Internal Control Issues:
The Case of Changes to Information Processes

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1. Introduction

Much has been written on data integrity as part of the internal control framework in respect to auditing financial statements for external reporting. “However, in the business world, accurate financial reporting is but one component of a greater objective: developing and maintaining a competitive advantage. Other components may include cost and product leadership, quality, and speed of delivery, among others.

Internal control can be a useful tool for achieving and extending all of these goals” (Curtis and Wu 2000). Both operations and upper management need information on sales quantities by territory, product type, and customer. Other information needs include production costs by department and product, inventory levels, accounts receivable and payable balances, cash flow projections, other non-financial performance indicators such as production utilization, material efficiency, on-time delivery, and so on. Good controls to provide information for internal decision making in support of company objectives are critical to the long term success of a corporation. As companies make changes to their information systems they need to be cognizant of the need to include data integrity controls in their new processes.

In reality two distinct classes of control models exist: those of the "business control model" and the "more focused control models for IT." COBIT is the cord which pulls the two models together. Its underpinning concept is that control in IT is approached by looking at information that is needed to support the business objectives and by looking at information as being the result of the combined application of IT-related resources that need to be managed by IT processes.
The Control Objectives for Information and Related Technology (COBIT) – Framework (ISACF 2000) lists the following business requirements of information which have been matched with the broader categories of information technology (IT) controls, that will help an organization to achieve its objectives:

**COBIT**

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<th>IT Quality Requirements</th>
<th>IT Fiduciary Requirements</th>
<th>IT Security Requirements</th>
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<td>Business Controls</td>
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<td>(a) quality</td>
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Additionally, the COBIT framework also provides a matrix which shows that information technology processes and detailed controls are affected by application controls, including data integrity.

The focus of this paper is on the importance of the review and implementation of controls for integrity, particularly when changes are made to current information processes. We first define the terms: integrity, validity, accuracy, and completeness. Next, we point out the potential benefits and risks to internal control of increased use of automated information technology as stated in Statement of Auditing Standards (SAS) No. 94. Finally, we give some examples of instances where because of changes to the current information processes certain data integrity controls needed attention.
Definition of Terms:

**Integrity:** relates to the validity, accuracy, and completeness of information in accordance with a business’s set of values and expectations (ISACF 2000).

**Validity:** concerned with information about an event that actually happened, i.e. a sale that occurred versus recording fictitious sales information.

**Accuracy:** concerned with whether or not the information represents the actual event correctly. For example, reporting sales as 10,000 units rather than the actual amount of 1,000 units would be inaccurate.

**Completeness:** refers to whether or not the information represents all relevant transactions. For example, 3 production runs occurred in a particular day, but only 2 were recorded and posted, would be an example of incomplete information about production.

Potential Benefits and Risks to Internal Control of Increased Use of Automated Information Technology as stated in Statement of Auditing Standards No. 94

“PARA 18. Information technology provides potential benefits of effectiveness and efficiency for an entity’s internal control because it enables an entity to:

(a) Consistently apply predefined business rules and perform complex calculations in processing large volumes of transactions or data.
(b) Enhance the timeliness, availability, and accuracy of information.
(c) Facilitate the additional analysis of information.
(d) Enhance the ability to monitor the performance of the entity’s activities and its policies and procedures.
(e) Reduce the risk that controls will be circumvented.
(f) Enhance the ability to achieve effective segregation of duties by implementing security controls in applications, databases, and operating systems.
Additionally,

PARA 19. Information technology also poses specific risks to an entity’s internal control, including:

(a) Reliance on systems or programs that are inaccurately processing data, processing inaccurate data, or both.
(b) Unauthorized access to data that may result in destruction of data or improper changes to data, including the recording of unauthorized or nonexistent transactions or inaccurate recording of transactions.
(c) Unauthorized changes to data in master files.
(d) Unauthorized changes to systems or programs.
(e) Failure to make necessary changes to systems or programs.
(f) Inappropriate manual intervention.
(g) Potential loss of data.

PARA 20. The extent and nature of these risks to internal control vary depending on the nature and characteristics of the entity’s information system (SAS 94).”

Given the above risks and the fact that companies rely on such data to make business decisions, it is understandable why it is of value to review control procedures after making changes to information processes. In the next section, we demonstrate some cases where changes to the information system may have had impact on data integrity.

2. Changes to Information Process and Internal Controls

Below are two illustrations of changes to information systems in which proper controls for data integrity were later found to need improvement. In both examples auxiliary systems were created that were interfaced with the primary system.

The case study firm is a manufacturing company located in a southeast state
Case 1: Need for change in control points with addition of Shop Floor Data Entry System.

This manufacturing company has a Shop Floor module as part of its integrated system. To enter the production, machine operators on the shop floor recorded data on input sheets. The input sheets were sent to the administrative office at the end of each shift. Each morning an input clerk entered the information from the previous day into the computer. Part of the input clerk’s responsibilities was to make sure that the total time (24 hours a day) was accounted for in either run time or down time for each machine at that location.

Once production was entered the following files were automatically updated: general ledger, inventory (quantities) by product, and manufacturing files by workorder. At the end of the month a program would run to sum the Ending Inventory balance and “Period End” inventory amount.

This company also used detailed information from the ledger and shop floor system to create its actual product costing information. This reporting was done monthly and prepared at the same time as the financial reporting.

The company created a shop floor Data Collection system (“Add-on”), whereby production is entered on the shop floor as units are produced. This system adds additional value by creating real time data entry, making inventory available for shipping purposes as soon as it is input. It also keeps lot tracking at a much more detailed level than prior processes. The data from the shop floor add-on system is put into a batch when the shift is “closed” on the system and then reviewed by shift foremen before being posted to the legacy system. No one was made responsible to ensure that all the time for
each machine was accounted for. For the most part, this was not an issue for machines that ran daily, because in order to start a new shift, the old shift had to have been closed.

Additionally, this system gave the shop floor operators the option to correct mistakes in the weight of the product, and also, to change inventory items from “good to scrap” or “scrap to good” after testing. These shop floor adjustments needed to be batched, then posted, using a separate option on the screen.

**Issues that Developed**

If batches (for regular production or adjustments) were not posted in the correct accounting period, the general ledger entries would get posted into the month that the batch was posted, but the inventory quantities would never get updated, included in the “Period End” balance. This would cause the inventories to be out of balance with the ledger. Additionally, since this company took physical inventory monthly, the ledger and physical inventory would have been adjusted for these inventory items in the previous period, but current inventories could be mis-stated during interim periods.

At the macro level, the accounting information/data was not jeopardized. However, since this company also used this same information for detailed (historical) product costing, often the product costs would look wrong or have entries recorded in the wrong periods. This created many questions from the product managers and perceptions of data integrity being “out of control.” Additionally, for some products it was difficult to prepare an accurate cost analysis because the data was inaccurate or missing, since occasionally the batches were not posted at all.
It was also found that when more than one work order was run on a particular machine during the same shift that sometimes the operators reported all machine hours and labor hours against one work order, rather than splitting the time between the specific work orders. This also misrepresented costs for a particular product.

**Ex Post Facto Internal Control Implemented**

Queries were developed that are run at month end to determine (a) if there are any machines with open shifts that are part of the accounting month being closed and (b) if there are any production batches that have not been posted from the accounting month being closed. Then appropriate people at the location are contacted to handle the procedure(s).

Additionally, a program was written to automatically post shop floor adjustments daily. Also, it was requested that an edit be put in, that matched machine & labor hours against each work order that had production posted against it.

**Case 2: Need to Build in Same Edits into Add-On Systems as Fields that are impacted in the Legacy System**

This company wanted to replace its Storeroom accounting system and integrate it with its current inventory, purchasing, standard costing, and accounts payable system. Programs, screens, user manuals, etc. were created that integrated the requirements of the users for a Storeroom System and main accounting system.
Issues that Developed

Unfortunately certain edits were not built into the Storeroom system for some of the fields that impacted the standard cost system, general ledger, and inventory system through the product master portion of the legacy system. Within the Storeroom system a user could record a change in the standard cost, once changed in the Storeroom system the standard cost field was immediately updated in the Product Master. But no balancing entry was made to the General Ledger to change the value of the Storeroom inventory. The impact being that the Storeroom sub-ledger and the General Ledger account were often not balanced.

Additionally, a product could be marked “Inactive” in the Storeroom system and the Product Master would be immediately tagged as inactive without any edits to determine if there was inventory on hand, an open purchase order, or an in-transit amount for this item. The impact being that the legacy system no longer recognized this product as part of inventory (now the inventory report did not balance to the ledger), a user could not receive in product for this item even if on order, and users got error messages when trying to pay for a product that had been marked inactive.

Also, the reorder point calculation did not consider open purchase orders. Therefore, it was of no value and misleading, creating potential for excess inventory and related carrying/obsolescence cost.

Suggested Internal Control

Install the same edits in the Storeroom system that affected fields in the Product Master of the legacy system. Correct the reorder point calculation. Recommended that
the Information Systems department adopt a policy to review the edits “built into” the legacy system for fields that it is impacting with new programs and that Information Systems build the same edits into the new programs.

3. Conclusion

As illustrated in these cases, changing information systems without proper internal control procedures may result in inaccuracy and inefficiencies. Fixing the problems after implementation may be costly and sometimes interrupt the operations. In order to properly support the business objectives of a company, when making changes to information processes it is still very important to review the controls for data integrity and determine what changes need to occur in either automated or manual processes.
References

