CHAPTER 17

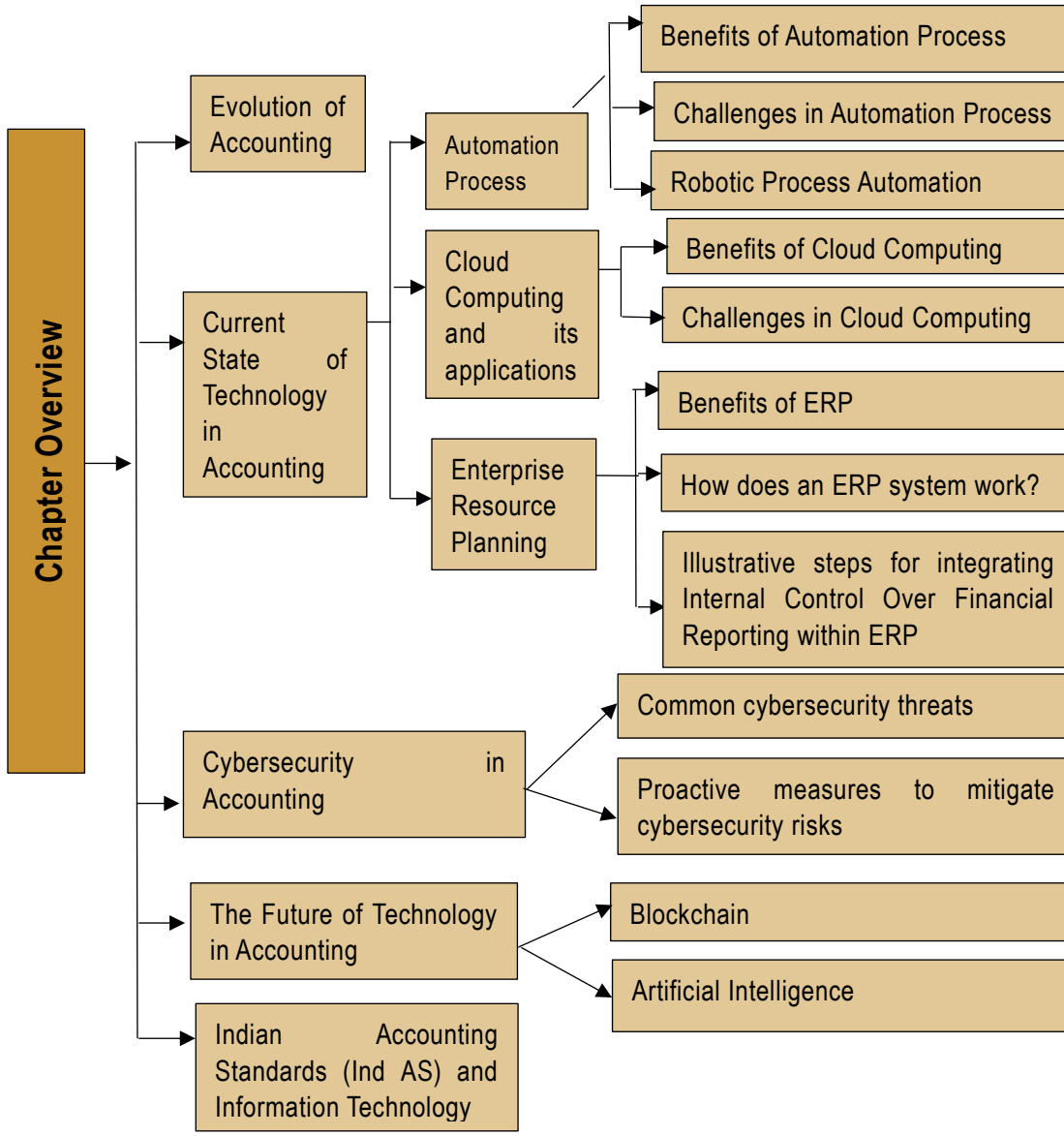
ACCOUNTING AND TECHNOLOGY

LEARNING OUTCOMES

After studying this chapter, you will be able to:

- Delve into various technologies that have had a significant impact on the accounting profession like Cloud Computing, Artificial Intelligence and Cybersecurity etc.
- Recognise the benefits of each technology and how they have changed the way accountants perform their tasks.
- Examine the challenges that accounting professionals face in adapting to new technologies.
- Appreciate the importance of accounting professionals staying up-to-date with the latest technologies.
- Automate the accounting process with various technologies for various Ind AS based situations.

CHAPTER OVERVIEW



1. INTRODUCTION

Accounting is a critical function for all businesses, as it enables them to track and manage their financial transactions, budgets, and investments. The field of accounting has undergone significant changes in recent years, primarily due to advancements in technology. As businesses have embraced digital transformation, the accounting profession has evolved, becoming more efficient and accurate with the help of new technologies.

It is not the intent of the chapter to discuss a particular accounting software in detail, hence this chapter will not contain for instance, commands to pass vouchers in software like Tally or SAP. This chapter intends to provide an overview of the impact of technology on the accounting profession. It highlights the trends that are transforming the industry and the challenges that accounting professionals face in adapting to new technologies.

The chapter commences with a discussion on the history of accounting and its evolution over time. Accounting practices were once manual and paper-based, but advancements in technology have enabled automation, making accounting processes faster and more efficient.

The chapter then delves into the various technologies that have had a significant impact on the accounting profession. These technologies include cloud computing, artificial intelligence, and cybersecurity etc. The chapter discusses the benefits of each technology and how they have changed the way accountants perform their tasks. For example, cloud computing has made it possible for accountants to access financial data from anywhere in the world.

The chapter also examines the challenges that accounting professionals face in adapting to new technologies. For example, the implementation of new technologies can be costly, and many businesses may not have the resources to invest in them. Additionally, some accounting professionals may be resistant to change, preferring to stick with the traditional methods they are comfortable with.

The chapter concludes by highlighting the importance of accounting professionals staying up-to-date with the latest technologies. As businesses continue to embrace digital transformation, accountants must be able to adapt to new technologies to remain competitive in the industry. The chapter emphasizes the need for ongoing education and training to ensure that accounting professionals have the skills they need to succeed in an increasingly digital world.

2. EVOLUTION OF ACCOUNTING

This section provides a detailed history of accounting from its earliest origins to modern-day practices. Understanding the history of accounting is essential to comprehending the current state of the profession and the role technology has played in its evolution.

The origins of accounting can be traced back to ancient civilizations such as the Egyptians, Greeks, and Romans. In these early civilizations, accounting primarily involved record-keeping for tax purposes and for the management of government resources. These early accounting systems were manual and paper-based, and the process was labour intensive. By the time of the Roman Empire, the government had access to detailed financial information.

In India, Chanakya authored a manuscript similar to a financial management book during the period of the Mauryan Empire. His book 'Arthashastra' contains few detailed aspects of maintaining books of accounts for a sovereign state.

The Italian Luca Pacioli, recognized as The Father of accounting and bookkeeping was the first person to publish a work on double-entry bookkeeping, thereby introducing the field in Italy. Subsequently, accounting practices evolved to include double-entry bookkeeping. This system enabled businesses to create a balance sheet, which showed the financial position of the company at a given time. The introduction of double-entry bookkeeping was a significant milestone in the history of accounting and laid the foundation for modern-day accounting practices.

With the industrial revolution, significant changes came to the accounting profession. Due to the advent of machines and mass production, accounting became more complex, requiring more detailed records of financial transactions. This period also saw the rise of the accounting profession, with the establishment of the first professional accounting organizations. The Institute of Chartered Accountants of Scotland is the world's oldest and first professional chartered accountants' body, being established by the Royal Charter in 1854. Subsequently, organizations such as the Institute of Chartered Accountants in England and Wales, Certified Practising Accountant Australia, American Institute of Certified Public Accountants and Chartered Accountants Ireland were established in the 19th Century. With the advent of the 20th Century, the Association of Chartered Certified Accountants was established, followed by organizations such as the Institute of Chartered Accountants of India and the Institute of Singapore Chartered Accountants.

In the post-industrial period, technological advancements such as the computer, transformed the accounting profession. The introduction of computers enabled accountants to automate many of the manual processes associated with accounting, making the process faster and more accurate.

To elucidate further, interest calculation in banks, which is currently system driven was once computed manually by the bank staff. Given the huge volume of transactions, interest computation usually took over a month for each branch, and the chances of errors were very high since the same was manual.

Currently, there is an upsurge of technology in the accounting field on account of cloud computing and artificial intelligence, all of which are transforming the accounting profession, making it more efficient and accurate. However, these new technologies also present challenges for accounting professionals, who must adapt to new systems and processes to remain competitive.

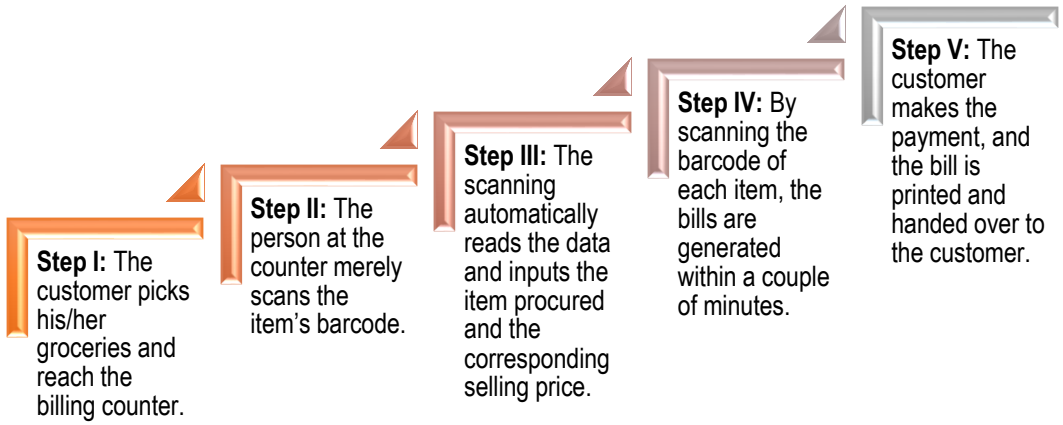
3. THE CURRENT STATE OF TECHNOLOGY IN ACCOUNTING

This section provides an in-depth overview of the current state of technology in the accounting profession. It discusses the various technologies used in accounting and their impact on the profession, including automation, cloud computing, and artificial intelligence

3.1 Automation Process

The major change visible is the automation of the accounting process. Automation is the use of software and other tools to automate manual processes, making them faster and more accurate. We can understand this with the help of the below example:

For instance, let us consider the activities involved in the process of procuring groceries from a departmental store such as Walmart or Reliance Smart Bazaar **at the Front-End.**



The entire process happens in a fraction of a second, saving valuable time and mitigating all errors.

However, **at the backend, the below activities take place:**

As and when the barcode of an item is scanned at the billing counter, the inventory of the said item at the departmental store is simultaneously updated recording the issue/sale of the same. This ensures accuracy in maintenance of inventory data.

A periodical physical check of inventory will give conclusive evidence of the correctness of data generated by the system, thereby giving comfort on the management assertions of accuracy, valuation and existence of the inventory.

In certain cases, the software is so programmed that the indirect taxes (GST) levied on the sale value as per the invoice is updated simultaneously, which can get uploaded on the GST portal at the end of the day by the accounting team in the backend.

This ensures accuracy in returns uploaded, thereby minimizing the need for manual reconciliation and data maintenance.

Software are also programmed to ensure that the bill amount is automatically displayed on the Point of Sale Machine, through which the customer makes the payment either through debit/credit card or through UPI. In case the customer opts to make payment in cash, entering the amount on the Screen will open the cash drawer in which the cash paid is deposited.

Since the cash drawer is opened through the system only after logging in by the concerned person, in case of mismatch in cash balances, the concerned person can be identified, thereby reducing the chances of misappropriation of cash.

3.1.1 Benefits of Automation Process

1. **Streamlining Data Entry:** Automation tools, such as optical character recognition (OCR) or barcode recognition technology, can help to automate the entry of data from source documents such as receipts and invoices. This can reduce the amount of time and effort required for manual data entry, as well as minimizing the potential for human error.

2. **Accelerating Data Processing:** Automation can help to process large amounts of data / large volumes of transactions more quickly and accurately than manual methods. For example, software can automatically categorize transactions into the appropriate accounts, calculate tax amounts, and generate financial statements, among other tasks.

3. **Enhancing Accuracy:** Automation can help to reduce errors and discrepancies in accounting processes. By automating tasks such as data entry and calculations, businesses can minimize the risk of errors caused by human error, improving the accuracy and reliability of their financial data.

4. **Improving Decision-Making:** Automation can provide real-time insights into financial data, enabling businesses to make informed decisions more quickly. With automated reporting, the time spent on routine tasks is greatly minimized, enabling businesses to gain deeper insights into their financial performance, identify trends and patterns, and adjust their strategies accordingly.

5. **Saving Time and Money:** Automation reduces the amount of time and resources required to perform manual tasks such as data entry and reconciliations. This results in businesses saving on staffing costs and increases productivity and enabling accountants to focus on higher-level tasks such as analysis and planning.

6. **Facilitating Compliance:** Automation helps business to stay compliant with regulations and standards by ensuring accounting practices meet the necessary requirements. As seen above, automation ensures accurate data for the purposes of return filing. Further, in case the systems are so programmed, reporting tools can generate financial statements that meet the criteria of Ind AS or Indian GAAP as the case may be. This would ensure minimizing the risk of non-compliance and potential penalties.

3.1.2 Challenges in Automation Process

Automation also comes with its own set of potential drawbacks and challenges, some of them are mentioned below:

- It arises the need for ongoing training and education to keep up with the latest technology.
- Automation also presents a risk of data breaches and cyber-attacks, which can compromise the security and confidentiality of financial data.
- Due to automation, there exists potential loss of jobs. However, this can be mitigated by ensuring appropriate training to the workforce to remain updated with the technology.

To summarize, automation helps businesses achieve efficiency, accuracy and decision-making in accounting while saving time and money and facilitating compliance with regulations and standards.

3.1.3 Robotic Process Automation

Robotic Process Automation (RPA) is an emerging technology that revolutionizes financial reporting processes. RPA utilizes software robots or "bots" to automate manual and repetitive tasks in financial data processing, analysis, and reporting. By mimicking human interactions with digital systems, RPA bots can extract and consolidate data, perform calculations, generate

reports, and ensure compliance with accounting standards. The adoption of RPA in financial reporting improves accuracy, enhances efficiency, and frees up valuable time for finance professionals to focus on more strategic activities. Moreover, RPA enables organizations to achieve timely reporting, cost savings, and increased data integrity, ultimately leading to more reliable and insightful financial information.

Example 1: Using RPA in Financial Reporting

Let us consider XYZ Company, a group of companies that prepares consolidated financial statements in accordance with Ind AS 110. To streamline their financial reporting processes, XYZ Company decides to leverage Robotic Process Automation (RPA). In that case, the steps involved would be:

- As XYZ Company has multiple subsidiaries, each maintaining their own financial data, RPA bots are implemented to automate the process of extracting financial data from the subsidiary systems and consolidating it into the parent company's financial system.
- The bots retrieve the relevant financial information, perform necessary currency conversions, and reconcile intercompany transactions, ensuring accurate and timely consolidation.
- As per Ind AS 110, intercompany transactions need to be eliminated to avoid double counting and provide a true representation of the group's financial position. RPA bots are programmed to identify intercompany transactions within the consolidated financial data.
- The bots automatically eliminate these transactions by adjusting the corresponding accounts and generating elimination entries, simplifying the process and reducing the potential for errors.
- The bots retrieve the consolidated financial data from the parent company's financial system and apply the necessary consolidation adjustments.
- They perform calculations for non-controlling interests, equity, and comprehensive income attributable to the parent and non-controlling interests.
- The bots generate the consolidated balance sheet, income statement, statement of changes in equity, and cash flow statement, ensuring accuracy and consistency in the financial reporting process.

3.2 Cloud Computing

Cloud computing refers to the delivery of computing services over the internet. It allows accountants to access their data and software from any device with an internet connection.

The entire world was hit in 2020 with probably the biggest black swan event of the past couple of decades– the COVID-19 pandemic. The continuous lockdowns severely impacted businesses, and operations came to a standstill. This in turn led to viewing cloud computing as a serious alternative compared to traditional client-server architecture in physical locations controlled by the entities themselves.

With the advent of cloud computing, persons could access the systems from their respective locations, work remotely during the lockdown and ensure that the accounting process and reporting requirements did not suffer adversely.

3.2.1 Common Applications / Cases of Cloud Computing

1. **Cloud Storage**: Services like Dropbox, Google Drive, and Microsoft OneDrive offer cloud storage solutions that allow users to store and access their files and data from anywhere with an internet connection. Users can save documents, photos, videos, and other files in the cloud and synchronize them across multiple devices.

2. **Software as a Service (SaaS)**: SaaS platforms provide cloud-based software applications that users can access and utilize via the internet. Examples include Salesforce for customer relationship management (CRM), Slack for team collaboration, and QuickBooks Online for accounting and financial management.

3. **Infrastructure as a Service (IaaS)**: IaaS providers offer virtualized computing resources, including servers, storage, and networking infrastructure, on a pay-as-you-go basis. Examples include Amazon Web Services (AWS), Microsoft Azure, and Google Cloud Platform. These platforms allow businesses to scale their IT infrastructure based on demand without the need for physical hardware.

4. **Platform as a Service (PaaS)**: PaaS providers offer cloud-based platforms that enable developers to build, deploy, and manage applications without the complexity of infrastructure management. Examples include Microsoft Azure App Service, and Google App Engine.

5. **Cloud-based Communication and Collaboration**: Applications like Microsoft Teams, Google Workspace (formerly G Suite), and Zoom provide cloud-based communication and

collaboration tools that facilitate real-time messaging, video conferencing, file sharing, and project management.

6. **Cloud-based E-commerce**: Few platforms enable businesses to set up and manage online stores using cloud infrastructure. These platforms provide features like product catalogues, payment processing, inventory management, and customer analytics.

7. **Big Data Analytics**: Cloud computing enables organizations to process and analyze large volumes of data efficiently. Services like Amazon Redshift, Google BigQuery, and Microsoft Azure Data Lake Analytics provide scalable infrastructure for big data processing and analytics, empowering businesses to derive valuable insights from their data.

3.2.2 Benefits of Cloud Computing

Following are some of the ways in which Cloud Computing has positively impacted accounting:

1. **Improved accessibility:** Cloud-based accounting software allows users to access their financial data from any location with an internet connection. This has increased accessibility and flexibility for accountants and business owners, allowing them to work remotely and collaborate in real-time.

2. **Enhanced security:** Cloud-based accounting software providers typically offer advanced security features such as encryption, firewalls, and multi-factor authentication helping in the protection of sensitive financial data from cyber threats and data breaches.

3. **Increased scalability:** Cloud-based accounting software allows businesses to easily scale up or down based on their changing needs. As a business grows, it can easily add new users and features without having to invest in additional hardware or software.

4. **Reduced costs:** Cloud-based accounting software typically requires less upfront investment in hardware and software, as well as ongoing maintenance costs. This can help businesses save money on IT expenses and redirect those funds to other areas of the business. For example, the costs of installing Microsoft Office Suite on a laptop or desktop is far more expensive than subscribing to the Office 365 Suite, which is a web-based download. Further, the web-based download also provides the options of continuous free updates unlike its Office Suite offline counterpart.

5. **Streamlined collaboration:** Cloud-based accounting software allows multiple users to collaborate in real-time, reducing the need for manual data entry and communication. This can help to streamline workflows and reduce errors caused by miscommunication.

6. **Improved reporting and analytics:** Cloud-based accounting software often includes powerful reporting and analytics tools that allow businesses to gain deeper insights into their financial performance. This can help businesses make more informed decisions and identify areas for improvement.

3.2.3 Challenges in Cloud Computing

Following are the potential challenges which may emerge in cloud computing:

- Since cloud-based software are completely online, they could be prone to hackers who could 'steal' data or passwords or compromise the integrity of the processed data, thereby causing disruptions to the businesses.
- Strong net connectivity is a must for cloud-computing to be a success. Though there has been a huge surge in network and mobile connectivity in the past decade, connectivity in non-metros, tier-2 or tier-3 cities is not well-developed, which could create accessibility issues to the users of the cloud-based accounting software.

Example 2: Using Cloud Computing

The finance team at XYZ Company, consisting of chartered accountants and financial analysts, collaborates on the preparation of the Income Statement. They utilize cloud-based collaboration tools, such as Microsoft Teams or Google Workspace, to enhance their efficiency and ensure accuracy in the reporting process.

- Using cloud-based spreadsheets or shared documents, the finance professionals from various locations input the relevant financial data into the Income Statement template. They update revenue figures, operating expenses, cost of goods sold, and other relevant information, ensuring accurate and comprehensive data collection.
- Through cloud collaboration platforms, team members can work on the Income Statement simultaneously, regardless of their physical locations. They can review, edit, and make real-time updates to the document. For example, the finance team in Mumbai can update the revenue figures based on the sales data received, while the team in Bengaluru can revise the operating expenses based on the cost information provided.
- Cloud-based collaboration tools offer version control features, allowing the team to track changes made to the Income Statement over time. This ensures that the latest version is always accessible and helps in maintaining an audit trail for any revisions or modifications made during the reporting process.

- Once the Income Statement is prepared, the finance team can use cloud-based communication channels, such as instant messaging or video conferencing, to discuss the document and address any queries or concerns. The team lead or finance manager can review the Income Statement, provide feedback, and approve the final version before submission.
- Cloud-based collaboration ensures that all team members have secure access to the Income Statement from their respective locations. User access controls and permissions can be managed to restrict access to authorized personnel only, maintaining data confidentiality and security.

3.3 Enterprise Resource Planning (ERP)

Enterprise resource planning (ERP) is a type of software that organizations use for managing day-to-day business activities like procurement, project management, accounting, risk management, compliance, and supply chain operations.

ERP systems connects and corelates a multitude of business processes and enable the flow of data between them. It collects an organization's shared transactional data from multiple sources and thus eliminate data duplication and provide data integrity with a single source of authentication.

Nowadays, ERP systems are used by many organisations as it is critical for managing thousands of businesses of varied sizes covering all industries. Cloud-based ERP applications are embedded with next-generation technologies, such as AI, machine learning (ML), and digital assistants.

ERP systems are designed around a single, defined data structure (schema) that typically has a common database. This helps to ensure that the information used across the enterprise is normalized and based on common definitions and user experiences. These core constructs are then interconnected with business processes driven by workflows across business departments (e.g. finance, human resources, engineering, marketing, and operations), connecting systems and the people who use them.

Since data is the lifeblood of every modern company, ERP makes it easier to collect, organize, analyze, and distribute this information to every individual and system that needs it to best fulfill their role and responsibility. ERP also ensures that these data fields and attributes roll up to the correct account in the company's general ledger so that all costs are properly tracked and represented.

A key ERP principle is the central collection of data for wide distribution. With a secure and centralized data repository, everyone in the organization can be confident that data is correct, up-

to-date, and complete. Data integrity is assured for every task performed throughout the organization, from a quarterly financial statement to a single outstanding receivables report.

3.3.1 Benefits of ERP

It's impossible to ignore the impact of ERP in today's business world. As enterprise data and processes are caged into ERP systems, businesses can align separate departments and improve workflows, resulting in significant bottom-line savings. Examples of specific business benefits include:

1. Improved business insight from real-time information generated by reports
2. Less operational costs through streamlined business processes and best practices
3. Enhanced collaboration of users sharing data in contracts, requisitions, and purchase orders
4. Better efficiency through a common user experience across many business functions and well-defined business processes
5. Consistent infrastructure from the back office to the front office
6. Increased user-adoption rates from a common user experience and design
7. Reduction in risk through improved data integrity and financial controls
8. Less management and operational costs through uniform and integrated systems

3.3.2 How does an ERP system work?

ERP systems work by using a defined, standard data structure. Information entered by one department is immediately available to authorized users across the business. This uniform structure helps keep everyone on the same page.

Real-time data is then woven into business processes and workflows across departments. Managers check if one location is doing significantly better than another site and can figure out why. Finance department can use ERP for comparison of sales, profits and other financial data to help executives in understanding the performance of the organisation and also for setting new targets.

ERP systems deliver the most value when a company has modules for each major business function and ensures timely and accurate data entry. When a company uses business systems from multiple vendors, integrations are generally possible to make data automatically flow into the ERP. This real-time data can then be used throughout the ERP instance to benefit any process or workflow.

3.3.3 Illustrative steps for integrating Internal Control Over Financial Reporting with an ERP

Integrating Internal Control over Financial Reporting (ICOFR) with an Enterprise Resource Planning (ERP) system offers the key advantage of streamlining financial processes, ensuring data integrity, and promoting effective internal controls. By automating and standardizing procedures, the ERP system reduces manual effort and minimizes the risk of errors. It enables segreBgation of duties, real-time visibility into financial data, comprehensive audit trails, enhanced reporting capabilities, and proactive risk mitigation. This integration strengthens financial control, accuracy, and compliance, ultimately enabling better decision-making and reducing the likelihood of fraud or errors.

The following are illustrative steps for integrating ICOFR within ERP:

1. Verify that the process includes identification and updating of internal and external financial reporting requirements and deadlines.

   The finance team regularly reviews the regulatory guidelines and reporting requirements set by the regulators and ensures that the ERP system's financial closing process is aligned with these requirements. Examples are listed companies to declare quarterly results as per LODR, filing of periodical returns under GST, Income Tax, Labour laws, etc.,

2. Review the documented process to ensure it aligns with the organization's financial reporting policies and regulatory guidelines.

   The finance team reviews the documented process in the ERP system and cross-checks it with the organization's financial reporting policies and regulatory guidelines to ensure consistency. Examples are accounting polices relating to Property plant and equipment, depreciation, Inventory etc.,

3. Use the ERP system's change management functionality to track and validate changes made to the financial closing and reporting process.

   When changes are made to the financial closing and reporting process, the finance team uses the ERP system's change management functionality to track and record these changes. They review system logs and audit trail for changes made to the financial closing and reporting process are as per defined roles and responsibilities for change control, including change initiators, approvers, and change management teams.

4. Verify that changes to the process are authorized by designated individuals with appropriate authority using system logs.

The finance team reviews the system logs, audit trail and confirms that any changes to the financial closing and reporting process were authorized by designated individuals with the appropriate authority, such as the CFO or finance manager.

5. Review the change requests, approvals, and documentation within the ERP system to ensure proper authorization and validation of process changes.

6. Validate that roles and responsibilities in the financial closing and reporting process are clearly defined within the ERP system by reviewing users access matrix configurations and system logs.

   Review system logs and audit trail with Responsibility assignment matrix (RAM). RAM is a tool used in project management and enterprise resource planning (ERP) implementations to define and communicate the roles and responsibilities of individuals or teams involved in a project or process. The matrix clarifies who is responsible, accountable, consulted, and informed for each task or deliverable within the ERP implementation.

7. Assess the qualifications and training records of individuals assigned to financial reporting roles within the ERP system.

8. Validate that individuals responsible for financial reporting have the necessary understanding of the organization's operations and appropriate accounting knowledge.

   The finance team validates that individuals responsible for financial reporting within the ERP system have a comprehensive understanding of the organization's operations and possess appropriate accounting knowledge. For example, verify HR records of those involved in accounting have appropriate knowledge.

9. Validate that decisions on alternative accounting treatments for significant events or transactions are documented and approved by management.

   Reviewing the Journal vouchers listing by identifying non routine transactions. Review the system of Standardizing voucher types. This involves defining a set of predefined templates or formats for different types of journal entries to ensure consistency and accuracy in recording financial data.

10. Review the ERP system for documentation of accounting treatment decisions, including approvals and communication to the audit committee.

    Documentation of accounting treatment decisions refers to the process of recording and maintaining comprehensive documentation regarding the rationale, analysis, and

conclusions related to accounting treatments chosen for specific transactions or events like recognising long term construction projects.

11. Review the ERP system's user administration functionality to ensure appropriate individuals have access to the financial reporting process.

    Review system logs and audit trail with Responsibility assignment matrix (RAM).

12. Review whether proper KYC validation controls are in place for creating account masters and review the process for identifying related party transactions.

    Separate ledger coding for related parties for auto tabulating transactions to present as per Schedule III of Companies Act, 2013.

13. Validate that the ERP system captures and documents the appropriate accounting treatment for each non-routine event, transaction, and account balance by reviewing Journal Vouchers listing.

14. Use the ERP system's audit trail and reporting capabilities to validate that all postings have occurred in the correct accounting period reviewing accounting period configuration controls.

    In an ERP system, the accounting date and transaction date are captured and stored as part of the transactional data. They are used in various processes, such as journal entry creation, financial statement generation, period-end closing activities, and audit trails. Understanding the distinction between these dates is important for accurate financial reporting, compliance, and analysis of business transactions within the ERP system.

15. Review the system's controls for preventing backdating or unauthorized adjustments to postings by reviewing the posting date and transactions date of entries.

4. CYBER SECURITY IN ACCOUNTING

This section seeks to provide an overview of cybersecurity threats and risks and explores the impact of cybersecurity breaches on accounting firms and their clients which may range from accessing the financial data of the firm or client, to an extent of modifying the financial statements without the knowledge of the management. This section also discusses best practices for mitigating cybersecurity risks. This section seeks to provide an overview of cybersecurity threats and risks and explores the impact of cybersecurity breaches on accounting firms and their clients which may range from accessing the financial data of the firm or client, to an extent of modifying

the financial statements without the knowledge of the management. Protecting financial information is crucial to prevent unauthorized access and data breaches. Legal and regulatory frameworks, like the Information Technology Act, 2000 (Amended in 2008), govern the collection, storage, and transmission of financial data. Non-compliance with data protection laws can lead to financial penalties and reputational damage. This section also discusses best practices for mitigating cybersecurity risks.

Organizations have legal and ethical obligations to disclose cybersecurity incidents with financial implications. Cybersecurity incidents can affect financial reporting through financial losses, reputational damage, and legal consequences. Reporting guidelines of various regulators such as SEBI, RBI etc., address the disclosure of cybersecurity incidents in financial statements.

Cybersecurity is a critical concern for accounting professionals, as sensitive financial data is often stored and transmitted digitally. With the increasing reliance on technology in accounting, the risk of cybersecurity threats and breaches has also increased. A cybersecurity breach can have significant consequences, including financial losses, reputational damage, and loss of sensitive client data. Some of the common cybersecurity threats are highlighted below. In all the cases, the aim of the attack would be either stealing sensitive financial data or disrupting operations or demand ransom money.

4.1 Common cybersecurity threats

(a) **Phishing attacks:** Phishing attacks are a common cybersecurity threat that involves tricking users into clicking on malicious links or providing sensitive information.

(b) **Malware attacks:** Malware attacks involve infecting computers or networks with malicious software that can steal data or disrupt operations.

(c) **Ransomware attacks:** Ransomware attacks involve encrypting files or locking users out of systems and demanding a ransom payment in exchange for restoring access.

(d) **Insider threats:** Insider threats involve malicious actions by employees or other insiders who have access to sensitive data.

(e) **Denial of Service (DoS) attacks:** DoS attacks involve overwhelming a system or network with traffic to disrupt operations.

(f) **Supply chain attacks:** Supply chain attacks involve compromising third-party software or hardware to gain access to a system or network.

4.2 Proactive measures to mitigate cybersecurity risks

In view of the cybersecurity attacks and threats discussed above, it is important to taking proactive measures to mitigate cybersecurity risks as listed below:

(a) **Password management:** Strong passwords are critical for protecting sensitive financial data. Accounting professionals should ensure that all passwords are complex and changed regularly.

(b) **Encryption:** Encryption can be used to protect sensitive data during transmission and storage. The IT Team of an organization should ensure that all sensitive data is encrypted using appropriate methods.

(c) **Access control:** Access control is critical for preventing unauthorized access to financial data. Accounting professionals should ensure that access to sensitive data is limited to authorized personnel and that appropriate access controls are in place. The access controls should be continuously reviewed and updated based on any changes in the management or employee structure.

(d) **Network security:** Network security is critical for protecting financial data from cyberattacks. It should be ensured that firewalls and other security measures are in place to prevent unauthorized access to the network.

(e) **Employee training:** Employee training is critical for ensuring that all staff members are aware of the importance of cybersecurity and understand how to protect sensitive financial data.

(f) **Data backup:** Regular data backups are critical for ensuring that financial data is not lost in the event of a cyberattack. Accounting professionals should ensure that data backups are performed regularly and that backups are stored securely.

(g) **Incident response planning:** Accounting professionals should have a clear incident response plan in place in the event of a cyberattack. This plan should include procedures for detecting, containing, and mitigating the impact of a cyberattack.

Overall, cybersecurity is a critical concern for accounting professionals, and it is essential to take appropriate measures to protect sensitive financial data

5. THE FUTURE OF TECHNOLOGY IN ACCOUNTING

5.1 Blockchain

Blockchain technology is revolutionizing the financial landscape, and its impact on financial statement preparation is undeniable. As a Chartered Accountant involved in financial reporting, understanding blockchain is crucial for staying ahead in this rapidly evolving digital era. At its core, blockchain is a decentralized and transparent ledger that enables secure and immutable transactions. Unlike traditional centralized systems, blockchain offers a distributed network where information is shared and verified by multiple participants, eliminating the need for intermediaries and enhancing data integrity. From a financial statement preparation perspective, blockchain holds immense potential to streamline processes, enhance transparency, and improve the accuracy and reliability of financial reporting. By leveraging blockchain, financial professionals can ensure trustworthy and real-time financial information, revolutionizing how financial statements are prepared, audited, and shared with stakeholders. In this dynamic landscape, embracing blockchain technology is essential for Chartered Accountants to navigate the future of financial reporting effectively.

5.1.1 Key impacts of blockchain on financial reporting

1. **Enhanced Transparency**: Blockchain technology provides a decentralized and immutable ledger, where transactions are recorded and stored in a transparent and tamper-proof manner. This increased transparency ensures that financial data is accurately captured and can be easily audited, promoting trust and reliability in financial reporting.

2. **Improved Data Integrity**: Blockchain's distributed ledger ensures that each transaction is verified and encrypted, preventing unauthorized modifications or tampering. This feature enhances data integrity, reducing the risk of fraudulent activities and errors in financial reporting.

3. **Streamlined Audit Processes**: Blockchain technology enables real-time access to financial data, eliminating the need for time-consuming and manual data reconciliation processes. Auditors can directly access the blockchain ledger to verify transactions, reducing audit time and enhancing efficiency in financial reporting.

4. **Enhanced Security**: Blockchain incorporates advanced cryptographic algorithms, making it highly secure against unauthorized access or data breaches. Financial data stored on the

blockchain is encrypted and protected, minimizing the risk of data manipulation or unauthorized disclosure, thus strengthening the security of financial reporting.

5. **Simplified Reconciliation**: Blockchain's decentralized ledger eliminates the need for reconciling multiple versions of data across different systems. With a single shared source of truth, financial reporting processes become more streamlined, reducing reconciliation efforts and potential errors.

6. **Cost Reduction**: By eliminating intermediaries and central authorities, blockchain reduces the costs associated with traditional financial reporting processes. It eliminates the need for third-party verification and reconciliation, leading to cost savings for organizations.

7. **Enhanced Audit Trail**: Blockchain maintains a comprehensive and immutable audit trail of all transactions, providing a transparent and traceable record of financial activities. This audit trail simplifies the identification and investigation of any irregularities or discrepancies, improving the accuracy and reliability of financial reporting.

8. **Real-time Financial Reporting**: With blockchain's real-time data availability and consensus mechanism, financial reporting can be performed more frequently and with greater accuracy. Organizations can generate up-to-date financial statements, enabling stakeholders to make informed decisions based on the most current financial information.

Examples 3 – 5 : Using Blockchain

3. Imagine a finance professional working for a multinational corporation that engages in complex supply chain operations. With blockchain technology, the company can create a decentralized ledger that records every step of the supply chain process, from raw material sourcing to final product delivery. Each transaction is securely recorded on the blockchain, providing real-time visibility and transparency to all stakeholders involved. The finance professional can easily access the blockchain to verify the authenticity and accuracy of transactions, ensuring compliance with regulatory requirements and building trust with customers, investors, and auditors.

4. Consider a finance professional responsible for conducting an audit of a large e-commerce platform. Traditionally, audits involve manually reviewing numerous financial transactions and reconciling data from different sources, which can be time-consuming and prone to errors. However, with blockchain technology, the e-commerce platform can implement a blockchain-based payment system that automatically records and timestamps every transaction. During the audit process, the finance professional can access the blockchain ledger to instantly verify transaction details, reconcile data, and ensure compliance with

accounting standards and regulatory guidelines. This streamlined approach improves audit efficiency, reduces the risk of human error, and enhances the accuracy of financial reporting.

5. Imagine a finance professional working for a financial institution that handles sensitive customer data, such as personal information and transaction records. By utilizing blockchain technology, the institution can implement a secure and encrypted blockchain network to store and share customer data. The finance professional can ensure the integrity and security of the data by leveraging blockchain's cryptographic algorithms and consensus mechanisms. This eliminates the risk of unauthorized access, data tampering, or data loss. With blockchain, the finance professional can confidently handle customer data, knowing that it is protected by a robust and transparent system, enhancing data privacy, and maintaining the trust of customers and regulatory bodies.

5.2 Artificial Intelligence (AI)

AI refers to the simulation of human intelligence in machines, enabling them to perform tasks that would typically require human intervention. Apart from the aspects of automation, accuracy, fraud detection and cost savings, the most important feature is enabling predictive analytics. AI can be used to analyze large amounts of data and make predictions about future trends, which can be useful for forecasting financial performance and identifying potential risks. Thus, AI has the potential to transform the accounting profession by enabling accountants to provide more accurate and timely financial information to their clients.

While technology has transformed the accounting profession, it has also presented challenges such as the need for ongoing training and education, the risk of data breaches, and the potential loss of jobs due to automation. However, technology also presents opportunities for accountants to expand their skill sets, offer new services to clients, and automate routine activities thereby freeing up human resources for tasks requiring greater application of knowledge and skill sets.

This section seeks to provide an understanding of how AI and machine learning are transforming/disrupting the accounting profession. The chapter provides an introduction to AI and machine learning, explores their applications in accounting, and discusses the benefits and challenges associated with their adoption.

Artificial Intelligence (AI) and Machine Learning (ML) are technologies that enable computers to learn and perform tasks without being explicitly programmed to do so. AI and ML are having a significant impact on the accounting profession, enabling accounting professionals to automate routine tasks, improve decision-making processes, and reduce errors.

5.2.1 Benefits of AI and ML when used in accounting

1. **Automated Data Entry:** AI and ML algorithms can process and extract data from invoices, receipts, and other documents, reducing the need for manual data entry. If programmed, AI and ML algorithms can also review bank statements and pass entries in the system, followed by a bank reconciliation, thereby automating the entire process, saving time and improving efficiency.
2. **Fraud Detection:** AI can help detect fraud by analysing large amounts of data and identifying patterns that may indicate fraudulent activity.
3. **Financial Forecasting:** ML can be used to develop predictive models that can forecast financial performance based on historical data, market trends, and other factors. The predictive models can be of particular advantage where estimates are required to be made in financial reporting. For instance, where a store sells goods and offers a voucher giving the customer a discount on subsequent purchases, Ind AS 115 requires a degree of estimation of the likelihood of availing such discount to record Revenue. Predictive models can track customers' preferences and likelihood of availing the voucher, in which case the estimation of revenue as required under Ind AS 115 becomes more realistic.
4. **Accounting Automation:** AI can analyse financial statements and other data to identify errors or inconsistencies, making accounting more efficient and accurate.
5. **Tax Compliance:** AI can help automate tax compliance by analysing financial data and identifying tax obligations, ensuring that businesses remain compliant with tax regulations.

5.2.2 Challenges with Artificial Intelligence

Along with the advantages of AI and ML, there are following potential challenges and risks associated with the adoption of AI and machine learning like:

1. data privacy
2. security concerns
3. technical complexity
4. need to train employees in an organization to extract capabilities of AI from the system

AI and ML technology is expected to continue transforming the accounting landscape, with the development of more advanced applications such as natural language processing and cognitive computing. However, the adoption of AI and ML in accounting will require careful consideration of its benefits and risks, as well as ongoing education and training for accounting professionals.

Emerging technologies are changing the accounting landscape and holds a future for accounting professionals.

Emerging technologies, such as artificial intelligence (AI), machine learning (ML), and Robotic Process Automation (RPA), have had a revolutionary impact on the accounting profession. These technologies have the potential to revolutionize the way accounting is done, by automating routine tasks, reducing errors, and providing real-time insights into business performance. For example, AI and machine learning can be used to automate tasks such as data entry, account reconciliation, and financial analysis.

The potential benefits of these technologies for accounting professionals could include increased efficiency, accuracy, and cost savings. However, technology also comes with its own potential challenges and risks, such as the need for specialized skills and expertise, the risk of job displacement, and the need to maintain security and privacy.

Accounting professionals must be willing to adapt to these changes and develop new skills and competencies to stay relevant in the industry. The preceding sections emphasize the need for ongoing education and training to ensure that accounting professionals have the skills and knowledge required to leverage these emerging technologies.

The emergence of these technologies is likely to lead to significant changes in the industry, such as the need for new business models and the rise of new types of accounting services. As accounting professionals, it becomes imperative to understand new business models based on which accounting can be done to give a true and fair view of the affairs of the business. Accounting professionals who are willing to adapt to these changes and develop new skills and competencies will be better positioned to provide value-added services to their clients or organizations and maintain a competitive edge in the industry.

Illustrative examples on the use of Artificial Intelligence in Financial Reporting:

Examples: 6 – 9 : Using Artificial Intelligence in Financial Reporting

6. XYZ Company, a large multinational corporation, needs to prepare its financial statements according to Ind AS. The company has a vast amount of financial data stored in various formats, including spreadsheets, PDFs, and scanned documents. Manually extracting and analysing this data is time consuming and error prone. By implementing AI-driven optical character recognition (OCR) technology, the company automates the data extraction process from diverse sources and converts it into structured formats. This enables seamless analysis and financial reporting, reducing human effort and minimizing the risk of errors.

7. PQR Company, a financial institution, needs to comply with Ind AS requirements while monitoring and mitigating fraud risks. AI-powered algorithms can analyse large volumes of financial transactions, identify patterns, and detect potential anomalies indicative of fraudulent activities. By implementing machine learning techniques, the company can create predictive models that learn from historical data, enabling early detection of suspicious transactions and reducing the risk of financial fraud.

8. ABC Company, a manufacturing entity, wants to forecast its financial performance based on various scenarios to comply with Ind AS guidelines. AI can assist in generating accurate financial forecasts by analysing historical data, market trends, and relevant external factors. By leveraging machine learning algorithms, the company can simulate different scenarios, such as changes in market demand, input costs, or regulatory requirements. This helps management make informed decisions, assess potential risks, and develop robust financial strategies in accordance with Ind AS principles.

9. A to Z Company Ltd., a publicly listed entity, faces the challenge of timely financial reporting and compliance with Ind AS regulations. AI-powered tools can integrate with the company's financial systems and automatically extract relevant data in real-time. These tools apply data validation rules, perform calculations, and generate accurate financial reports. By leveraging natural language processing (NLP), AI systems can also assist in reviewing financial statements, identifying potential errors, and ensuring compliance with Ind AS requirements. This improves the accuracy, efficiency, and speed of financial reporting processes.

6. INDIAN ACCOUNTING STANDARDS (IND AS) AND INFORMATION TECHNOLOGY

Ind AS is predominantly a principle-based framework. Ind AS consists of specific principles for various accounting topics, such as revenue recognition, leasing, financial instruments, employee benefits, consolidation, and many more. These principles provide detailed guidance on how to account for transactions in accordance with the principles of measurement and recognition.

For implementation of Ind AS, the technology will play key role in automating the process of validating while generating the reports. However, the role of technology for such processing is directly related to the configuration at the Account level with rule-based validations. Configuration

implements pre-defined validation rules within the system to identify discrepancies or non-compliance with Ind AS.

If the account level configuration is not done properly, then the next phase of using technology will be after generating the reports. In such scenario, the use of technology is about applications such as Microsoft Excel or Google Sheets which can be used to perform such validations from the Ind AS point of view and then generate the report. This is purely dependent on human intelligence rather than on technology, except for the cases where Artificial Intelligence is involved with proper training using machine learning.

Illustration 1

A listed company's financial transactions are carried out in ERP. Following financial reporting weaknesses were observed during internal control over financial reporting:

1. *There is no appropriate documented process with respect to financial closing and reporting, including the identification and updating of internal and external financial reporting requirements and deadlines.*
2. *Changes made to the financial closing and reporting process are not valid and properly authorised.*
3. *Roles and responsibilities in the financial closing and reporting process are not clearly defined, documented, updated, and not communicated to appropriate departments and individuals on a timely basis.*
4. *Individuals in financial reporting roles do not have the necessary understanding of the organisation's operations and appropriate accounting knowledge to properly perform their assigned responsibilities.*
5. *When alternative accounting treatments are available for a significant event or transaction, the decisions on which treatments to select are not documented, approved by management, and are not communicated to the audit committee.*
6. *General policies are not established and documented regarding permissible overrides of existing policies and procedures for the financial closing and reporting process.*
7. *User profiles (on General Ledger (G/L) system) are not monitored / maintained to ensure that appropriate individuals have access to financial reporting process.*

8. *The appropriate accounting treatment is not specified for each non-routine event, transaction, and account balance, including those requiring the use of accounting estimates and judgment in the selection and application of accounting principles.*

9. *Relevant, sufficient, and reliable data necessary to record, process, and report each non-routine event or transaction is not captured.*

10. *There are no procedures to ensure all postings have occurred in the correct period.*

11. *The application of the entity's accounting policies to each non-routine event or transaction is not performed on a timely basis and appropriately documented by knowledgeable and qualified personnel using approved methods and formats.*

12. *All non-routine events and transactions are not accurately processed in the appropriate accounting period.*

13. *There is no independent review of application of the entity's accounting policies to each non-routine event or transaction for appropriateness and absence of bias by an individual with the appropriate level of authority and experience.*

14. *There is no basis for significant estimates and judgments associated with each non-routine event or transaction.*

15. *No analysis is prepared accurately and consistently in accordance with the entity's defined financial closing process and in the appropriate accounting period.*

16. *All sources of information for routine and non-routine events and transactions are not identified and analysed.*

17. *There are no reconciliations for all significant accounts and no independent review of such reconciliation.*

18. *All intercompany transactions and balances are not identified, reconciled, and appropriately eliminated in consolidation in the appropriate accounting period.*

19. *All suspense accounts are not identified and monitored.*

20. *The trial balance(s) used to prepare the financial statements are not generated from the final general ledger(s).*

21. *All trial-balance accounts are not appropriately and consistently grouped for presentation in the financial statements for accounting periods presented.*

22. *There are no restrictions to access and to run transactions in the automated consolidation software which may compromise the integrity of financial data*

23. *All related-party events and transactions are not identified and authorised, appropriately accounted for, and disclosed in the appropriate accounting period.*

24. *There are no procedures to ensure all postings have occurred in the correct period.*

25. *Entries recorded directly to the financial statements are not valid.*

Provide illustrative steps for Financial Closing and Reporting.

Solution

Following are the illustrative steps for Financial Closing and Reporting:

1. Verify that the process includes identification and updating of internal and external financial reporting requirements and deadlines.

2. Review the documented process to ensure it aligns with the organization's financial reporting policies and regulatory guidelines.

3. Use the ERP system's change management functionality to track and validate changes made to the financial closing and reporting process using system logs and audit trail.

4. Verify that changes to the process are authorized by designated individuals with appropriate authority using system logs.

5. Review the change requests, approvals, and documentation within the ERP system to ensure proper authorization and validation of process changes.

6. Validate that roles and responsibilities in the financial closing and reporting process are clearly defined within the ERP system by reviewing users access matrix configurations and system logs

7. Assess the qualifications and training records of individuals assigned to financial reporting roles within the ERP system.

8. Validate that individuals responsible for financial reporting have the necessary understanding of the organization's operations and appropriate accounting knowledge.

9. Validate that decisions on alternative accounting treatments for significant events or transactions are documented and approved by management by reviewing the Journal vouchers listing.

10. Review the ERP system for documentation of accounting treatment decisions, including approvals and communication to the audit committee.

11. Review the ERP system's user administration functionality to ensure appropriate individuals have access to the financial reporting process.

12. Review whether proper KYC validation controls in place for creating account masters and review the process for identifying related party transactions.

13. Validate that the ERP system captures and documents the appropriate accounting treatment for each non-routine event, transaction, and account balance by reviewing Journal Vouchers listing.

14. Use the ERP system's audit trail and reporting capabilities to validate that all postings have occurred in the correct accounting period reviewing accounting period configuration controls.

15. Review the system's controls for preventing backdating or unauthorized adjustments to postings by reviewing the posting date and transactions date of entries.

*****

Illustration 2

Company XYZ is a manufacturing company that implements Ind AS 2 and wants your advice on utility of an ERP system for inventory management. They also aim to integrate ICOFR controls into their ERP system to ensure accurate inventory valuation, minimize the risk of inventory fraud, and enhance process efficiency and accordingly they need your guidance in integrating ICOFR in ERP system.

Also, advice the steps to be followed if the company cannot afford a ERP system but still want to ensure proper implementation of Ind AS 2 to the extent possible.

Solution

A. ERP System for inventory management

ERP system integrates all relevant modules, such as inventory management, production, purchasing, and cost accounting. This ensures data consistency and reduces manual errors in recording and processing transactions. Following illustrative steps may be followed to configure and enable ERP with following modules:

- Maintain an updated and accurate Bill of Materials (BOM) Management within the ERP system, specifying the components required for each control unit. This allows the system

to calculate the total cost of materials accurately by considering the quantities and costs of each component.

- Implement Purchase order controls within the ERP system to manage the procurement process effectively. This includes verifying purchase requisitions, obtaining appropriate approvals, and ensuring that the correct quantities and costs of materials are recorded.
- Define appropriate costing methods within the ERP system to allocate costs to inventory accurately. The ERP system should be configured to apply the chosen costing method consistently across all inventory transactions.
- Track labour costs within the ERP system by integrating with timekeeping or attendance systems. This ensures accurate recording of the number of hours worked by production workers and enables the calculation of labour costs based on the defined hourly rate.
- Define an overhead absorption rate within the ERP system to allocate production overheads to inventory. This rate should be based on the normal level of production per month. The ERP system should apply the overhead rate consistently to all units produced during the period.
- Integrate the ERP system with the general ledger and expense allocation modules to accurately allocate non-production expenses such as factory rent, energy costs, and selling and administrative costs. This ensures that these expenses are appropriately recorded and reflected in the cost of inventory.
- Perform periodic reconciliations between the inventory records within the ERP system and physical inventory counts. This helps identify any discrepancies and ensures the accuracy of inventory valuation.
- Utilise the reporting and analytics capabilities of the ERP system to generate accurate and timely reports on inventory costs. These reports should provide detailed breakdowns of material costs, labour costs, overheads, and any other relevant cost components.

Integration of ICOFR in ERP system:

The management of company XYZ may integrate ICOFR controls in ERP system by using following points:

1. The integration of ICOFR into ERP system is configured to enforce segregation of duties within the inventory management process. For example, the system restricts the ability to initiate purchase orders, receive goods, and update inventory records to separate

individuals. This segregation ensures that no single employee has the ability to manipulate inventory quantities or values without appropriate checks and balances.

2. ICOFR is incorporated by implementing access controls in the ERP system. Users are granted access to inventory-related functions based on their roles and responsibilities. For instance, only authorized personnel can modify inventory master data, update cost information, or perform inventory counts. This prevents unauthorized access and reduces the risk of data manipulation or theft.

3. To ensure proper authorization, the ERP system includes workflow approval processes for inventory transactions. For example, when a purchase requisition is raised, the system automatically routes it through predefined approval hierarchies based on transaction value or other criteria. This ensures that inventory purchases are authorized by the appropriate individuals before they are processed.

4. The company utilizes barcode or radio-frequency identification (RFID) technology to enhance inventory control and accuracy. The ERP system is integrated with barcode scanners or RFID readers, allowing real-time tracking of inventory movements. This reduces manual data entry errors and provides accurate and up-to-date inventory information within the system.

5. ICOFR requires periodic physical inventory counts to verify the accuracy of recorded inventory quantities. The ERP system supports this process by generating inventory count sheets or reports based on predefined criteria such as product categories or locations. The system can also reconcile the physical count results with the recorded quantities, highlighting any discrepancies for further investigation and adjustment.

6. Technology-driven data analytics tools can be integrated into the ERP system to identify inventory-related exceptions or anomalies. For example, the system can analyse inventory turnover ratios, slow-moving or obsolete items, or abnormal inventory cost fluctuations. These analytics help in detecting potential control weaknesses or irregularities, enabling timely action by management.

7. The ERP system can provide management dashboards or customized reports that display key inventory control indicators. These dashboards summarize information such as inventory turnover, stock levels, and valuation accuracy. They facilitate monitoring and decision-making, enabling management to assess the effectiveness of ICOFR controls and take corrective actions if needed.

B. Inventory management in the absence of efficient ERP system

In the absence of ERP system or in the absence of properly configured ERP system, the alternative procedure available is by exporting the data to a spreadsheet and perform the following steps:

1. Export the relevant data from the accounting package, including information such as quantities, costs, labour hours, and overhead expenses into a spreadsheet. Ensure that the exported data contains all the necessary details to calculate the inventory costs accurately.

2. Organize the exported data in appropriate columns. Label each column with the corresponding data, such as item codes, quantities, costs, labour hours, and overhead expenses.

3. Use the formulas to calculate the material costs for each item. Multiply the quantities of each component by their respective costs. If there are multiple components, sum up the costs of all components to get the total material cost for each item.

4. Use the formulas to calculate the labour costs for each item. Multiply the labour hours for each item by the defined hourly rate to obtain the labour cost.

5. Determine the overhead absorption rate based on the normal level of production per month. Multiply the rate by the total labour hours to calculate the total overhead cost. Divide the overhead cost by the total quantity of items produced to get the overhead cost per item.

6. If there are non-production expenses such as rent, energy costs, or administrative costs, allocate them to each item using an appropriate method. This can be based on quantities, labour hours, or other relevant factors. Apply formulas to distribute the expenses accordingly.

7. Sum up the material costs, labour costs, overhead costs, and allocated non-production expenses for each item to obtain the total inventory cost.

8. If you have physical inventory counts, compare the calculated inventory costs in spreadsheet with the physical counts. Identify any discrepancies and investigate the causes. Adjust the inventory costs as necessary to reconcile them with the physical counts.

9. Create reports in spreadsheet that provide a breakdown of the inventory costs for each item. Include material costs, labour costs, overhead costs, and allocated non-production expenses. Use formatting and charts to present the information clearly.

*****

Illustration 3

Company Z is engaged in the business of importing oil seeds for further processing as well as trading purposes. It enters into the following types of contracts as on 1st October 20X1:

Particulars	Contract 1	Contract 2	Contract 3
Nature of Contract	Import of oil seeds from a foreign supplier	Purchase of oil seeds from a domestic producer / supplier	Contract to sell oil seeds on the commodity exchange
Quantity and rate	100 MT at USD 400 per MT to be delivered as on 31st March 20X2	50 MT at ` 30,000 per MT to be delivered as on 31st January 20X2	50 MT at USD 450 per MT, maturing as on 15th January 20X2
Net settlement clause included in the contract	Yes	Yes	Yes
Net settlement in practice for similar contracts	There have also been several instances of the oil seeds being sold prior to or shortly after taking delivery. These instances of net settlement constitute approximately 30 per cent of the value of total import contracts.	Yes – company Z has net settled some of the domestic purchase contracts. However, these instances constitute only 1 per cent of the total domestic purchase contracts in value. The remaining contracts are settled by taking delivery of oil seeds which are used for further processing.	Yes – these contracts are required to be net settled with the exchange on the maturity date. Company Z enters into these types of derivative contracts to hedge the risks on its domestic oil seeds purchase contracts

Company Z wants to determine if the contracts entered into for purchase and sale of oil seeds are derivatives within the scope of Ind AS 109 or are executory contracts outside the scope of Ind AS 109. Though the Company Z is using an ERP accounting package it is not properly configured to provide the required reports for above said decision making. Therefore, Company Z requires your

advice on whether such process of determining the nature of contracts is possible through use of external sources of technology.

Solution

Yes, it is possible by extracting the data from the accounting package or by connecting to the database of the accounting package.

For example, the same can be done by connecting the spreadsheet with database through ODBC connectivity or by extracting the data from accounting package into a spreadsheet. In case the data is being extracted from accounting package, the following steps may be followed:

1. Identify the relevant data fields in the accounting package that contain the contract information, such as contract particulars, quantities, rates, and settlement details.
2. Export the required data from the accounting package in a compatible format (e.g., CSV, Excel, or other supported formats).
3. Open the exported data in Microsoft Excel.
4. Clean the data by removing any unnecessary or irrelevant columns and rows.
5. Ensure that the data is properly formatted and aligned for further analysis.
6. Define the rules or criteria for categorizing the contracts as derivative or executory based on the requirements of Ind AS 109.
7. Establish conditions using Excel formulas or logical functions to evaluate the contract data.
8. Apply the defined rules or criteria to the contract data using Excel formulas or logical functions.
9. Use functions such as IF, AND, OR, or VLOOKUP to evaluate the conditions and determine the nature of each contract.
10. Create additional columns in Excel to categorize the contracts based on the analysis results.
11. Assign appropriate labels or values to indicate whether a contract is a derivative or an executory contract.

*****

Illustration 4

An entity provides broadband services to its customers along with voice call service. Customer buys modem from the entity. However, customer can also get the connection from the entity and modem from any other vendor. The installation activity requires limited effort and the cost involved is almost insignificant. It has various plans where it provides either broadband services or voice call services or both.

Comment on how to identify whether the performance obligations under the contract is distinct by using an automated process?

Solution

To identify the performance obligations under the contract and determine if they are distinct, an automated process can be implemented using technology. The following steps can be taken:

a. Analyze the clauses in the contract related to the services provided (broadband services, voice call services, modem sales).

b. Each clause should be codified using appropriate parameters or tags to capture the relevant information.

c. Assign Boolean values (0 or 1) to each parameter or tag in the codified clauses.

d. Use "0" to represent "No" and "1" to represent "Yes" for each parameter.

e. Define the criteria for evaluating the performance obligations based on the parameters and their Boolean values.

f. Consider factors such as the type of service involved, benefits derived by the customer, and promises made in the contract regarding the transfer of goods or services.

g. Develop an automated algorithm or script that evaluates the Boolean values of the parameters according to the defined criteria.

h. Calculate scores or weights for each parameter based on their significance in determining performance obligations.

i. Utilize the scores or weights assigned to the parameters to determine if the performance obligations are distinct.

j. If the total score exceeds a certain threshold, consider it a separate performance obligation.

The automated process should flag and identify these distinct performance obligations based on the evaluation results.

*****

TEST YOUR KNOWLEDGE

Questions

1. T Ltd is engaged in transport sector, running a fleet of buses at different routes. T Ltd has identified 3 operating segments:

- Segment 1: Local Route
- Segment 2: Inter-city Route
- Segment 3: Contract Hiring

The characteristics of each segment are as under:

Segment 1: The local transport authority awards the contract to ply the buses at different routes for passengers. These contracts are awarded following a competitive tender process; the ticket price paid by passengers are controlled by the local transport authority. T Ltd would charge the local transport authority on a per kilometer basis.

Segment 2: T Ltd operates buses from one city to another, prices are set by T Ltd on the basis of services provided (Deluxe, Luxury or Superior).

Segment 3: T Ltd also leases buses to schools under a long-term arrangement.

While Segment 1 has been showing significant decline in profitability, Segment 2 is performing well in respect of higher revenues and improved margins. The management of the company is not sure why is the segment information relevant for users when they should only be concerned about the returns from overall business. They would like to aggregate the Segment 1 and Segment 2 for reporting under 'Operating Segment'.

Required

What are the steps involved to automate the process to determine whether it is appropriate to aggregate Segments 1 and 2 with reference to Ind AS 108 'Operating Segments'?

2. New Way Ltd. decides to enter a new market that is currently experiencing economic difficulty and expects that in future the economy will improve. New Way Ltd. enters into an arrangement with a customer in the new region for networking products for promised consideration of ` 12,50,000.

At contract inception, New Way Ltd. wants to

(i) Define criteria for identifying contracts with customers, such as enforceable rights and obligations, agreement terms, and consideration.

(ii) Establish rules to link relevant transactions to specific contracts and assign unique identifiers to each contract

Required

Advice the steps to automate the process to perform the above tasks on behalf of New Way Ltd.

Answers

1. Following steps should be followed to automate the process to determine whether it is appropriate to aggregate Segments 1 and 2 with reference to Ind AS 108 'Operating Segments':

1. Extract the relevant financial data related to Segments 1 and 2 from your accounting system.
2. Ensure that the data includes segment-specific information such as revenue, expenses, assets, liabilities, and any other relevant metrics.
3. Define the criteria for evaluating whether the segments should be aggregated.
4. Consider factors such as the nature of the business activities, economic characteristics, customer base, pricing policies, and risks and returns associated with each segment.
5. Utilize automated analysis tools or software capable of processing large volumes of financial data.
6. Apply predefined algorithms or rules to evaluate the financial performance and characteristics of Segments 1 and 2 based on the defined criteria.
7. Conduct a comparative analysis of the financial metrics and performance indicators between Segments 1 and 2.
8. Based on the analysis and findings, evaluate whether it is appropriate to aggregate Segments 1 and 2.
9. Document the rationale behind the decision, including the analysis results and supporting evidence.

10. Use tools such as business intelligence software, data visualization platforms, or custom-built reporting modules to present the aggregated and segmented data in a meaningful way.

2. A contract management system may be implemented which allows to store and organize contract documents electronically. This system can help you define and capture key contract details, such as enforceable rights and obligations, agreement terms, and consideration.

Accordingly, the said contract management system shall be enabled to configure a mechanism to assign unique identifiers to each contract.

- Integrate the contract management system or accounting software with other operational systems, such as sales, CRM, or project management systems. This integration allows for the automatic capture and synchronization of contract-related data, ensuring that transactions associated with specific contracts are accurately linked.
- Assign specific tags or attributes to contracts based on the defined criteria, such as contract type, customer name, contract start and end dates, or specific service offerings, to enable efficient searching, filtering, and grouping of contracts based on various criteria.
- Use custom queries or predefined templates to extract information on the number of contracts identified, their characteristics, and the associated transactions. This provides visibility into the implementation of Ind AS 115 and helps to monitor compliance.

In addition to the above, the following may be adopted:

- Consider utilizing OCR technology to extract relevant information automatically. OCR can convert printed or handwritten text into machine-readable format, enabling efficient extraction of contract details for further processing and analysis.
- Apply machine learning and Neuro-Linguistic Programming (NLP) techniques to analyze and extract contract data automatically. These technologies can help identify specific contract terms, clauses, or obligations, aiding in the accurate identification and classification of contracts based on predefined criteria.
- Utilize workflow automation tools to streamline the contract identification process. Establish predefined rules or triggers within your system that automatically identify new contracts based on specific criteria and assign unique identifiers. This automation reduces manual effort and ensures consistency in contract identification.