

## How effective are the financial processes at higher educational institutions in the Persian Gulf countries? Evidence from a large university at one of the GCC (Gulf Cooperation Council) countries

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### Abstract

The purpose of this case study is to observe the financial process at a higher educational institution located in one of the Gulf Cooperation Council countries, perform a SWOT (strengths, weaknesses, opportunities, and threats) analysis, and identify areas for improvement. Moreover, the paper highlights the impact of the enterprise resource planning system on the institution's accounting information system - particularly the general ledger module and the financial process. The study begins with a detailed description of the financial process and all its functions illustrated through flowcharts. The detailed description is followed by a SWOT analysis and recommendations for improvement where the system seems to be deficient.

**Keywords:** Accounting information system (AIS); Enterprise resource planning (ERP); Financial process; General ledger.

### I. Introduction

The main objective of conventional accounting information systems (AISs) is to offer managers useful information and effective reporting tools for decision-making purposes. However, this has become inadequate in the rapidly growing business environment, where automation and real-time information are the most important factors for business success (Spathis, 2006). According to Nah et al. (2001) and Themistocleous et al. (2001), the most important benefit that can be derived from automating business processes is to produce real-time data, as well as sharing these data across the organization. However, modern AISs can provide a variety of instant financial and nonfinancial information that assists management in dealing with short-term problems and integrating relative operational concerns within long-term strategic plans (Mitchell et al., 2000). Enterprise resource planning (ERP) systems have become the essential driver of the evolution of AISs and the most important criterion of modern accounting management.

According to some ERP system providers, there are more than 12 financial modules that can be implemented, including traditional ones such as general ledger, accounts receivable, accounts payable, fixed assets, cash management, and budgeting (Nicolaou, 1999), and other modules beyond the traditional AIS, such as stock control, manufacturing resource planning (MRP), and logistics (Francalanci, 2001). ERP systems also give organizations the opportunity to re-engineer their processes and renovate their AIS and accounting practices (Spathis and Ananiadis, 2005).

The empirical data found by Spathis and Ananiadis (2005) confirmed a number of benefits that had stemmed from the deployment of an ERP system at a large public university in Greece, particularly on the AIS and management. The new ERP system significantly increased the flexibility of accessing the data and information and also improved the decision-making process by providing accurate and reliable accounting information on time. In this study we observed the financial process at a large university (referred to as "the university" henceforth) in one of the Gulf Cooperation Council (GCC) countries. The purpose was to observe the best practices as well as identify the weaknesses and recommend viable solutions to fix those weaknesses.

In Section II we detail the financial process at the university. We present the SWOT analysis in Section III. Finally, we present our recommendations in Section IV and conclusions including potential issues for further research in Section V.

## II. Detailed description of the financial process

In this section we detail the financial process of the university starting with a brief history of the system used. A few years ago the university decided to move from a paper-based AIS to a computerized one, and a new ERP system (Oracle R11) was implemented. However, the university was struggling with an ineffective chart of accounts. Also, due to substantial customizations made to the system, it could not generate appropriate and convenient reports that met the requirements of management and some external bodies such as the Ministry of Finance, accreditors, and auditors, who were unable to financially capture the proper image of the university.

The Finance Department at the university proposed a new chart of accounts that took into consideration many aspects of the university's main functions. In 2012, the university adopted a newer version of Oracle (Oracle R12) along with the proposed chart of accounts, and it started to function successfully.

The Finance Department consists of six divisions: General Ledger (GL); Accounts Payable (AP); Accounts Receivable (AR); Payroll (PR); Projects, Grants and Contracting (PGCA); and Budgeting. The divisions are shown in Figure 1.

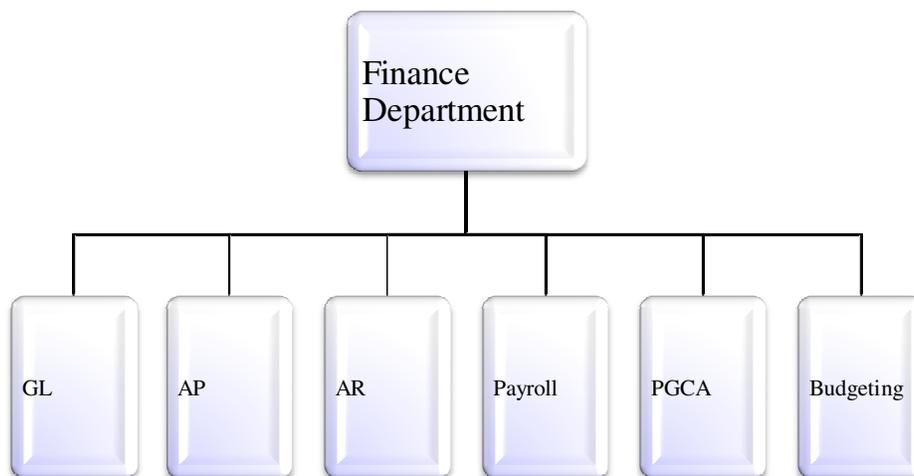


Figure 1. The Finance Department's divisions

Six modules (or subsystems) have been implemented to facilitate six accounting processes which are relatively held by six divisions in the Finance Department. Table 1 explains the corresponding module for each process.

The financial process module is integrated with other processes modules, sharing data and files and receiving data from revenue process, purchasing process, payroll process and inventory process. The PGCA process module shares data and files indirectly with financial process via other processes. Figure 2 shows the interrelationships between the GL module and other modules.

| Process                | Division           | Module (or Subsystem)                   |
|------------------------|--------------------|---|
| The financial process  | GL division        | GL module                               |
| The revenue process    | AR division        | AR module                               |
| The purchasing process | AP division        | AP module                               |
| The payroll process    | Payroll division   | Payroll module                          |
| The PGCA process       | PGCA division      | PGCA module                             |
| The budgeting process  | Budgeting division | Budgeting module<br>(not activated yet) |

Table 1. Processes and their corresponding modules in the Finance Department.

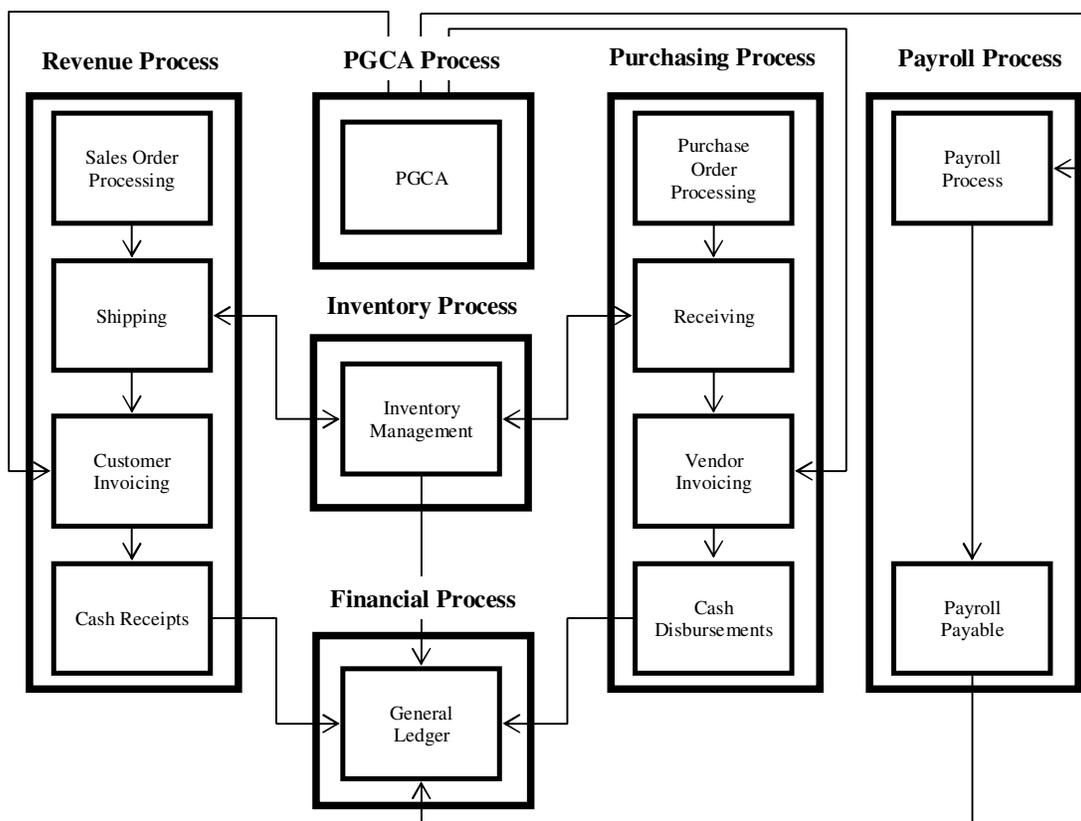


Figure 2. The interrelationships between the processes modules

The General Ledger (GL) division handles internal and external reporting, supports financial planning and analysis, and controls the university’s financial resources. It maintains the central record of all financial transactions at the university. It controls and analyzes these transactions, makes adjusting entries, closes accounts, provides up-to-date results of the financial performance of the university, and generates accurate and useful financial reports that enable the management to make critical decisions. Figure 3 briefly illustrates the financial process conducted by the GL division.



Figure 3. An overview of the financial process conducted by the GL division

Functions included in the financial process are as follows:

1. Chart of accounts setup
2. Chart of accounts maintenance
3. Cash management (bank account reconciliation)
4. Accounting for fixed assets
5. Accounting for investments
6. End-of-period processing
7. Other data entry
8. Reporting

### II.1. Chart of accounts setup—Definition and structure

The new chart of accounts is a 39-character coding string that consists of nine individual segments called accounting flex-fields, as illustrated in Figure 4. Each account should contain a brief description that identifies its purpose and what is to be recorded in the account.

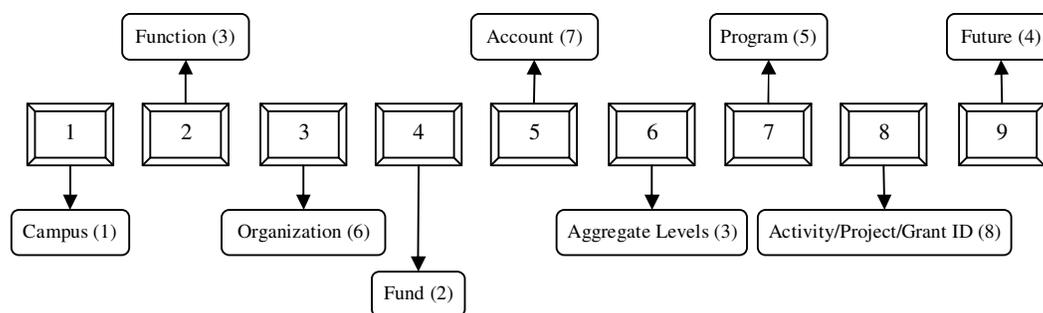


Figure 4. The chart of accounts flex-fields. The numbers in parentheses indicate the number of digits/letters

### II.2. Chart of accounts maintenance

The Vice President (VP) of Administration approves the addition of a new account. However, review of the chart of accounts is performed annually. Non-periodic change requests to the chart of accounts are performed as needed.

The General Ledger Unit Head, under the supervision of the University Controller, is responsible for the chart of accounts maintenance activities. These activities include addition, deactivation, and update of other setups.

### II.3. Cash management (bank account reconciliation)

Reconciling bank statements with university books is necessary to ensure the reliability, accuracy, and comparability of ledger balances. The university has seven funds (bank accounts) with the bank, and each account is used for a different purpose as detailed in Table 2.

The cash management module, as shown in Figure 5, interacts with the AR module, Banner system, payroll module, and AP module. Information is received and sent based on predefined criteria. At a later stage, all processed information is forwarded from the cash management module to the GL module for further settlement.

| Fund # | Description        | Purpose  |
|--------|--------------------|--|
| 11     | MoF                | Fund received from Ministry of Finance to finance main activities.   |
| 12     | Payroll            | Fund received from Ministry of Finance to finance payroll.   |
| 21     | Employee Loan      | Fund received from Ministry of Finance to finance employee loans.  |
| 22     | Private            | Fund received from customers (students, companies). This fund is also used to finance some activities conducted by the university. |
| 23     | Research Grants    | Fund mainly received from the National Research Fund (NRF) to finance research projects.   |
| 24     | Research Contracts | Fund received from third parties other than NRF to finance research contracts.   |
| 25     | Investment         | Fund surplus transferred from Research Contracts and Private funds, used to finance investment activities.                         |

Table 2. University funds

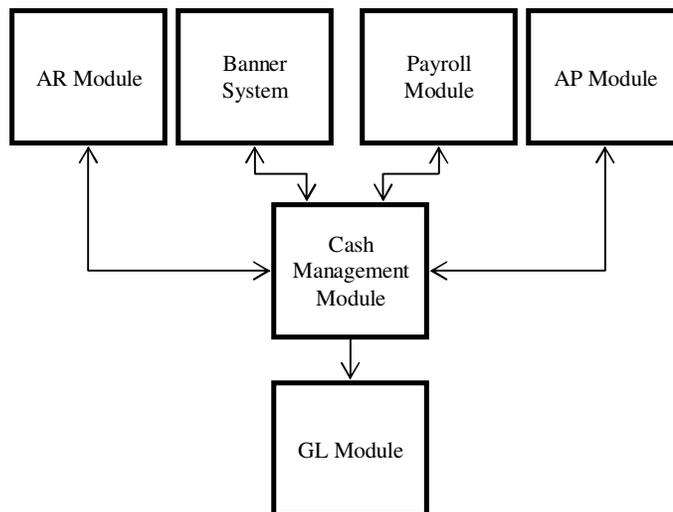


Figure 5. Cash management block diagram

The cash management module is available but not utilized by the university. Accordingly, bank reconciliations are performed manually using Microsoft Excel on a monthly basis separately for each account.

The following steps are followed in reconciling the bank accounts:

1. Bank statements received from the bank.
2. Account analysis report printed for the bank clearing account from the AP module.
3. Account analysis report printed for the bank clearing account from the payroll module.
4. Account analysis report printed for the bank remitted account from the AR module.
5. Receivable breakdown report printed for the bank remitted account from the Banner system.

The GL accountants prepare the reconciliation table and categorize all discrepancies into four channels as summarized in Table 3.

|   |            |
|---|------------|
| <b>Bank Statement Ending Balance as of (end of the month)</b> | <b>XXX</b> |
| <b><u>Outstanding Checks:</u></b>                             |            |
| ( - ) Recorded in books but not withdrawn from bank           | xxx        |
| ( + ) Withdrawn from bank but not recorded in books           | xxx        |
| <b><u>Deposits in Transit:</u></b>                            |            |
| ( + ) Deposits recorded in books but not deposited in bank    | xxx        |
| ( - ) Deposits transferred to bank but not recorded in books  | xxx        |
| <b>Books Ending Balance as of (end of the month)</b>          | <b>XXX</b> |

Table 3. Summarized reconciliation table

All un-reconciled items are treated swiftly by the GL division in coordination with external and/or internal parties. All unusual debit and/or credit transactions are investigated with the bank and adjusted appropriately.

The GL accountants make the bank reconciliation entries based on the reconciliation report. The bank clearing (AP and payroll) accounts and the bank remitted (AR) accounts that were originally charged by other modules during the month are closed in the related fund (bank) account.

All pertinent documentation, including bank statements received, bank reconciliation reports, and all correspondence, are filed in the Finance Department files. Figure 6 illustrates the detailed flowchart of the overall manual bank reconciliation process.

#### II.4. Accounting for fixed assets (FA)

The university’s fixed assets are classified into three categories: (1) tangible fixed assets, (2) intangible assets, and (3) work in progress (WIP). The following two modules are involved in the fixed asset accounting process:

- 1 Fixed assets module: The fixed assets module maintains the fixed asset register, which involves acquisition, disposition, depreciation and accumulation of fixed assets.
- 2 Lockwood system: The Lockwood system performs asset tracking and management. It uses data-capturing technology such as bar-coding and radio frequency identification (RFID).

In March 2012, the university successfully implemented the Lockwood system and integrated it with Oracle R12 system. The GL division was able to capture all fixed assets, which were then transferred to the fixed asset module. However, due to some technical problems, the Lockwood system does not generate the required report that helps the GL division complete the fixed assets accounting process in the fixed assets module. Therefore, the GL division still maintains the fixed asset register and depreciation calculations manually using Microsoft Excel on a monthly basis.

The fixed assets, with the exception of land, are defined as those assets with a useful life greater than two years and with a cost greater than USD 5,500. All assets, with the exception of land, are depreciated over their useful lives following the straight line method of depreciation and rates that are predefined by the Income Tax Authority.

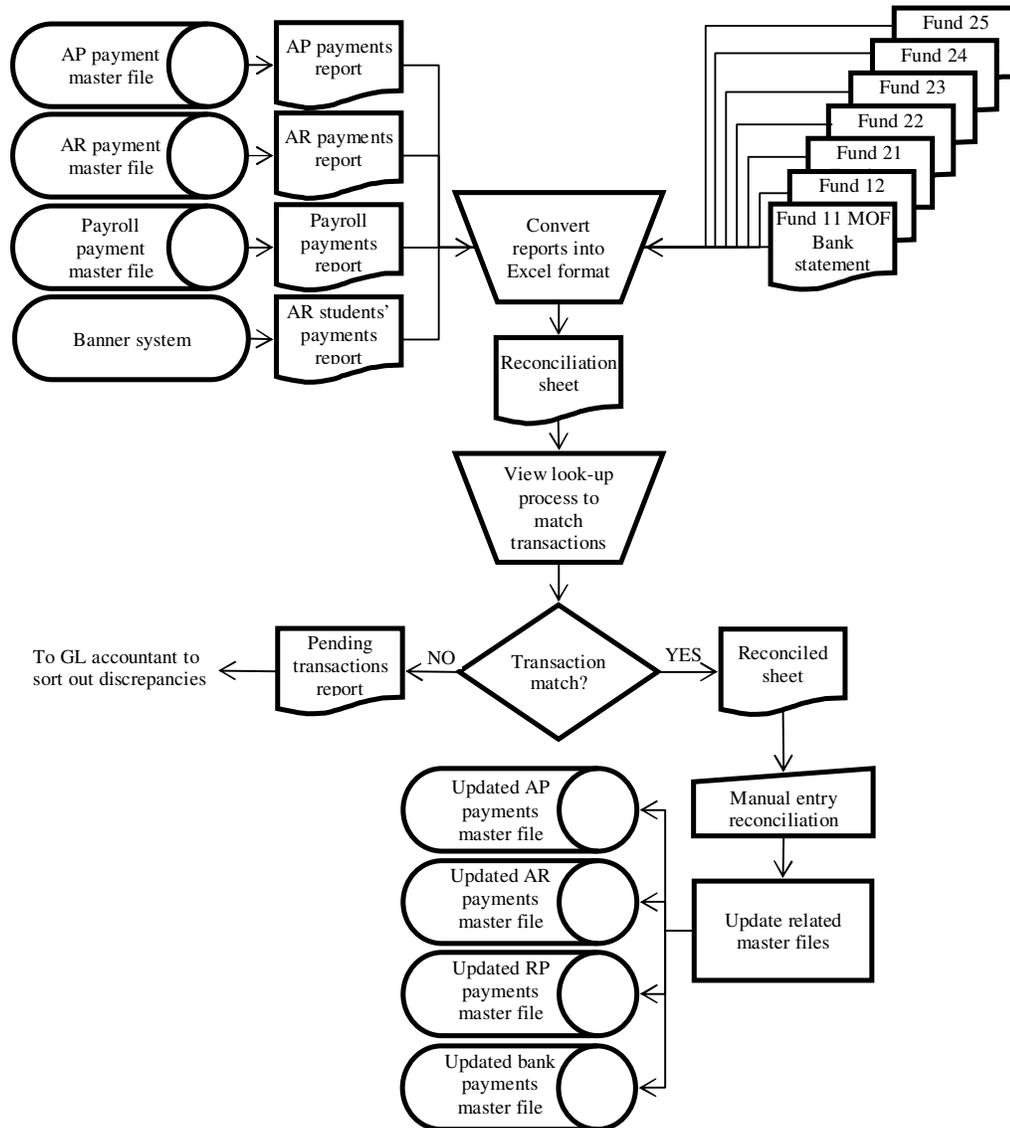


Figure 6. Cash management (bank reconciliation) manual process flowchart

After exporting the fixed asset transactions report from Oracle R12 system, the following process is performed:

1. All items included must be identified as belonging to one of three categories.
  - a. Items costing less than USD 5,500 are expensed.
  - b. Items received and accepted are added to the fixed asset register and depreciated or amortized over time.
  - c. Items received but not accepted are trailed until the date of acceptance.
2. Depreciation or amortization of items received and accepted begins in the same month if the acceptance takes place on or prior to the 15<sup>th</sup> of the month, while items accepted after the 15<sup>th</sup> do not begin their depreciation or amortization until the following month.
3. Accumulated depreciation/amortization and the net book value (NBV) are calculated, and the depreciation/amortization entries are recorded. If the NBV of an asset is less than the depreciation/amortization amount for the current month, the balance of the NBV is depreciated/amortized.
4. After depreciation/amortization entries are recorded and posted, the fixed asset

register is matched with the trial balance by the GL accountants. The manual accounting process for bank reconciliation is shown in the flowchart in Figure 7.

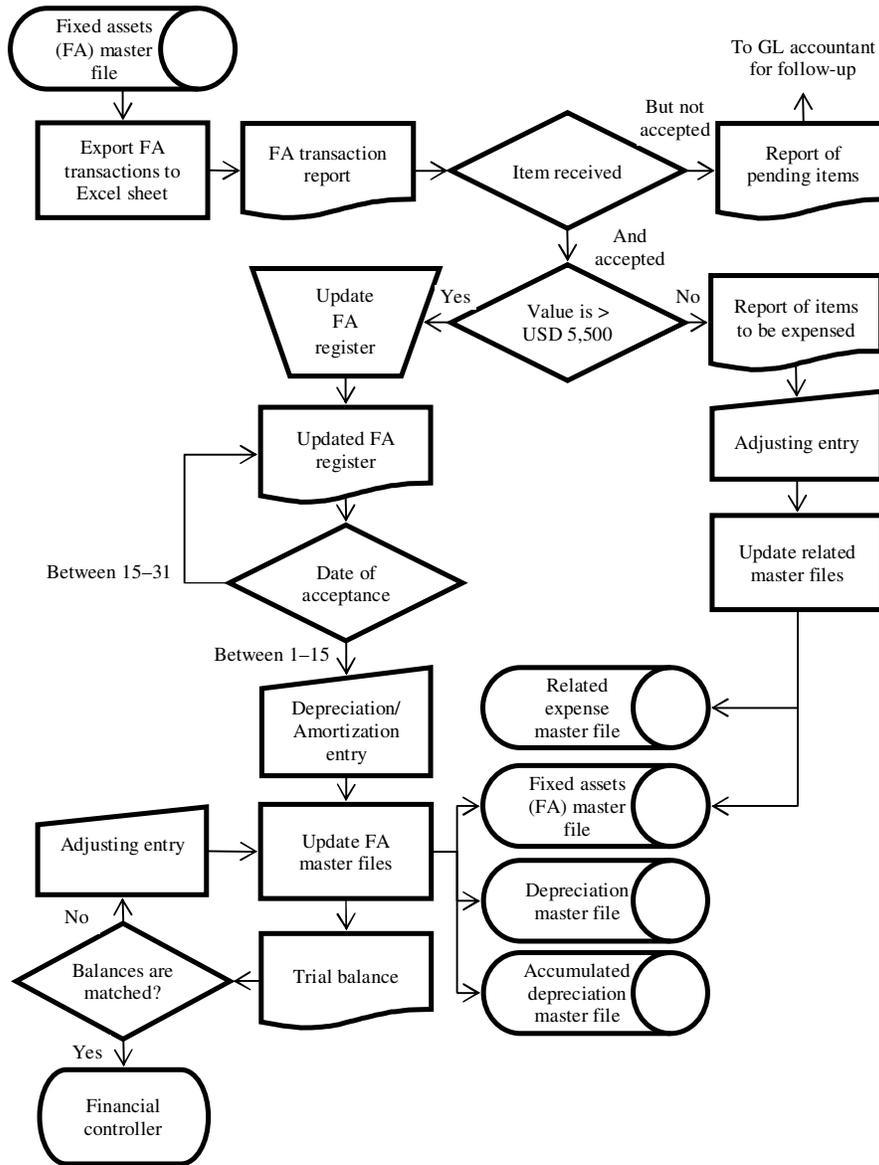


Figure 7. Fixed asset manual process flowchart

### II.5. Accounting for investments

The university’s investments include stocks, bonds, deposits, and other types of investments. The GL accountants estimate the surplus fund in both private and research bank accounts, prepare the yearly report, and submit it to the Executive Management Committee, which in turn evaluates the report and makes the appropriate investment decisions. The investments are classified into three categories as follows.

- (1) Trading investment includes stocks that are bought and sold for short-term profit. The broker performs selling and buying transactions, and GL accountants record these transactions in one monthly entry as shown in Figure 8.
- (2) Available-for-sale investment includes portfolios of investments in companies that are not listed on the stock exchange.
- (3) Held-to-maturity investment includes bank deposits that are held for a period of time for possible gain.

The accounting treatment for the available-for-sale investment and the held-to-maturity investment is similar to the one noted in Figure 8.

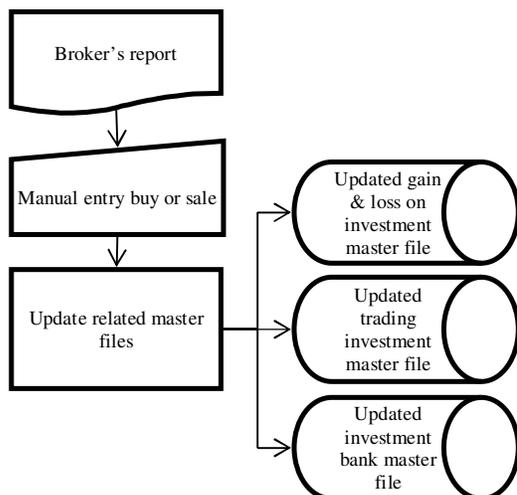


Figure 8. Trading investment process flowchart

## II.6. End-of-period processing

Closing of books is performed on a monthly basis for internal and external reporting purposes. GL accountants are responsible for monitoring and controlling the following aspects of the closing cycle:

- a) Posting of unauthorized or invalid entries to the general ledger;
- b) Omission of authorized and valid entries to the general ledger.

GL provides the management, the Vice President (VP) of Administration, the Chief Financial Officer (CFO), and the Board of Directors with meaningful, relevant, accurate, and sufficient information to support financial and management reporting.

### II.6.1. Inventories

GL accountants annually form a team or engage an external party to verify all inventories (central inventory and bookstore) and perform the physical count.

All inventories are counted, and sampling is not allowed. If write-offs are required due to count discrepancies, they must be approved by the Internal Auditors, the Finance Director, the VP of Administration, and the CFO. GL accountants then generate the physical count report and record the required write-off entry (if any) as shown in Figure 9.

### II.6.2. Asset revaluation

If the Finance Department recommends asset revaluation, management may approve and involve qualified external evaluators. Revaluation is performed based on the fair value method at the end of the reporting period.

As illustrated in Figure 10, any increase in the carrying cost of a fixed asset arising out of the revaluation is recognized in a revaluation reserve (equity account) to the extent of the increase in the carrying cost of the asset. If the revaluation results in a decrease in the carrying cost of the fixed asset, the loss is offset in the previously recognized gain of the same revalued asset. If the loss is greater than that gain, the remaining amount is recognized immediately in the income statement.

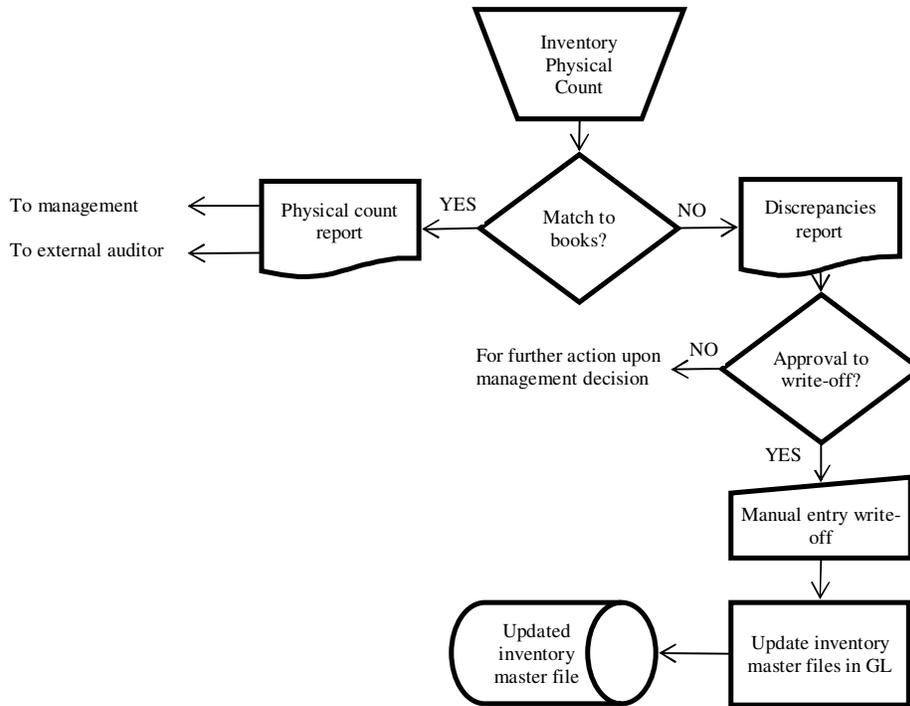


Figure 9. Inventory physical count process flowchart

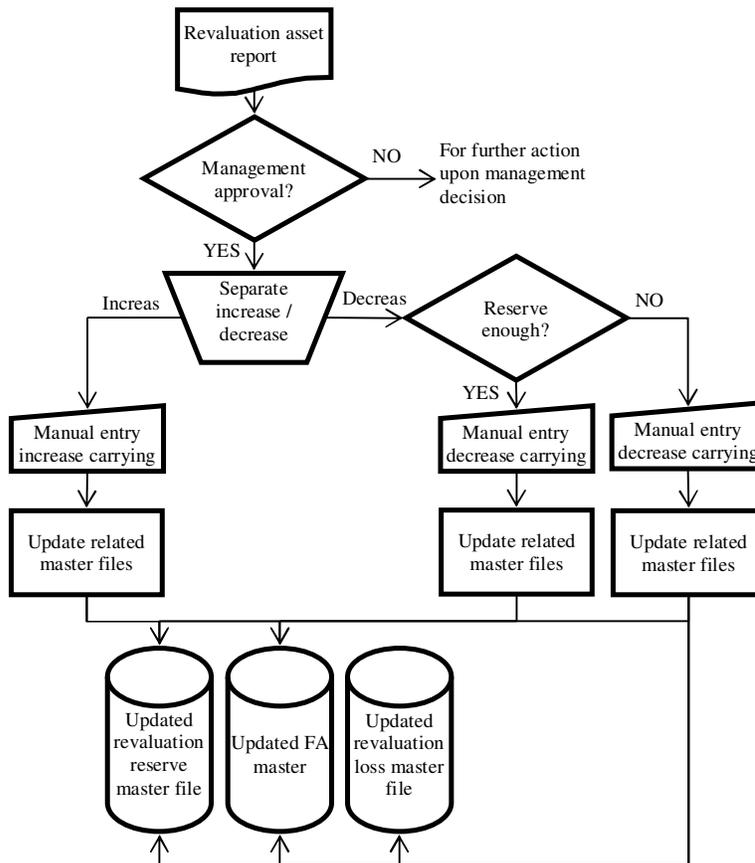


Figure 10. Assets revaluation process flowchart

II.6.3. Investment revaluation

Trading investments are revalued at the end of the financial year based on the closing price on the stock exchange. The difference is treated as fair market value reserve (equity account). If the market value is less than the book value and the difference is less than 20%, the loss is retrieved from the previously recognized fair market value reserve account. If the market value is less than the book value and the difference is greater than 20%, the loss is retrieved from the previously recognized fair market value reserve account up to the 20%, and the remaining amount (above 20%) is treated in the income statement as an impairment loss. The flowchart in Figure 11 depicts the revaluation process of trading investments.

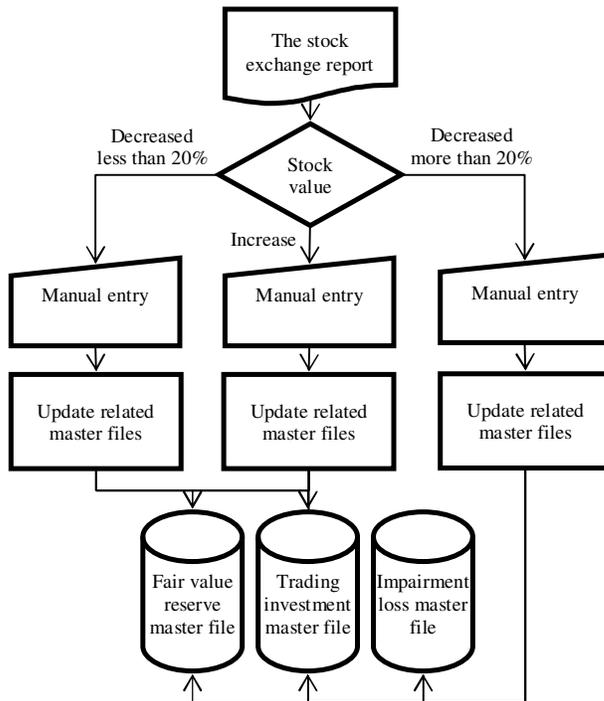


Figure 11. Trading investment revaluation process flowchart

Available-for-sale investments are revalued at the end of the financial year based on the price declared in the financial statement of the company invested in. The revaluation process is described in Figure 12, and the difference is treated as follows. If the price is higher than the book value, no gain is recorded. If the price is less than the book value, then the loss is treated on the income statement as an impairment loss.

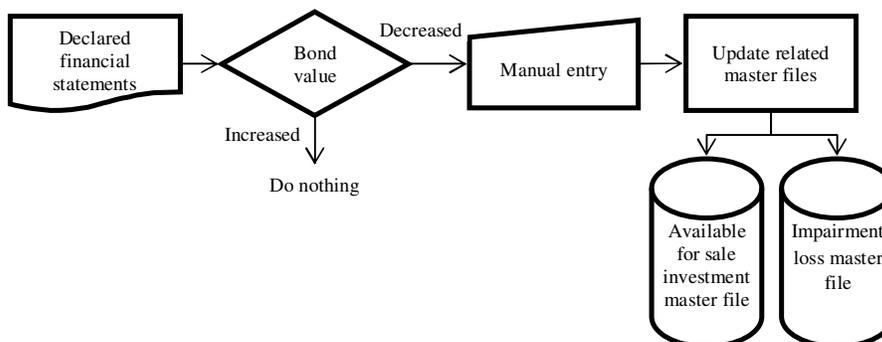


Figure 12. Available-for-sale investment revaluation process flowchart

II.6.4. Dividends

The GL accountants record the income from dividends upon declaration and accrue the income. The AR accountants record cash receipts once the dividends are paid. The GL accountants perform manual entries for any uncollected dividends as shown in Figure 13.

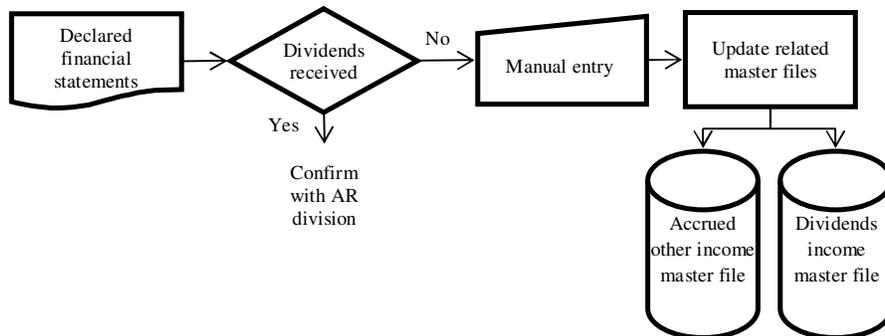


Figure 13. Accrued dividends process flowchart

II.6.5. Provision for bad debts

After the end of the period, the external auditors evaluate the bad debts and ask the GL accountants to make a provision for bad debts.

II.7. Other data entry

The comprehensive ERP system adopted by the university resulted in a minimum amount of manual entries. However, the GL accountants still need to record the manual entries of some transactions that are not automated, such as the issuance of letters of credit/guarantees and recognition of foreign currency variances and bank charges.

II.8. Reporting

On a daily basis, at 11:00 PM the system is scheduled to automatically run a program to transfer all data (the accounted transactions) from all related modules to the interface. The GL division in turn completes this cycle by exporting these gathered data from the interface and posting them to the GL module. At the end of reporting period, when all accounts are closed, users of the GL module are able to generate meaningful, relevant, and useful financial statements with horizontal and vertical analyses along with a variety of internal reports. All reports generated fulfill the external auditor’s requirements.

**III. SWOT Analysis**

The objective of the financial process is to provide reliable financial statements to meet accreditation requirements. The following SWOT analysis is geared toward meeting these requirements.

Strengths

1. Two general ledgers. The special needs of the university require having two types of books. The new Oracle system is developed to comprise two general ledgers. All transactions hit the primary ledger, which is an accrual-basis ledger that meets the requirements of external bodies such as accreditors and external auditors. At the same time, the same transitions hit the secondary ledger, which is a cash-basis ledger that meets the Ministry of Finance’s (MoF) requirements. The system generates two types of reports to meet both parties’ requirements.
2. An independent budgeting division. Since the university is a nonprofit organization funded by the MoF, it is limited to the budgeted fund and is required to constantly deliver the required reports to the MoF. As such, budgeting is the main concern for both the university management and the MoF. The budget is precisely prepared and carefully controlled by an independent budgeting division.
3. Oracle system is integrated with Banner and Lockwood systems. The Lockwood

system captures all fixed assets at the university and controls the movements of these assets. The Banner system provides online services to students and allows the collection of electronic payments.

4. Thirty-nine character chart of account. This takes into consideration many aspects of the university's main functions. It gives the GL division the flexibility to provide a variety of ad hoc reports.
5. Provisional posting. Provisional posting is supported by the system to permit changing of entries before posting.
6. Six independent bank accounts. This allows more control and surveillance over bank transactions and eases the bank reconciliation process.

#### Weaknesses

1. Cash management module. This is available but not used.
2. Fixed assets module. This is available but not fully utilized.
3. Investment activities are not up to date. The related entries are recorded on a monthly basis and not on the actual date.
4. Improper allocation of shared expenses. All shared expenses such as electricity, water, telephone, cleaning, hospitality, and postage expenses are not allocated among cost centers.
5. No internal reports are prepared by the GL division. Despite the system providing a variety of internal reports, neither the university management nor the GL division takes advantage of them.
6. Prepaid subscription account is not used. Subscription is recorded as a lump sum amount when paid and not allocated over the subscription period.
7. Accruals are not considered properly. No adjusting entries are made by the GL division to accrue some expenses, such as electricity, water, and telephone expenses. The accrued dividends are also not recognized properly due to lack of communication between the GL division and the AR division.

#### Opportunities

1. An independent module for investment activities. The university has the option to take advantage of the recent technology to acquire a special module to maintain the investment activities.
2. The overall GL division performance can be enhanced. The GL division has the option to take advantage of the newly established information system (IS) section in the Finance Department. The IS division consists of a specialized technician team for Oracle that collaborates effectively with the GL team and provides technical support and business solutions. This collaboration will enhance the GL section's overall performance.

#### Threats

1. The Lockwood system does not generate the desired fixed assets register report. The absence of the fixed asset register report creates a discrepancy between the fixed assets register and the physical assets, providing the opportunity for theft or manipulation.
2. Poor surveillance over the broker activities. Since the GL division does not have up-to-date information of the stock investments, the authority given to the broker may be misused.
3. Slow performance of the system. Detailed transfer of data to the GL division requires additional storage space and processing time, which overloads the system and might slow down the overall system performance.

#### IV. Recommendations

1. Cash management module. The university paid for but does not use the cash management

module and manually reconciles the bank statements. There are some technical difficulties as a result of some errors made by the company that helped the university implement the module. The manually reconciled statements lack the desired efficiency and effectiveness. Our recommendation would be to fix the errors and start using the cash management module as soon as possible. Figure 14 shows the flowchart of the proposed automated cash management process using the cash management module.

2. Fixed assets module. As we discussed earlier, the Lockwood system does not generate the required report (fixed assets register) due to some technical errors. However, the report would be useful to the GL division to handle the fixed assets. Due to the lack of this report the GL division is unable to properly maintain the fixed assets register, resulting in monthly depreciations being delayed, miscalculated, or totally missed in some periods. The fixed assets module should be properly used even without the help of the Lockwood system. The information on assets can be manually entered into the module and depreciations can be scheduled on a monthly basis through recurring entries. The flowchart illustrated in Figure 15 proposes an automated process to maintain the fixed assets register using the fixed assets module. The alternate automated part of the process is surrounded by dashed rounded rectangle in the flowchart, showing the enormous time and effort saved compared to the manual process previously noted in Figure 7.
3. Investment module. The investment activities are infrequently monitored and the related entries are recorded on a monthly basis. We recommend that the Finance Department purchase a special module for the investments, which would enable them to monitor and record investment activities more frequently for adequate control and decision making.
4. Improper allocation of shared expenses. Most shared expenses such as electricity, water, telephone, cleaning, hospitality, and postage expenses are not allocated among cost centers. For example, water and electricity expenses are fully charged to the Finance Department cost center, and cleaning expenses are charged to the Business Operation Department cost center. We recommend that proper allocation be made either by the AP division while recording these expenses or by the GL division on a monthly basis. The GL division could estimate the share of each cost for each cost center based on square meters occupied and set up automatic distribution entries.
5. Prepaid rent expenses. The AP division prepays rent on a semiannual basis following the university's policy. These payments are recorded in the prepaid rent account. At the end of every month the AP division records the adjusting entry manually. We recommend that the GL division automate this task using the recurring entry function instead of the AP division.
6. Prepaid subscription expenses. The AP division prepays subscription expenses following university policy, and the payments are recorded in the subscription expense account directly. We recommend that the prepayments be recorded in the prepaid subscription account and the GL division reallocates these expenses over the related periods on a monthly or at least yearly basis using the recurring entry function.
7. Uncollected earned revenues. Uncollected earned revenues, such as dividends, are not properly maintained. The AR and the GL divisions can avoid duplication of effort by maintaining proper communication. The GL division can update the AR division with the accrued revenues from dividends and ask the AR division to close these open accounts by reversing them directly.
8. Internal reports. The system provides a variety of internal reports. However, neither the university management nor the GL division uses these reports for analysis. We recommend that the GL division take the initiative and provide these reports to the

management. This might impress the management and make them realize the importance of these reports in their decision-making process.

- Summary transfer. The system is designed to perform detailed transfer of data from other modules to the GL module. However, this requires additional storage space and takes more time to process these transfers. We recommend that the system be redesigned to perform summary transfers. The GL division can get detailed reports from relevant modules as needed.

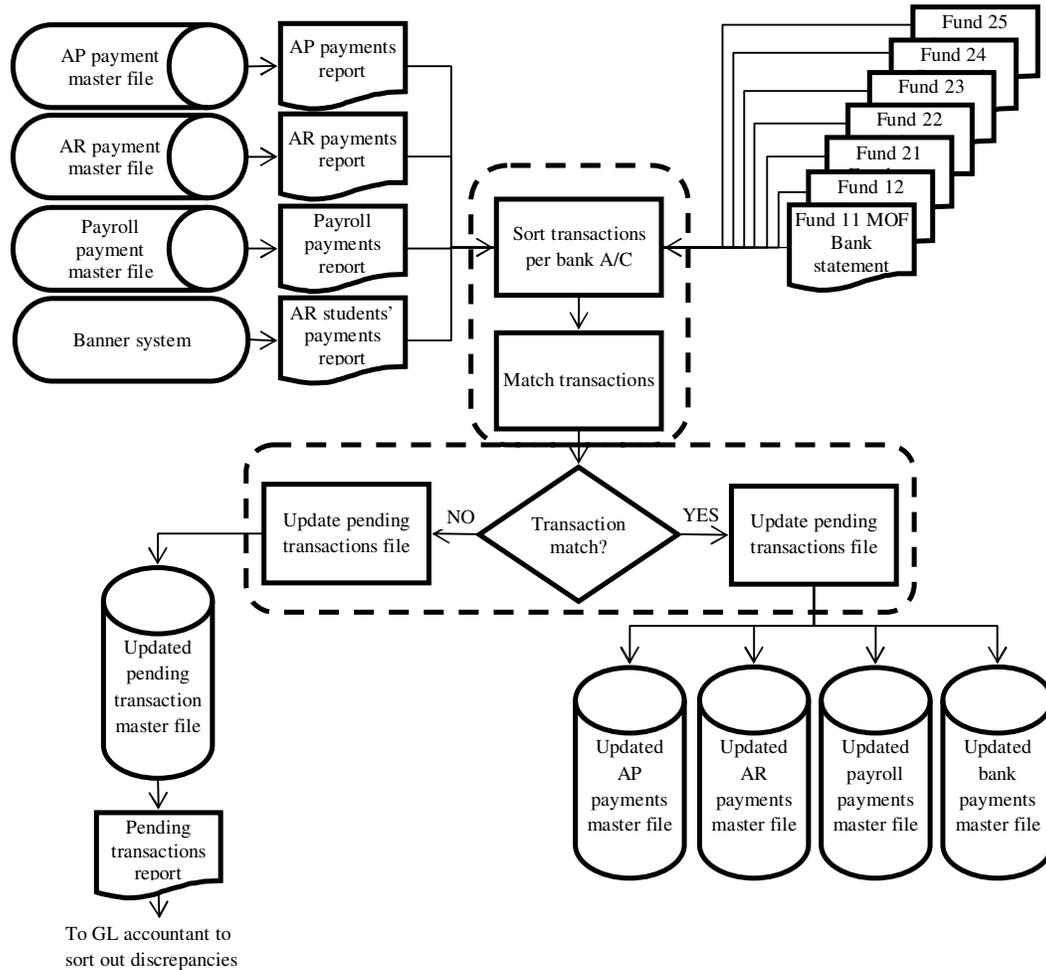


Figure 14. Automated cash management process flowchart. The dashed rounded rectangles in this flowchart distinguish the automated parts from the manual ones previously shown in Figure 6

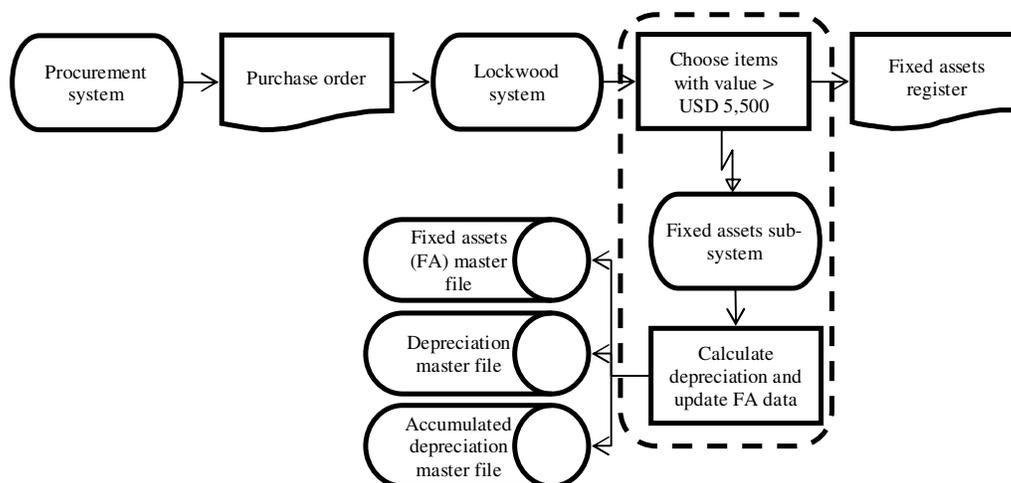


Figure 15. Automated fixed assets process flowchart. The alternate automated part of the process is surrounded by dashed rounded rectangle in the flowchart

### V. Summary and concluding remarks

According to the director of the Finance Department, “The University successfully implemented an ERP system (Oracle R12), consequently, the Accounting Information System has been significantly improved. Despite the difficulties and the concerns on the ERP system during the implementation, the staff of the university accounting department adapted to the new system and positively responded to the change.” We find that the financial process is properly functioning through the GL module. Some tasks are accurately performed such as chart of account setup and maintenance, accounting for investment, and end-of-period processes. On the other hand, other tasks are still performed manually and their modules are not properly utilized. For instance, the cash management module is available but not used due to some minor technical problems, and thus, the bank reconciliation process is still being performed manually. Similarly, the GL division failed to integrate the fixed assets module and the Lockwood system, and accordingly, the accountants in the GL division still perform the maintenance of the fixed assets register and the depreciation calculations manually. We provide the following recommendations to help the university overcome the deficiencies found. Our main recommendation is to substitute the manual cash management and fixed assets processes with automated ones. Other recommendations we propose are as follows:

- Purchase a special module for the investment process to adequately control it and assist management in making proper decisions.
- Set up automatic distribution entries for proper allocation of shared costs.
- Use the recurring entries feature to record and track the prepaid expenses in a timely manner.
- Expand in providing the management a variety of reports.
- Move from detailed transfer of data to the summary transfer method.

### Questions for Discussion

1. What are the main functions of a financial process at a higher institution?
2. Describe the interrelationship between the GL division and other divisions in the finance department at the university.
3. How important are the reports produced by GL division for the management in their decision-making process? Why are they important?
4. How can the optimal utilization of cash management and fixed assets processes be achieved?
5. Can the university monitor its investment activities without purchasing a special

module for investments? What are the alternatives?

6. What is the effect of ERP systems on the different accounting processes and on the accounting information system as a whole?

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