

Introduction To Accounting Information Systems

By Amy Fontinelle

An accounting information system (AIS) is a structure that a business uses to collect, store, manage, process, retrieve and report its financial data so that it can be used by accountants, consultants, business analysts, managers, chief financial officers (CFOs), auditors and regulatory and tax agencies. In particular, specially trained accountants work with AIS to ensure the highest level of accuracy in a company's financial transactions and recordkeeping and to make financial data easily available to those who legitimately need access to it, all while keeping data intact and secure. This article will describe the primary components of an AIS and some of its real-life applications.

Components of an Accounting Information System

Accounting information systems generally consist of six main parts: people, procedures and instructions, data, software, information technology infrastructure and internal controls. Let's look at each component in detail.

People

The people in an AIS are simply the system users. Professionals who may need to use an organization's AIS include accountants, consultants, business analysts, managers, chief financial officers and auditors.

An AIS helps the different departments within a company work together. For example, management can establish sales goals for which staff can then order the appropriate amount of inventory. The inventory order notifies the accounting department of a new payable. When sales are made, sales people can enter customer orders, accounting can invoice customers, the warehouse can assemble the order, the shipping department can send it off, and the accounting department gets notified of a new receivable. The customer service department can then track customer shipments and the system can create sales reports for management. Managers can also see inventory costs, shipping costs, manufacturing costs and so on.

With a well-designed AIS, everyone within an organization who is authorized to do so can access the same system and get the same information. An AIS also simplifies getting information to people outside of the organization when necessary. For example, consultants might use the information in an AIS to analyze the effectiveness of the company's pricing structure by looking at cost data, sales data and revenue. Also, auditors

can use the data to assess a company's internal controls, financial condition and compliance with the Sarbanes-Oxley Act (SOX).

The AIS should be designed to meet the needs of the people who will be using it. The system should also be easy to use and should improve, not hinder, efficiency.

Procedure and Instructions

The procedure and instructions of an AIS are the methods it uses for collecting, storing, retrieving and processing data. These methods will be both manual and automated, and the data can come from both internal sources (e.g., employees) and external sources (e.g., customers' online orders). Procedures and instructions will be coded into AIS software; they should also be "coded" into employees through documentation and training. Procedures and instructions must be followed consistently to be effective.

To store information, an AIS must have a database structure such as structured query language (SQL), a computer language commonly used for databases. The AIS will also need various input screens for the different types of system users and different types of data entry, as well as different output formats to meet the needs of different users and different types of information.

Data

The data contained in an AIS is all the financial information pertinent to the organization's business practices. Any business data that impacts the company's finances should go into an AIS. The data included in an AIS will depend on the nature of the business, but it may consist of the following:

- sales orders
- customer billing statements
- sales analysis reports
- purchase requisitions
- vendor invoices
- check registers
- general ledger
- inventory data
- payroll information
- timekeeping
- tax information

This data can then be used to prepare accounting statements and reports such as accounts receivable aging, depreciation/amortization schedules, trial balance, profit and loss, and so on. Having all this data in one place - in the AIS - facilitates a business's

recordkeeping, reporting, analysis, auditing and decision-making activities. For the data to be useful, it must be complete, correct and relevant.

On the other hand, examples of data that would not go into an AIS include memos, correspondence, presentations and manuals. These documents might have a tangential relationship to the company's finances, but excluding the standard footnotes, they are not really part of the company's financial recordkeeping.

Software

The software component of an AIS is the computer programs used to store, retrieve, process and analyze the company's financial data. Before there were computers, AISs were manual, paper-based systems, but today, most companies are using computer software as the basis of the AIS. Small businesses might use Intuit's Quickbooks, Sage Peachtree Accounting, or Microsoft's Small Business Accounting but there are many others. Small to mid-sized businesses might use SAP's Business One. Mid-sized and large businesses might use Microsoft's Dynamics GP, Sage Group's MAS 90 or MAS 200, Oracle's Peoplesoft or Epicor Financial Management.

Quality, reliability and security are key components of effective AIS software. Managers rely on the information it outputs to make decisions for the company, and they need high-quality information to make sound decisions.

AIS software programs can be customized to meet the unique needs of different types of businesses. If an existing program does not meet a company's needs, software can also be developed in-house with substantial input from end users or can be developed by a third-party company specifically for the organization. The system could even be outsourced to a specialized company.

For publicly traded companies, no matter what software program and customization options the business chooses, Sarbanes-Oxley regulations will dictate the structure of the AIS to some extent. This is because SOX regulations establish internal controls and auditing procedures that public companies must comply with.

Information Technology Infrastructure

Information technology infrastructure is just a fancy name for the hardware used to operate the accounting information system. Most of these hardware items are things a business would need to have anyway - they include personal computers, servers, printers, surge protectors, routers, storage media, and possibly a backup power supply. In addition to cost, factors to consider in selecting hardware include speed, storage capability and whether it can be expanded and upgraded.

Perhaps most importantly, the hardware selected for an AIS must be compatible with the intended software. Ideally, it would be not just compatible, but optimal, a clunky system will be much less helpful than a speedy one. One way businesses can easily meet hardware and software compatibility requirements is by purchasing a turnkey system that includes both the hardware and the software that the business needs. Purchasing a turnkey system means, theoretically, that the business will get an optimal combination of hardware and software for its AIS.

A good AIS should also include a plan for maintaining, servicing, replacing and upgrading components of the hardware system, as well as a plan for the disposal of broken and outdated hardware so that sensitive data is completely destroyed.

Internal Controls

The internal controls of an AIS are the security measures it contains to protect sensitive data. These can be as simple as passwords or as complex as biometric identification. An AIS must have internal controls to protect against unauthorized computer access and to limit access to authorized users which includes some users inside the company. It must also prevent unauthorized file access by individuals who are allowed to access only select parts of the system.

An AIS contains confidential information belonging not just to the company but also to its employees and customers. This data may include Social Security numbers, salary information, credit card numbers, and so on. All of the data in an AIS should be encrypted, and access to the system should be logged and surveilled. System activity should be traceable as well.

An AIS also needs internal controls that protect it from computer viruses, hackers and other internal and external threats to network security. Furthermore, it must be protected from natural disasters and power surges that can cause data loss.

AISs In Real Life

We've seen how a well-designed AIS allows a business to run smoothly on a day-to-day basis or hinders its operation if the system is poorly designed. A third use for an AIS is that when a business is in trouble, the data in its AIS can be used to uncover the story of what went wrong. The cases of WorldCom and Lehman Brothers provide two examples.

In 2002, WorldCom internal auditors Eugene Morse and Cynthia Cooper used the company's AIS to uncover \$4 billion in fraudulent expense allocations and other accounting entries. Their investigation led to the termination of CFO Scott Sullivan as well as new legislation. (section 404 of the Sarbanes-Oxley Act, which regulates companies' internal financial controls and procedures.

When investigating the causes of Lehman's collapse, a review of its AIS and other data systems was a key component, along with document collection and review and witness interviews. The search for the causes of the company's failure "required an extensive investigation and review of Lehman's operating, trading, valuation, financial, accounting and other data systems," according to the 2,200-page, nine-volume examiner's report.

Lehman's systems provide an example of how an AIS should *not* be structured. Examiner Anton R. Valukas's report states, "At the time of its bankruptcy filing, Lehman maintained a patchwork of over 2,600 software systems and applications ... Many of Lehman's systems were arcane, outdated or non-standard."

The examiner decided to focus his efforts on the 96 systems that appeared most relevant, and the examination required training, study and trial and error just to learn how to use the systems.

Valukas's report also noted, "Lehman's systems were highly interdependent, but their relationships were difficult to decipher and not well documented. It took extraordinary effort to untangle these systems to obtain the necessary information."

Conclusion

The six components of an AIS all work together to help key employees collect, store, manage, process, retrieve, and report their financial data. Having a well-developed and maintained accounting information system that is efficient and accurate is an