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Introducing Students to Understanding Business Processes and Identifying Data Sources

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ABSTRACT

The ability to understand, document, and analyse business processes is a key skill for accountants. The lack of business experience makes it difficult for many students to grasp the concept of a business process, to recognize business processes in practice and to prepare the necessary documentation. One of the most problematic areas for these students is the identification of data sources and data flows.

This step-by-step in-class exercise utilizes Amazon's order entry process, one with which the students have probably been engaged many times as customers without realizing the complication of the information system behind the website. This exercise allows for active / engaged student learning combined with intense instructor interaction. Additionally, the simple charting notation allows for easy transition to subsequent learning of flowcharting techniques. This exercise also provides an opportunity to touch on many subjects and themes that can be explored later in the semester. Students' feedback pertaining to this exercise was very positive.

Keywords

Business Processes, Identifying Data Sources, In-Class Exercise, Real World Example, Introduction to Flowcharts

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INTRODUCTION

Documenting and evaluating business processes are among the central themes of Accounting Information Systems courses offered at the college level. Understanding business processes and the ability to document and analyze them are among the key skills for auditors entering the profession (Whitehouse, 2013). These skills become even more important with the introduction of the new CPA exam with its emphasis on the application of skills, rather than memorization of rules (AICPA, 2016). Traditional college students, however, seem to struggle with the concept of business processes and identifying data sources within the business processes for a variety of reasons:

First, for many Accounting majors, both the content and the format of an AIS class differ significantly from their expectation of an accounting class (Schiff, 2000). Tying the concept of business processes and internal control to the broader accounting perspective is critically important for keeping the students engaged. A hands-on activity in a real world environment at the beginning of the course contributes greatly to students' interest and engagement.

Second, grasping the concept of business process is challenging for many students due to their lack of relevant business experience. For most of the students, "the idea of a business process is generally using a cash register" (DeVries and Lee, 2013). AIS classes traditionally utilize narratives with step-by-step descriptions of business processes in fictional companies for the teaching of business process documentation, and in particular, flowcharting. Well written narratives provide all the necessary details about the process and allow focusing on flowcharts and mastering them in a relatively short time. However, in a real work setting, flowcharting skills on their own are of little use if not accompanied by the ability to gather information about the business processes from field data such as documents and interviews. Working with field data means dealing with ambiguities, evaluating the quality, reliability and importance of information, and making inferences. None of these can be developed with straightforward cases, rather they require practice with situations bearing ambiguity and conflict (Borthick et al., 2012).

Finally, the technical background of students pursuing business education is varied. While some of the students have strong technical skills and may even double major in Information Systems, many others struggle with anything related to technology. During class discussions of business processes and flowchart documentation it has been observed that students have difficulty with identifying the data sources and related data flows.

Though millennials are active users of the Internet, few are aware how the information is actually stored and handled. When asked to write a business process step-by-step and to identify data sources and data flows, students tend to focus on the steps performed by people (talking to customers, preparing food, packing goods). They often skip most of the steps that include data manipulations, such as searches and recording business events. It is not uncommon for students to include "updating the database" as a step in a business process but to fail to explain which data are actually updated. A good first step is to introduce students to the concept of business processes and identifying data sources.

The following is a partial list of challenges related to understanding the concept of business processes and identifying the data sources and data flows:

- Establishing a step-by-step flow of the business process and interactions with data
- Separating important steps in the process from minor steps (e.g., recording a customer's order vs. asking customer follow-up questions about the order)
- Identifying source documents and data flows
- Identifying the use of information and relevant data sources (such as searching a catalog or finding a customer's record in a database)
- Differentiating between recording new data (e.g., new customer order) and updating existing data
- Understanding relational principles of data design

Using the website “www.amazon.com” for a transitional exercise before introducing system flowcharts helps address the above-mentioned reasons for many students' struggles.

First, students are familiar with Amazon – many are Amazon's regular customers and have placed orders in the past.

Second, order entry at Amazon is a real process in a real business. While it is complex, it can be simplified for analysis. It requires identification of important and less important steps, external entities and processes, and data sources.

Third, the Amazon order entry process can be observed online, and repeated as many times as necessary, helping students understand every step and reducing their anxiety. The online nature of the process also helps focus more on data sources supporting every step, and less on physical and documentation flows.

LEARNING OBJECTIVES

The learning objectives (LO) of this exercise are to introduce the students to the concept of business processes in the context of a real business, to develop their ability to identify data sources and to prepare them to document real business processes. Specifically, upon completion of this exercise, the students should:

- LO 1: be able to define the scope of an order entry process, screening out irrelevant information
- LO 2: be able to identify the major steps of an order entry process
- LO 3: be able to identify the data sources involved in an order entry process and the interactions with them (reading data from a data source, writing new data, updating existing data)

THE EXERCISE

In this assignment you are asked to identify steps and data sources and analyze data flows in the Amazon order entry process. You will create a table with process steps and visually show interactions with data sources and external entities.

Required

1. If you don't already have an account on Amazon, create one (www.amazon.com) or log into your existing Amazon account.
2. Pretend you are placing an order by searching for something that you'd like to have, put it in your shopping cart, and start the checkout process, but *do not click the final "Place the order" button*. Identify the major steps in the order entry process. Next, consider how to break the major steps into more detailed, smaller steps. Finally, identify the data sources used at every step and determine how these data are used (reading, writing, or updating). Amazon offers many options at every step, and many distractions to make you spend more time and money on the web site. Focus only on those steps that are essential for placing an order (i.e. the order cannot happen without these steps). Note that when we analyze the order entry process, we take the standpoint of the business and not the customer.

You may repeat the process until you have identified all the information in the major and detailed smaller steps of the order entry process. Use the information to complete the following table (add rows as needed).

Who is acting	Major step in the process	Smaller detailed step in the process	Data source used	The way the data are used (Reading / Writing / Updating)

Note that shipping is a related but separate process. Payment collection is also a related but separate process.

3. Create a chart from the information documented in the table. The chart should include the three leftmost columns of the table that outline detailed process steps, a cylinder shape for each data source used in the process, and arrows showing which data are read, written and updated at each of the business process steps. Cylinder shapes representing data sources are to be arranged on the right side of the chart.
4. Submit your work in the online course management system and also bring a printed copy to class for discussion.

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