of working with the business. Building this asset requires substantial and sustained educational efforts with both line executives and IT staff to build common frameworks, vocabulary, and approaches to IT planning, delivery, and operations. The shared risk and responsibility that characterize a strong Relationship Asset cannot be built in the absence of effective communication and mutual understanding among IT staff and line executives.

In a world of intervention approaches and educational options, there are many paths for developing this mutual understanding. The path chosen by BAT has been to invest in a sustained, multi-dimensional partnership with an academic institution.

**Success Has Come from Truly Partnering with a University**

The benefits of partnerships are well established in both the academic literature and common business practice (e.g., supply chain, product development, distribution, etc.). Effective partnerships involve shared responsibility, risks, and rewards. They work best in a multi-round fashion, evolving with the dynamic needs of both partners; such evolution sustains the relationship. BAT chose to employ partnership tenets with an academic institution as it evolved its IT education initiatives. BAT used academic faculty – rather than commercial education services – because they are able to bring independent credibility and contemporary research to the educational process.

The relationship was initiated as a typical fee-for-service vendor contract; but it quickly evolved into much more – a major contributing factor to its long-run success. Early successes expanded the relationship to be multi-faceted. Synergistic activities rein-
forced the interactions among classroom teaching, scholarly research, and BAT’s educational activities (see Table 4). For example, outputs from these activities align with the reward structures and long-term interests of both the university and BAT. Thus, like other successful business partnerships, this partnership was designed for sustainability. Shared experiences and deep tacit partner knowledge created value in “non-contractables” that are usually inaccessible in transient vendor or fee-for-service arrangements.

A second factor that has contributed to the long-run success of the programs is the stability of BAT’s Global IT leadership. The average tenure for CIOs is less than 30 months; BAT’s is longer, which has provided consistency and allowed the partnership to build and improve rather than backtrack and start over from scratch.

A third success factor is the co-evolution of the curriculum and the roles of the BAT and university faculty. BAT has learned how to express its educational objectives, and the faculty have learned how to respond and even anticipate changes in curriculum needs.

Next Steps for IT Education: Equipping the Line to Lead Effectively

The IT management programs that have addressed remedial IT issues and development of the Relationship Asset are now ready for structural revision. The line is learning to take the IT lead at the global level and in many end markets, so further IT education must equip them to lead effectively, and in line with the evolving IT thinking at BAT.

The next round of programs is under development and will take the following form: ITEP for IT managers will be split into two programs: the Business Technologist Development Program (BTDP) and the Business Technologist Excellence Program (BTEP). BTDP seeks to quickly develop IT “bench strength” by educating second- and third-level IT managers. Their acumen is key to a high-performing Human Asset. Like ITAP-Regional, BTDP will travel around the world to efficiently educate larger numbers of IT managers near their end markets.

BTEP will operate at the global level and is aimed at ITEP and BTDP alumni in senior IT leadership positions where little or no training and development programs currently exist. ITAP will be incorporated into BTEP, creating a single, joint course for business and

<table>
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<tr>
<th>Activity</th>
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<tr>
<td>Faculty Teaching</td>
<td>Timely and evolving curriculum development has aligned with the evolution of BAT’s IT and businesses.</td>
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<tr>
<td>Case Writing</td>
<td>Faculty and doctoral students have access to BAT employees to write teaching cases about IT developments at BAT. The global nature of the company has provided opportunities for excellent IT cases. The teaching cases are used to transfer knowledge in internal BAT programs, other executive programs, and MBA/undergraduate classes.</td>
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<tr>
<td>Field Research</td>
<td>BAT provides access to university faculty and graduate students to conduct field studies of contemporary IT topics from a global perspective.</td>
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<tr>
<td>BAT Faculty Fellowships</td>
<td>Faculty fellowships provide research support for faculty.</td>
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<tr>
<td>BAT Doctoral Student Fellowships</td>
<td>Student fellowships provide full funding of two doctoral students studying information systems. This funding contributes to alleviating a global shortage of IS faculty.</td>
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IT. The goal is to mix senior functional executives and managers – including ITAP alumni – with IT managers who have completed ITEP. ITAP-Regional will continue to circulate to global end markets and regions because they have requested immersive, on-site IT education for their top teams.

In Conclusion, Education is Key to the Line Taking the Lead in IT

Evolving an IT organization and changing the mindset of line business executives toward IT can be accomplished through sustained, purposeful educational activities. In 1996, Rockart and others continued their promotion of IT education as an essential tool in developing line IT leadership:

“For the past decade, we and others have pointed out that line leadership is an absolute necessity. However, far too few organizations have delivered the appropriate education and training necessary for line managers to assume this responsibility.”

Beginning in 1996, BAT began acting on this charge, with the goal of educating its line executives to lead IT responsibilities. As line executives’ attention to IT has developed, BAT has instituted new organizational reporting structures, responsibilities, and technology-enabled business initiatives.

BAT’s path to these accomplishments included early activities to remediate hygiene issues in the Technology Asset, an education program to increase the business acumen of the IT staff (Human Asset), and targeted work with executive line leadership to increase their understanding of IT as a business responsibility. These early tactics focused on educating interested executives and then letting them amplify early IT wins to broader and more senior parts of BAT. BAT then let success breed success as end-market line managers pulled the IT education programs to their own countries and as the senior executive team immersed itself in IT education.

Investments in IT education require allocations of scarce time and resources. They are a tool for effective IT capabilities and line-led innovation.

“Educating our business colleagues in technology sounds so obvious to us all. But when you’re standing at the beginning of a journey with a poor reputation, it is a tough call to go after. We did go after it, choosing our tactics and our partners. We’ve learnt a lot, we’ve hurt, we’ve laughed, but most of all, the ‘them’ in IT has become the ‘we’ as our IT leaders credibly integrated alongside their business colleagues [forgetting labels – we’re just all business colleagues].” -- Peter Brickley, Chief Information Officer

Getting beyond a vocabulary of “IT” and “the business” has been an enormous and necessary step at BAT, but it is a necessary journey for many incumbent “old economy” companies to find their way forward in today’s wired world. British American Tobacco reveals how a well-targeted IT education effort and a purposeful academic partnership continue to be important tools in educating the line to lead in IT.

About the Authors

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Appendix: Curriculum Overview
While all three existing programs – ITEP for IT managers, and ITAP and ITAP-Regional for line managers – continue to evolve, the figure below outlines the most recent curriculum for each program.

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<thead>
<tr>
<th>ITEP - EXCELLENCE</th>
<th>COMMON TO BOTH PROGRAMS</th>
<th>ITAP - APPRECIATION</th>
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<tbody>
<tr>
<td>Managing the Lifecycle</td>
<td>e-Business Innovation Cycle</td>
<td>Network Era as an Economic Opportunity</td>
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<td>Measuring for Performance</td>
<td>Making the Business Case</td>
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<td>The Great Leap Forward for IS</td>
<td>Developing Long-Term Competitiveness</td>
<td>e-Business Technology Tutorial</td>
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<td>Change Management</td>
<td>Through the Three IT Assets</td>
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<tr>
<td>Strategy Management</td>
<td>Activity-Based Costing and Budgeting</td>
<td>The Competitive IT Agenda</td>
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<td>High-Performing Organizations</td>
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<td></td>
<td>Industrial/Information Economy Management Principles</td>
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<td></td>
<td>Team Case Study Project and Presentation</td>
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