1

Introduction

This study provides higher education institutions in the United States and Canada with an analysis of IT outsourcing as it applies to them. It provides data on current and projected spending patterns, types of IT outsourcing services, experiences, vendor performance, and other matters to help them determine to what extent and in what manner the study applies to their individual conditions.

It provides university planners and IT professionals in U.S. higher education institutions with an outlook for the development of IT outsourcing, including applications services, over the next five years. Moreover, it provides empirical data regarding spending patterns, performance benchmarks, and peer expectations. Such data can serve as benchmarks to compare their own existing or planned outsourcing projects, priorities, and allocations.

Objectives

The objectives of this study are to

- determine the extent to which higher education institutions are using IT outsourcing services;
- estimate actual and forecast IT outsourcing spending in higher education;
- identify the forms of IT outsourcing being used and planned;
- identify and analyze the experience of educational institutions with various forms of IT outsourcing, including applications services;
- develop an understanding of why IT outsourcing is or is not used in higher education and the conditions that make outsourcing attractive or not;
- identify the decision makers responsible for IT outsourcing;
- determine criteria used for vendor selection and evaluation;
- identify types of outsourcing contract vehicles used;
- determine the levels of satisfaction in existing contracts with IT outsourcing and its vendors;
- identify project success factors and sources of failure;
- provide profiles of select IT outsourcing vendors in the higher education market;
- analyze the application service provider (ASP) services being used by educational institutions, their cost, success, and outlook; and
- compare the use of IT outsourcing in higher education with commercial and government IT markets.

The market forecast of IT outsourcing is important for two reasons. First, it provides university planners with projections of how specific market segments are expected to
grow—and why—along with the issues that inhibit that growth. Second, it guides vendors serving the higher education market in positioning their products and services.

**Scope**

This study covers institutions of higher learning in the United States and Canada. The classification scheme of the Carnegie Foundation for the Advancement of Teaching serves in classifying U.S. postsecondary institutions. The 2000 Carnegie classification scheme identifies

- DR (doctoral/research) institutions, both extensive and intensive;
- MA (master’s/comprehensive) institutions;
- BA (baccalaureate) institutions;
- AA (associate’s colleges); and
- specialized and tribal institutions.

Proprietary, postsecondary professional institutions are outside the scope of this report. IT outsourcing in education levels K–12 is also excluded.

**Canada’s Higher Education Sector**

Although the research covered Canada, the small response sample (only 12 Canadian institutions of higher education responded to the survey) makes survey-based conclusions indicative at best. The 12 respondents represent 3 percent of Canada’s higher education institutions.

Pervasive public funding of higher education in Canada and the absence of a developed private university segment, as exists in the United States, make Canadian higher education quite different from that of the United States in structure. However, the challenges of IT and IT outsourcing appear to be very similar. This report assumes that the same trends and issues are shaping IT outsourcing in Canadian higher education as in the United States.

Discussions with vendors active in both U.S. and Canadian markets, the survey data obtained, and the case study on the University of Alberta conducted for this report all support this contention.

**IT Outsourcing Classification**

The project addresses three operational services categories: processing services, business process operations, and IT outsourcing. The latter includes

- infrastructure services (platform operations),
- applications management (software development and maintenance),
- applications services (combined platform and software operations),
- distributed services (desktop services),
- network services (not involving platform operations), and
- e-learning services.

The above categories cover ASP services primarily in applications services and processing services. There is little agreement in the industry on what constitutes ASP services except that customers obtain application software through a network rather than on their own platform.

INPUT has considered ASP services in detail and factored them into the industry structure depending on what customers perceive they are buying: a software product, a network platform to operate the software product, or an integrated platform and software service. Whether or not the software is proprietary or packaged affects vendor but not buyer categorization.

**Definitions**

Both university officials and vendors of IT outsourcing services to the higher education industry talk about “outsourcing” within a wide semantic range. Overall, they tend to label as outsourcing any and all arrangements whereby an institution buys IT-related services from an external vendor.
They also use the term to describe a wide variety of arrangements for “shared services” whereby central IT organizations compete for business from semi-independent units within the same organization or from other educational organizations that are considered external clients. However, they agree that almost all hosted IT relationships are described as “IT outsourcing.”

Outsourcing was called “systems operations” in the 1990s and 1980s and “facilities management” in the 1970s and 1960s. INPUT uses a clear set of definitions developed over the past 25 years of studying the subject and defines outsourcing as a long-term (greater than one year) contract between a customer and a vendor in which the customer contracts all, or a major portion, of an organizational operation or function to the vendor. Outsourcing vendors now provide a variety of services in support of customers’ information systems and electronic business requirements.

Vendors can plan, control, provide, operate, maintain, and manage any or all components of the customer’s information systems environment (equipment, networks, applications, systems) at either the customer’s site or the vendor’s site. Various Internet and Web-related categories of outsourcing service have emerged to include Internet-managed services (included in infrastructure operations).

The equipment involved may be owned by the customer or the vendor. In some markets, such as the U.S. federal government, options are described by the terms COCO (contractor owned, contractor operated), and GOCO (government owned, contractor operated).

For inclusion in INPUT’s outsourcing market forecast, the operation, or function, must be solely information systems outsourcing or include information systems as a major component (at least 30 percent of the costs) of the operation (business operations or business process operations). Note that business process operations are not included in the overall electronic business and IT software and services market.

Several critical components define an outsourcing service:

- An identifiable area of the operation is delegated to a vendor.
- A single vendor is responsible for performing the delegated function.
- An intended long-term relationship exists between the customer and the vendor where the contract term is for at least one year.
- The customer does not intend to perform the function with internal resources.
- The contract may include non–information-systems outsourcing activities, but information systems outsourcing must be an integral part of the contract.

Application Service Providers

INPUT classifies ASPs as value-added resellers of various types that make the software applications provided to them available to their clients on a pay-as-you-go basis through either a fixed-price or a “pay-by-the-sip” agreement. From the customer’s point of view, the key is to be able to pay only for the amount and level of services actually used—and to have the flexibility to scale up or down rapidly as business conditions change.

Arrangements with ASPs usually have the following characteristics:

- Vendor functions as a reseller that delivers software applications (and/or value-added services) to remote end users for a fee.
- Vendor serves as both a one-to-many delivery channel and a distribution mechanism for software.
- End users pay a fixed-price subscription or a variable usage fee based on transaction count or number of users.
- Users have access to the applications, usually under a service-level agreement.
(SLA), without the responsibilities of management or maintenance.

- Either vendor or user may own the software license.
- Vendor supplies minimal customization for integration with customer's legacy IT infrastructure.
- Vendor assumes responsibility for the underlying delivery networking infrastructure and host hardware by providing them directly or through outsourcers.
- Vendor and user may be connected via the Internet or a virtual private network (VPN).
- Vendor manages, supervises, or monitors the operation of these delivery mechanisms, usually under the SLA.
- Vendor is responsible for application maintenance and upgrades, end-user billing, provisioning, and overall systems management.
- “Full-service” vendors may also provide end users with integration services, application customization, training, helpdesk and technical support, and even business process analysis.

Business process outsourcing (BPO) is a relationship in which one vendor is responsible for performing an entire business/operations function, including the IT outsourcing that supports it. The IT outsourcing content of such a contract must be at least 30 percent of the total annual expenditure for INPUT to include it in the business process operations market. (The IT operational services market forecast excludes the BPO segment.)

Information technology outsourcing can be viewed as a component of the business operations outsourcing market—that is, IT systems outsourcing is a business/operations function, as illustrated in Figure 1-1. However, to delineate outsourcing contracts that are solely IT from those that include IT as well as other functions, IT outsourcing will be segregated from business operations outsourcing. As Figure 1-2 shows, IT outsourcing is divided into four service components.

Infrastructure operations outsourcing describes a relationship in which a vendor is responsible for managing and operating a client’s computer system/data center (platform systems operations) or developing and/or maintaining a client’s application as well as performing platform operations for those applications (applications systems operations). Internet-managed services comprises a complementary subsector related to, but distinct from, traditional mainframe-oriented platform operations.

Distributed systems (desktop services) describes a relationship in which a vendor assumes responsibility for the deployment, maintenance, and connectivity of personal computers, workstations, and client/server and local area network (LAN) systems in the client organization. In addition, this market segment includes management services for a wide variety of portable, wireless, and other handheld computing/telecom devices that are increasingly Internet enabled.

For a contract to be considered a distributed systems outsourcing contract, it must include a significant number of the individual services listed below:

- software product supply
- equipment supply
- equipment/software installation
- equipment maintenance

Figure 1-1. Business Operations Outsourcing

Information Systems

Information Systems Outsourcing

Business Activity

Business Operations Outsourcing
Network management outsourcing is a relationship in which a vendor assumes full responsibility for operating and managing a client’s data telecommunications systems. This may also include voice, image, and video telecommunications components.

Beginning with the current forecast report, this segment has been divided into traditional IT network management and Internet network management. While this subsegment is expected to grow rapidly during the forecast period, toward the end of the period the distinction between the two segments will become increasingly less important as “Internet enabled” becomes the new standard.

Application management is a relationship in which the vendor has full responsibility for developing and maintaining all of a software application or software function. Beginning with the current report, this segment has been divided into IT applications and Internet/Web applications, to highlight e-business– and e-commerce–related applications.

Like network management, the Internet/Web segment is expected to grow rapidly. However, toward the end of the forecast period, the distinction between IT applications and Internet/Web applications will become less important as most, if not all, software applications are sold and used in Internet/Web environments.

INPUT believes that during the 2001–2006 forecast period, the traditional, legacy IT applications segment of the applications operations market will grow slowly, at a compound annual growth rate (CAGR) of 11 percent. The Internet applications services stream that represents software delivered via the Internet by software developers such as Oracle, PeopleSoft, and SAP will grow much faster, at 47 percent. However, this growth will moderate toward the end of the period, as many developers abandon their direct distribution channels in favor of partnering with ASPs—which is already happening. Accordingly, the very high growth of the third-party software, or ASP, segment will moderate as the market matures and as vendor consolidation is largely completed.

The processing services market comprises transaction processing, utility processing, and other processing.

- **Transaction processing:** The client uses...
vendor-provided information systems—including hardware, software, and/or data networks—at the vendor’s or customer’s site to process specific applications and update client databases. The vendor typically provides required application software.

- **Utility processing**: The vendor provides basic software tools (language compilers, assemblers, database management systems, graphics packages, mathematical models, scientific library routines, and so on), enabling clients to develop and/or operate their own programs or process data on the vendor’s system.

- **Other processing services**: The vendor provides a service—usually at the vendor’s site—such as scanning and other data entry services, laser printing, computer output microfilm, CD preparation, and other data output services. This category also includes backup, contingency, and disaster recovery services.

The definitions provided focus on the services covered in the outsourcing contract. For example, an application operations contract can include all facets of IT outsourcing (platform operations, desktop services, and network and application management).

The key to INPUT’s market definition is the service contract. If a customer wants to outsource only the network, the contract would be considered network management outsourcing. If an airline, for example, wishes to outsource its reservation operation, which includes not only the network but also its infrastructure, applications, and the people running the operation, the agreement would be considered a business operations outsourcing contract. Table 1-1 shows the service components that may be included in each outsourcing service category.

### Table 1-1. Outsourcing Service Components

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<tbody>
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<td>Project/Contract Management</td>
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<td>Data Center Management</td>
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<td>Client/Server Operations</td>
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<td>Equipment Maintenance</td>
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<td>System Software Maintenance</td>
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<td>Application Software Maintenance</td>
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<td>Application Development</td>
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<td>LAN Management</td>
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<td>Network Management</td>
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<tr>
<td>Transaction Processing Services</td>
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<td>Other Professional Services</td>
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</tr>
<tr>
<td>Business Process Operations</td>
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The largest, most visible contracts awarded over the past year typically have been application operation outsourcing contracts because they included managing the infrastructure (various computing platforms) and supporting legacy applications. In the past, most application and platform operation outsourcing contracts included network management, but recent contracts have also included desktop services.

INPUT has several exclusions from the outsourcing category. For example, project-based services are not considered part of outsourcing. Thus, systems integration and application development projects are excluded. Also excluded are services that were never intended to be performed internally. Maintenance-only services do not constitute an outsourcing function in themselves. However, responsibility for hardware and software maintenance is assumed in most outsourcing contracts. Additional exclusions include processing services contracts of less than one year, voice-only network management, and business operations with minimal information systems content. For example, outsourcing the marketing communication function to an outside agency isn’t covered by INPUT’s analysis. A function or business operation must have at least 30 percent of its budget attributed to information technology to be included.

**Methodology**

After project initiation and substantial development of a questionnaire, EDUCAUSE conducted a Web survey of its members during November and December 2001. INPUT conducted telephone and e-mail interviews to supplement this survey. INPUT also conducted in-person interviews and teleconferences with college and university officials, vendors, and executives of educational organizations, as well as with contacts in commercial and government markets.

Data derived from proprietary INPUT resources and databases that have been developed for these markets over the past 25 years augmented the survey effort.

**EDUCAUSE Membership Survey**

Figure 1-3 compares the distribution of the study’s survey respondents, EDUCAUSE membership, and the universe of higher education institutions according to Carnegie...
classifications. Figure 1-4 compares the survey sample with the Carnegie classification distribution. In these figures and throughout the report, INPUT uses research to refer to doctoral/research universities, MA to refer to master’s colleges and universities, BA to refer to baccalaureate or bachelor’s colleges, and AA to refer to associate’s colleges. Where noted, specialized institutions are referred to simply as specialized, and tribal colleges and universities as tribal.

The survey sample overrepresents larger, MA- and PhD-granting institutions in comparison with community colleges and specialized colleges and universities, reflecting the composition of the overall EDUCAUSE population. (See Table 1-2.)

The survey included institutions that outsource as well as those that do not. Survey respondents whose colleges and universities do not outsource were asked about their reasons for not outsourcing and their perception of the suitability of outsourcing to meet their needs.

INPUT compared the survey data with prior INPUT surveys on outsourcing and vendor satisfaction, as well as with results from recent surveys by media and other professional organizations.

**Secondary Research**

INPUT consulted publications and other data from higher education, the commercial IT industry, and government sectors, as well as its own vendor and industry information.