PAPER – 7: ENTERPRISE INFORMATION SYSTEMS AND STRATEGIC MANAGEMENT

SECTION – A: ENTERPRISE INFORMATION SYSTEMS

*Question No. **1** is compulsory.*

*Answer any **three** questions from the rest.*

Question 1

(a) In most software, there are three layers which together form the application and the same is called Three Tier Architecture. Explain the three layers forming part of the Three Tier Architecture of an application software. ***(3 Marks)***

(b) Write a short note on Automated Teller Machines (ATM) Channel Server. ***(2 Marks)***

Answer

(a) The layers which together form part of Three tier architecture of an application software are as follows:

- The **Application Layer** receives the inputs from the users and performs certain validations like if the user is authorized to request the transaction.
- The **Operating System Layer** carries the instructions and processes them using the data stored in the database and returns the results to the Application Layer.
- The **Database Layer** stores the data in a certain form. For a transaction to be completed, all the three layers need to be invoked. Most application software is built on this model these days.

(b) Automated Teller Machines (ATM) Channel Server: This server contains the details of ATM account holders. Soon after the facility of using the ATM is created by the bank, the details of such customers are loaded onto the ATM server. When the Central Database is busy with central end-of-day activities or for any other reason, the file called Positive Balance File (PBF) that contains the account balance of the customer is sent to the ATM Switch. This ensures not only continuity of ATM operations but also confirms that the Central database is always up-to-date. The above process is applicable to stand alone ATMs at the Branch level. As most of the ATMs are attached to the central network, the only control is through the ATM Switch.

Question 2

(a) Operations management is responsible for the daily running of hardware and software facilities so that production application systems can accomplish their work and development staff can design, implement and maintain application systems. Operations management typically performs controls over many functions. Explain any six of such functions. ***(6 Marks)***

(b) Flowcharts are used in designing and documenting simple processes or programs. Explain any four limitations of Flowcharts. ***(4 Marks)***

Answer

(a) Operations management performs controls over various functions that are discussed below:

- **Computer Operations:** The controls over computer operations govern the activities that directly support the day-to-day execution of either test or production systems on the hardware/software platform available.
- **Network Operations:** Data may be lost or corrupted through component failure. To avoid such situation; the proper functioning of network operations, monitoring the performance of network communication channels, network devices, and network programs and files are required.
- **Data Preparation and Entry:** Irrespective of whether the data is obtained indirectly from source documents or directly from say customers, keyboard environments and facilities should be designed to promote speed and accuracy and to maintain the wellbeing of keyboard operators.
- **Production Control:** This includes the major functions like receipt and dispatch of input and output; job scheduling; management of Service-Level Agreements with users; transfer pricing/charge-out control; and acquisition of computer consumables.
- **File Library:** This includes the management of not only machine-readable storage media like magnetic tapes, cartridges, and optical disks of an organization but also its fixed storage media.
- **Documentation and Program Library:** This involves that librarians ensure that documentation is stored securely; that only authorized personnel gain access to documentation; that documentation is kept up-to-date and that adequate backup exists for documentation. There should also be adequate versioning of documents depending on the updates. The documentation may include reporting of responsibility and authority of each function; definition of responsibilities and objectives of each function; reporting responsibility and authority of each function; policies and procedures; job descriptions and Segregation of Duties.
- **Help Desk/Technical support:** This assists end-user to employ end-user hardware and software such as micro-computers, spreadsheet packages, database management packages etc. and provides the technical support for production systems by assisting with problem resolution.
- **Capacity Planning and Performance Monitoring:** Regular performance monitoring

facilitates the capacity planning wherein the resource deficiencies must be identified well in time so that they can be made available when they are needed.

- **Management of Outsourced Operations:** This has the responsibility for carrying out day-to-day monitoring of the outsourcing contract.

(b) Limitations of Flowcharts are as follows:

- **Complex logic:** Flowchart becomes complex and clumsy where the problem logic is complex. The essentials of what is done can be easily lost in the technical details of how it is done.
- **Modification:** If modifications to a flowchart are required, it may require complete re-drawing.
- **Reproduction:** Reproduction of flowcharts is often a problem because the symbols used in flowcharts cannot be typed.
- **Link between conditions and actions:** Sometimes it becomes difficult to establish the linkage between various conditions and the actions to be taken thereupon for a condition.
- **Standardization:** Program flowcharts, although easy to follow, are neither a natural way of expressing procedures as writing in English, nor are they easily translated into Programming language.

Question 3

(a) Financial Accounting Module is the most important module of the overall ERP System and it connects all the modules to each other. Every module is somehow connected with this module. Explain any six key features of this module. ***(6 Marks)***

(b) Government regulation, however well-intentioned, is only part of an overall green computing philosophy. The work habits of computer users and businesses can be modified to minimize the adverse impact on the global environment. There are several steps for Green IT. What are the Green Computing Best Practices for the Green IT Recycle Step?

(4 Marks)

Answer

(a) The key features of Financial Accounting Module of an overall ERP system are as under:

- Tracking of flow of financial data across the organization in a controlled manner and integrating all the information for effective strategic decision making.
- Creation of Organizational Structure that encompasses defining company, company codes, business areas, functional areas, credit control, assignment of company codes to credit controls etc.

- Financial Accounting Global Settings that incorporate maintenance of Fiscal Year, Posting Periods, Defining Document types, Posting keys, Number ranges for documents etc.
- General Ledger Accounting that includes creation of Chart of accounts, Account groups, defining data transfer rules, creation of General Ledger Account etc.
- Tax Configuration & Creation and Maintenance of House of Banks.
- Account Payables, accounts receivable, fixed assets, general ledger and cash management, etc. For example - creation of vendor master data and vendor-related finance attributes like account groups and payment terms etc.
- Account Receivables that include creation of customer master data and customer-related finance attributes like account groups and payment terms etc.
- Asset Accounting.
- Integration with Sales and Distribution and Materials Management.

(b) The Green Computing Best Practices for the Green IT Recycle step include the following:

- Dispose e-waste according to central, state, and local regulations.
- Discard used or unwanted electronic equipment in a convenient and environmentally responsible manner as computers emit harmful emissions.
- Manufacturers must offer safe end-of-life management and recycling options when products become unusable.
- Recycle computers through manufacturer's recycling services.

Question 4

(a) A private bank is planning to migrate all of its existing operations to a Core Banking System (CBS). During their discussions, the IT consultant is asked to explain about the common IT risks involved in CBS. Explain any six of the common IT risks related to CBS. ***(6 Marks)***

(b) The public cloud is the cloud infrastructure that is provisioned for open use by the general public. Explain any four characteristics of public cloud. ***(4 Marks)***

Answer

(a) Some of the common IT risks related to Core Banking Systems (CBS) are as follows:

- **Ownership of Data/ process:** Data resides at the Data Centre. Establish clear ownership so that accountability can be fixed and unwanted changes to the data can be prevented.

- **Authorization process:** What is the authorization process, if anybody with access to the CBS, including the customer himself, can enter data directly. If the process is not robust, it can lead to unauthorized access to the customer information.
- **Authentication procedures:** Usernames and Passwords, Personal Identification Number (PIN), One Time Password (OTP) are some of the most commonly used authentication methods. However, these may be inadequate and hence the user entering the transaction may not be determinable or traceable.
- **Several software interfaces across diverse networks:** A Data Centre can have as many as 75-100 different interfaces and application software. A data center must also contain adequate infrastructure such as power distribution and supplemental power subsystems including electrical switching; uninterruptable power supplies; backup generators and so on. Lapse in any of these may lead to real-time data loss.
- **Maintaining response time:** Maintaining the interfacing software and ensuring optimum response time and up time can be challenging.
- **User Identity Management:** This could be a serious issue. Some banks may have more than 5000 users interacting with the CBS at once and therefore every user's identity and his/her level of access to a particular system need to be verified.
- **Access Controls:** Designing and monitoring access control is an extremely challenging task. Bank environments are subject to all types of attacks; thus, a strong access control system is a crucial part of a bank's overall security plan. Access control, however, does vary between branch networks and head office locations.
- **Incident handling procedures:** Incident handling procedures are used to address and manage the aftermath of a security breach or cyberattack. However, these at times may not be adequate considering the need for real-time risk management.
- **Change Management:** Though change management reduces the risk that a new system or other change will be rejected by the users; however, at the same time, it requires changes at application level and data level of the database - Master files, transaction files and reporting software.

(b) The characteristics of Public Cloud in the cloud infrastructure are as follows:

- **Highly Scalable:** The resources in the public cloud are large in number and the service providers make sure that all requests are granted. Hence public clouds are scalable.
- **Affordable:** The cloud is offered to the public on a pay-as-you-go basis; hence the user has to pay only for what s/he is using (using on a per-hour basis) and this does not involve any cost related to the deployment.

- **Less Secure:** Since it is offered by a third party and they have full control over the cloud, the public cloud is less secure out of all the other deployment models.
- **Highly Available:** It is highly available because anybody from any part of the world can access the public cloud with proper permission, and this is not possible in other models as geographical or other access restrictions might be there.
- **Stringent Service-Level Agreements (SLAs):** As the service provider's business reputation and customer strength are totally dependent on the cloud services, they follow the SLAs strictly and violations are avoided.

Question 5

(a) The IT Act 2000 attempts to change outdated laws and provides ways to deal with cyber-crimes. We need such laws so that people can perform purchase transactions over the Internet without fear of misuse. In this context, explain any six advantages of Cyber Laws.

(6 Marks)

(b) Audit of environmental controls requires the IS auditor to conduct physical inspections and observe practices. As an IS auditor, you are engaged to conduct an audit of environmental controls for an organization. Discuss any four factors and activities which require your attention in the audit of environmental controls. ***(4 Marks)***

OR

In today's high-speed world, we cannot imagine an information system without an effective and efficient communication system, which is a valuable resource that helps in good management. You are appointed as an IT consultant to design a model computer network for a newly started company. What are the basic issues to be addressed by your network model?

Answer

(a) Some advantages of Cyber laws encompassed under the IT Act 2000 are as under:

- The IT Act 2000 offers the crucial legal framework so that any information which is in the form of electronic records shall not be denied legal effect, validity, or enforceability. This legal framework allows for the authentication and origin of electronic records/communications through digital signature.
- Considering the growth in electronic transactions and communications, the Act seeks to empower government departments to encourage digital data format in terms of accepting filing, creating and retention of official documents.
- The Act allows the emails to be a valid and legal form of communication in India that can be duly produced and approved in a court of law; thus, providing boon to e-businesses in India.

- As the Act sanctions and gives legal validity to Digital signatures, many corporate companies have entered the business of being Certifying Authorities for issuing Digital Signatures Certificates.
- The Government can issue notification on the web thus heralding e-governance under the Act.
- The Act enables the companies to approach any office, authority, body, or agency owned or controlled by the appropriate Government to file any form, application or any other document in electronic form as prescribed by them.
- The corporates get statutory remedy in case their computer systems, data or network get damaged by intruders. The Act allows remedy in the form of monetary damages not exceeding ₹ 1 crore.

(b) As an Information Systems (IS) Auditor, the factors and activities that will be considered while auditing environmental controls are as follows:

- **Power conditioning Equipment:** The IS auditor should determine how frequently power conditioning equipment, such as Uninterrupted Power Supply (UPS), line conditioners, surge protectors, or motor generators are used, inspected, and maintained and if this is performed by qualified personnel.
- **Backup power:** The IS auditor should determine if backup power is available via electric generators or UPS and how frequently they are tested. S/he should examine maintenance records to see how frequently these components are maintained and if this is done by qualified personnel.
- **Heating, Ventilation, and Air Conditioning (HVAC) Systems:** The IS auditor should determine if HVAC systems are providing adequate temperature and humidity levels, and if they are monitored. Also, the auditor should determine if HVAC systems are properly maintained and if qualified persons do this.
- **Water Detectors:** The IS auditor should determine if any water detectors are used in rooms where computers are used. S/he should determine how frequently these are tested and if these are monitored.
- **Fire Detection and Suppression Equipment:** The IS auditor should determine if fire detection equipment is adequate, if staff members understand their function, and if these are tested. S/he should determine how frequently fire suppression systems are inspected and tested, and if the organization has emergency evacuation plans and conducts fire drills.
- **Cleanliness:** The IS auditor should examine data centers to see how clean they are. IT equipment air filters and the inside of some IT components should be examined to see if there is an accumulation of dust and dirt.

OR

The basic issues that are addressed by a newly designed Network Model are as follows:

- **Routing:** It refers to the process of deciding on how to communicate the data from source to destination in a network. In this, data is transferred in the form of data packets using an Internet Protocol or IP address.
- **Bandwidth:** It refers to the amount of data which can be sent across a network in given time. The lesser the bandwidth, lesser is the data transferred and slower the website loads.
- **Contention:** It refers to the situation that arises when there is a conflict for some common resource in a network. For example, network contention could arise when two or more computer systems try to communicate at the same time.
- **Resilience:** It refers to the ability of a network to recover from any kind of error like connection failure, loss of data etc.

PAPER 7 - SECTION – B: STRATEGIC MANAGEMENT

*Question paper comprises of **5** questions, Answer Question No. **6** which is compulsory and any **3** out of the remaining **4** questions.*

Question 6

Ramesh and Suresh own software development firms ACS Ltd. and BDS Ltd. Ramesh and Suresh pitch their business in international markets and win international contracts. Ramesh has fifty software engineers in his team. Suresh, on the other hand, leads a team of forty software engineers. Every project has a specific and fixed timeline. Individual projects are assigned to project heads by Ramesh and Suresh. Ramesh adheres to strict rules and procedures. He met with the project heads to get an update but exchanged ideas occasionally. He set a weekly target of forty hours to complete the assigned goal or task. The group that met the deadline and completed the task received a 10% bonus. The group that was unable to meet the deadline was penalized. The group that did not meet the deadline was penalized with unpaid extra working hours to complete the task. Suresh, unlike Ramesh, did not priorities a structured approach to work. Suresh inspired the project managers by making them feel like leaders rather than just participants. Suresh's empowering attitude helped to align individual goals with group goals. Ramesh established routines to maximize his team efficiency. Suresh, on the other hand, used positive reinforcement to maximize his team efficiency.

(a) Identify the leadership style employed by Ramesh and Suresh.

(b) What are the conditions/situations that make such leadership styles more appropriate?

(c) Discuss the characteristics of the leadership styles.

Answer

(i) **Ramesh adopted transactional leadership style, while Suresh adopted transformational leadership style.**

(ii) Transactional leadership style can be **appropriate in settled and static environment, in growing or mature industries and in organizations that are performing well.**

Transformational leadership style may be **appropriate in turbulent environment**, in industries at the very start or end of their life cycles, **in poorly performing organizations** when there is a need to inspire a company to embrace major changes.

(iii) **Transactional leadership style uses the authority** of its office to exchange rewards such as pay, status symbols etc. **Transactional leaders prefer a more formalized approach** to motivation, setting clear goals with explicit rewards or penalties for achievement and non-achievement. **Transactional leaders focus mainly to build on existing culture and enhance current practices**.

Transformational leadership style uses charisma and enthusiasm to inspire people to exert them for the good of organization. **Transformational leaders inspire employees by offering excitement, vision, intellectual stimulation and personal satisfaction.**

Question 7

(a) "Management at all levels develop strategies". Explain the different strategies formulated at different levels of management.

(b) "The sustainability of competitive advantage and a firm's ability to earn profits from its competitive advantage depends on characteristics of resources and capabilities". Explain this statement.

Answer

(a) At different levels of management, various strategies are formulated to align with organizational goals and objectives which are as follows:

Corporate-Level Strategies: At the **highest level of management,** corporate-level strategies are developed. **These strategies focus on the overall direction and scope of the entire organization.** Major corporate-level strategies include **Stability strategies, Growth strategies, Retrenchment strategies and Combination strategies.**

Business-Level Strategies: Business-level strategies are developed by **middle-level management** and focus on individual business units or divisions within the organization. **These strategies aim to achieve competitive advantage within specific markets.** Common business-level strategies include **Cost Leadership, Differentiation and Focus strategies.**

Functional-Level Strategies: Functional-level strategies are formulated by **lower-level management** or department heads responsible for specific functional areas, such as marketing, finance, operations, or human resources. **These strategies align with business-level strategies and focus on achieving functional objectives.** These strategies include **Marketing strategies, Financial strategies, Operations strategies, Research & Development strategy and Human Resource strategies.**

In conclusion, management at all levels develops strategies that align with the organization's goals. ***Corporate-level strategies determine the overall direction, business-level strategies focus on competitive advantage within specific markets, and functional-level strategies aim to achieve functional objectives in support of the broader strategies.***

(b) The sustainability of competitive advantage and a firm's ability to earn profits from it depends, to a great extent, upon four major characteristics of resources and capabilities which are as follows:

1. **Durability:** The period over which a competitive advantage is sustained depends in part on the rate at which a firm's resources and capabilities deteriorate. In industries where the rate of product innovation is fast, product patents are quite likely to become obsolete. Similarly, capabilities which are the result of the management expertise of the CEO are also vulnerable to his or her retirement or departure. On the other hand, many consumer brand names have a highly durable appeal.
2. **Transferability:** Even if the resources and capabilities on which a competitive advantage is based are durable, it is likely to be eroded by competition from rivals. The ability of rivals to attack position of competitive advantage relies on their gaining access to the necessary resources and capabilities. The easier it is to transfer resources and capabilities between companies, the less sustainable will be the competitive advantage which is based on them.
3. **Imitability:** If resources and capabilities cannot be purchased by a would-be imitator, then they must be built from scratch. How easily and quickly can the competitors build the resources and capabilities on which a firm's competitive advantage is based? This is the true test of imitability. Where capabilities require networks of organizational routines, whose effectiveness depends on the corporate culture, imitation is difficult.
4. **Appropriability:** Appropriability refers to the ability of the firm's owners to appropriate the returns on its resource base. Even where resources and capabilities are capable of offering sustainable advantage, there is an issue as to who receives the returns on these resources.

Question 8

(a) Health Pharma Pvt. Ltd. (HPPL) a one person company with limited liability is manufacturing generic and medicinal drugs in India.

Hygiene Laboratories Plc. (HLP) a multinational company with its strong financial position is one of the major players in pharmaceutical sector.

Individually, each company has its own core competencies. However, additional focus by the state on generic medicine with renewed regulatory requirements are posing challenges in fierce competitive environment.

Considering benefits of synergies, both the companies are considering to join hands for better growth opportunities. Earlier, they tried to go for joint venture or strategic alliance but the arrangement could not materialize.

In view of the facts given above:

(i) If HPPL and HLP join hands and make new entity named Health N Hygiene Pharma Ltd., what type of growth strategy will this strategic development be?

(ii) In case, HLP is sold out to HPPL and HLP ceased to exist, what type of growth strategy will this strategic deal be?

(iii) What are the differences between the above two identified growth strategies?

(b) Buyers of an industry's products or services can sometimes exert considerable pressure on the company. In the light of the five forces as propagated by Michael Porter explain this force. Also state as to when this leverage is evident.

Answer

(a) (i) If HPPL and HLP join hands and form a new entity named Health N Hygiene Pharma Ltd., this strategic development would be considered a Merger growth strategy. A merger is a combination of two or more companies to form a new entity with shared ownership and control.

(ii) If HLP is sold out to HPPL and HLP ceases to exist, this strategic deal would be categorized as an Acquisition growth strategy. An acquisition occurs when one company purchases another, resulting in the acquiring company gaining control over the acquired company's assets, operations, and intellectual property.

(iii) Many organizations in order to achieve quick growth, expand or diversify with the use of mergers and acquisitions strategies. Merger and acquisition in simple words are defined as a process of combining two or more organizations together. There is a thin line of difference between the two terms, but the impact of combination is completely different in both the cases.

Merger is considered to be a process when two or more organizations join together to expand their business operations. In such a case **the deal gets finalized on friendly terms. Owners of pre-merged entities have right over the profits of new entity.** In a merger **two organizations combine to increase their strength and financial gains.**

While, when one organization takes over the other organization and controls all its business operations, it is known as **acquisition**. In the process of acquisition, **one financially strong organization overpowers the weaker one.** Acquisitions often happen during economic recession or during declining profit margins. In this process,

one that is financially stronger and bigger establishes it power. **The combined operations then run under the name of the powerful entity.** A deal in case of an acquisition is **often done in an unfriendly manner;** it is more or less a forced association.

(b) Bargaining Power of Buyers: This is another force that influences the competitive condition of an industry. **This force becomes heavier depending on the possibility of buyers forming groups or cartels.** Mostly, this is a phenomenon seen in industrial products. Quite often, users of industrial products come together formally or even informally and exert pressure on the producer. **The bargaining power of the buyers influences not only the prices that the producer can charge but also influences costs and investments of the producer.** This is because powerful buyers usually bargain for better services which involves more investment on the part of the producer.

Buyers of an industry's products or services can sometimes exert considerable pressure on existing firms to secure lower prices or better services. This leverage is particularly evident when;

(i) Buyers have full knowledge of the source(s) of products and their substitutes. Thus, challenging the price being charged by producers.

(ii) They spend a lot of money on the industry's products i.e. they are big buyers. Thus, in a position to demand favourable terms of contract.

(iii) The industry's product is not perceived as critical to the buyer's needs and buyers are more concentrated than firms supplying the product. They can easily switch to the substitutes available.

Question 9

(a) Strategic planning is an important constituent of strategic management. In the light of the same explain the meaning of strategic planning. Also outline the characteristics of strategic planning.

(b) "Strategic control focuses on implementation and results produced by the strategy". Explain strategic control along with its different types.

Answer

(a) Yes, strategic planning is an important constituent of strategic management. It is a process of determining organizational strategy. **It gives directions to the organization and involves making decisions and allocating resources to pursue the strategy.** It is the formal blueprint of future course of an organization.

Strategic plans are made by the senior management for the entire organization after taking into account the **organization strength and weaknesses** in the light of opportunities and threats in the external environment. They involve **acquisition and allocation of resources for the attainment of organizational objectives.**

Strategic planning deals with one or more of three key questions:

- What are we doing?
- For whom do we do it?
- How to improve and excel?

Following are the characteristics of strategic planning:

- Strategic planning shapes the organisation and its resources.
- Strategic planning assesses the impact of environmental variables.
- Strategic planning takes a holistic view of the organisation.
- Strategic planning develops overall objectives and strategies.
- Strategic planning is concerned with the long-term success of the organisation.
- Strategic planning is a senior management responsibility.

(b) Strategic control focuses on implementation and results produced by the strategy. It focuses on the dual questions of whether: (1) the strategy is being implemented as planned; and (2) the results produced by the strategy are those intended.

There are four types of strategic control:

- **Premise control:** A strategy is formed on the basis of certain assumptions or premises about the environment. Premise control is a tool for systematic and continuous monitoring of the environment to verify the validity and accuracy of the premises on which the strategy has been built.
- **Strategic surveillance:** Strategic surveillance is unfocussed. It involves general monitoring of various sources of information to uncover unanticipated information having a bearing on the organizational strategy.
- **Special alert control:** At times unexpected events may force organizations to reconsider their strategy. Sudden changes in government, natural calamities, unexpected merger/acquisition by competitors, industrial disasters and other such events may trigger an immediate and intense review of strategy.
- **Implementation control:** Managers implement strategy by converting major plans into concrete, sequential actions that form incremental steps. Implementation control is directed towards assessing the need for changes in the overall strategy in light of unfolding events and results.

Question 10

(a) Changes in environmental forces often require businesses to make modifications in their existing strategies. In view of the same explain the areas to be focused while considering concept of strategic change. Also explain the steps to initiate strategic change process.

(b) Ratu has been as CEO of PRO Ltd. He is given the responsibility of developing new products and improving old products. He is facing a conflict whether the firm should develop research and development expertise internally or outsource it to external agency. What guidelines will help Ratu to make this decision?

OR

You have been appointed as head of the Strategic Business Unit (SBU) of a large multiproduct company. Explain the leadership roles, you have to play as a Manager in pushing for good strategy execution.

Answer

(a) The changes in the environmental forces often require businesses to make modifications in their existing strategies and bring out new strategies. **Strategic change is a complex process that involves a corporate strategy focused on new markets, products, services and new ways of doing business.**

For initiating strategic change, three steps can be identified as under:

(i) ***Recognize the need for change***: The first step is to diagnose facets of the corporate culture that are strategy supportive or not. The idea is to determine where the lacuna lies and scope for change exists.

(ii) ***Create a shared vision to manage change***: Objectives and vision of both individuals and organization should coincide. Senior managers need to constantly and consistently communicate the vision not only to inform but also to overcome resistance.

(iii) ***Institutionalize the change***: Creating and sustaining a different attitude towards change is essential to ensure that the firm does not slip back into old ways of thinking or doing things. All these changes should be set up as a practice to be followed by the organization and be able to transfer from one level to another as a well settled practice.

(b) A critical question is whether PRO Ltd. should develop research and development expertise internally or outside to external agencies. **The answer to this critical question mainly depends on rate of technology progress and rate of market**

growth. The following guidelines can be used by Ratu, the CEO of PRO Ltd. to help make this decision:

- **If the rate of technical progress is slow, the rate of market growth is moderate,** and there are significant barriers to possible new entrants, then **in-house R&D is the preferred solution.** The reason is that R&D, if successful, will result in a temporary product or process monopoly that the company can exploit.
- **If technology is changing rapidly and the market is growing slowly,** then a **major effort in R&D may be very risky**, because it may lead to the development of an ultimately obsolete technology or one for which there is no market.
- **If technology is changing slowly but the market is growing quickly,** there generally is not enough time for in-house development. The prescribed approach **is to obtain R&D expertise on an exclusive or non-exclusive basis from an outside firm.**
- **If both technical progress and market growth are fast**, R&D expertise should **be obtained through acquisition** of a well-established firm in the industry.

Or

A head of the strategic business unit (SBU) has many different leadership roles to play: visionary, chief entrepreneur and strategist, chief administrator, culture builder, resource acquirer and allocator, capabilities builder, process integrator, crisis solver, spokesperson, negotiator, motivator, arbitrator, policy maker, policy enforcer, and head cheerleader. Managers have five leadership roles to play in pushing for good strategy execution:

1. Staying on top of what is happening, closely monitoring progress, working through issues and obstacles.
2. Promoting a culture that mobilizes and energizes organizational members to execute strategy and perform at a high level.
3. Keeping the organization responsive to changing conditions, alert for new opportunities and remain ahead of rivals in developing competitively valuable competencies and capabilities.
4. Ethical leadership and insisting that the organization conduct its affairs like a model corporate citizen.
5. Pushing corrective actions to improve strategy execution and overall strategic performance.