# Plug IT In 1
# Business processes and business process management

## PLUG IT IN OUTLINE

**PI1.1** Business processes

**PI1.2** Business process re-engineering and business process management

## LEARNING OBJECTIVES

1. Discuss ways in which information systems enable cross-functional business processes and business processes for a single functional area.
2. Compare and contrast *business process re-engineering* and *business process management* to determine the different advantages and disadvantages of each.

# PI1.1 Business processes

A **business process** is an ongoing collection of related activities that create a product or a service of value to the organisation, its business partners and/or its customers. A process has inputs and outputs, and its activities can be measured. Many processes cross functional areas in an organisation. For example, product development involves research, design, engineering, manufacturing, marketing and distribution. Other processes involve only a single functional area. Table PI1.1 identifies the fundamental business processes performed in an organisation's functional areas.

**TABLE PI1.1** Examples of business processes

| *Accounting business processes* | |
|---|---|
| • Managing accounts payable<br>• Managing accounts receivable<br>• Reconciling bank accounts<br>• Managing cash receipts | • Managing invoice billings<br>• Managing petty cash<br>• Producing end-of-month close<br>• Producing virtual close |
| ***Finance business processes*** | |
| • Managing account collection<br>• Managing bank loan applications<br>• Producing business forecasts<br>• Applying customer credit approval and credit terms | • Producing property tax assessments<br>• Managing stock transactions<br>• Generating financial cash flow reports |
| ***Marketing business processes*** | |
| • Managing postsale customer follow-up<br>• Collecting GST<br>• Applying copyrights and trademarks<br>• Using customer satisfaction surveys<br>• Managing customer service | • Handling customer complaints<br>• Handling returned goods from customers<br>• Producing sales leads<br>• Entering sales orders<br>• Training sales personnel |
| ***Production/operations management business processes*** | |
| • Processing bills of materials<br>• Processing manufacturing change orders<br>• Managing master parts list and files<br>• Managing packing, storage and distribution<br>• Processing physical inventory<br>• Managing purchasing | • Managing quality control for finished goods<br>• Auditing for quality assurance<br>• Receiving, inspecting, and stocking parts and materials<br>• Handling shipping and freight claims<br>• Handling vendor selection, files and inspections |
| ***Human resources business processes*** | |
| • Applying disability policies<br>• Managing employee hiring<br>• Handling employee orientation<br>• Managing files and records<br>• Applying health care benefits<br>• Managing pay and payroll<br>• Producing performance appraisals and salary adjustments | • Managing resignations and terminations<br>• Applying training/tuition reimbursement<br>• Managing travel and entertainment<br>• Managing workplace rules and guidelines<br>• Overseeing workplace safety |
| ***Management information systems business processes*** | |
| • Antivirus control<br>• Computer security issues incident reporting<br>• Training computer users<br>• Computer user/staff training<br>• Applying disaster recovery procedures | • Applying electronic mail policy<br>• Generating internet use policy<br>• Managing service agreements and emergency services<br>• Applying user workstation standards<br>• Managing the use of personal software |

## Cross-functional processes

All of the business processes listed in table PI1.1 fall within a single functional area of the company. However, many other business processes, such as procurement and fulfilment, cut across multiple functional areas. That is, these processes are cross-functional, meaning that no single functional area is responsible for their execution. Rather, multiple functional areas collaborate to perform the process. For a **cross-functional process** to be

successfully completed, each functional area must execute its specific process steps in a coordinated, collaborative way. To clarify this point, let us examine the procurement and fulfilment cross-functional processes in more detail.

The *procurement process* includes all of the tasks involved in acquiring needed materials externally from a vendor. Procurement is comprised of five steps that are completed in three different functional areas of the firm: warehouse, purchasing and accounting.

The process begins when the warehouse recognises the need to procure materials, perhaps from low inventory levels. The warehouse documents this need with a purchase requisition, which it sends to the purchasing department (step 1). In turn, the purchasing department identifies a suitable vendor, creates a purchase order based on the purchase requisition, and sends the order to the vendor (step 2). When the vendor receives the purchase order, it ships the materials, which are received in the warehouse (step 3). The vendor then sends an invoice, which is received by the accounting department (step 4). Accounting sends payment to the vendor, thereby completing the procurement process (step 5).

The *fulfilment process* is concerned with efficiently processing customer orders. Fulfilment is triggered by a customer purchase order that is received by the sales department. Sales then validates the purchase order and creates a sales order. The sales order communicates data related to the order to other functional areas within the organisation, and it tracks the progress of the order. The warehouse prepares and sends the shipment to the customer. Once accounting is notified of the shipment, it creates an invoice and sends it to the customer. The customer then makes a payment, which accounting records.

An organisation's business processes can create a competitive advantage if they enable the company to innovate or to execute better than its competitors. They can also be liabilities if they make the company less responsive or less efficient. Consider the airline industry. It has become a competitive necessity for all of the airlines to offer electronic ticket purchases via their websites. At the same time, however, these sites must be highly responsive and provide the most current information on flights and prices. An up-to-date, user-friendly site will attract customers and increase revenues. In contrast, a site that

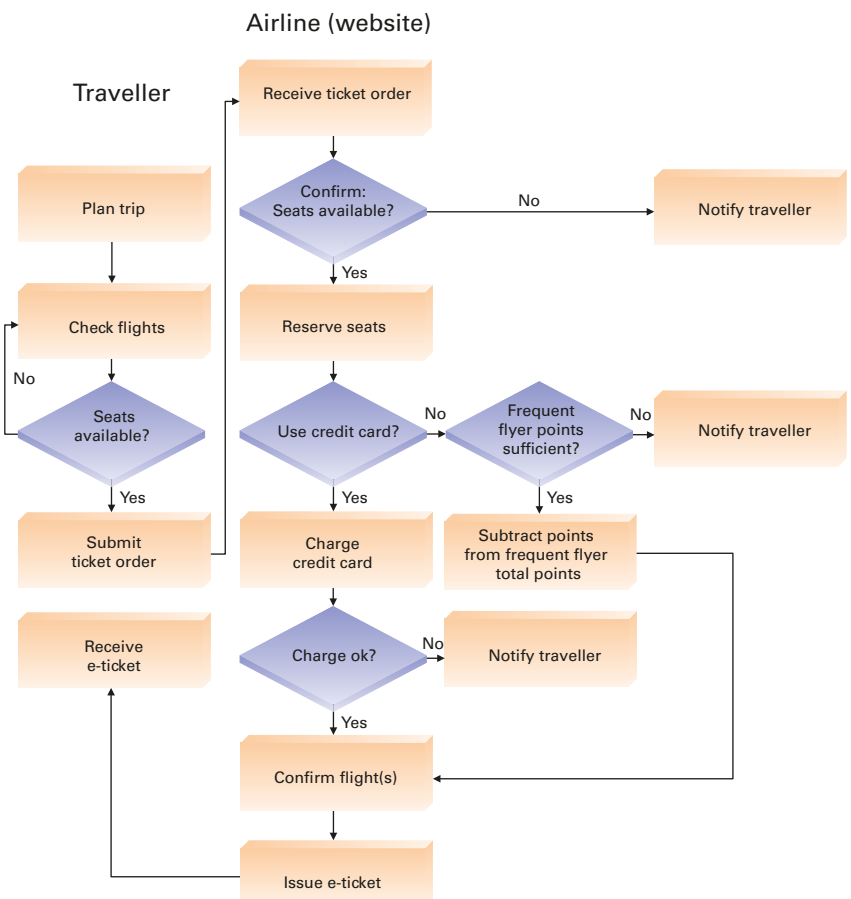


**FIGURE PI1.1** Business process for ordering an e-ticket from an airline's website.

provides outdated or inaccurate information will hurt rather than improve business. Figure PI1.1 illustrates the e-ticket purchasing business process.

# Information systems and business processes

An information system (IS) is an important enabler of business processes in an organisation. An IS facilitates communication and coordination among different functional areas, and it allows easy exchange of, and access to, data across processes. Specifically, ISs play a vital role in three areas:

**1** executing the process
**2** capturing and storing process data
**3** monitoring process performance.

In this section, you will learn about each of these roles. In some cases the role is fully automated — that is, it is performed entirely by the IS. In other cases the IS must rely on the manager's judgment, expertise and intuition.

## Executing the process

ISs help organisations execute processes efficiently and effectively. ISs are typically embedded into the processes and they play a critical role in executing the processes. In other words, an IS and processes are usually intertwined. If the IS does not work, the process cannot be executed. ISs help execute processes by informing people when it is time to complete a task, by providing the data necessary to complete the task, and in some cases by providing the means to complete the task.

In the procurement process, for example, the IS generates the purchase requisitions and then informs the purchasing department that action on these requisitions is needed. The accountant will be able to view all shipments received to match an invoice that has been received from a supplier and verify that the invoice is accurate. Without the IS, these steps, and therefore the process, cannot be completed. For example, if the IS is not available, how will the warehouse know which orders are ready to pack and ship?

In the fulfilment process, the IS will inform people in the warehouse that orders are ready for shipment. The IS also provides them with a listing of what materials must be included in the order and where to find those materials in the warehouse.

## Capturing and storing process data

Processes create data such as dates, times, product numbers, quantities, prices and addresses, as well as who did what, when and where. ISs capture and store these data, commonly referred to as process data or transaction data. Some of these data are generated and automatically captured by the IS. These are data related to who, when and where an activity is completed. Other data are generated outside the IS and must be entered into it. This data entry can occur in various ways, ranging from manual data entry to automated methods involving data in forms such as barcodes or RFID tags that can be read by machines.

In the fulfilment process, for example, when a customer order is received by mail or over the phone, the person taking the order must enter data such as the name of the customer, what was ordered and how much was ordered. When a customer order is received via the firm's website, then all customer details are captured by the IS. Data such as the name of the person entering the data (who), at which location the person is completing the task (where) and the date and time (when) are automatically included by the IS when it creates the order. The data are updated as the process steps are executed. When the order is shipped, the warehouse will provide data about what and how many products were shipped, and the IS will automatically include data related to who, when and where.

An important advantage of using an IS compared to a manual system or multiple functional area information systems is that the data need to be entered into the system only

once. Further, once they are entered, they are easily accessible to other people in the process and there is no need to re-enter them in subsequent steps.

The data captured by the IS can provide immediate feedback. For example, the IS can use the data to create a receipt or to make recommendations for additional or alternate products.

### Monitoring process performance

A third contribution of the IS is to help monitor the state of processes. That is, the IS indicates how well a process is executing. The IS performs this role by evaluating information about a process. This information can be created either at the instance level (i.e. a specific task or activity) or the process level (i.e. the process as a whole).

At the instance level, for example, a company might be interested in the state of a particular customer order. Where is the order within the fulfilment process? When was it shipped? Was the complete order shipped? If it has not been shipped, then when can we expect it to be shipped? Or, for the procurement process, when was the purchase order sent to the supplier? What will be the cost of acquiring the material? At the process level, the IS can evaluate how well the procurement process is being executed by calculating the lead time, or the time between sending the purchase order to a vendor and receiving the goods, for each order and each vendor over time.

Not only can the IS help monitor a process, it can also detect problems with the process. The IS performs this role by comparing the information with a standard or benchmark — that is, what the company expects or desires — to determine if the process is performing within expectations. Management establishes standards based on organisational goals.

If the information provided by the IS indicates that the process is not meeting the standards, then the company assumes that some type of problem exists. Some problems can be routinely and automatically detected by the IS, whereas other problems require a person to review the information and make judgments. For example, the IS can calculate the expected date that a specific order will be shipped and determine whether this date will meet the established standard. Or, the IS can calculate the average time taken to fill all orders over the last month and compare this information to the standard to determine if the process is working as expected.

Monitoring business processes, then, helps detect problems with these processes. Very often these problems are really symptoms of a more fundamental problem. In such cases, the IS can help diagnose the cause of the symptoms by providing managers with additional, detailed information. For example, if the average time to process a customer order appears to be increasing over the previous month, this problem could be a symptom of a more basic problem.

A manager can then drill down into the information to diagnose the underlying problem. To accomplish this, the manager can request a breakdown of the information by type of product, customer, location, employees, day of the week, time of day and so on. After reviewing this detailed information, the manager might determine that employee turnover in the warehouse has been high over the last month and that the delays are occurring because new employees are not sufficiently familiar with the process. The manager might conclude that this problem will work itself out over time, in which case there is nothing more to be done. Alternatively, the manager could conclude that the new employees are not being adequately trained and supervised. In this case, the company must take actions to correct the problem.

**BEFORE** *YOU GO ON . . .*

1. What is a business process?
2. Describe several business processes carried out at your university.
3. Define a cross-functional business process and provide several examples of such processes.
4. Describe the three roles that information systems play in enabling business processes.

## PI1.2 Business process re-engineering and business process management

Excellence in executing business processes is widely recognised as the underlying basis for all significant measures of competitive performance in an organisation. Consider the following measures.

- *Customer satisfaction.* The result of optimising and aligning business processes to fulfil customers' needs, wants, and desires.
- *Cost reduction.* The result of optimising operations and supplier processes.

- *Cycle and fulfilment time.* The result of optimising the manufacturing and logistics processes.
- *Quality.* The result of optimising the design, development and production processes.
- *Differentiation.* The result of optimising the marketing and innovation processes.
- *Productivity.* The result of optimising each individual's work processes.

The question is this: how does an organisation ensure business process excellence?

To become more competitive, businesses needed to radically redesign their business processes to reduce costs and increase quality. The authors further asserted that information technology is the key enabler of such change. This radical redesign, called **business process re-engineering (BPR)**, is a strategy for improving the efficiency and effectiveness of an organisation's business processes. The key to BPR is for enterprises to examine their business processes from a 'clean sheet' perspective and then determine how they can best reconstruct those processes to improve their business functions.

Although some enterprises successfully implemented BPR, many organisations found this strategy too difficult, too radical, too comprehensive and too risky. The impact on employees, on facilities, on existing investments in information systems and even on organisational culture was overwhelming. Despite the many failures in BPR implementation, however, businesses increasingly began to organise work around business processes rather than individual tasks. The result was a less radical, less disruptive and more incremental approach, called business process management. **Business process management (BPM)** is a management technique that includes methods and tools to support the design, analysis, implementation, management and optimisation of business processes.

BPM initially helps companies improve profitability by decreasing costs and increasing revenues. Over time, BPM can create a competitive advantage by improving organisational flexibility. For many companies, BPM can provide cost benefits and increase customer satisfaction. In all cases, the company's strategy should drive the BPM effort, as the case of ANZ illustrates below.

BEFORE
*YOU GO ON . . .*

1 What is business process re-engineering?
2 What is business process management?

## EXAMPLE

IT-driven business process management can contribute to organisational operational efficiency. Before the move to their new Docklands headquarters the ANZ, one of Australia's leading banks, improved its processes by introducing managed print services.[1] A review of existing print services revealed that many printers were not used to full capacity. Additionally, when printers had problems, ANZ employees would waste time creating bottlenecks at operational printers adversely affecting print processes within the organisation.[2] Furthermore, ongoing printing costs including consumables and maintenance were high.

Implementing a managed print service by Fuji Xerox Australia improved printing processes within the ANZ headquarters by ensuring both accountability and cohesion in these processes. Specifically, managed print services offer visibility and control of printing services in organisations which can improve processes and result in cost savings and productivity enhancements.[3] Additionally, managed print services can enhance environmental sustainability and document security. Managed print services also optimise the use of printing devices.[4]

In the case of ANZ's Fuji Xerox implementation of managed printing services, many benefits were realised. Specifically, printing processes were improved in the following ways.[5]

- *Cost savings in relation to printing time and resourcing.*

  Managed print services have helped ANZ ensure the proactive monitoring of printing processes to achieve optimal operational efficiency of both printing devices and consumable supplies (e.g. printer toner, paper).

- *Reduced print volume and guaranteed security with 'Follow You' print feature.*
  The 'Follow You' printing feature enables employees to obtain print materials at their choice of print device with the swipe of their ID card. This ensures document security and reduces the print volume wasted when employees do not find print materials at printers (because they were picked up by mistake by someone else, for example).
- *Diminishing organisational carbon footprint.*
  Managed print services at ANZ can reduce the ANZ's carbon footprint through the use of energy efficient devices and the modification of employee behaviour.

ANZ is deploying its managed printing services to its regional offices both across Australia and internationally (e.g. in Singapore).[6]

## Apply the Concept

### Background

This section has shown that re-engineering processes is not an easy task. Many organisations attempt but do not complete the redesign. Sometimes, a task could be redesigned, but the resulting difference in process efficiency is not worth the time and energy required to redesign the process. That is something each organisation must determine.

### Activity

Map the activities of a typical university student getting ready for class in the morning. You will then re-engineer the process to reduce the amount of time necessary to get ready for university. A partial list of activities that the student already does before going to school (and the time required) is presented in the following table. Add any items that may have been left off the list based upon your own experience of getting ready each day. (If time permits, you may find it helpful to keep a diary of your morning activities, to get an accurate accounting of the activities.)

| Activity | Time required |
|---|---|
| Hit snooze button and sleep in | 10 minutes |
| Shower and wash hair | 15 minutes |
| Blow dry and style hair | 10 minutes |
| Shave or put on makeup | 10 minutes |
| Prepare and eat breakfast | 15 minutes |
| Take dog out | 5 minutes |
| Feed dog | 5 minutes |
| Wash, dry, put away dishes | 5 minutes |
| Drive to campus and park | 15 minutes |
| Pick out clothes and get dressed | 15 minutes |
| Read newspaper | 15 minutes |
| Brush teeth | 5 minutes |
| Work out | 20 minutes |
| Check email | 10 minutes |
| Check Facebook | 20 minutes |

### Deliverable

Organise and design a plan for getting ready in the morning that will reduce the time necessary. The current model takes almost three hours! See if there is anything you can do that would reduce the time for this plan down to around two hours. Submit your redesigned 'getting ready' process to your tutorial group.

## WHAT'S IN IT FOR ME?

### FOR ALL BUSINESS DEGREES

All functional areas of any organisation are composed of a variety of business processes, as we can see from the example in this plug-in. Regardless of your degree, you will be involved in a variety of business processes from your first day in your chosen career. Some of these processes you will do by yourself, some will involve only your group or department, while others will involve several (or all) functional areas of the organisation.

It is important for you to be able to visualise processes, understand the inputs and outputs of each process and know the 'customer' of each process. If you can do these things, you can contribute to making processes more efficient and effective, which often means incorporating information technology. It is also important for you to know how each process fits into your organisation's strategy.

## SUMMARY

**1 Discuss ways in which information systems enable cross-functional business processes and business processes for a single functional area.**

A business process is an ongoing collection of related activities that produce a product or a service of value to the organisation, its business partners and/or its customers. Examples of business processes in functional areas include managing accounts payable, managing accounts receivable, managing after-sale customer follow-up, managing bills of materials, managing manufacturing change orders, applying disability policies, employee hiring, computer user/staff training and applying internet use policy. The procurement and fulfilment processes are examples of cross-functional business processes.

**2 Compare and contrast *business process re-engineering* and *business process management* to determine the different advantages and disadvantages of each.**

Business process re-engineering (BPR) is a radical redesign of business processes that is intended to improve the efficiency and effectiveness of an organisation's business processes. The key to BPR is for enterprises to examine their business processes from a 'clean slate' perspective and then determine how they could best reconstruct those processes to improve their business functions. Because BPR proved difficult and risky to implement, organisations have turned to business process management. Business process management (BPM) is a management technique that includes methods and tools to support the design, analysis, implementation, management and optimisation of business processes.

## >>> GLOSSARY

**business process** A collection of related activities that creates a product or a service of value to the organisation, its business partners and/or its customers.

**business process management** A management technique that includes methods and tools to support the design, analysis, implementation, management and optimisation of business processes.

**business process re-engineering** A radical redesign of a business process that improves its efficiency and effectiveness, often by beginning with a 'clean slate'.

**cross-functional processes** No single functional area is responsible for a process's execution.

## >>> DISCUSSION QUESTIONS

1. Consider the student registration business process at your university.
   - Describe the steps necessary for you to register for your lectures and tutorials each semester.
   - Describe how information technology is used (or is not used) in each step of the process.
2. Why is it so difficult for an organisation to actually implement business process re-engineering?

## >>> ENDNOTES


1. Fuji Xerox (2013), 'Case study: ANZ banks on a sustainable future', www.fujixerox.com.au.
2. ibid.
3. 'What is managed print services?', Managed Print Services website, www.managedprintservices.com.
4. 'Managed print services', Fuji Xerox website, www.fujixerox.com.au.
5. Fuji Xerox (2013), 'Case study: ANZ banks on a sustainable future', www.fujixerox.com.au.
6. ibid.