CHAPTER 5
BUSINESS PROCESSES AND RISKS
Illustrative Solutions

Review Questions

1. A business process is the set of connected activities linked with each other for the purpose of achieving an objective or goal.

2. Two general types of business processes are present in most organizations that deliver goods and services: the operating processes and the management and support processes. The operating processes include strategic planning, product and service design and development, marketing, production/delivery, invoicing, and collection. The management and support processes include obtaining and managing the organization's human resources (this could include hiring, training, benefits), managing financial resources (including budgeting, financial accounting, treasury), managing the information technology resources, managing physical resources (facilities management, security, maintenance, etc.), the organization's compliance and governance systems, and the process for managing the organization's external stakeholders (government relations, public relations, etc.).

3. Unlike business processes, which operate on a continuous or periodic basis, some organizations may use a different method to organize value-creating activities. This structure, called projects, is used when activities happen over an extended period of time, require a complex sequencing, and are relatively unique in that a specific activity is not done continuously. Examples of organizations that often set up their core activities in this manner are engineering and construction firms; mining, oil, and gas companies; and defense contractors.

4. A company's business model includes the objectives of the business and how the business processes are structured to obtain those objectives. It also includes the company's mission and values as the boundaries in which the business will operate (for example, target markets, supply and delivery channels, geographical regions). The model also would include the more tactical goals such as annual budgets and targets.

5. A top-down approach begins at the entity level with the organization's objectives, and then identifies the key processes critical to the success of each of the organization's objectives. A bottom-up approach begins by looking at all processes directly at the activity level, and then aggregates the identified processes across the organization.

6. The key objectives for a process can be identified by determining the following for the process:

   a. Why does the process exist?
   b. How does this process contribute to the success of the organization's strategy?
   c. How are people expected to act?
   d. What else does the process do that is important to management?

7. The two common methods used to document processes are process maps and process write-ups. Process maps show the inputs, workflows, process interactions, and outputs in a graphic form. A process write-up is a narrative description of how the process works.

8. The two common risk assessment factors are impact of the event if it occurs and the likelihood of the event's occurrence.

9. Risks should be linked to business objectives to establish relevance of the risks. Then the risks are mapped to the business processes that either directly or indirectly help to manage those risks.

10. The four strategies an organization can take to respond to risk are:
    a. Controlling the risk (mitigating the risk) by reducing the likelihood of the event taking place, by reducing its impact, or both. For example, the airbags in a car reduce the impact of a collision in terms of the risk that a passenger in the car would be injured.
    b. Transferring (sharing) the risk to (with) other organizations. For example, a farmer transferring some of the risk of bad weather causing a low crop yield to an insurance company by buying crop insurance.
    c. Accepting the risk. In this case, the organization takes its chances that risk events will be tolerable.
    d. Avoiding the risk by not engaging in the activity.

11. Key links are situations in which the success of a business process plays a direct role in managing a risk. For example, in a company selling products online, a critical risk would be computer systems outages, in which case business could not be conducted. The resumption and recovery process would have a key link to this risk. Secondary links are those in which the process helps manage the risk indirectly. In the case of the critical risk regarding computer system outage, a secondary link would be to the hiring, retention, and development of human resources to manage the system.

12. The risk factor approach is implemented by identifying a set of common (generic) risk factors such as amount of assets at risk, liquidity of assets, internal control stability, and so forth. A scale for each factor is established (for example, 1 to 3 or 1 to 7). The organization is then broken into areas or processes and each is then scored on the factors (that is, each area is scored on each factor). The relative importance of the factors also must be determined. This is typically done by using a 100-point weighting scheme where the factors are assigned weights such that when summed across factors, the weights total 100. For each area, the scores on each factor are multiplied by the respective weights and then summed for the area to give a risk score. The risk scores can then be ranked from high to low, or cutoff scores can be established to classify areas as high, medium, or low risk.

13. The three common types of factors are external factors, internal factors, and other factors. Refer to Exhibit 5-12 for examples of each.

14. A risk control map will use risk significance on one axis, which is typically a combination of impact and likelihood, and control effectiveness on the other axis.

15. Once an internal auditor understands an organization's objectives, the next three primary steps are to (1) understand the key processes that are used to achieve those objectives, (2) evaluate the business risks that could impede the accomplishment of the objectives, and (3) identify the strategies employed to manage those risks.

16. Recommended practices include:
    a. Document the outsourced process and indicate which key controls have been outsourced.
    b. Ensure there are means of monitoring the effectiveness of the outsourced process.
    c. Obtain assurance that the internal controls embedded in the outsourced process are operating effectively, either through internal audits of such controls or an external review of these controls (such as a SAS 70 report in the United States).
    d. Periodically reevaluate whether the business case for outsourcing the process remains valid.

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Multiple-choice Questions

1. **D** is the best answer. Product quality presents the most significant risk to the long-term success of a manufacturing organization. Advertising budget, production scheduling, and inventory policy have secondary and short-term impacts on long-term objectives, but alone would not determine long-range success.
2. **B** is the best answer. Process mapping is a tool used to gain the necessary understanding that supports the internal auditor's testing approach. A process map itself cannot determine whether the system can produce reliable information; that requires additional assessment and evaluation. Also, it does not document whether or not the systems meet international auditing standards (in fact, auditing standards have to do with what the auditors do, not characteristics of the control system itself). Finally, the process map itself does not determine whether the system meets management's objectives; that requires further assessment and evaluation.
3. **B** is the best answer. Following cost/benefit principles, processes with lower risk significance should generally have fewer resources devoted to managing those risks. Since the control effectiveness is high in this question, the controls may be excessive relative to the risk.
4. **A** is the best answer. Since the risk significance is so high, it is very important that the organization have high control effectiveness.
5. **C** is the best answer. This risk is highly significant but control effectiveness is low, indicating the risk is not likely to be managed to an acceptable level.
6. **C** is the best answer. All of these choices could be part of an organization's business processes. Safeguarding of assets is an important control objective, but it is not a business process.
7. **B** is the best answer. A diamond symbol represents a decision that is made; therefore, a question is typically included in the symbol.
8. **A** is the best answer. Inherent impact and likelihood are the common risk assessment criteria.
9. **B** is the best answer. When a process manages a risk in an indirect manner, it is considered a secondary link.
10. **B** is the best answer. An important information system upgrade would represent a significant change in operations, processes, personnel, or technology, which is factor #8 in Exhibit 5-12.
11. **D** is the best answer. Outsourcing a business process does not allow management to abdicate responsibility for ensuring the process operates effectively. Therefore, performance requirements should be built into the outsourcing contract. Compliance with performance requirements is a relevant and important internal audit activity. The internal audit function should consider outsourced processes as part of the audit universe and take a proactive approach, reviewing risk and control activities prior to implementation. Outsourcing the process does not remove the operational risks. The internal auditor still needs to consider the risks to the organization and address those risks in the risk assessment process. The independent outside auditor is not required to consider risks that are not related to the financial statements and, thus, may not be interested in all outsourced processes.

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Discussion Questions

1. The significant difference is that the oil exploration company would be organized around projects since their activities typically require many years to complete and the spending of significant amounts of resources before they impact ongoing operational results. Retail organizations would also have some projects, but the majority of resources and activities would focus on operations. Both would require similar management and support processes.

2. Significant business processes would be:
   a. Manufacturing of vehicles.
   b. Research and development, including innovations in design and technology such as hybrids and vehicles powered by non-traditional fuel sources such as fuel cells.
   c. Finance operations, including loan and leasing programs for customers and dealers.
   d. Marketing, sales, and distribution.
   e. Purchasing of parts, components, raw materials, equipment, and other supplies from suppliers located around the world (supply chain management).

   The significant risks include:
   a. The inability to offer innovative, new, price-competitive products that meet and satisfy customer demand on a timely basis.
   b. The inability to market and distribute effectively, and to maintain brand image.
   c. Currency and interest rate fluctuations.
   d. Highly volatile and competitive automobile market.
   e. Political instabilities, fuel shortages, interruptions in transportation systems, natural calamities, wars, terrorism, and labor strikes.
   f. Governmental regulations and legal proceedings, including vehicle safety and environmental matters such as emission levels, fuel economy, noise and pollution, regulation of local content, tariffs and other trade barriers, taxes and levies, and price or exchange controls.

3. This is the age-old question about risk-based auditing. If the highest inherent risk locations are always audited before a medium risk location, the medium risk locations would never be audited. Therefore, it is common for internal audit functions to give consideration to the time since the last audit. If the high-risk location had significant issues last year, it would probably make sense to visit that location again. However, if there were no significant issues identified at the high-risk location, it may be more appropriate to visit the medium-risk location that has not undergone an internal audit in four years.

4. The significant risk to Sargon's purchasing function's objectives of obtaining the right goods, at the right price, at the right time include:
   a. Requirements were not adequately defined by the ordering department so the goods do not meet the necessary specifications.
   b. Buyers did not obtain adequate market information regarding price through competitive bidding or other means.
   c. Supplier selected was not reliable in terms of quality or delivery schedule.
   d. Incorrect amount of goods ordered.
   e. Changes in quantity or specifications are not communicated to the supplier.
   f. Market conditions for good change resulting in significant price increases or scarcity of goods.

5. Students' answers will likely vary depending on their shopping patterns, but answers should be similar to the following:

  a. The primary sales objective is to maximize sales while also ensuring customers leave happy. The primary cash receipts objective is to ensure the amount of cash received is accurate based on the sale, and collectible if the sale is not consummated with cash.
  b. Risks to the sales objective may include: inadequate quantity or quality of inventory; poorly merchandised product; inadequately trained sales associates; and not enough sales associates. Risks to the cash receipts objective include: errors made when checking out a customer; acceptance of counterfeit cash; acceptance of checks that will bounce; acceptance of credit cards that are stolen or otherwise fraudulent; and theft of cash on hand.
  c. Student answers will vary; the instructor should ensure that the activities appear to be relevant to the process, in the proper sequence, and complete.
  d. Once again, answers will vary depending on the activities identified by each student. Instructors should ensure students can support their answer based on the answers to parts a. through c.

6. Potential answers include:
  a. Important objectives include: ensure all employees are paid accurately and timely; all taxes and withholdings are properly remitted; amounts are accurately recorded in the financial statements.
  b. Key risks include: inadequate systems to process payroll transactions; inadequate policies and procedures to guide payroll processing; inadequate number of trained people to process payroll; inappropriate and/or unapproved changes to payroll data; and fraudulent payroll transactions.
  c. A third party specializing in payroll processing may have the systems, process, people, and controls to ensure all of the payroll objectives are consistently met. Also, such parties may have the benefits of economies of scale and, as a result, may be able to offer the service at a cost less than what the company would incur processing payroll itself.
  d. New risks include: the outsourcing provider fails to meet its performance requirements; the company fails to monitor the achievement of such requirements; and the outsourcing provider's financial or operational health may change, resulting in inadequate performance or even going out of business.
  e. Payswell's management should:
    i. Obtain an understanding about the third party's controls, ensure the third party has performance metrics relating to key controls, and implement controls at Payswell to monitor those controls.
    ii. The contract should have a "right to audit" clause so that the internal audit function has the opportunity to periodically assess the design adequacy and operating effectiveness of key controls. It is possible that this also can be met through a separate independent audit by an outside audit firm (commonly referred to as SAS 70 reviews in the United States).

CASES

Case 1 **(This case was adopted from one prepared by Protiviti's Houston office staff for use in the Management Audit and Control class at The University of Texas at Austin.)**

A. Primary key processes used by Pizza Inc. include:
  - Receive customer orders.
  - Make pizza.
  - Deliver pizza.
  - Process customer collections.
  - Pay employees.

B. Students may identify a wide variety of risks. The following list of risks students may consider is more detailed than they are expected to derive at this point; however, it is provided here as it will be relevant later in this case.

- Order is written down incorrectly.
- Customer is not told that requested ingredients are not available.
- Orders are misunderstood by the person making the pizza.
- Pizza maker does not know how to make a pizza.
- Pizza maker does not follow prescribed procedures for making pizza.
- Store runs out of needed ingredients.
- Accident occurs (e.g., dropped on floor) and pizza is not finished timely.
- Oven stops working (due to power outage, maintenance problem, etc.).
- No driver is available.
- Route cannot be determined or address cannot be located.
- Route is outside five-mile delivery area.
- Driver is involved in an accident.
- Driver commits a traffic violation and receives fine.
- Driver is unable to locate customer address.
- Driver engages in personal business while on the job.
- Driver forgets to record arrival time.
- Driver records time inaccurately.
- Customer does not have sufficient payment.
- Driver accepts incorrect payment amount from customer.
- Driver does not record receipt of payment and keeps the customer's money for himself.
- Driver gets lost while returning to the store.
- Driver is robbed and cash from delivery is stolen.

C. The following is a risk by process matrix using the risks identified in B. above and the processes identified in A. above. As previously stated, the number of risks and specificity of such risks detailed here is greater than what is expected of students at this point. However, the matrix below covers all risks to help the instructor assess students' responses. Note that since there are fewer processes than risks, the matrix is reversed when compared to Exhibit 5-11 (that is, risks along the side and processes on the top).

K – Key Link S – Secondary Link	Receive Customer Orders	Make Pizza	Deliver Pizza	Process Customer Collections	Pay Employees
Order is written down incorrectly.	K				
Customer not told ingredients not available.	K			S	
Orders misunderstood by pizza maker.	K				
Pizza maker does not know how to make a pizza.		K			
Pizza maker does not follow procedures.		K			
Store runs out of needed ingredients.		K			
Accident occurs and pizza not finished timely.		K			
Oven stops working.		K	S	S	

K – Key Link S – Secondary Link	Receive Customer Orders	Make Pizza	Deliver Pizza	Process Customer Collections	Pay Employees
No driver is available.			K		
Route cannot be determined or address not located.			K		
Route outside five-mile delivery area.			S		
Driver is involved in accident.			K	S	
Driver commits a traffic violation and is fined.			S	S	
Driver is unable to locate customer address.			K	S	
Driver engages in personal business on job.				S	S
Driver forgets to record arrival time.					S
Driver records time inaccurately.				S	S
Customer does not have sufficient payment.				K	
Driver accepts incorrect payment amount.				K	S
Driver doesn't record payment and keeps the money.				K	K
Driver gets lost while returning to store.					S
Driver is robbed and cash stolen.				S	

D. The process maps will vary by student and process. Instructors should ensure that all key elements of a good process map are included and the sequence of steps appears to be logical and complete.

E. A completed risk/control matrix is included below for the Pizza Delivery process. Note that the matrix below provides examples for G. and H. as well.

Subprocess within Key Process	**Risk Statement**	**Potential Impact**	**Impact/ Likelihood**	**Controls (Risk Response)**	**Techniques for Assessing**
Pizza is assigned to available delivery driver.	No driver is available.	Delivery of pizza is delayed resulting in low quality (cold) product and/or dissatisfied customer.	Medium/ Medium	Schedule enough drivers based on normal ordering demand.	N/A
Driver identifies route on wall map.	Route cannot be determined or address cannot be located. Route is outside five-mile delivery area.	Delivery of pizza is delayed resulting in low quality (cold) product and/or dissatisfied customer.	Low/ Medium	Order taker should validate that the address is within five-mile delivery area.	N/A

Subprocess within Key Process	Risk Statement	Potential Impact	Impact/ Likelihood	Controls (Risk Response)	Techniques for Assessing
Driver drives pizza to customer.	Driver is involved in an accident. Driver commits a traffic violation and receives fine. Driver is unable to locate customer address. Driver engages in personal business while on the job.	Lost revenues to Pizza Inc.	High/ Medium	Background checks (including driving records) are performed before the drivers are hired. Drivers carefully identify route on wall map at the store before leaving. Driver delivery time is recorded and reviewed for each delivery and mileage is randomly audited.	Review documentation of background checks. Ensure map is current. Examine documentation of delivery ticket review and trend analysis.
Driver records arrival time on delivery ticket.	Driver forgets to record arrival time. Driver records time inaccurately.	Inaccurate information for planning and improving driver performance/ customer satisfaction.	Low/ High	Delivery tickets are reviewed and trends are analyzed.	Examine sample of documentation of delivery ticket review and trend analysis.
Driver exchanges pizza for payment.	Customer does not have sufficient payment. Driver accepts incorrect amount from customer. Driver does not record receipt	Lost revenues to Pizza Inc.	Medium/ High	Cash collections are reconciled with order tickets each day. Drivers are accountable for payments.	Examine sample of documentation of cash reconciliations.

Subprocess within Key Process	Risk Statement	Potential Impact	Impact/ Likelihood	Controls (Risk Response)	Techniques for Assessing
	of payment and keeps the customer’s money for himself.				
Driver returns to the Uptown location.	Driver is involved in an accident. Driver commits a traffic violation and receives fine. Driver gets lost while returning to the store. Driver engages in personal business while on the job. Driver is robbed and cash from delivery is stolen.	Increased insurance cost/ legal fees. Dissatisfied customer. Lost revenues.	High/Medium	Background checks (including driving records) are performed before the drivers are hired. Drivers carefully identify route on wall map at the store before leaving. Delivery times are reviewed and mileage is randomly checked. None noted.	Review documentation of background checks. Ensure map is current. Examine sample of documentation of delivery ticket review and trend analysis. N/A

F. The risk map should reflect the impact and likelihood ratings that the student determined in the risk/control matrix.

G. Refer to example in E. above.

H. Refer to example in E. above.

I. Continuing the example from above, the following represent potential recommendations to better mitigate risks related to the pizza delivery process.

- **No driver is available** — Currently, unscheduled absenteeism is high and part-time shift assignments are rotated frequently to reward those individuals who routinely work as scheduled. Pizza Inc. should reassess its policies regarding unscheduled absenteeism. Absenteeism should not be permitted and drivers that do not show up for a scheduled shift, or arrange for a replacement, should be penalized or put on probation. After a predetermined number of missed

shifts (for example, three), drivers' employment should be terminated. Drivers should be held responsible for finding another employee to cover any missed shifts.

- **Route cannot be determined/address cannot be located** — The map used to locate the customer location and determine the delivery route was posted by the original site manager (in 2003). This map may or may not be current. Further, because the store never turns down an order, even if it is outside the required five-mile radius, it is likely that drivers are traveling into areas with which they are unfamiliar. A new map should be posted that accurately represents the current delivery and surrounding area. Further, delivery drivers should keep detailed maps in their vehicles at all times for referral during the delivery. A more costly solution would include portable GPS devices to ensure drivers take the most direct route to the customer location.

- **Driver is involved in an accident or commits a traffic violation** — Pizza Inc. should review its car insurance coverage on a regular basis to ensure that it is sufficient to cover any damages or losses that may occur if a driver is involved in an accident or traffic violation during a shift. Further, Pizza Inc. should require employees to report any non-work-related accidents or traffic violations in which they are involved. Pizza Inc. should perform background checks on employees periodically during employment to ensure that they continue to be good, safe drivers.

- **Customer does not have sufficient payment or driver accepts incorrect amount from customer** — Pizza Inc. should encourage customers to pay with a credit card when the order is taken over the phone. This would allow Pizza Inc. to receive payment *before* delivery is made and no cash would exchange hands.

Case 2

Students should select a recent initial public offering (IPO) and obtain prospectus. As an illustration, a prospectus from June 2007 for Lumber Liquidators, Inc. will be used.

A. Lumber Liquidators is a specialty retailer of hardwood flooring in the United States (the largest one). Its basic business model is to offer great value, superior service, and a broad selection of high-quality hardwood flooring products. It offers an extensive selection of premium hardwood flooring products under multiple proprietary brands at everyday low prices designed to appeal to a diverse customer base. It does this by its vertically integrated business model enabling it to offer a broad assortment of high-quality products to customers at a lower cost than its competitors. It sells products through 98 Lumber Liquidators stores in 40 states, a call center, a website, and a catalog.

   The company considers its competitive advantage to be its brands, value proposition, and integrated multichannel approach. The company offers hardwood flooring products from more than 25 domestic and exotic wood species in both prefinished and unfinished brands of various widths and lengths. Its products are differentiated in terms of quality and price based on the species, grade of the hardwood, quality of finishing, as well as the length of the warranty. It also offers a broad assortment of flooring enhancements and installation accessories, including moldings, noise-reducing underlays, and adhesives. Its product offering is substantially comprised of its proprietary brands.

B. The strategic objective is to continue to increase revenues and profitability by strengthening its position as a leading provider of hardwood flooring within its growing market. Specific elements of its strategy for continued growth include:

- ***Expand Its Store Base.*** The hardwood flooring market is highly fragmented, and the company believes there is a significant opportunity to expand its store base. Because of the low capital investment to open new stores and the attractive returns on investment that its stores generate, the company intends to continue to expand its store base. It plans to open at least 25 new stores in 2009 and between 30 and 40 new stores during each of the next several years thereafter.

- ***Improve Productivity and Efficiency.*** The company seeks to drive productivity through strong comparable store sales performance and by improving operational efficiencies. It expects sales growth will be driven by its investment in its proprietary brands, targeted marketing campaigns, and more efficient sales and inventory planning and forecasting, as well as favorable industry trends.

- ***Leverage Its Multichannel Sales and Brand Marketing.*** The company uses its advertising and marketing activities and its multiple sales channels to help educate potential customers about hardwood flooring. As customers learn more about hardwood flooring and how best to shop for it, they also learn more about the company's products and value proposition, which it believes drives customer store visits and purchases of its products. The company believes that as it continues to leverage its multichannel strategy, it will drive repeat customer traffic. The company also has made a significant advertising and marketing investment to link its brands to quality and value as well as to establish itself as the hardwood flooring experts. As it continues to grow and open more stores, the company believes that its marketing and branding activities will become more efficient and targeted and that its customer acquisition costs will decline on both a per-customer and per-store basis.

C. Key risks include:

- Decrease in home remodeling activity and homebuilding industry in the event of economic decline.
- Inability to execute growth strategy through the development of new stores.
- Inability of management information systems to support planned expansion.
- Lack of availability of sufficient suitable hardwood.

D. Refer to the following matrix for an example:

Mission: To continue to increase revenues and profitability by strengthening its position as a leading provider of hardwood flooring within its growing market.		**Critical Risks**			
		CR1 Decrease in home remodeling activity and homebuilding industry in the event of economic decline.	CR2 Inability to execute growth strategy through the development of new stores.	CR3 Inability of management information systems to support planned expansion.	CR4 Lack of availability of sufficient suitable hardwood.
Objectives	Expand Its Store Base.	X	X	X	X
	Improve Productivity and Efficiency.		X	X	
	Build on Core Strengths.	X	X	X	
	Leverage Its Multichannel Sales and Brand Marketing.	X	X		

E. The internal audit function should focus on Critical Risk 3, that is, providing assurance that effective controls are being implemented and that IT and other management systems are able to support the rapid growth. This would include involvement in review of new IT systems prior to implementation and in reviewing the store site selection and preparation for store opening processes. While the other three risks are important, the sources of the risks are external to the organization and, as such, it is more difficult to design auditable processes to manage those risks.