



UCSB Audit and Advisory Services

Internal Audit Report

**Financial System Implementation Project  
Campus Use of Shadow Systems**

October 5, 2012

**Performed by:**

Raphaëlla Nau, Staff Auditor

**Approved by:**

Robert Tarsia, Director

Report No. 08-13-0004

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AUDIT AND ADVISORY SERVICES  
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October 5, 2012

To: Brian Richard, Director  
Administrative Systems Program Management Office

Re: **Financial System Implementation Project: Campus Use of Shadow Systems  
Audit Report No. 08-13-0004**

As part of the 2012-13 annual audit plan, Audit and Advisory Services has completed an audit of campus shadow systems use. Enclosed is the audit report detailing the results of our review.

The purpose of this review was to identify how shadow systems are used on campus, and help ensure that their capabilities are taken into consideration during the planning and implementation of the new financial system planned for the campus. Although department dependency on shadow systems will not be potentially affected until October 2014 (Phase II of the Financial System Implementation Project), Audit and Advisory Services included this audit in the 2012-13 audit plan at the request of senior management to ensure robust communication and planning.

The work performed within the scope of the audit confirmed the common campus understanding that the campus relies on the Grand Unified System (GUS), Excel, and other systems as shadow systems for a variety of essential financial and non-financial business processes. The Administrative Systems Program Management Office (PMO) has indicated a strong commitment to ensuring that the campus reliance on shadow systems is duly considered in the planning and implementation of the new campus financial system.

Detailed observations and management corrective actions are included in the following sections of the report. The cooperation and assistance provided during the review by the GUS Executive Committee and the Administrative Systems PMO was greatly appreciated. If you have any questions, please feel free to contact me.

Respectfully submitted,

A handwritten signature in cursive script that reads "Robert Tarsia".

Robert Tarsia  
Director  
Audit and Advisory Services

Enclosure

cc: Chancellor Henry Yang  
Executive Vice Chancellor Gene Lucas  
Associate Vice Chancellor Ron Cortez, Administrative Services  
UCSB Audit Committee  
Senior Vice President and Chief Compliance and Audit Officer Sheryl Vacca  
Jessie Masek, Financial System Project Manager, Administrative Systems PMO

GUS Executive Committee

Giulia Brofferio, Management Services Officer, Department of Earth Science  
Maureen Evans, Assistant Director, Materials Research Lab  
Allen Matlick, GUS Developer  
Juli Pippin, Assistant Dean for Budget and Administration, College of Engineering  
Lynne Pritchard, Business Officer, Psychological & Brain Sciences  
Kathy Scheidemen, Management Services Officer, Earth Research Institute  
Donna Trimble, Management Services Officer, Chemistry Department

## **PURPOSE**

This audit is the first in a series of audits designed to support the University of California, Santa Barbara (UCSB) Financial System Implementation Project (FSIP). The purpose of this review was to identify how shadow systems are used on campus, and help ensure that their capabilities are taken into consideration during the planning and implementation of the new financial system planned for the campus. Although department dependency on shadow systems will not be potentially affected until October 2014 (Phase II of FSIP), Audit and Advisory Services included this audit in the 2012-13 audit plan at the request of senior management to ensure robust communication and planning.

## **SCOPE, OBJECTIVES AND METHODOLOGY**

The scope of the audit included current shadow system use on campus. The objectives of this audit were to assess shadow systems use on campus, including determining which shadow systems are in use, the extent of their use, and the functions the systems are used for.

To accomplish our objectives, we:

- Conducted two surveys to gain an understanding of the types of shadow systems used on campus and their capabilities and uses in performing financial and non-financial business processes. The objective of the initial survey was to gather basic information on the shadow systems used on campus. The second survey was designed to obtain more detailed information regarding the specific capabilities and uses of the shadow systems used by campus departments.
- Consulted with the Grand Unified System (GUS) Executive Committee to obtain feedback on the content of the surveys, in particular to ensure that the survey questions adequately covered the financial and non-financial business processes for which shadow systems are commonly used on campus. The GUS Executive Committee oversees the interests of the GUS user community.
- Met with the Director of the Administrative Services Program Management Office (PMO) to discuss the FSIP and plans for ensuring that shadow system use on campus is adequately considered in FSIP planning. The recently-established PMO is responsible for deployment of campus-wide administrative systems, including the FSIP.

The appendices to this report include the complete results of our second survey, as well as highlights of the comments received from survey respondents.

This audit was conducted in conformance with the *International Standards for the Professional Practice of Internal Auditing*.

## BACKGROUND

### *Financial System Implementation Project*

The UCSB Financial System Implementation Project (FSIP) began in October 2010 for the purpose of assessing the current financial system's continued operational viability and identifying and evaluating near-term options to replace the system. As part of this evaluation, UCSB contracted with Gartner Consulting to provide an independent and objective assessment of the UCSB financial system's current state, to identify risks and recommend mitigation strategies for each risk, and to identify alternate financial system solutions approaches that should be considered. Gartner's report to the campus addressed campus dependency on shadow systems and included consolidation of department shadow systems, where possible, as an FSIP objective. The report also stated that the FSIP must allow existing department applications (i.e., "shadow applications") and the campus Data Warehouse to continue operation for the short and mid-term. The campus subsequently decided to proceed with the FSIP through a phased implementation of Oracle/PeopleSoft Financials.

### *Shadow Systems*

A shadow system is any application or database used for business processes that is not provided and supported centrally. Shadow systems may also include any paper-based systems or card files (e.g., manual key management log systems). Campus use of shadow systems has evolved over time to address shortcomings in UCSB's current financial system and to fill a variety of essential business needs. In simple terms, current campus systems are unable to provide real-time financial data and do not meet the complex reporting needs of campus departments, including those that pertain to sponsoring agency requirements for contracts and grants.

For the purposes of this project, the campus Data Warehouse is not considered a shadow system, but a main or central system that the campus and its shadow systems depend on<sup>1</sup>.

### *Grand Unified System (GUS)*

The Grand Unified System, commonly referred to by its acronym GUS, is a widely used campus shadow system. GUS was developed in 1998 and was originally funded by the Marine Science Institute and the Department of Chemistry and Biochemistry. The original GUS business model included charging departments GUS user fees. In 2005, the Executive Vice Chancellor began funding GUS development and support costs, thereby eliminating department user fees<sup>2</sup>. The interests of the GUS user community are overseen by the GUS Executive Committee, whose membership is comprised of the GUS lead developer and a group of managers from GUS user departments. The by-laws of the GUS Executive Committee state that the committee's purpose is to assure continuous support and development of GUS across campus, and to make recommendations regarding short and long-term needs associated with GUS to the campus administration.

The results of the surveys conducted for this audit were consistent with the common understanding that GUS is the primary shadow system used on campus, along with MS Excel, which is used in a variety of ways.

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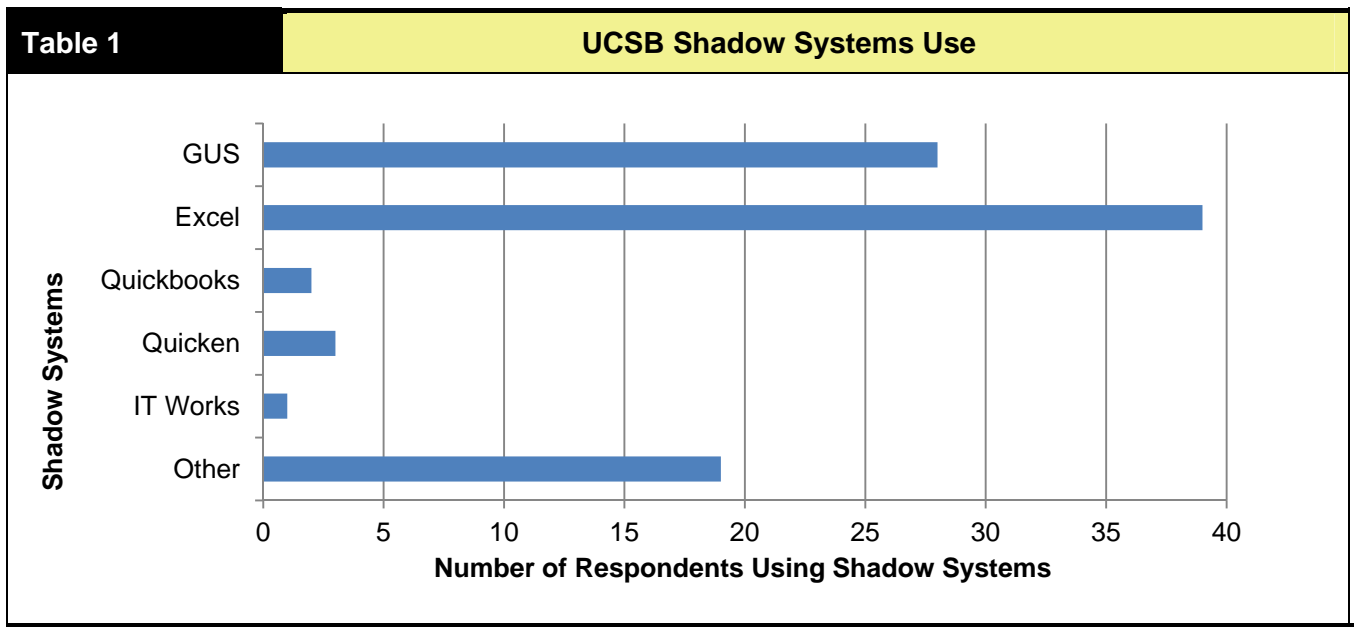
<sup>1</sup> A data warehouse is a database used for reporting and data analysis. The data stored in a data warehouse are uploaded from the organization's operational systems, such as the campus financial and payroll systems.

<sup>2</sup> Source: GUS website, <http://gus.ucsb.edu/about.shtml>

**SUMMARY OPINION**

The work performed within the scope of the audit confirmed the common campus understanding that the campus relies on GUS, Excel, and other systems as shadow systems for a variety of essential financial and non-financial business processes. The Administrative Systems PMO has indicated a strong commitment to ensuring that the campus reliance on shadow systems is duly considered in the planning and implementation of the new campus financial system.

Audit observations and management corrective actions are detailed in the remainder of the audit report.



Source: Audit and Advisory Services survey on campus use of shadow systems. Figures represent the number of respondents out of the 54 who answered the question on which shadow systems were being used by their department.

**DETAILED OBSERVATIONS AND MANAGEMENT CORRECTIVE ACTIONS**

**A. Shadow System Use Survey**

The objective of our initial survey was to gather basic information on the shadow systems used on campus. Survey recipients were asked:

*What type of shadow systems does your department use?  
Please check all that apply and add types not listed in the comment box.*

Although the definition of a shadow system was provided, the decision as to which systems to consider as shadow systems was left to the respondents. The respondents were asked to select from a listing of known campus shadow systems, based on work by Audit and Advisory Services across campus and the initial planning for this review. The shadow systems listed were:

- Excel
- GUS
- QuickBooks
- Quicken
- IT Works

Secondly, respondents were asked to select which shadow systems were being used to perform certain business processes. Survey recipients were asked:

*Below are some of the areas in which shadow systems may be used.  
Please select the areas if your department currently uses its shadow system(s) for these processes. Please add other processes in the comments box.*

The following processes were listed:

- Payroll
- Purchasing
- Asset Management
- General Ledger Reconciliation
- Posting
- Contracts and Grants
- Specialized Reporting
- Other

This survey was sent to 129 individuals from approximately 83 campus units. We compiled the recipient list for this survey to ensure that we included a solid cross-section of campus departments and personnel responsible for essential financial and business transactions. The survey recipient list was compiled from:

- The Academic Business Officers Group (ABOG) membership list, which covers most academic departments on campus.
- The GUS Executive Committee membership.
- Campus organization charts.



We selected all members from the ABOG and GUS lists, and selected a wide range of individuals from the organization charts based on our understanding of the campus organization and our work in many campus departments, including major academic and non-academic units. The survey instructions suggested that the recipients forward the survey to others who may have an interest in the project.

| Table 2       | Survey Respondents Using Shadow Systems |
|---------------|---|
| Shadow System | Percent of Survey Respondents           |
| Excel         | 72.2%                                   |
| GUS           | 51.9%                                   |
| QuickBooks    | 3.7%                                    |
| Quicken       | 5.6%                                    |
| IT Works      | 1.9%                                    |
| Other         | 45.6%                                   |

Source: Audit and Advisory Services survey on campus use of shadow systems. This represents the percentage of the 54 survey respondents who answered the question on which shadow systems were being used by their department.

61 of 129 (47%) survey recipients responded. Table 2 includes highlights of the survey results:

- 54 of the 61 respondents answered the question on which shadow systems were being used by their department.
- Approximately 52% reported using GUS and 72% reported using Excel as shadow systems.
- Respondents reported using more than one shadow system for performing various financial and non-financial business processes.
- Additional functions performed by shadow systems were reported to include:
  - Employee Visa Status Tracking
  - Payables and Receivables
  - Capital Projects
- Respondents listed the Data Warehouse, Com-plete, OACIS, FAMAS, FileMaker, Access, COUPA, ABC Club Manager, NoHo Care, FA2, TMA, WebPass, Prolog, and paper-based logs as other shadow systems in use. (As previously stated, the decision as to which systems to consider as shadow systems was left to the respondents.)

## B. Shadow System Capabilities and Uses

The results of the second survey confirmed the common campus understanding that the campus relies on GUS, Excel, and other systems as shadow systems for a variety of essential financial and non-financial business processes. This survey was designed to obtain more detailed information regarding the specific functions for which campus departments use shadow systems. The survey asked respondents to identify the shadow systems used for a comprehensive listing of financial and non-financial business processes and transactions that was generally designed to resemble the accounting cycle, beginning with transaction-creating processes and ending with the general ledger. This listing was created using an existing campus inventory of processes and transactions obtained from Business and Financial Services (formerly Accounting Services and Controls).<sup>3</sup> With the assistance of the GUS Executive Committee, we refined and consolidated this listing based on our understanding of accounting practices and campus processes.

The survey was sent to the 61 respondents of the initial survey; 49 (80%) responded. The 49 respondents represented 40 campus departments. Appendix A to this report includes the full results of this survey, and Table 3 includes key highlights.

| <b>Table 3</b>  |            | <b>Functions of Campus Shadow Systems - Highlights</b> |                 |               |                            |
|---|------------|--|-----------------|---------------|----------------------------|
| <b>Function</b>   | <b>GUS</b> | <b>Excel</b>   | <b>IT Works</b> | <b>Other*</b> | <b>Number of Responses</b> |
| <b>Sponsored Projects</b><br>Track cost shares, matching funds, in-kind contributions, etc.     | 16         | 9  | 0               | 2             | 43                         |
| <b>Budgeting</b><br>Develop and forecast budget   | 19         | 33   | 0               | 3             | 46                         |
| <b>Purchasing</b><br>Validate critical data (e.g., account number, fund availability, etc.)     | 21         | 15   | 0               | 4             | 42                         |
| <b>Accounts Payable</b><br>Track payments and detect duplicates                                 | 19         | 14   | 0               | 4             | 39                         |
| <b>Accounts Receivable</b><br>Apply payments  | 12         | 7  | 0               | 6             | 37                         |
| <b>Inventorial Property and Equipment; Non-inventorial Equipment</b><br>Track inventorial items | 4          | 15   | 0               | 8             | 37                         |
| <b>Recharge/Transfer of Expense/Transfer of Funds</b><br>Track transfer of funds                | 17         | 13   | 1               | 4             | 34                         |
| <b>Personnel</b><br>Generate Payroll projections for PI and account managers                    | 18         | 15   | 1               | 1             | 35                         |
| <b>General Ledger</b><br>Track general ledger data during the month                             | 18         | 16   | 1               | 3             | 35                         |

\* Other includes shadow systems listed in the survey as well as the 'other' category to be defined by the departments.  
Source: Audit and Advisory Services survey on shadow system use and capabilities. This represents the number of responses received for each of the questions on shadow system functions.

<sup>3</sup> This information had been used by Accounting Services and Controls in a previous survey that had not been finalized.

### *Use of GUS*

In some ways, data on the specific ways that GUS<sup>4</sup> is used may provide more useful information for FSIP planning than the use of Excel, given the variety of ways Excel can be (and is) configured and adapted, contrasted with the specific ways that GUS is programmed. Some notable highlights of reported GUS use include:

- Sponsored Projects – 16 of the 43 respondents to this question reported using GUS to track cost-shares, matching funds, in-kind contributions, etc. GUS is widely used overall for contracts and grants functions that are critical to ensuring compliance and successful outcomes to audits by sponsoring agencies.
- Budgeting – 19 of the 46 respondents reported using GUS to assist in developing and forecasting budgets.
- Accounts Payable – 19 of 39 respondents stated that they use GUS to track payments and detect duplicates.
- General Ledger – 18 of 35 respondents reported using GUS to track general ledger data during the month, a need directly related to the inability of the current financial system to provide real-time data.

### *Dependency on the Data Warehouse*

For future audit planning purposes, the survey also asked respondents to rate their dependence on the Data Warehouse for accounting, reporting, and other uses on a scale of 1-5, with 5 being the highest. 31 of 37 respondents to this question rated their dependence as a '4' or '5'.

## **C. Survey Comments**

Appendix B to this report includes a sample of comments included by survey respondents.

Complete survey results have been provided to the Administrative Services PMO for consideration during planning and implementation of the new campus financial system.

### **Management Corrective Actions**

As indicated in this report, the Administrative Systems PMO wants to ensure that shadow systems are taken into account during the various stages of the FSIP. The Administrative Systems PMO is very conscious of the campus's dependency on these systems and will work to minimize the impact to departments until we have a more complete understanding of each shadow system.

The first phase of the FSIP will last one year, beginning on October 1, 2012, and lasting until October of 2013. The primary scope of this first phase is to relieve UCSB of the mainframe dependency and environment by implementing Oracle/PeopleSoft Financials and keeping the shadow systems functioning and whole.

*Audit and Advisory Services will follow-up on the status of this issue by October 31, 2013, and again by October 31, 2014, to ensure that appropriate consideration has been given to campus dependency on shadow systems as the FSIP progresses.*

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<sup>4</sup> And IT Works, for one department.

## Acknowledgements

We would like to thank the following UCSB personnel for their valuable feedback during the audit:



- GUS Executive Committee
  - Giulia Brofferio, Management Services Officer, Department of Earth Science
  - Maureen Evans, Assistant Director, Materials Research Lab
  - Allen Matlick, GUS Developer
  - Juli Pippin, Assistant Dean for Budget and Administration, College of Engineering
  - Lynne Pritchard, Business Officer, Psychological & Brain Sciences
  - Kathy Scheidemen, Management Services Officer, Earth Research Institute
  - Donna Trimble, Management Services Officer, Chemistry Department
- Mahsheed Ayoub, Business Officer, Center for Black Studies Research
- Jana Bentley, Business Officer, Institute for Social, Behavioral, Economic Research
- Mike Best, Business Officer, Mathematics
- Lisa Blanco, Business Officer, Sociology
- Neil Clark, Financial Analyst, Business and Financial Services
- Jeanie Cornet, Business Officer, Neuroscience Research Institute
- Kim Fugate, Finance and Operations Manager, Bren School
- Sandra Hammonds, Financial Manager, Physics
- Christine Herman, Director of Finance, Molecular, Cellular, & Developmental Biology
- Connie Howard, Analyst, Academic Senate
- Robin Jenneve, Business Officer, Electrical and Computer Engineering
- Kathy Jenquin, Director, Phelps Hall Administrative Support Center
- Kara Kaneda, Budget Analyst, Campus Design and Facilities
- Winnie Leung, Contracts and Grants Manager, Molecular, Cellular, & Developmental Biology
- Kate Lima, Manager, Economics
- Alycia Lewis, Contracts and Grants Manager, California NanoSystems Institute
- Lou Anne Lockwood, Business Officer, Feminist Studies
- Cindy Lopez, Assistant Director of Finance and Budget, Associated Students
- Arlis Markel, Assistant Dean, Gevirtz Graduate School of Education
- Krista Mastres, Business Officer, Center for Bioengineering Research
- Renee McLean, Business Manager, Intercollegiate Athletics
- Dawn McTague, Management Services Officer, Materials Department
- Shirley Mileca, Business Officer, Financial Aid
- Liz Molina, Office Manager, Human Resources
- Kathy Murray, Management Services Officer, Film and Media Studies
- Debra Nash, Management Services Officer, Department of Black Studies
- Ned Nash, Business Officer, Interdisciplinary Humanities Center
- Bob Ortega, Director, HSSB Administrative Support Center
- Asger Pedersen, Accounts Payable & Travel Manager, Business and Financial Services
- Brian Richard, Director, Project Management Office
- Marlene Rifkin, Business Officer, Institute for Terahertz Science and Technology
- Robin Roe, Business Officer, Department of Anthropology
- Jesse Rosenzweig, Business Officer, Children's Center
- Linda Ruuska, General Manager, Faculty Club
- Tim Schmidt, Manager, Marine Science Institute
- Mally Sneddon, Analyst, Letters and Science Information Technology
- Pat Walker, Contracts and Grants Analyst, Chemistry and Biochemistry
- Denna M. Zamarron, Business Officer, Statistics and Applied Probability

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**Appendix A: Survey – Functions of Campus Shadow Systems**

Figures represent number of respondents reporting use of shadow systems for indicated process.

| <b>Sponsored Projects</b>  |            |              |                    |                |                 |              |            |                            |
|--|------------|--------------|--------------------|----------------|-----------------|--------------|------------|----------------------------|
| <b>Answer Options</b>  | <b>GUS</b> | <b>Excel</b> | <b>Quick Books</b> | <b>Quicken</b> | <b>IT Works</b> | <b>Other</b> | <b>N/A</b> | <b>Number of Responses</b> |
| 1. Provide award and sub-award templates   | 7          | 14           | 0                  | 0              | 0               | 5            | 19         | 43                         |
| 2. Establish pre-award spending accounts   | 13         | 6            | 0                  | 0              | 1               | 0            | 24         | 44                         |
| 3. Track proposals and awards data by status or stage of development   | 8          | 11           | 0                  | 0              | 1               | 8            | 19         | 42                         |
| 4. Establish and track sub-awards  | 15         | 6            | 0                  | 0              | 1               | 0            | 22         | 44                         |
| 5. Supports the use of multiple indirect cost rates  | 17         | 5            | 0                  | 0              | 1               | 0            | 21         | 43                         |
| 6. Support of multi-funded projects  | 18         | 7            | 0                  | 0              | 0               | 0            | 21         | 44                         |
| 7. Track cost shares, matching funds, in-kind contributions, etc.  | 16         | 9            | 0                  | 0              | 0               | 2            | 20         | 43                         |
| 8. Support A-21, FAR 31.2, and user defined requirements   | 16         | 2            | 0                  | 0              | 1               | 1            | 23         | 43                         |
| 9. Segregate billable and non-billable transactions  | 5          | 4            | 0                  | 0              | 1               | 1            | 30         | 41                         |
| 10. Support billing/invoicing and collections  | 12         | 7            | 0                  | 0              | 1               | 3            | 25         | 43                         |
| 11. Track reports due to sponsors  | 13         | 7            | 0                  | 0              | 1               | 3            | 20         | 43                         |
| 12. Provide automatic routing  | 8          | 1            | 0                  | 0              | 0               | 1            | 31         | 41                         |
| 13. Able to drill down to linked transaction from another system   | 7          | 2            | 0                  | 0              | 0               | 2            | 30         | 40                         |
| 14. Track and report sub-awardee expenditures  | 16         | 4            | 0                  | 0              | 1               | 0            | 22         | 42                         |
| 15. Records management (e.g. support attachment and import of electronic documents), and electronic routing and approval | 7          | 7            | 0                  | 0              | 0               | 3            | 26         | 41                         |
| 16. Automated data import and export (e.g. any system, Data Warehouse, etc.)   | 18         | 9            | 0                  | 0              | 0               | 1            | 19         | 45                         |

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**Appendix A: Survey – Functions of Campus Shadow Systems**

| <b>Budgeting</b>   |            |              |                    |                |                 |              |            |                            |
|--|------------|--------------|--------------------|----------------|-----------------|--------------|------------|----------------------------|
| <b>Answer Options</b>  | <b>GUS</b> | <b>Excel</b> | <b>Quick Books</b> | <b>Quicken</b> | <b>IT Works</b> | <b>Other</b> | <b>N/A</b> | <b>Number of Responses</b> |
| 1. Develop and forecast budget   | 19         | 33           | 0                  | 0              | 0               | 3            | 1          | 46                         |
| 2. Track financial and non-financial data defined by users   | 19         | 27           | 0                  | 0              | 1               | 2            | 4          | 44                         |
| 3. Support budgeting using different and multiple fiscal years   | 20         | 25           | 0                  | 0              | 1               | 4            | 1          | 45                         |
| 4. Track budget revisions and changes  | 18         | 29           | 0                  | 0              | 1               | 4            | 1          | 45                         |
| 5. Allocate budget at different levels (e.g. account, fund, sub/ project code)   | 24         | 23           | 0                  | 0              | 1               | 1            | 3          | 45                         |
| 6. Provide automatic routing (work-flow)   | 12         | 5            | 0                  | 0              | 0               | 0            | 25         | 41                         |
| 7. Validate personnel additions and changes against approved fund budgets  | 20         | 15           | 0                  | 0              | 1               | 4            | 8          | 43                         |
| 8. Reconcile budget to source campus system  | 24         | 23           | 0                  | 0              | 1               | 2            | 3          | 46                         |
| 9. Able to drill down to linked transaction from another system  | 10         | 5            | 0                  | 0              | 0               | 3            | 22         | 39                         |
| 10. Records management (e.g. support attachment and import of electronic documents), and electronic routing and approval | 11         | 10           | 0                  | 0              | 0               | 4            | 19         | 40                         |
| 11. Automated data import and export (e.g. any system, Data Warehouse, etc.)   | 23         | 15           | 0                  | 0              | 1               | 3            | 7          | 46                         |
| <b>Purchasing</b>  |            |              |                    |                |                 |              |            |                            |
| <b>Answer Options</b>  | <b>GUS</b> | <b>Excel</b> | <b>Quick Books</b> | <b>Quicken</b> | <b>IT Works</b> | <b>Other</b> | <b>N/A</b> | <b>Number of Responses</b> |
| 1. Support requisition processes   | 20         | 13           | 0                  | 0              | 0               | 7            | 6          | 43                         |
| 2. Support RFP and bidding processes   | 8          | 2            | 0                  | 0              | 0               | 4            | 27         | 40                         |
| 3. Support purchase order and contract processes   | 19         | 12           | 0                  | 0              | 0               | 8            | 5          | 41                         |
| 4. Track requisition and/or purchase order activities  | 22         | 13           | 0                  | 0              | 0               | 9            | 2          | 42                         |
| 5. Calculate other costs (e.g. freight, tax, etc.)   | 18         | 12           | 0                  | 0              | 0               | 6            | 9          | 43                         |

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**Appendix A: Survey – Functions of Campus Shadow Systems**

| <b>Purchasing</b>   |            |              |                    |                |                 |              |            |                            |
|---|------------|--------------|--------------------|----------------|-----------------|--------------|------------|----------------------------|
| <b>Answer Options</b>   | <b>GUS</b> | <b>Excel</b> | <b>Quick Books</b> | <b>Quicken</b> | <b>IT Works</b> | <b>Other</b> | <b>N/A</b> | <b>Number of Responses</b> |
| 6. Validate critical data (e.g. account number, fund availability, etc.)  | 21         | 15           | 0                  | 0              | 0               | 4            | 4          | 42                         |
| 7. Assign/calculate encumbrance entries   | 19         | 12           | 0                  | 0              | 1               | 5            | 7          | 43                         |
| 8. Support vendor management  | 16         | 5            | 0                  | 0              | 0               | 7            | 15         | 41                         |
| 9. Records management (e.g. support attachment and import of electronic documents), and electronic routing and approval | 10         | 7            | 0                  | 0              | 0               | 4            | 20         | 40                         |
| 10. Automated data import and export (e.g. any system, Data Warehouse, etc.)  | 20         | 13           | 0                  | 0              | 1               | 3            | 10         | 43                         |
| <b>Accounts Payable</b>   |            |              |                    |                |                 |              |            |                            |
| <b>Answer Options</b>   | <b>GUS</b> | <b>Excel</b> | <b>Quick Books</b> | <b>Quicken</b> | <b>IT Works</b> | <b>Other</b> | <b>N/A</b> | <b>Number of Responses</b> |
| 1. Link and match data (e.g. requisition, purchase order, receiving report, invoice, etc.)                              | 19         | 13           | 0                  | 0              | 0               | 7            | 3          | 38                         |
| 2. Calculate and modify payment term (e.g. discount, tax status, etc.)  | 12         | 7            | 0                  | 0              | 0               | 4            | 16         | 37                         |
| 3. Restrict and withhold payment (e.g. tax status, limit, credit etc.)  | 9          | 6            | 0                  | 0              | 0               | 6            | 19         | 36                         |
| 4. Track payments and detect duplicates   | 19         | 14           | 0                  | 0              | 0               | 4            | 5          | 39                         |
| 5. Records management (e.g. support attachment and import of electronic documents), and electronic routing and approval | 7          | 9            | 0                  | 0              | 0               | 6            | 16         | 35                         |
| 6. Automated data import and export (e.g. any system, Data Warehouse, etc.)   | 16         | 13           | 0                  | 0              | 0               | 3            | 8          | 39                         |
| <b>Accounts Receivable</b>  |            |              |                    |                |                 |              |            |                            |
| <b>Answer Options</b>   | <b>GUS</b> | <b>Excel</b> | <b>Quick Books</b> | <b>Quicken</b> | <b>IT Works</b> | <b>Other</b> | <b>N/A</b> | <b>Number of Responses</b> |
| 1. Generate invoices  | 7          | 8            | 0                  | 0              | 0               | 9            | 16         | 36                         |
| 2. Apply payments   | 12         | 7            | 0                  | 0              | 0               | 6            | 14         | 37                         |

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| <b>Accounts Receivable</b>  |            |              |                    |                |                 |              |            |                            |
|---|------------|--------------|--------------------|----------------|-----------------|--------------|------------|----------------------------|
| <b>Answer Options</b>   | <b>GUS</b> | <b>Excel</b> | <b>Quick Books</b> | <b>Quicken</b> | <b>IT Works</b> | <b>Other</b> | <b>N/A</b> | <b>Number of Responses</b> |
| 3. Link to associated and third parties (e.g. collections, third party receivable, etc.)                                | 5          | 4            | 0                  | 0              | 0               | 3            | 25         | 35                         |
| 4. Capture returned check data , assess fees, reinstate account   | 4          | 4            | 0                  | 0              | 0               | 4            | 23         | 35                         |
| 5. Flag account status (e.g. deferral, dispute, hold, past due, etc.)   | 8          | 5            | 0                  | 0              | 0               | 4            | 19         | 36                         |
| 6. Schedule and track collection activities reminder (e.g. contact, dunning letters, etc.)                              | 6          | 2            | 0                  | 0              | 0               | 4            | 24         | 36                         |
| 7. Records management (e.g. support attachment and import of electronic documents), and electronic routing and approval | 5          | 7            | 0                  | 0              | 0               | 4            | 21         | 36                         |
| 8. Automated data import and export (e.g. any system, Data Warehouse, etc.)   | 7          | 8            | 0                  | 0              | 0               | 4            | 19         | 36                         |
| <b>Inventorial Property and Equipment; Non-inventorial Equipment</b>  |            |              |                    |                |                 |              |            |                            |
| <b>Answer Options</b>   | <b>GUS</b> | <b>Excel</b> | <b>Quick Books</b> | <b>Quicken</b> | <b>IT Works</b> | <b>Other</b> | <b>N/A</b> | <b>Number of Responses</b> |
| 1. Track fixed asset data and user defined fields (e.g. warranties)   | 2          | 12           | 0                  | 0              | 0               | 8            | 17         | 37                         |
| 2. Flag assets (e.g. disposal, transfer, etc.)  | 1          | 11           | 0                  | 0              | 0               | 7            | 16         | 34                         |
| 3. Calculate and apply depreciation   | 0          | 9            | 0                  | 0              | 0               | 2            | 24         | 34                         |
| 4. Records management (e.g. support attachment and import of electronic documents), and electronic routing and approval | 0          | 8            | 0                  | 0              | 0               | 5            | 23         | 35                         |
| 5. Track inventorial items  | 4          | 15           | 0                  | 0              | 0               | 8            | 12         | 37                         |
| 6. Track non-inventorial items  | 4          | 12           | 0                  | 0              | 0               | 3            | 18         | 35                         |
| 7. Automated data import and export (e.g. any system, Data Warehouse, etc.)   | 1          | 11           | 0                  | 0              | 0               | 2            | 21         | 34                         |



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| <b>Recharges/Transfer of Expense/Transfer of Funds</b>  |            |              |                    |                |                 |              |            |                            |
|---|------------|--------------|--------------------|----------------|-----------------|--------------|------------|----------------------------|
| <b>Answer Options</b>   | <b>GUS</b> | <b>Excel</b> | <b>Quick Books</b> | <b>Quicken</b> | <b>IT Works</b> | <b>Other</b> | <b>N/A</b> | <b>Number of Responses</b> |
| 1. Support recharge rate calculations   | 8          | 11           | 0                  | 0              | 1               | 2            | 13         | 33                         |
| 2. Track recharge billings  | 13         | 7            | 0                  | 0              | 1               | 3            | 13         | 34                         |
| 3. Accumulate recharge income due   | 12         | 8            | 0                  | 0              | 1               | 3            | 14         | 34                         |
| 4. Support other recharge functions   | 9          | 9            | 0                  | 0              | 1               | 3            | 14         | 32                         |
| 5. Track transfer of expense  | 18         | 13           | 0                  | 0              | 1               | 3            | 3          | 35                         |
| 6. Accumulate transfer of expense data  | 17         | 11           | 0                  | 0              | 1               | 3            | 4          | 33                         |
| 7. Support other transfer of expense functions  | 16         | 10           | 0                  | 0              | 1               | 3            | 5          | 32                         |
| 8. Track transfer of funds  | 17         | 13           | 0                  | 0              | 1               | 4            | 3          | 34                         |
| 9. Accumulate transfer of funds data  | 16         | 11           | 0                  | 0              | 1               | 5            | 4          | 33                         |
| 10. Support other recharge functions  | 9          | 6            | 0                  | 0              | 1               | 3            | 15         | 32                         |
| 11. Record management (e.g. support attachment and import of electronic documents), and electronic routing and approval | 7          | 7            | 0                  | 0              | 1               | 2            | 16         | 32                         |
| 12. Automated data import and export (e.g. any system, Data Warehouse, etc.)  | 14         | 11           | 0                  | 0              | 0               | 1            | 11         | 35                         |
| <b>Personnel</b>  |            |              |                    |                |                 |              |            |                            |
| <b>Answer Options</b>   | <b>GUS</b> | <b>Excel</b> | <b>Quick Books</b> | <b>Quicken</b> | <b>IT Works</b> | <b>Other</b> | <b>N/A</b> | <b>Number of Responses</b> |
| 1. Reconcile payroll ledger   | 18         | 17           | 0                  | 0              | 1               | 4            | 1          | 36                         |
| 2. Reconcile payroll to general ledger  | 19         | 16           | 0                  | 0              | 1               | 4            | 1          | 36                         |
| 3. Create projections for salary and benefits on all funding sources  | 18         | 18           | 0                  | 0              | 1               | 2            | 2          | 36                         |
| 4. Lien funding sources for payroll, and student fee expenses   | 18         | 13           | 0                  | 0              | 1               | 0            | 5          | 35                         |
| 5. Create Personnel rosters   | 15         | 16           | 0                  | 0              | 1               | 3            | 3          | 34                         |

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| <b>Personnel</b>  |            |              |                    |                |                 |              |            |                            |
|---|------------|--------------|--------------------|----------------|-----------------|--------------|------------|----------------------------|
| <b>Answer Options</b>   | <b>GUS</b> | <b>Excel</b> | <b>Quick Books</b> | <b>Quicken</b> | <b>IT Works</b> | <b>Other</b> | <b>N/A</b> | <b>Number of Responses</b> |
| 6. Track Graduate Student progress and annual support totals (all sources)  | 7          | 9            | 0                  | 0              | 1               | 4            | 15         | 34                         |
| 7. Generate statistical reporting for Grant and Contract reporting and Budget Development                               | 13         | 9            | 0                  | 0              | 1               | 1            | 14         | 35                         |
| 8. Generate Payroll projections for PI and account managers   | 18         | 15           | 0                  | 0              | 1               | 1            | 5          | 35                         |
| 9. Create and track Payroll Transfers   | 16         | 12           | 0                  | 0              | 1               | 5            | 6          | 34                         |
| 10. Web base reporting access for PIs and account managers  | 15         | 2            | 0                  | 0              | 1               | 3            | 13         | 34                         |
| 11. Automated data import and export (e.g. any system, Data Warehouse, etc.)  | 15         | 13           | 0                  | 0              | 1               | 1            | 7          | 35                         |
| <b>General Ledger</b>   |            |              |                    |                |                 |              |            |                            |
| <b>Answer Options</b>   | <b>GUS</b> | <b>Excel</b> | <b>Quick Books</b> | <b>Quicken</b> | <b>IT Works</b> | <b>Other</b> | <b>N/A</b> | <b>Number of Responses</b> |
| 1. Track general ledger data during the month   | 18         | 16           | 0                  | 0              | 1               | 3            | 1          | 35                         |
| 2. Reconcile general ledger data to campus general ledger   | 19         | 15           | 0                  | 0              | 1               | 1            | 1          | 35                         |
| 3. Establish account and user restrictions (e.g. separation of duties)  | 17         | 7            | 0                  | 0              | 1               | 5            | 7          | 36                         |
| 4. Cross reference to chart of accounts   | 14         | 12           | 0                  | 0              | 1               | 5            | 5          | 34                         |
| 5. Validation ability (e.g. active account, non-compatible code, balanced entries, no budget, etc.)                     | 15         | 9            | 0                  | 0              | 1               | 2            | 8          | 33                         |
| 6. Support multiple and different fiscal years  | 19         | 14           | 0                  | 0              | 1               | 3            | 1          | 35                         |
| 7. Compile/calculate related and reoccurring accounting entries (e.g. reversal, year-end, accrual, depreciation, etc.)  | 12         | 14           | 0                  | 0              | 1               | 5            | 6          | 33                         |
| 8. Records management (e.g. support attachment and import of electronic documents), and electronic routing and approval | 8          | 11           | 0                  | 0              | 1               | 2            | 13         | 32                         |
| 9. Automated data import and export (e.g. any system, Data Warehouse, etc.)   | 16         | 14           | 0                  | 0              | 1               | 2            | 7          | 35                         |

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| Please rate your dependence on the Data Warehouse for accounting, reporting, and other uses. Rate from 1-5 with 5 being the highest. |                  |                     |   |   |    |                |                     |  |
|--|------------------|---------------------|---|---|----|----------------|---------------------|--|
| Answer Options   | 1                | 2                   | 3 | 4 | 5  | Rating Average | Number of Responses |  |
|  | 1                | 1                   | 4 | 8 | 23 | 4.38           | 37                  |  |
| Would you be willing to participate in a separate survey on the Data Warehouse relating to its uses and capabilities?                |                  |                     |   |   |    |                |                     |  |
| Answer Options   | Response Percent | Number of Responses |   |   |    |                |                     |  |
| Yes  | 83.3%            | 30                  |   |   |    |                |                     |  |
| No   | 16.7%            | 6                   |   |   |    |                |                     |  |

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**Appendix B**

| <b>Sample Survey Comments</b>   |
|---|
| We would be unable to function without GUS as our shadow system given the volume of our work load and limited number of personnel.  |
| The only ledger accounts we have are for our payroll and our gift account. Everything else is done outside of the Accounting system using ABC Club management software.   |
| GUS is an essential tool for departments to track and manage all aspects of financial business including department and state funds and extramural funds. Many tasks are automated which allows staff to keep up with the tremendous workload.  |
| GUS is very valuable to our department, without it we would need more staff. We have hundreds of accounts that we handle with minimal staff support. Thank you for conducting this survey.  |
| The recent Broniec cost recovery audit experience gave some insight into the campus' reliance on shadow systems. Repeatedly the auditor found evidence of duplicate payments and filed claims with vendors only to have them rejected as closed cases. Upon closer investigation many of these items were taken care of in shadow systems in ways that circumvented the central control functions. Shadow systems are actually quite impressive in the way they are helping departments with functionality not provided well by central systems.  |
| Shadow systems have evolved to fill the gap between limited campus systems and departmental/sponsor requirements. What all shadow systems have in common is that they enable the user to do accrual-based accounting and provide information on a frequent basis, most of the better ones now on a continuous basis delivered via a web portal.   |
| Any system should be fully searchable by transaction amount, vendor, purchaser, PO #, and account/fund. It should also be able to have data extracted or imported into Excel files.   |
| GUS has prompts to remind the user of special requirements. As departments will still be held accountable for adhering to campus and agency policies, there is concern that the new financial system (while more robust than what we have), may not provide the features we need due to our lean staffing levels and turnover in staff.   |
| Thank you for taking the time to begin the gap analysis process. As a GUS department, we recognize that we would not be able to meet our PI needs without the flexibility of the comprehensive management system built by the GUS team. We all remain hopeful that departmental compliance needs will be addressed in the design of the new system.   |
| We would love to move away from using a separate shadow system. PeopleSoft has this as a built-in feature and should be straightforward to use. I find I'm using three separate systems to post, export, and reconcile and it's an inefficient use of my time. We are reliant on three people to post transactions in GUS and I have learned not to trust the information in GUS, as it's close but is not entirely accurate when determining balances. We're looking forward to an integrated platform i.e. all-in one system or at least use of 2 systems versus 3. In the interim, I rely heavily on the G/L for accurate balance reporting.   |
| I know there has been some discussion on campus regarding the elimination of shadow systems with the new financial systems coming on board. I am happy that your office is conducting this audit, because I believe it will assist with presenting a realistic view on how crucial shadow systems such as GUS are for units to do our business. Not only are there numerous efficiencies in GUS, it allows us to track and monitor information in a way that current systems don't. Since we don't know exactly how the new financial systems will roll out, and what features they will include, GUS will be more important during the rollout of testing and implementation. My opinion is that we will still need GUS (or a version of GUS, it is highly adaptable to the changing environment) as a shadow system/financial data management system even after the new financial systems are implemented.  |
| Shadow systems like GUS give departments the ability to organize large amounts of data specifically how we need. It also gives us the ability to mine data in unique ways and set up processes to allow departments to track specific information for specific reports. As of now, the information provided by the GL and Accounting is too limited to provide the services we require to do our jobs. Also because the designer is on campus, I can call him and have him make adjustments to GUS on the fly - helping me provide data to Principal Investigators and others who sometimes have unique requirements. Departments with high volume of monthly transactions would have a hard time efficiently reconciling the monthly GL without a shadow system.<br>If the campus can come up with a system that is flexible, responsive, quick, query-able, and assists in GL reconciliation, I'm all for it. But if the system ends up not being these things, then you will just have departments reverting back to using Excel and FileMaker behind the scenes, at a cost of time and effort by staff. |