MANAGEMENT INFORMATION SYSTEMS
CRITICAL SUCCESS FACTORS

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By A. Rajagopal Kamath, B. Manmadhan, Manoj Agarwal

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CONTENTS

CHAPTER 1

CRITICAL FACTORS SHAPING SAFETY MANAGEMENT IN CHINESE HIGH-RISE CONSTRUCTION PROJECTS

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ABSTRACT:
This study's goal is to discover and look into the key success factors CSFs for high-rise building construction projects' safety management. The study's data sources included semi-structured interviews and a Chinese questionnaire survey. In this study, a third-order CSFs system is constructed using six CSFs management measures: management organization, technical and management plan, worker safety behavior, safety environment, and worker safety quality. It is discovered that management organization considerably affects the effectiveness of construction safety management, with worker safety behavior having a direct impact. It is advised to practice the consequences. This work has added to the body of knowledge on CSFs and performance evaluation of construction safety management in high-rise building construction projects. It is possible to increase the professional competency of safety management organizations, which will greatly enhance the safety performance of projects to construct high-rise buildings.

KEYWORDS:

Critical, Construction, Management, Performance.

INTRODUCTION

Safety management emerged as a reaction to industry worker exploitation in the 19th and 20th centuries. As the industrial revolution opened up significant commercial opportunities in Western societies, business owners and industrialists used an exploited, unskilled, and uneducated workforce, including child labor and rural migrant workers, often in working conditions where injury and death were frequent occurrences. Legislators with a social conscience now have a duty to recognize that governments have a moral and legal duty to protect workers through general and industry-specific safety rules. The early 19th-century Factory Acts of the UK, which underwent their final amendment in 1961, were a critical first step toward systematically enhancing worker safety throughout time. This shifting climate also had an impact on the growth of worker representation and trade union movements in early 19th-century Europe and America. These movements developed over time into representation in wage and employment condition negotiations as well as in the defense of workers' health, safety, and welfare.This passage from a book, which describes a mining accident that occurred in West Virginia, USA, at the start of the 20th century, is one stark example of how dangerous working conditions have gotten as a result of the industrial revolution.

The development of occupational medicine research has made it possible to start identifying industrial diseases and illnesses that are caused by exposure to industry-specific hazards, such as coal dust in mining miners black lung or coal worker’s pneumoconiosis, asbestos in construction asbestosis and mesothelioma, exposure to physical agents like occupational noise from industrial machinery hearing loss, tinnitus, or deafness, and vibration hazards. Therefore, legislation that aims to reduce worker exposure to these incapacitating and frequently fatal hazard vectors could be implemented.As more industry-specific and general safety, health, and welfare legislation came to be established, employers needed a framework within which these safety standards could be understood, administered, and the legal requirements implemented. Not only was this necessary to follow the law, but it was also

necessary to prevent penalties and legal fees for breaking it, rising insurance and workers compensation costs due to accidents, andespecially in the USexpensive criminal and civil liability lawsuits for fatal workplace accidents and other workplace-related injuries. By employing an SMS as a framework for business administration, an organization can successfully meet its obligations under applicable occupational safety and health laws.

The size of the organization's operations and, consequently, its risk profile will determine how the SMS is structured and what resources are required to manage occupational health and safety risk effectively. Some organizations may also need to integrate other management system functions, like process safety, environmental resource management, or quality management along with safety management to satisfy regulatory requirements, industry sector requirements, as well as an organization's own internal and discretionary standard requirements.Instead of being considered an add-on, safety management should be seen as a vital part of an organization's overall business management system. In order to combine and manage these formerly disconnected components as a single company management system rather than as independent and stand-alone operations, management standards are increasingly being produced for a number of business tasks, such as quality, safety, and the environment. Because of the close connection between health and safety, the terms occupational health and safety management systems OHSMS and safety management systems SMS are frequently used interchangeably.

Instead of having several, conflicting Safety Management Silos, firms must view all internal risks as a single system in order to practice effective safety management. An SMS is only as effective as its implementation. If safety is not seen holistically, it could be challenging to decide which improvements to undertake first or even lead to safety issues going unnoticed. For instance, it was discovered during the investigation into the March 2005 explosion at BP's Texas City Refinery BP that the company had put employee safety ahead of the safety of its protocols.[8] The precise assessment of all hazards, which is the remedy for such silo thinking, is a crucial part of a successful SMS. It is possible for specific safety management models to become accepted as the de facto standard within a particular industry sector over time; this is a tactic that is commonly endorsed by trade associations or industry representative organizations. Sectors where businesses operate or where public safety is a key priority may propose specific rules that specify standards that suit the industry risk profile, such as the OSHA requirement for a process safety management system. Many governments have developed national safety management models, which organizations from many industries have put into practice. By integrating knowledge and information from a variety of organizations and people, national standards can provide a uniform and consistent basis for functioning. Additionally, these standards may be available to the public and evaluated outside of the organization, which is a goal that many businesses find to be very desirable.

These guidelines have a number of benefits

When widely adopted, they provide a consistent approach to managing safety across a range of businesses. When used, they improve worker morale, output, and safety performance. The safety management system makes it easy to incorporate existing and new rules, which promotes compliance.

Migrating to a new system as it develops is often easier when an existing system is already in place. For certified systems, certification denotes successful conformance to the standard. Many clients and customers consider the accreditation of a safety management system to be an added benefit. The Occupational Health and Safety Assessment Series, often known as the OHSAS 18001 series standard, was developed in an effort to include the best practices and lessons from other national standards while producing a concise, globally enforceable standard in 1999. After a 2007 amendment, it was widely accepted. The OHSAS Project

Group is independent of the International Organization for Standardization ISO. OHSAS 18001:2007 has been replaced by the ISO standard ISO 45001:2018, Occupational Health and Safety Management Systems Requirements with Guidance for.

DISCUSSION

Significant Success Factors

The concept of success factors in relation to the importance of information systems was first introduced by Daniel. Three to six factors are frequently used to determine success across the majority of industries. According to Rockmart, CSFs are, for any business, the limited number of areas in which results, if they are satisfactory, will ensure successful competitive performance for the organization. The CSF technique has been used in studies in the construction industry to look at safety concerns. The CSFs of safety program execution in medium- and large-scale construction projects should receive continuous and cautious attention from management.

High-Rise Buildings

For instance, a high-rise is described as any structure where the height can have a serious impact on evacuation by the International Conference on Fire Safety in High-Rise Buildings. The National Fire Protection Association of the United States defines a high-rise structure as one that is more than 75 feet 23 meters tall, or around 7 floors, but there is no universally recognized definition for the word high-rise building. This study uses the local term used in China, which includes a variety of tall structures, including mega-high-rise structures. High-rise buildings are defined as residential structures with 10 floors or more, or a height of 28 meters or more, as well as other commercial structures that are taller than 24 meters, including mega-high-rise structures commercial structures that are at least 100 meters tall.Despite the effects of such issues on the complexity of construction safety management for high-rise buildings, Hinze and Raboud examined large building construction projects in Canada primarily high-rise buildings to assess the extent to which company or project policies and procedures affect worker safety and to identify factors affecting safety performance. The objective of Ismail et al. was to identify the safety factors that influence how well high-rise building construction sites use safety management systems. In earlier investigations of safety management mechanisms, medium- and low-rise buildings were not distinguishable from high-rise structures, and CSFs and common influencing elements for the management of construction safety in high-rise buildings have not yet been discovered.

Variables in construction safety management

Many construction studies have investigated factors that affect the efficacy of safety management. Determine the relevant factors by consulting regulations and standards for construction safety management. provides a list of the several factors that have been connected to construction safety management in earlier research, along with the relevant regulations and standards. Both qualitative and quantitative CSFs for the construction industry have already been identified, and several authors have noted any good or negative relationships between them. Since no studies have attempted to define CSFs for high-rise building construction project safety management to date, there is a considerable gap in the literature [7], [8].

Request for Information

A questionnaire survey was made to collect data. The completed questionnaire was broken down into three sections: 1 the project background, which was used to collect project data on elements like building height, type, and safety performance, demographic information on respondents, including their work history, qualifications certifications, and the number of

high-rise building construction projects they were involved in, to confirm their qualifications; and SFs of high-rise building construction safety management. The final questionnaire for section 3 alone contained 38 structural questions covering 38 SFs for the safety management of high-rise building development projects. The questionnaire was developed using a five-point Likert scale, with 1 signifying little or no influence, 3 signifying some degree of influence, and 5 signifying great influence.

The questionnaire was distributed to construction safety experts with expertise in high-rise building construction projects and certification certifications for safety management. Construction safety staff, which includes safety directors, managers, supervisors, officers, and foremen, are in responsibility of the overall safety of construction sites. Among the qualifications certificates for safety management in the Chinese construction industry are the Certified Safety Engineer, Safety Officer level A, B, and C, Constructor including Constructor and Associate Constructor, Technician Certificate, and Supervising Engineer including Registered Supervisor Engineer, Professional Supervisor Engineer, and Supervisor. Prior to the distribution questionnaire, the pretest questionnaire was used to evaluate the items' capacity to discriminate. Thus, 36 structural faults with 36 SFs were retained.

A total of 410 questionnaires were distributed to the safety management staff of high-rise building development projects in person, by mail, or by email. A total of 197 valid surveys with a response rate of 53.53% were gathered. Male respondents answered 90.29% of the legitimate questions. More than half of the respondents had at least six years of experience working on such projects, and almost 30% had been involved in more than five high-rise building construction projects. 60% of the respondents, or more than four in five, work primarily on residential high-rise building construction projects. Of the 114 legitimate surveys, 40 were submitted by project owners, 40 by consultants, and 114 by contractors. More than 40% of the respondents have received various professional licenses qualification certificates from the relevant Chinese authorities.

Analyzing the Investigative Factors

Exploratory factor analysis EFA was utilized to uncover the underlying structure of questionnaire variables in order to establish the initial CSFs. Other tests were required to see whether the data could meet EFA criteria, and a correlation matrix was built to find relationships between variables. The relationships with high-correlation coefficients greater than 0.5 were summarized as follows: Safety committee established with Professional competence of safety committee, Professional competence of safety committee with Safety committee establishes good safety climate, Labor-management safety communication with Labor-management trust relationship and Safety committee establishes good safety climate, Labor-management trust relationship with Safety committee establishes good safety climate, Safety committee establishes good safety climate with Safety propaganda, Labor-management trust relationship with Safety committee establishes good safety climate, Worker safety awareness with Worker safety knowledge, Worker safety knowledge with Worker experience, Workers obey management with Worker cooperation on safety, Safety technical measurements in construction organization plan with Special construction plans for safety of danger subprojects and Detailed safety management plan, Worker compensation insurance with Emergency response plan and Accident/incident reports and investigation, Daily safety records with Regular safety meetings, and Emergency response plan with Accident/incident reports and investigation [9]–[11].

The Bartlett's score for questionnaire sphericity of 3288.275 and the accompanying significance level of 0.000 indicate that the correlation matrix is not an identity matrix. The overall Kaiser-Meyer-Olkin KMO measure is 0.858, significantly higher than 0.5 and considered to be very acceptable. The results of the tests indicate that the sample data are

suitable for processing EFA. EFA was processed using promax rotation and principal component analysis to determine the initial CSFs iCSFs. Candidates for deletion were items with cross-loading, low factor loadings 0.45, and low communality values 0.5. The promax rotation is an oblique rotation technique that can locate solutions by using linked components. This approach is commonly employed since almost every component of social science is usually connected with other aspects. The degree of connection between the success factors proposed by this study, which are classified as social sciences, made the promax rotation conceivable, in large part the final stage EFA findings. The eigenvalue higher than one rule determined that the seven-factor solution was the best option. Cronbach's alpha scores for each of the seven iCSFs are higher than 0.65. Each iCSF is identified by its name and the success factors with which it is associated. These success factors are: management measures iCSF1, management organization iCSF2, technical and management plan iCSF3, worker safety behavior iCSF4, guarantee and supervision mechanism iCSF5, safety environment iCSF6, and worker safety quality iCSF7.

Checking the Factor Analysis

Confirmatory factor analysis CFA was used to create the final framework for the CSFs. Model fitness is measured using goodness-of-fit GOF indices. As seen, the final measurement model accurately describes the data. It shows the finished CSF system with path coefficients. Six CSFs were measured by 12 observable variables at the third-order level in two groupings Organizations and Strategies and Environment and Workers. The statistical characteristics of the first-order data correlation coefficients, the results of earlier research, and practical experience were used to create the second-order groupings. In the first-order measurement model, the correlation coefficients for worker safety behavior CSF4, worker safety quality CSF7, and safety environment CSF6 are 0.53 and 0.45, respectively, which are above the level of moderate correlation. Furthermore, the management measures CSF1, management organization CSF2, technical and management plan CSF3, and management organization CSF2 with technical and management plan CSF3 0.41 correlation coefficients are higher than the level of moderate correlation.

Because of this, we integrated CSF4, CSF6, and CSF7 into a single second-order structure named Environment and Workers. In practice, safety committees are responsible for technical and management scheme compilation, auditing, and management policy execution. As a result, CSF1, CSF2, and CSF3 were integrated under the name Organization and Strategies.Management measures = 0.804, technical and management plan = 0.670, and management organization = 0.648 all provide considerable contributions to the group Organizations and Strategies group 1. This is explained by the fact that building high-rise structures is challenging and calls for corresponding strategies and ways to manage workers and the jobsite. Management measures were assessed using safety meetings and training; the findings were 0.702 for safety meetings and 0.663 for safety training. Technical and management plans refer to the construction organization scheme's management plan = 0.762 and the specified safety technical measurements = 0.788. The right technical and managerial planning may be required to provide direction for some complex high-rise building subprojects, such as the foundation pit, formwork, and scaffold. In a management organization, a safety committee must be constituted = 0.794, and its members must be qualified professionals = 0.837.

A Potential Development

Theories of accident causation provide a framework on which hypotheses can be built. Early on, a number of domino theories were used to look into accident causation and its relationships, including those proposed by Heinrich and Grannis and Bird et al. Human behavior flaws, according to Heinrich and Grannis, could cause accidents, but worker flaws

and failurearising from both nature and nurturewere to blame for risky behavior. These flaws included impertinence, stubbornness, and nervousness. This assertion was supported by the domain theory by Bird et al., which looked at the personal elements that influence inappropriate behavior. Lack of knowledge, awareness, and work abilities could be considered personal factors. Therefore, we propose the hypothesis that worker safety quality CSF7 has a favorable impact on worker safety behavior CSF4.According to researcher's hypothesis, unsafe environmental conditions and risky human behavior are the accidents' primary causes, but management defects are the real culprits. This suggests that inadequate management techniques may have a negative impact on people's behavior towards safety and the environment for safety, which could result in accidents. With regard to the connections between management factors, the safety environment, and safety behavior, the following hypotheses are therefore put forth: a management measures CSF positively affect worker safety behavior CSF management measures CSF positively affect safety environment CSF; and technical and management plan CSF positively affect worker safety behavior CSF.

CONCLUSION

Construction of high-rise buildings is a complicated process that is impacted by a wide range of variables. A successful safety management program is crucial to the success of construction projects. The first purpose of this study was to identify CSFs for safety management of high-rise building construction projects. The second objective was to investigate relationships between CSFs. Data regarding high-rise building projects in China were gathered using expert interviews and a questionnaire survey. By concentrating on the CSFs for safety management of high-rise building construction projects and their interrelationships, this study varies from prior research. The study also offers crucial safety management staff on high-rise building construction projects a valuable reference.This study created six third-order CSFs for achieving goal one, including management measures CSF1, management organization CSF2, technical and management plan CSF3, worker safety behavior CSF4, safety environment CSF6, and worker safety quality CSF7. These are divided into two groups Environment and Workers group 2 and Organizations and Strategies group 1 for the first three, and the last three. In terms of influence, worker safety behavior CSF4 is the strongest in group 2, whereas management measures CSF1 are the strongest in group.

The most representative CSF is management measures CSF1, which is followed by worker safety behavior CSF4. Because it has the greatest overall impact on the other CSFs, management organization CSF2 is the primary factor determining high-rise building construction safety management performance, according to goal two. Contrarily, worker safety behavior CSF4 is influenced by some CSFs but not by others, showing that CSF4 is a direct-acting factor for the performance of high-rise building construction safety management.The research's conclusions have ramifications for both theory and practice. The work adds to the body of knowledge on CSFs and performance assessment of construction safety management in high-rise structures in terms of theoretical contributions. The practical implication is that by raising the level of expertise of safety management organizations, high-rise building construction safety performance can be successfully increased. The establishment of a safety committee should be the responsibility of project owners and contractors. Additionally, managers should use steps like safety meetings and training to raise worker knowledge of safety issues and encourage safe conduct.

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CHAPTER 2

CARDIOMYOPATHY DEATH RISK FACTORS AND HEALTH INFORMATION MANAGEMENT EFFICIENCY RESEARCH

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ABSTRACT:
Investigate the effectiveness of health information management (HIM) and risk factors for cardiomyopathy-related death. Methods. The clinical data of the study subjectsa total of 80 cardiomyopathy patients admitted to our hospital's ICU between were retrospectively evaluated. Depending on the effectiveness of the treatment, the patients were split into two groups: those who survived n = 72 and those who died n = 14. To further examine the impact of risk variables on the prognosis of patients with cardiomyopathy and the efficacy of HIM, the survival group was then evenly divided into the traditional group and the HIM group. Results. Between the survival group and the death group, there was no discernible difference in baseline body mass, myocardial enzymes, troponin, infection factors, history of heart disease, or gender > 0.05. Patients in the death group were older than those in the survival group p 0.05, their LVEF was obviously lower p 0.05, and their APACHE II and SOFA ratings were plainly greater p 0.05 than those in the survival group. LVEF was found to be an independent risk factor for death in individuals with cardiomyopathy after additional logistic regression analysis of the univariate factors impacting the probability of death from cardiomyopathy. With a sensitivity of 98.6% and a specificity of 78.6%, echocardiography demonstrated a strong predictive value for LVEF below 24.69%. Between the traditional group and the HIM group, there was no discernible change in the overall data. The HIM group clearly outperformed the conventional group in terms of disease remission rates, complications rates, awareness rates of health knowledge, length of stay in the intensive care unit, and self-management efficacy scores. There was no discernible difference in the conventional group's and the HIM group's 5-year mean survival rates. Age, a decreased LVEF, and higher APACHE II and SOFA scores are all risk factors for cardiomyopathy-related death. Lower LVEF is a standalone risk factor, and LVEF below 24.69% is a significant predictor of higher mortality risk. Additionally, HIM has no impact on long-term survival rates but can significantly increase short-term therapy efficacy.

KEYWORDS:

Cardiomyopathy, Health, Sensitivity, Management, Traditional.

INTRODUCTION

Health information management (HIM) is the term for information management applied in the context of health and healthcare. Delivering high-quality patient care requires a technique that involves Analyzing and protecting digital and antilog medical data. As a result of the extensive computerization of health records, electronic health records (EHRs) are replacing conventional paper-based records. Health informatics and information technology solutions are always being enhanced in order to increase the effectiveness of information management in the healthcare industry. Health information management experts develop health policies, construct information systems, and identify current and upcoming information needs. As well as using informatics to collect, store, analyse, use, and transmit data to fulfil the administrative, professional, ethical, and legal requirements of preserving medical records, they may also do so for other purposes. They work with data that is clinical, epidemiological, demographic, financial, referenced, and coded regarding healthcare. In order to support the information-intensive and information-dependent healthcare system, health information administrators are stated to play a critical role in the delivery of healthcare in the United

States through their focus on the collection, maintenance, and use of quality data. When the American College of Surgeons launched the Association of Record Librarians of North America ARLNA in 1928 to elevate the standards of clinical records in hospitals and other medical institutions, the American Health Information Management Association was born. The history of health information management standards started at this point.

The American Association of Medical Record Librarians (AAMRL), which preceded AHIMA, was recognized as an authority on medical records and comprised librarians who had completed specialized training. The objective was to raise the bar for record-keeping in hospitals and other healthcare organizations. In order to ensure accuracy and precision, many in this profession argued for the efficient administration of medical records. The organization's name changed throughout time to reflect the advancement of health information management methods, and eventually the American Health Information Management Association was born. The association's present name strives to convey the variety of industries in which health professionals are currently working.

AHIMA members have an impact on the calibre of patient data and care at every stage of the healthcare delivery process. They frequently fulfil bridging roles, connecting clinical, operational, and administrative responsibilities. A self-governing, unincorporated, nonprofit, voluntary organization called the Hospital Management Systems Society (HMSS) was established in 1961; it later changed its name to the Healthcare Information and Management Systems Society (HIMSS). Prior to that, management engineering operations in the healthcare industry increased as health officials began to take note of Frederick Winslow Taylor and Frank Bunker Gilbreth's theories in the 1950s. Thanks to its branches in Europe, Asia Pacific, and the Middle East, the HIMSS evolved to include chapters, membership categories, publications, conventions, and is still expanding globally. A advancement in keeping medical records has been called the electronic health record. Due to the fact that it is electronic, this method of record keeping has sparked debate and gained support from both the general public and health experts.

A recent Wall Street Journal survey found that in the US, 89% of respondents said they were Very/Somewhat Confident in their health care provider who used electronic health records, as opposed to 71% of respondents who said the same thing about their providers who didn't or don't use electronic health records. More than 50% of chief information officers polled in 2008 stated that they desired ambulatory electronic health records so that the health information record could be accessed while moving between each stage of health care. Health information managers are in responsible of protecting patient privacy and training their personnel on how to handle and use the personal data entrusted to them. As technology plays a larger role in healthcare, health information managers must continue to be proficient in handling information databases that generate crucial reports for administrators and physicians. For training in and professional involvement in health information management, different jurisdictions have varied criteria and accreditation processes.

For authorized health information management programs, continual certification is required by the CAHIIM in the US. In accordance with the accepted practice, accreditation can be maintained by conducting routine site inspections, submitting an annual report, alerting CAHIIM about unfavourable program changes, and covering CAHIIM administrative costs. HIM Students have the option of enrolling in the full-time Joint Bachelor of Science/Master's Program. The BSHIM/MHSA Bachelor of Science in Health Information Management and Master of Health Services Administration degrees are both available to students who successfully finish this program. In five years, full-time bridging program participants can get both degrees. Students who choose to major in BSHIM/MHSA will be prepared to take managerial and executive positions in organizations that are involved in healthcare, such as

hospitals, managed care organizations, vendors and developers of health information systems, and pharmaceutical companies, and to use their HIM experience in these capacities.

Graduates of the Canadian College of Health Information Management CCHIM are eligible to take a national certification exam in order to pursue a career. Today, many programs are available online. Students who study online and in person can collaborate more easily because to internet technologies. When learning online, students can finish the courses at their own leisure. Online learners are incorporated into the classroom through group lectures that are recorded and broadcast online, discussion boards, and involvement in group projects with actual classmates. Even some online students are allowed to enroll in both on-campus and online courses. Professional health information managers design and manage health information programs to guarantee that they correspond to ethical, legal, and medical requirements. They play a crucial role in the maintenance, collection, and analysis of the information provided to doctors, nurses, and other healthcare workers. In exchange, these healthcare data contributors rely on the information to deliver high-quality medical care. Managers must work with a group of information technicians to guarantee that the patient's medical records are accurate and available when needed.

Health information managers in the United States are typically certified as Registered Health Information Administrators after receiving a bachelor's degree in health informatics or health information management from an institution recognized by the Commission on Accreditation for Health Informatics and Information Management Education and passing the pertinent certification exam. The Certified Health Informatics Systems Professional credential is offered by the American Society of Health Informatics Managers to identify an IT or clinical professional with a working level who can support physician adoption of Health IT. A CHISP practitioner needs to comprehend the health care environment, health IT, and IT in addition to soft skills like communication. RHIAs frequently assume managerial duties and collaborate closely with all organizational divisions that use patient data in day-to-day operations and decision-making. They might be employed in a range of settings along the healthcare continuum, including clinics, nursing homes, home health agencies, mental health facilities, and public health organizations.

DISCUSSION

Health Management Intervention

Routine health management was provided to the traditional group. Following admission, the doctors and accountable nurses established health management files and conducted regular health education for the patients and their families. Within the first month following discharge, patients were followed up with by phone once a week for at least 15 minutes, and then once a month for a year. Every three months after a year, the patients were checked on by phone in accordance with their actual circumstances. Management of health information was assigned to the HIM group. First, frequent training on health management expertise regarding cardiomyopathy medical treatment was given to a select group of doctors and nurses who handle the condition. Following admission, a thorough assessment of the patient's health was conducted, and health management files were created, primarily containing general information, disease conditions, contact details, and a WeChat number. Second, a WeChat health management platform for family members, nursing personnel, and medical teams was developed [1]–[3].

The platform's key components were health management, patient information, and medical information. The nursing staff uploaded the patient's health information files on time, allowing the platform to prompt the nursing staff to monitor and intervene with patients in a timely manner. This allowed the doctors to create customized treatment plans based on the individual needs of the patients and to monitor the platform's implementation of those plans.

Medical experts made diagnoses and administered treatments to the patients while they were in the hospital. Following discharge, the nursing staff uploaded all the information regarding health education, diagnosis, and treatment to the information platform, along with nursing plans, and the community nursing staff subsequently carried out targeted interventions on the patients' health condition.

Observation Indexes

Cardiac function recovery - Grade I showed disease remission in accordance with Maron et al.'s study criteria and the patients' disease remission rate were computed. The self-developed health knowledge questionnaire was used to assess the level of knowledge of associated diseases, and the awareness rate was determined a score of >80% indicated qualified. Each scale demonstrated strong structural validity, reliability, and discriminate validity, with a Cronbach's efficient range of 0.63 to 0.89. Patients' self-management skills, which mostly included daily living and compliance behaviours, were assessed using the self-management efficacy scale with a score of >60 points qualifying. Additionally noted were the number of complications and the length of stay in the ICU [4]–[6].Cardiomyopathy is an organic disease characterized by abnormal heart mechanical activity or electrocardiogram dysfunction. In severe cases, it can impair the heart's ability to contract and relax and even cause severe heart failure, atrial or ventricular arrhythmia, and embolism. Most cardiomyopathies' pathophysiology is still unknown at this time. In addition to hereditary considerations, other prevalent pathogenic causes include inflammation, infection, immunological dysfunction, endocrine, and metabolic disorders. Additionally, tachycardia, aberrant protein deposition in the myocardial interstitial, and left ventricular myocardial densification have all been linked to cardiomyopathy in some patients. Although there are few publications on the examination of mortality risk factors in China, cardiomyopathy has a high mortality rate.

Additionally, according to authoritative data, the majority of patients with cardiomyopathy have a poor prognosis that is primarily influenced by their left ventricular function and hemodynamic, with a 5-year survival rate of only 50% and a 10-year survival rate of roughly 25%. The 5-year survival rate of patients has increased to 65.5-75%, though, thanks to advancements in diagnosis and therapy. Therefore, the Chinese health business will experience more fast development with the aid of cutting-edge health management principles. However, China's health management is still in its early stages, and there are still lots of issues to be fixed. Therefore, it is necessary to build a cutting-edge service system and mode of operation for health management that have Chinese features. Furthermore, the majority of cardiomyopathy patients have a bad prognosis, with a 5-year survival rate of only 50%, according to authoritative data, and they typically need continuous monitoring of left ventricular function and hemodynamic. We must thus introduce HIM to them. Based on the aforementioned, this paper examined risk factors for cardiomyopathy-related death and the efficacy of HIM. By combining these findings with the clinical manifestations of the patients and pertinent study findings, we were able to analyse risk factors for cardiomyopathy by taking into account variables like baseline body weight, myocardial enzyme, troponin, infection factors, history of heart disease, gender, age, APACHE II scores, and SOFA scores [7]–[9].

According to the study, there was no discernible difference between the survival group and the death group in terms of baseline body mass, myocardial enzymes, troponin, infection factors, history of heart disease, and gender > 0.05. Patients in the death group were older than those in the survival group p 0.05, their LVEF was obviously lower p 0.05, and their APACHE II and SOFA ratings were plainly greater p 0.05 than those in the survival group. Over 75 years old was cited by Norrish Gabrielle et al. as an independent risk factor for cardiomyopathy-related death. The difference in mean age between the groups that died and survived in this study71.15 for the death group and 62.41 for the survival groupmay be

explained by the fact that older age was associated with diminished cardiac function, making inadequate compensatory ability one of the key factors in increasing mortality risk. This study is congruent with the findings of BAZOUKIS who observed that a considerable decline in LVEF at the time of initiation is likewise an independent risk factor for death from cardiomyopathy.

The results of the APACHE II and SOFA tests can provide a full picture of a patient's symptoms, which is helpful in determining the patient's prognosis. The death group's APACHE II and SOFA scores, on the other hand, were noticeably higher, indicating a more severe condition. LVEF was found to be an independent risk factor for death in individuals with cardiomyopathy after additional logistic regression analysis of the univariate factors impacting the probability of death from cardiomyopathy. With a sensitivity of 98.6% and a specificity of 78.6%, echocardiography demonstrated a strong predictive value for LVEF below 24.69%. Depressed cardiac systolic function and cardiogenic shock, which are followed by cardiac ischemia and an even higher risk of coronary thrombosis, may be the causes of mortality, according to additional investigation. The patients' oxygen requirements were significantly decreased by severe sedation and muscle relaxants. Patients' intake and output were being thoroughly watched while being kept at a relatively modest volume load. Accordingly, many patients' ventricular systolic function can recover with LVEF below 30% within a week, and when it falls to less than 24.69%, the cardiac compensatory ability is significantly diminished. The failure of the aforementioned interventions to address acute left heart failure ultimately raises the probability of patient death.

The HIM group clearly outperformed the conventional group in terms of disease remission rates, complications rates, awareness rates of health knowledge, length of stay in the intensive care unit, and self-management efficacy scores 0.05. Between the traditional group and the HIM group, there was no discernible change in the 5-year mean survival rate > 0.05. health administration with the aim of lowering costs and maximizing services, informatics is an unavoidable choice for enhancing the effectiveness and calibre of health management services. It is a new possibility made possible by the growth of the Internet, which not only enhances communication but also significantly boosts management effectiveness with the aid of big data. This approach stresses patient self-management while enabling accessible online health management through more accurate monitoring of long-term dynamic information and more coordinated business. The findings of this study indicate that HIM can significantly reduce the incidence of complications in patients with cardiomyopathy, aid in disease control, and improve patients' quality of life.

However, statistical data indicate that HIM has little effect on long-term survival rates, which may be because of the study's small sample size. Therefore, it is still necessary to confirm this by extending the sample size and conducting multicentre research. The study also had certain limitations because it was a retrospective analysis study. For instance, examination of individual risk factors for cardiomyopathy could only be done in the context of the present, and other risk factors could not be predetermined [10]– [12].Therefore, relevant research in the future should thoroughly examine the risk factors causing cardiomyopathy through prospective studies and set the study design by incorporating the findings of previous studies. In conclusion, aging, poorer LVEF, and higher APACHE II and SOFA scores are all risk factors for cardiomyopathy-related death. Lower LVEF is a standalone risk factor, and LVEF below 24.69% is a significant predictor of higher mortality risk. Additionally, HIM has no impact on long-term survival rates but can significantly increase short-term therapy efficacy.

CONCLUSION

The patient's medical history, symptoms, examination findings, diagnostic test results, treatment plans, and all other services provided by the healthcare practitioner. The quality,

accuracy, accessibility, and security of the health information data are maintained by technicians who organize and administer it. To clarify diagnoses or get more information, they regularly communicate with doctors and other healthcare specialists. Occupations included in this category require knowledge of medical terminology, legal aspects of health information, health data standards, and computer- or paper-based data management as obtained through formal education and/or extensive on-the-job training, the International Labor Organization's International Standard Classification of Occupations adds. Most MRHITs are employed by hospitals.

However, they also operate in a range of different healthcare facilities, such as public health organizations, nursing homes, home health agencies, and office-based physician practices. Medical coders or coding specialists are the terms used to describe technicians that specialize in coding.

In order to sit for their certification exam, health information technicians in the US must first earn an associate degree in health information technology from a college or university recognized by the Commission on Accreditation for Health Informatics and Information Management Education.

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CHAPTER 3

EMPIRICAL ANALYSIS OF KEY SUCCESS FACTORS IN CONSTRUCTION PROGRAMS

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ABSTRACT:
The success of the construction program can be efficiently promoted by scientific identification of the components that support it. This research produced the measuring items of the key success factors of the construction program in the Chinese setting based on literature statistics. Seven essential success criteria for the construction program were identified based on exploratory factor analysis. Then, using the principles, ideas, and theoretical workings of the EFQM model, the excellence model of the building program was developed. The research findings in this paper offer a methodical and comprehensive roadmap for the building program organization's successful implementation of the program, hence promoting the program's success. Science and technology studies has a theory called building of technology SCOT. Social constructivists, who support SCOT, contend that rather than technology dictating human behaviours, human behaviours shapes technology. Additionally, they contend that it is impossible to comprehend how a technology is used without also comprehending how it is incorporated into its social environment. SCOT, sometimes known as technological constructivism, is a critique of technological determinism. Actor-network theory, a subfield of the sociology of science and technology, and historical analyses of sociotechnical systems, like those by historian Thomas P. Hughes, are among the subtopics of SCOT, which draws on work from the constructivist school in the sociology of scientific knowledge. The Empirical Programmed of Relativism EPOR, which describes a method of analysis to show how scientific conclusions are socially created see strong program, is adapted in its empirical methodology. Leading SCOT supporters include Trevor Pinch and Wiebe Bijker.

KEYWORDS:

Construction, Efficiently, Implementation, Methodology, SCOT.

INTRODUCTION

According to SCOT, anyone who want to comprehend the factors influencing a technology's adoption or rejection should look to the social environment. According to SCOT, it is insufficient to attribute a technology's success to its status as the best; rather, researchers must examine how the standard for what qualifies as the best is established and which groups and stakeholders take part in doing so. They must enquire specifically as to who establishes the technical standards by which success is assessed, why these standards are established, and who is included or omitted. When one looks back and assumes that the path followed to the present was the only conceivable path, Pinch and Bijker contend that technological determinism is a delusion that results.In addition to being a theory, SCOT is also a methodology that formalizes the actions and guidelines to follow when examining the reasons behind technical achievements or failures. When the SCOT approach was first developed, it was somewhat inspired by the theories of the strong program in the sociology of science Bloor 1973. The Principle of Symmetry is the most important principle of the Sociology of Science, according to Pinch and Bijker's landmark article, and it should be used in historical and sociological studies of technology. It has a close relationship to Bloor's social causality theory. According to the Principle of Symmetry, while examining the success and failure of models, hypotheses, or experiments to explain the origins of scientific beliefs, historians and

sociologists should use the same type of justification in both successful and unsuccessful scenarios. Researchers should be unbiased towards the a posteriori attributed truth or untruth of the beliefs they are looking at, and they should also provide unbiased explanations.

Regarding the justifications advanced by social actors for the acceptance or rejection of any technology, the strong program adopts a relativism or neutralist stance. All arguments social, cultural, political, economic, and technical should be given the same consideration.The symmetry principle addresses the issue that the historian is prone to offer sociological explanations citing political influence or economic reasons only in the case of failures, while being tempted to use their objective truth or inherent technical superiority to explain the success of successful theories. For instance, it is tempting to attribute the decades-long success of the chain-driven bicycle to its advanced technology in contrast to the primitiveness of the Penny Farthing, but if we carefully and symmetrically examine their histories as Pinch and Bijker do, we can see that bicycles were initially valued according to very different standards than they are today. In contrast to the safety and stability of the chain-driven Safety Bicycle, the early adopters mostly young, well-off gentlemen prized the speed, thrill, and spectacularism of the Penny Farthing. The relative prices of bicycle models have been impacted and altered by a variety of other social variables, including feminism, women's fashion preferences, and the state of modern urbanism and transportation.

A faulty interpretation of the Principle of Symmetry reveals that there are frequently numerous competing theories or technologies, each of which has the ability to offer a little bit different answers to related issues. Sociological variables tip the scales in these situations; therefore, we should give them both the same amount of attention. The Principle of Symmetry can be applied to situations that appear to be simply technical since, according to a strong social constructivist reading, social factors even influence how questions or problems arise. The initial step in the SCOT research technique entails reconstructing the various technological interpretations, examining the issues and conflicts these interpretations give rise to, and linking them to the design elements of the technological artifacts. Diagrams can show the relationships between groups, issues, and designs.

Each technological item has several meanings and interpretations for various populations, which is referred to as interpretative flexibility. Bijker and Pinch demonstrate that while the air tire of the bicycle brought technical annoyances, traction issues, and unsightly aesthetics to some individuals, it offered a more convenient method of transportation for others. Air tires increased speed in racing. Different issues require different solutions as a result of these alternate perceptions. It describes how attributes like speed, convenience, and appearance should be given priority while designing a bicycle. It also takes into account trade-offs, such those between traction and speed. The users and the producers of the technical artifact are the two most fundamental significant groups, however there are frequently many subcategories that may be identified, such as users from varied socioeconomic statuses and rival producers. There are occasionally relevant groups that are neither users nor providers of the technology, such as the media, government officials, and non-profit organizations. Technology salespeople should also be included in the study of technology, according to Trevor Pinch.

The groups can be separated according to how they understand the relevant technologywhether they do so in unison or differently. There are many diverse ways to build technologies, just as they have distinct meanings in various social groups. A specific design is just one possibility among many technical ones, representing the perceptions of some pertinent parties. The various interpretations frequently result in disputes between standards that are challenging to resolve technologically for example, in the case of the bicycle, one such issue was how a woman could ride the bicycle while maintaining standards of decency, or disputes between the relevant groups the Anti-cyclists lobbied for the banning of the bicycles. Different groups in various civilizations create various issues, which results in

various designs. Rhetorical conclusion There is less of a demand for alternate designs as soon as social groups accept the solution to the issue. The outcome of advertising is frequently this.

Problem redefinition: A design that is the subject of disputes can be stabilized by employing it to address a brand-new, unrelated issue that is ultimately resolved by this particular design. For instance, as technology improved and air tire bikes began to dominate bike races, the aesthetic and mechanical issues with them began to disappear. Tires were still viewed as bulky and unsightly, but the fact that they solved the speed problem put an end to earlier reservations. Closure is not irreversible. A technology may be the subject of fresh dispute or conflict as a result of the emergence of new social groups and the reintroduction of interpretative flexibility. For example, in the 1890s, horse-powered vehicles were considered the green alternative; by the 1960s, however, new social groups had introduced new interpretations about the environmental effects of the automobile, eliciting the opposite conclusion.

DISCUSSION

An explanation of construction program success criteria

The key success elements and the success criteria of the construction program are causally related, and several key success factors will be determined for various success criteria. As a result, the foundation for systematically determining the program's main success elements is defining the purpose and success criteria of the building program. The standard measuring items for the success of building programs in the Chinese context are developed in this study based on the previous research, literature data, and China's construction program management methods. The SPSS22.0 statistical analysis program is used as an auxiliary tool to conduct an exploratory factor analysis for the success criteria of the construction program based on the data gathered by the questionnaire survey. The following success criteria of the construction program are extracted: the success of the construction program management, the success of the construction program organization strategy, and the harmony of the stakeholders of the construction program [1]–[3].

Developing Key Success Factors for Construction Programs Theoretically

There are currently few linked materials, and research on the essential elements of construction program success is still in its infancy internationally. Seven articles on the crucial success criteria of construction programs that were published in reputable international journals were chosen. The results show that more emphasis is placed on the key influence of executive support, clear goals, and other factors on the success of the construction program, while more emphasis is placed on the key influence of factors like team member ability and team communication and other factors on the success of the construction project.The foundation for identifying the crucial success criteria of a construction program is laid by literature study. This paper uses statistical findings from the literature, the 66 key success factors of construction program proposed by scholars like Sarmad Kiania, and the in-depth interviews conducted with university scholars, program managers, program executives, and other experts to explore the key factors affecting the success of the construction program in China. This is due to the differences in the construction environment of the programs in various countries. Additionally, this paper completes the building program's hidden components and outlines the measurement criteria for the program's critical success aspects in the Chinese setting [4]–[6].

Senior Executives Support

Senior executive support is the phenomena where senior executives support the program team verbally and in writing throughout the entire process of developing the construction program.

According to previous research, senior executive backing is one of the requirements for a project's success. Senior executives are the key players in a project or program and are responsible for carrying out organizational strategy and targets. By providing tactical and strategic support to a project or program, senior executives can enhance the management process, which can benefit the project and program objectives and boost program performance. Senior executive support helps the construction program succeed primarily by doing the following things: The senior executives commit to finishing the program; monitor its progress; actively participate in it and offer necessary support; and make sure the project or program is given the proper priority [7]–[9].

Organization/Management Completeness Factor and Other Normative Systems

The fundamental component for the success of building projects and programs is the standardization of the organizational structure and management system. The ability of the organization and its members can be successfully increased, and the effectiveness of the policy and strategic goals can be improved, by creating a positive organizational culture and establishing a reasonable organizational structure for the construction program. As a result, the management effectiveness of the construction project or program can be increased, thereby promoting the program's success. The strategic target of the program determines how the construction program is organized, and this organization is a crucial support and basis for the achievement of the strategic target.

To ensure that the organization can effectively carry out its duties, the program organization should also achieve the unity of powers, responsibilities, and benefits. Construction program management is a highly integrated management discipline. The need to create an efficient organization and implement the right work procedures to properly consider the program's targets and resources increases with program size and task complexity, allowing for effective program management and the achievement of the program's strategic goals. The construction program's positive culture has a significant impact on both the employees who participate in the program and the program itself. In addition, the project/program organizational culture can support project/program governance, increase employee motivation, lessen inconsistencies and conflicts, and improve workplace harmony.

The construction program management team consists of team members with construction program managers at its core, as well as managers and team members who use management technologies, apply capabilities, and have demands of their own. Balassa et al and Koge et al both found that the project manager's emphasis on the project and the project manager's experience are among the key factors affecting project success. Other researchers disagree, finding that the management skill of the project manager department is the most important key factor for project success. In order to enhance organizational and individual capabilities, formulate effective strategies, and integrate internal and external resources, it is helpful to choose an experienced and capable construction program/project manager. This will improve the efficiency of the program/project management and effectively promote the success of the program/project [10]–[12].

The construction program management team plays a crucial part in dealing with some complicated situations and systems, assuring the implementation of the construction program, and ensuring the effective delivery of the program as the core team of the overall process management. The effectiveness of the program is influenced by the construction program management office, a project management organization specifically created for project management that offers workable solutions for construction program management. The technical needs for a project are matched to the technical proficiency of the team members managing the building program; the stronger the technical proficiency, the higher the project's chances of success. By assigning resources to ensure that the construction program's

objective is realized, the manager of the construction program can also settle the issues and disputes of a particular subproject or unit.

Superior Program Management Attribute

The ability to manage projects effectively is crucial for assuring project value addition, claims project management theory. The administration of the construction program is a crucial step in the completion of the program's products, and it depends on scientific and efficient management techniques to identify important implementation points and ensure the program's success. According to research findings, 62.4% of seasoned project/program managers think that when the management of the project/program is successful, the project/program will typically succeed. In this regard, successful program management is the cornerstone of that success.The scope, time, cost, quality, human resources, communication, resources, information, risk, and other management aspects of the program are all involved in the construction program's implementation. It is essential to implement efficient control methods while working within target limits in light of the conventional iron triangle of time management, money management, and quality management, etc. Control measures must also be strengthened in management domains including resource, information, and risk management at the same time.

Factor for Stakeholder Cooperation

The needs, expectations, demands, and actions of the construction program's stakeholders may exert influence on the program or are influenced by it to varied degrees. The success or failure of the program is strongly correlated with their capacity for fulfilling their duties and level of performance.

The achievement of effective cooperation among the project/program stakeholders will result in organizational chaos and may result in project/program failure. The achievement of effective cooperation among the stakeholders of the project/program will satisfy the different interest needs of the stakeholders, and the harmonious relationship between the stakeholders, which benefits all participants.For the construction program's stakeholder relationship management to be successful, the stakeholders' communication, coordination, and cooperation must be improved. It can help to create a coordinated and peaceful environment, improve the management level and operational effectiveness of the entire program, and promote timely communication, reduce negative effects, avoid conflicts between departments, and resolve incidents that impede progress. These benefits can all contribute to the program's success.

Factors of Government Support

The government's role is indispensable and its tie to the construction program is unbreakable in the planning and execution of significant construction projects and programs. Government permission is needed for numerous steps involved during the construction process of the program because it is a large-scale project that requires a lot of attention from the government. The government is also involved in managing and supervising the program's construction at the same time. According to studies, the government can accomplish its goals of preventing corruption and enhancing program performance by supervising and regulating the construction program's implementation process through supervisory and regulatory agencies. The effectiveness of public institutions has a significant impact on the project's success, and the more effective the government, the faster the project or program will be built and the more likely it will be successful. The government can encourage the success of the program by offering strong guarantees and policy support. Government officials are significantly encouraged to promote the development of the program by the backing of national policies. By streamlining the project's initial consultation and approval procedure,

government officials successfully support the program's performance. Government approval is equally critical to the project's success, and the reliability of all parties involved in the project or program is essential to maintaining collaboration. If any party breaches a contract, the project or program may be terminated.

CONCLUSION

Rhetorical closure the demand for alternate designs declines when social groups perceive the issue to have been resolved. The outcome of advertising is frequently this. The issue is rephrased: A design that is the subject of conflicts can be stabilized by applying it to the solution of a brand-new, unrelated problem that the design itself ultimately resolves. For instance, as technology improved and air tire bikes began to dominate bike races, the aesthetic and mechanical issues with them began to disappear. Tires were still viewed as bulky and unsightly, but the fact that they solved the speed problem put an end to earlier reservations. Closure is not irreversible. A technology may be the subject of fresh dispute or conflict as a result of the emergence of new social groups and the reintroduction of interpretative flexibility. For example, in the 1890s, horse-powered vehicles were considered the green alternative; by the 1960s, however, new social groups had introduced new interpretations about the environmental effects of the automobile, eliciting the opposite conclusion.

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CHAPTER 4

ENHANCING CORPORATE GOVERNANCE THROUGH INFORMATION TRANSPARENCY AND INTELLIGENT ACCOUNTING MANAGEMENT

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ABSTRACT:
In order to increase the transparency of corporate governance information, this paper examines the information transparency in the corporate governance process, examines the fast adaptive neighbour clustering algorithm, and realizes the joint spectral embedding of data by constructing block diagonal anchor graphs. This paper also re-selects anchor points from the spectral embedding data and generates a new block diagonal anchor graph. Additionally, this study employs the adaptive closest neighbour clustering method to perform structured graph learning on the block diagonal anchor graph matrix. Following derivation, it is possible to convert the adaptive closest neighbour clustering Laplace eigenvalue decomposition problem of the complete graph into a block matrix singular value decomposition problem. The results of the regression study show that the sophistication of intelligent accounting information management technology and the transparency of corporate governance data are directly related. In order to increase the transparency of corporate governance information, this paper examines the information transparency in the corporate governance process, examines the fast adaptive neighbour clustering algorithm, and realizes the joint spectral embedding of data by constructing block diagonal anchor graphs. This paper also re-selects anchor points from the spectral embedding data and generates a new block diagonal anchor graph. Additionally, this study employs the adaptive closest neighbour clustering method to perform structured graph learning on the block diagonal anchor graph matrix. Following derivation, it is possible to convert the adaptive closest neighbour clustering Laplace eigenvalue decomposition problem of the complete graph into a block matrix singular value decomposition problem. The results of the regression study show that the sophistication of intelligent accounting information management technology and the transparency of corporate governance data are directly related.

KEYWORDS:

Analyses, Corporate, Management, Transparency.

INTRODUCTION

Corporate governance can be defined, described, or characterized in a variety of ways, depending on the writer's goals. Constrained definitions that appear to serve a single function are frequently used by authors who are interested in a certain field or setting such as accounting, finance, law, or management. Authors that are concerned with regulatory policy in relation to corporate governance practices usually utilize broader structural descriptions. The broad meta definition corporate governance describes the processes, structures, and mechanisms that influence the control and direction of corporations includes a number of adopted definitions.This meta definition considers both the specific, context-specific, limited definitions and the more broad, commonly cited, authoritative descriptions. The Organization for Economic Cooperation and Development (OECD) accepted the relational-structural view, which claims that corporate governance involves a set of relationships between a company's management, its board, its shareholders, and other stakeholders. The structural definition from the Cadbury Report, which characterizes corporate governance as the system by which companies are directed and controlled Cadbury, is one of the latter definitions. Additionally,

corporate governance provides a framework for defining the goals of the organization, figuring out how they will be achieved, and evaluating performance OECD.

In some circumstances, examples of more precise definitions include corporate governance affects and controls relationships with other stakeholders as well, but some governance-related concerns are related to the possibility of conflicts of interest that may result from the misalignment of preferences between shareholders and upper management principal-agent problems and between shareholders principal-principal problems. In large firms with separate ownership and management, the principal-agent problem can arise between senior management the agent and the shareholders. Higher management and stockholders may have competing interests. While other factors, such as management compensation or wealth interests, working conditions and perks, or relationships with parties inside or outside the company for instance, management-worker relations may also have an impact on upper management, shareholders typically want a return on their investment through profits and dividends. Principal-agent issues are frequently addressed in relation to self-interest-related difficulties. The effectiveness of corporate governance policies from a stakeholder perspective may be gauged by how well those practices align and coordinate the interests of upper management with those of the shareholders. Corporate actions, such as climate advocacy and voluntary emission reduction, appear to run opposed to the idea that shareholders' governance goals are driven by rational self-interest.

One instance of how a possible conflict could develop between shareholders and upper management is stock repurchases treasury stock. Executives might be persuaded to buy treasury stock with cash surpluses in order to support or boost the share price. The amount of money that can be utilized to maintain or enhance lucrative businesses, however, is reduced as a result. Executives can therefore choose to sacrifice long-term profitability for short-term gain. Shareholders may view this from a variety of perspectives depending on their personal temporal preferences, but it can also be perceived as conflicting with more general corporate objectives such as the interests of other stakeholders and the long-term health of the company. Large firms' upper management occasionally speaks for a number of shareholders, which exacerbates the principal-agent dilemma see multiple Principal dilemmas. There is a collective action problem in corporate governance when upper management acts on behalf of multiple shareholders because individual shareholders may lobby upper management or otherwise have incentives to act in their individual interests rather than in the collective interest of all shareholders. As a result, duplicating upper management oversight and direction, or free-riding in both cases, may result in enormous costs. Principals may disagree, and as a result, higher management may have more freedom.

These conflicts of interest may be reduced or avoided through procedures, customs, guidelines, laws, and institutions that affect how a firm is run. Corporate governance is responsible for this. In order to address the challenge of managing higher management under numerous shareholders, corporate governance scholars have found that the obvious option of nominating one or more shareholders for governance is likely to produce problems due to the information asymmetry it produces. It has been proposed that the issue of many principals can be resolved by setting up governance under a number of shareholders by convening shareholders' meetings because of the median voter theorem. These meetings have the effect of transferring authority to a person who roughly represents the median interest of all shareholders, causing governance to best reflect the interests of all shareholders taken together. The Anglo-American model of corporate governance gives a lot of weight to the interests of the shareholders. A single-tiered board of directors that is frequently composed primarily of non-executive directors picked by shareholders supports it. As a result, it is frequently referred to as the unitary system. Ex officio members on many boards in this structure include some of the company's executives. Non-executive directors are predicted to

outnumber executive directors and occupy significant roles, such as those on the audit and compensation committees. Despite significant worries about the influence on corporate governance, having a dual position has historically been the norm in the US, although in the UK, the CEO normally does not also serve as chairman of the board. Less US companies are combining the two roles, though.

In the United States, state laws directly govern corporations, but federal law regulates the exchange offering and selling of securities in corporations including shares. Although many US states have adopted the Model Business Corporation Act, the bulk of publicly traded companies are still incorporated under Delaware General Corporation Law. The specific rules that apply to corporations are based on the corporate charter and, to a lesser extent, the bylaws. Shareholders argue that the UK Corporate Governance Code can and should be repealed after 30 years, even though they are able to change the corporation's bylaws. The Code's early editions arguably improved managerial responsibility by enforcing good governance. However, because such criteria are now broadly accepted, the Code does not provide many immediate benefits for the premium-listed firms that are compelled to adhere to it. The Code has also undergone major revisions since 1992, many of which have been detrimental to listed corporations. The size of the Code has grown dramatically over time, which raises the disclosure burden on firms required to consider the Code. Furthermore, despite the apparent compliance-or-explain attitude of the UK CGC, corporations have been forced to establish what they believe to be inferior governance systems as a result of a bias in favor of full compliance driven on by investor preferences for box-ticking. The costs associated with the Code for firms are probably now much higher than any potential benefits. A second institutional flaw in the Code strengthens the case for its repeal. The Code has dealt with problems that it is increasingly ill-equipped to handle in recent years, particularly in relation to corporate constituencies that aren't shareholders, also known as stakeholders. These matters could be crucial to society. The Code is institutionally underprepared to deal with stakeholder problems because it relies on shareholder action to promote compliance.

DISCUSSION

Accounting information transparency is a highly significant and crucial aspect of corporate information transparency. Additionally, increasing the transparency of corporate accounting data can enhance the reliability of corporate data and dramatically lessen the practice of adverse selection in in-app purchases. Additionally, accounting data is indispensable and crucial to the financial health of organizations, particularly listed businesses, as well as business owners. The accounting data of the company is used by the public to evaluate the financial health of the company. Since financial information fraud has been a common occurrence for a long time, it is still urgently necessary to find a solution to increase the openness of corporate accounting information. The importance of this topic's study extends far beyond its immediate application to preserving the free market's established economic order and safeguarding investors' rights and interests [1]–[3].Capital plays a crucial part in the process of economic development. Capital is crucial in determining how internal resources are allocated, not just in the external capital market but also in the internal one. The key areas of interest for international academics conducting study on ICM include its existence, effectiveness, enterprise organizational structure, relationship to equity results, and so forth.

ICM research in China is still quite young. However, despite the comparatively late start of ICM research in China, it has advanced quickly. The majority of academics agree that ICM significantly reduces the restrictions on business funding. While researching ICM, academics have also given significant consideration to problems like rent-seeking, agency behaviours, and management incentives. The issue of ICM resource allocation efficiency has also been extensively explored by academics, who have also produced some research findings.

Theoretically speaking, ICM research is of the highest caliber, but it also has practical significance for advancing the development of ICM in group businesses. As a result, the study focus for this work is fixed on the issue of internal capital market efficiency allocation. Numerous academics domestically and internationally have long been interested in the research on accounting information openness.

Foreign and domestic scholars have made numerous definitions up to this point, but neither have they come to a consensus nor developed a conclusion. Most of the time, individuals believe that accounting information quality and transparency are closely associated. Investors' information costs decrease when the former's transparency increases during the investing process. It is necessary to pay a hefty information expense. Therefore, increasing the transparency of accounting information can be regarded to be a successful method for decreasing or preventing adverse selection behaviours in the capital market. The framework of corporate governance includes the handling of accounting information. The administration of accounting information is a crucial safety net for raising the calibre of accounting data. The accounting language for corporate governance can be used to reflect the corporate governance mechanism and can be used to maximize the function of the corporate governance function. The effectiveness of the former can guarantee the veracity and integrity of the latter due to the strong association between corporate governance and accounting information transparency. The transparency of accounting information will be reflected as a result of changes in the quality of accounting information brought on by corporate governance [4]–[6].

Recent years have seen a rise in interest in the topic of accounting information transparency, which is crucial to the study of corporate transparency. However, neither domestic nor foreign businesses have agreed on what accounting information transparency means. Transparency is described in the report as public disclosure of reliable and timely information helps information users to accurately evaluate a bank's financial status and performance, business activities, risk distribution, and risk management practices. To achieve transparency, timely, accurate, relevant, and adequate qualitative and quantitative disclosures must be provided, and these disclosures must be based on sound measurement principles, the discussion's conclusion read. Transparency in information is characterized by its completeness, applicability, timeliness, dependability, comparability, and significance. Opaqueness is the absence of precise, formal, understandable, and widely accepted rules in the areas of fiscal finance, government regulation, commercial economy, etc.

This claim asserts that listed firms' information openness can be described as clear, accurate, formal, easy to understand, and generally recognized the term earnings opacity is used in Reference to describe the extent to which the reported accounting earnings cannot convey information about the true economic earnings of the business. The quality of financial statement content and the quality of financial statement presentation and disclosure in other financial reports are two areas into which the information quality features of financial reports can be classified, according to literature. According to the literature, accounting information transparency is a broad concept that encompasses the development and use of accounting standards, information disclosure and oversight, and standards for the quality of accounting information. According to Reference, the degree to which an enterprise's accounting earnings match its actual economic earnings or the extent to which investors may discern the enterprise's activity from its accounting information determines the transparency of accounting information. Information content should be enhanced for highly transparent accounting data. Investors' cost of information may be decreased.

According to literature research a company's stock price will rise as accounting information is disclosed with greater transparency. This is because investors are more willing to purchase stock from a company whose information disclosure standards are higher and whose level of

transparency is higher. According to the literature, genuine financial reporting and improved information sharing can reduce the issue of information asymmetry and agency conflict between external investors and firm management. According to research that examines the connection between accounting openness and cost of capital, the latter will decline as accounting transparency rises. The more stable the amount of information disclosure, the more favourable it is thought to be for increasing the liquidity of business stocks. Reference used the research findings to demonstrate how a company's level of information transparency and its financial performance are favourably associated. According to the literature on voluntary information sharing by businesses, the internal and external governance mechanisms of businesses have clear synergistic impacts [7]–[9].

According to research that examines the connection between the level of corporate information disclosure and the price of refinancing, the level of transparency can be improved to lower the price of refinancing for corporations. Reference supports the findings in terms of financial ratios and the extent of enterprise profits information disclosure. The findings indicate that while businesses with high return on assets are more likely to provide forward-looking profits information, those with greater debt ratios have a tendency to provide early earnings estimates. The effect of listed businesses' accounting information disclosure on securities analysts' projections is studied in the literature. The empirical findings demonstrate a positive correlation between accounting information transparency and the forecasting precision of securities analysts. According to literature, there is a considerable positive association between the size of the board of directors and the transparency of the accounting information of listed businesses, but no significant correlation with the percentage of external directors.

Researchers' understanding of accounting information transparency is currently steadily improving, focusing on the fundamentals of financial information transparency rather than just the quality of incomplete accounting information. At the content level, this understanding also encompasses the disclosure of the superior company. All information is important because investors can determine the nature of a firm based on how business accounting information appears. In academics, there is still no agreed-upon metric for assessing the transparency of accounting information. With various measurement techniques, the research on accounting information transparency will produce a range of results. However, since accurate and useful accounting information is the basis for creating a sophisticated capital market, research on accounting information transparency is crucial. However, it is important to remember that the timeliness and effectiveness of the information released by listed firms should also be taken into account. The measurement of accounting information transparency used by both domestic and international scholars in their research on this topic can roughly be divided into two categories: one is the direct use of the disclosure evaluation of authoritative organizations as a variable to measure information transparency, and the other is the creation of one's own transparency index.

In order to increase the management efficiency of modern companies, effectively increase the management efficiency of intelligent accounting information technology, and improve the operational efficiency of corporate financial management, this paper combines intelligent accounting information technology. The laws and rules of a specific jurisdiction establish corporations as legal persons. The legal person status of a corporation, which is granted by statute, is important to all jurisdictions and may differ in various ways between nations. Due to the absence of any reference to a real person, the entity is able to own property in its own right. Additionally, it leads to the ongoing presence that defines the modern corporation. The granting of corporate existence by statute may result from legislation with a wide purpose which is the typical scenario or from a statute that establishes a particular corporation. The majority of jurisdictions now require government legislation that makes incorporation easier

in order to create business entities. This law frequently takes the form of the Corporations Act, the Companies Act, or something similar. The following list of regulatory tools by nation [10]–[12].

Most people agree that after the high-profile corporate scandals in 2001–2002, many of which involved accounting fraud, regulatory attention on the corporate governance practices of publicly listed corporations, particularly in relation to transparency and accountability, increased in many jurisdictions, and then again after the financial crisis in 2008. Similar corporate failures in other nations like Parmalat in Italy sparked a rise in regulatory interest. as well Many jurisdictions have significant regulatory tools that affect corporate governance in addition to legislation that makes formation easier. This includes statutory laws that regulate the operation of stock or securities markets also see Security finance laws, consumer protection laws, antitrust laws that protect consumers, labour or employment laws, and environmental protection laws that may also demand disclosures. Corporations may be governed by common law in various nations in addition to the applicable statute laws.In the majority of jurisdictions, corporations also have some type of corporate constitution that stipulates certain guidelines for the corporation's administration and empowers or restrains its decision-makers. There are other names for this constitution; in English-speaking countries, it may also be referred to as the corporate charter or the articles of association which may also be supplemented by a memorandum of association.

CONCLUSION

The International Corporate Governance Network ICGN, an investor-led organization, was founded in 1995 by the ten largest pension funds in the world. The objective is to promote global corporate governance standards. Members of the network, which is led by investors with 18 trillion dollars under control, are dispersed across fifty different countries. International standards have been developed by the ICGN that encompass anything from shareholder rights to business ethics. The World Business Council for Sustainable Development WBCSD has worked on corporate governance, particularly accounting and reporting. In a 2009 report titled Corporate Governance: The Foundation for Corporate Citizenship and Sustainable Business, the International Finance Corporation and the UN Global Compact made a connection between a company's financial performance and long-term sustainability and its environmental, social, and governance responsibilities. The majority of codes are optional. Since the 2005 Disney ruling, there has been discussion in the U.S. on how far firms should take their governance responsibilities, i.e., should they just try to go beyond the legal line or should they build governance principles that rise to the level of best practice.

The guidelines offered by firms, corporate managers, and associations of directors, for example, are frequently purely voluntary, but they may have a greater impact by inducing other enterprises to follow suit. The first-ever global standard for good governance, ISO 37000, was published. The rules place a strong emphasis on purpose, which forms the basis of every organization and offers a compelling justification for its existence. The objective and the method by which it is achieved are both guided by values.

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CHAPTER 5

PRACTICAL APPLICATIONS OF BASIC FINANCIAL ACCOUNTING MANAGEMENT

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ABSTRACT:
Every company needs a strong internal system of accountability, whether it is for profit or nonprofit. A business accounting system, which keeps track of all transactions involving the generation of monetary inflows for revenue and monetary outflows for operational expenses, provides this accountability management. The accounting system provides the financial information needed to evaluate the effectiveness of current and past activities. The accounting software also records the data required to generate reports that show the business entity's asset resources, creditor liabilities, and ownership equity. In the past, a significant amount of the effort required to operate an effective accounting system was tedious, challenging, and solitary physical labor. Each user of these systems had to regularly record transactions, carry out additions, subtractions, summaries, and error checks, among other operations. As computer technology has advanced quickly, costs have decreased dramatically while operational speed, data storage, and dependability have increased. The development of affordable microcomputers and accounting software has made it possible for the computerized system to quickly provide all record posting, calculations, error checking, and financial reports. The efficiency and low cost of the supporting computer software allow management to continue to have direct human control over the accounting system. To understand the subjects and analytical methods discussed in this text, the reader must have a conceptual and practical grasp of accounting fundamentals.

KEYWORDS:

Accounting, Costs, Financial, Income, Revenue.

INTRODUCTION

Stockholders, creditors, lenders, governmental organizations, and other external users who are interested in or impacted by the operation of the business are among the users whose information is provided by financial accounting management. The goal of hospitality management accounting is to give managers in charge of leading and overseeing activities within the hotel sector specific internal information. Planning different short- or long-term courses of action and choosing the best course of action are both based on internal knowledge. It is explained in full how the chosen course of action will be carried out. To carry out a chosen course of action, managers motivate the human resources and direct the material resources required. The implemented course of action is under the management of managers who ensure that the plan is being followed and, if necessary, amended to achieve the goals of the chosen course of action. There are several job prospects in the hotel sector for those interested in accounting. First, there is general accounting, which entails the generation and recording of accounting data as well as possible specializations like cost control for food and beverage services. Second, larger companies may provide opportunities in accounting system design or revision and implementation. Careers in budgeting, tax accounting, and auditing that confirm the financial records and reports of individual properties in the chain could also be available in a larger corporation [1]–[3].

Overview Accounting

The common consensus is that all business activities, including those in the hospitality industry, have a variety of various cyclical sales revenue cycles. The daily operational cycle is the first, and it is especially relevant to restaurant operations since daily sales revenue frequently depends on mealtimes. There is a weekly cycle, too. One the one hand, business travelers typically use hotels, motels, and other hospitality businesses during the week but typically don't generate much revenue on the weekends. On the other hand, locals tend to visit restaurants more frequently on the weekends than they do during the week. Third, there is a seasonal cycle that depends on tourists to support hospitality businesses during the summer. Fourth, there will be a broad business cycle during a recession, and hospitality enterprises will normally see a significant drop in sales revenue. Forecasting revenue and operational costs is particularly challenging in the hospitality industry due to the numerous recurring accounting cycles that are encountered. Particularly, special planning and procedures are needed for variable expenses such as labor costs and cost of sales, which help with budget forecasting. It is more challenging to efficiently automate and regulate hospitality expenditures than it is in other no hospitality company sectors because hospitality operations are people-oriented and people-driven. Regrettably, the majority of accounting textbooks and generic accounting courses place an emphasis on accounting systems using methods and software

applicable to firms in the service, retail, and manufacturing sectors. These kinds of enterprises typically don't need to apply the particular accounting methods and procedures needed by hospitality operations. In manufacturing processes, direct expenses and indirect costs are typically assigned to specific products or product lines. All labour and material expenses that may be linked directly to the manufactured good are considered direct costs. Manufacturing or factory overhead is typically referred to as indirect costs, which includes things like factory supporting costs like administrative salaries, labour, and other overhead, utilities, interest, taxes, and depreciation. Since indirect costs cannot be clearly linked to a single product due to its fundamental nature, it is challenging to isolate individual costs. Each product or product line receives a portion of the supporting indirect costs that are allocated using allocation methodologies. However, a hospitality organization typically has distinct operating divisions that offer services like lodging, food, drink, banquets, and gift shops. Each operating department and its operating divisions must be able to be evaluated independently by a hospitality accounting system. Direct costs are those that may be directly linked to a department or division. Cost of sales cost of items sold, pay and wage labour, and certain running materials are frequently the largest direct expenditures. Following the determination of direct expenses, revenue is subtracted in order to separate contributory income, which represents the department's or division's contribution to the support of the operation's undistributed indirect costs. Costs that cannot be directly linked to a department or division are known as indirect costs. In general, little effort is made to assign indirect costs to the department or divisions at this point in the review. Managers examine operational results to make sure that contributed income from all departments or divisions is enough to pay all indirect costs for the entire hospitality business and leave enough money over to achieve the desired level of profit [4]–[6].

DISCUSSION

General Terms of Financial Accounting

This text's goal is to give managers in the hospitality sector a practical understanding of how an accounting system creates, updates, and presents financial data. Understanding the data that an accounting system provides improves managerial analysis. Management effectiveness will be significantly lowered if management does not comprehend the information being

delivered. The principles, concepts, practices, and general rules that management must utilize in a workable accounting system in order to make choices and maintain a successful, efficient, and profitable firm are defined by financial accounting, a common language created by accountants over time. An accounting system displays comprehensive data on assets, liabilities, ownership equity, and sales revenue.

A Review of Basic Financial Accounting

operating costs, and it controls the recording, reporting, and creation of financial statements that depict a company entity's financial situation. Accrual vs. Cash accounting The two accounting methods are cash basis and accrual basis. How and when sales revenue and expenses are recorded differs between the two approaches. According to the cash basis of accounting, sales revenue inflows are recorded when money is received, and operating expense outflows that result in sales revenue are recorded when money is paid. Simply defined, the cash basis only records sales income and operations costs when money is actually exchanged. No matter when cash is collected or spent, the accrual foundation of accounting records sales revenue inflows when earned and operating expense outflows to produce sales revenues when incurred. When it makes sense for their sort of organization, many small enterprises employ the cash basis of accounting; there is no necessity to compile and disclose their financial situation to external users. As seen below, the cash basis can be calculated: starting cash. Cash sales earnings Cash settlements Cashing out the accrual basis does not have a fundamental equation. We'll use a hypothetical new restaurant that operated on a cash basis for its first two months of business to demonstrate cash accounting. Assuming monthly sales revenue of $10,000 and total inventory of $8,000 for resale, a partial income statement generated on a cash basis for the first two months of operation would display the following [7], [8].

Income Statements and Balance Sheets

By displaying the status of a company's assets, liabilities, and ownership interests as of a certain operating period's conclusion, the balance sheet displays the financial health of a business entity. By matching sales revenue inflows and expense outflows to indicate the results of operationsnet income or net lossthe income statement reflects the economic performance of the corporate organization. The income statement is typically regarded as being more significant than the other two key financial reports. It clearly highlights the costs that must be incurred in order to earn sales revenue because it reports the results of operations. The income statement will be covered later in this chapter. It will be covered first since it gives an easier foundation for comprehending double entry accounting. Three essential components make up the accounting equation, which establishes the fundamental structure of the balance sheet. Expanded upon are the fundamental arrangements of a balance sheet and an income statement presented in this chapter [9], [10].

Accurate Double-Entry Accounting

The core of double-entry-accrual accounting is the analysis of accounting transactions, as well as the recording, posting, adjusting, and reporting of economic outcomes and financial position of a business entity. A balance sheet equation or an income statement must have at least one new or altered component for there to be an accounting transaction. A transaction is an exchange between two commercial entities where services are provided or items are sold to a third party for cash or on credit, or where services are obtained or goods are bought. After the transaction, adjustment entries must be made to the business entity's operating accounts to recognize internal accruals and deferrals at the end of an operating period. Sales revenues earned but not yet received or recorded, as well as expenses incurred but not yet paid or recorded, will be recognized in such transactions. Closing the temporary income statement operating accounts sales revenue and expenses and transferring net income or net

loss to the capital accounts or the retained earnings account are both necessary steps to finish the accounting period. The phrase double-entry accounting comes from the fact that this requirement calls for an entry to be made on both sides of the equation. In a later section of this chapter, we'll go into more depth about adjusting and closing entries. The balance sheet equation and the equality between both sides of the equation, A L OE, are maintained since no transaction can have an impact on just one account. Each transaction specifies how each account involved in the transaction should be changed. Each directed adjustment will result in a monetary increase or decrease to the designated account in the given amount. It's crucial to comprehend how a journal entry designates such modifications for a particular account. In order to receive numerical values that adhere to the norms of debit and credit entries, two account columns are used.

Principle of the Business Entity

The transactions of a business entity functioning as a proprietorship, partnership, or corporation are deemed to be separate and distinct from all personal dealings of its owners from an accounting perspective, if not from a legal perspective. Even if the owners labor for or for the business entity, the separation of the owners' personal affairs from the company entity must be preserved. Only the consequences of the corporate entity's assets, liabilities, ownership equity, and other transactions are recorded in the accounting records of the company. The corporate entity does not include the ownership's personal possessions, liabilities, or costs [11], [12].

Financial Uniform Principle

According to the monetary unit principle, business exchanges and operational transactions are recorded numerically using the fundamental national monetary unit. The dollar is the official currency of the US. As a result, the accounting function in our scenario keeps track of how much money the corporate entity spends and brings in through sales revenue during operations. Within financial accounts and reports, financial information is also expressed in terms of the dollar's monetary unit. The accounting system records data that is supplied and preserved in dollars.

Principle Of Going Concern

The going concern principle presumes that a company entity will continue to operate indefinitely under normal conditions. This continued existence is based on the idea that the cost of business assets will eventually be recouped by earnings produced by profitable activities. Long-lived assets including land, buildings, and equipment are valued at their actual acquisition costs on the balance sheet. Such assets should not be valued at market value because it is not the purpose to sell them. Depreciation expense is used to recover the initial cost of a long-lasting physical asset other than land over the course of its useful life. PRINCIPLE OF COST The cost principle, which mandates that the value of business transactions be documented at the actual or equivalent cash cost, is directly related to the assumption made by the monetary notion. Under the stable dollar assumption, comparing income statements for several years over protracted periods of inflation or deflation becomes challenging, if not nonsensical. With regard to the valuation of inventories for resale and the expression of some balance sheet and income statement items in terms of current, as opposed to historic, dollars, there are a few exceptions.

Period Of Time Principle

According to the time period principle, a business entity must conduct a study of the financial health and profitability of its operations over a given period of time. An ongoing business is always in operation. Although electrical power really continues to flow constantly to the user, theoretically the flow should stop once the service meter data has been logged. The billing

statement indicates that although service continued without a hitch, the time period's service formally terminated at a particular date. Although the principle can be used to any time perioddaily, weekly, monthly, quarterly, semi-annually, or annuallythis example refers to a monthly period. An accounting year, often known as a fiscal year, is a 12-month span of time. A fiscal year is any twelve-month period, which may or may not be the same as a calendar year that runs from January 1 to December 31 of the same year. In the hospitality industry, monthly and occasionally weekly statements are commonly prepared.

Principles of Conservatism

A company should never create financial statements that may result in overstatements or understatements of assets, liabilities, sales revenues, or expenses on the balance sheet. Estimates may be required in certain circumstances, such as when determining an appropriate depreciation rate or determining inventory values. The valuation of the inventory ought to be lower rather than higher. Conservatism in this case results in higher sales costs and a lower gross margin also known as the gross profit. Depreciation expense is a methodical way to recover the expenses of long-lived assets apart from land, and as such, these costs need to be higher rather than lower. Conservatism's objective is to prevent overstating income, which will result in higher expenses and lower reported operational income in this situation. To prevent conservatism from being taken too far and producing false findings, vigilance must be taken. For instance, five years of use could be enough time for restaurant equipment to fully depreciate. Although this course of action is undoubtedly conservative, it is barely practical [13], [14].

Principle of Consistency

The purpose of the consistency principle is to ensure that the methods and practices used to prepare financial statements are comparable and consistent from one accounting period to the next. For instance, the cash basis mandates the exchange of cash prior to the recognition of sales income or expenses. The accrual foundation of accounting mandates that income and costs be recorded as they are incurred. Both alternating between the two and arbitrarily modifying inventory valuation would not be consistent. A review of basic financial accounting principles of accounting generally accepted techniques from one period to the next. The disclosure principle dictates that modifications should be disclosed to likely and potential readers of the statements when they are inconsistent with the most recent accounting period. The disclosure should include both the likely economic impact on future periods as well as the economic effects of the modifications on the financial results of the current period.

Principle of Full Disclosure

Financial statements mostly focus on a past time period. According to the full disclosure principle, every future event that might or would happen and would materially affect the business's financial status would need to be disclosed to likely and potential readers of the statements. Footnotes are the most popular way to provide these disclosures. A hotel should disclose things like the construction of a new wing or the potential purchase of another property. If a patron files a lawsuit against a restaurant alleging, they were negligent for allowing a frayed carpet edge to cause them harm, they are required to divulge this information. The adjustments should be stated if the accounting techniques used to prepare the current financial statements have changed and diverge from those used to prepare earlier financial statements. If at all possible, changes from one period to the next that have an impact on present and upcoming business operations should be recorded. Such adjustments would raise or lower the value of ending inventory, cost of sales, gross margin, and net income or loss. Such changes include those made to the method used to calculate

depreciation expense or to the method of inventory valuation. Every change that is communicated should be accompanied by a financial impact statement.

CONCLUSION

This objectivity principle demands that a transaction have a factual foundation. Before a transaction may be recorded in the accounting management records, it must be supported by some sort of independent evidence or documentation. A receipt for the payment of a guest check, the acceptance of a credit card, or the invoicing of a house account that supports earned sales revenue are examples of this type of proof. Revenue is recognized on the accrual basis of accounting when it is earned, not necessarily when it is received. Accounts receivable, a record of the sum anticipated to be received soon, are created when sales income is collected through the receipt of cash or the granting of credit. When money is spent or credit is granted, expenses are incurred, establishing an account payable that needs to be paid soon. A receivable's payment may be written off as a bad debt expense income statement method for tax purposes if it is no longer possible to collect it. The creation of an allowance for uncollectable accounts balance sheet approach for financial reporting purposes is another way to write off an uncollectible account. To prepare for potential future bad debts, the allowance for uncollectable accounts may be established. However, one instance of an exception to the objectivity idea is the formation of an allowance account for bad loans balance sheet approach. The allowance account is based on hypothetical future events, hence there is no absolute basis in reality. The allowance account for bad debts, however, is often based on historical data regarding the percentage of receivables that were not collected.

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CHAPTER 6

COMPREHENSIVE FINANCIAL STATEMENT ANALYSIS AND EFFECTIVE MANAGEMENT TECHNIQUES

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ABSTRACT:
The reader is introduced to the many types of persons who might be interested in examining a company's financial accounts in the first section of this chapter. The balance sheet and the income statement are highlighted, while the remainder of the chapter focuses on the fundamental study of financial statements. Financial information for at least two consecutive time periods is displayed side by side in comparative financial statements. For each line item on the financial statement, the dollar change and the percentage change are displayed, along with totals and subtotals. A comparative horizontal analysis, in its simplest form, implies that the usage of at least two successive financial statements balance sheets, income statements, etc. is examined. A significant total is used to convert each line item in the statement to a percentage in the common-size method of financial statement analysis. This shows that the process of converting dollar amounts to percentages involves a vertical analysis. In this chapter, the concepts of comparative horizontal analysis and common-size vertical analysis will be utilized to describe and explain these techniques. The average check, average cost, average income per guest, and other revenue and cost averages can all be found using an extra way of income statement analysis that will be demonstrated and described.

KEYWORDS:

Analysis, Balance, Financial, Income, Statement.

INTRODUCTION

Financial statement analysis and interpretation involve examining the many components of the financial statements, linking them to one another and to the overall picture, and assessing whether any meaningful and practical interpretation can be drawn from this analysis. Analysis and interpretation of the financial statements are topics that managers, owners, investors, and creditors are all interested in. What interests one person might not be as interesting to another. Managers, for instance, are particularly concerned with the organization's internal operational efficiency and will search for signs that things are going well, that operating objectives are being fulfilled, and that the various departments are being handled as profitably as possible. On the other side, investors are more concerned with future earnings and dividend possibilities as well as net income.

They frequently wouldn't be interested in or aware of internal departmental results. Even though creditors and other investors besides stockholders may be interested in net income, they are more concerned with the company's ability to pay off its debts. Despite having high earnings, a corporation could not be able to pay its debts due of a cash flow problem. The scope of this work does not allow for a full discussion of financial statement analysis and interpretation. As a result, this presentation will be limited to some of the simpler analysis methods that are best suited for the hotel sector. The two main financial statementsthe balance sheet and the income statementwill also be the only ones on which comments will be made. The analysis methods shown are those that the operation's management would typically employ. .

Balance Sheet Comparative Horizontal Analysis

A balance sheet as of a particular date and an income statement for the accounting period that concluded on that date make up a fundamental set of financial statements. A balance sheet and an income statement for both the prior and current accounting periods may be included in some sets of financial statements. Changes between the two consecutive years or periods can be seen when prior and current period statements are presented. These modifications, though, might not be as visible as you might anticipate. The ability to analyse additional data is quite helpful because it is difficult to mentally evaluate the differences between two sets of figures. A comparative horizontal analysis of a balance sheet or an income statement is one approach. This method needs at least two uninterrupted informational sessions. Finding and identifying changes that have taken place throughout an accounting period is the goal.

A positive or negative dollar value change is determined by calculating the difference in dollar value stated between the two statements for each line item, subtotal, and total of the statement. The percentage change is calculated by dividing the change, whether positive or negative, by the dollar amount from the previous period. The challenging aspect of a comparative analysis is not concluding a comparable horizontal analysis of every item, subtotal, or total appearing in a financial statement. Understanding what the analysis is trying to tell you is the challenging part. The balance sheet information for two consecutive years is provided in Exhibit 3.1, together with the names of all line items, subtotals, and totals for all assets, liabilities, and stockholders' equity. For comparison analysis, two additional columns are also provided; one displays the change in dollar value, and the other expresses the change in percentage for each reported line item.

Vertical Analysis of Balance Sheets of Common Size

Converting the statement to a common-size vertical analysis format is another method for analysing balance sheet data. For this strategy, only one period of financial data is needed. Common size denotes that all assets are valued at 100% and that each item's conversion value corresponds to a fractional portion of all assets. Every line item, subtotal, and total on a balance sheet may be stated as a percentage of total assets because assets, liabilities, ownership equity, and each side of the balance sheet have the same total value. The comparative balance sheet from Exhibit 3.1 is converted to common size vertical in Exhibit 3.2. The cash account in Year 0003 represented 1.6 percent of all assets, according to the common-size statement, which was derived by dividing the cash amount by all assets: $22,900 / $1,448,800. Accounts payable in Year 0003 are $19,200 / $1,448,800, or 1.3 percent of total assets. Each balance sheet item for Year 0003 is divided by Year 0003's total assets in Exhibit 3.2. The product of total assets divided by total assets will equal 100% when all of the component percentages for Year 0003 are added together. Any balance sheet component, including current assets, fixed assets, current liabilities, long-term liabilities, and ownership equity, can be transformed into a common-size vertical format and examined independently. A common-size vertical analysis of current liabilities will express each individual current liability as a percentage of the total because each current liability is a component of the total current liabilities [1], [2].

Alterations In Price and Cost Levels Inflation or Deflation

The reader must be aware of how changing dollar values affect the findings when comparing operating outcomes, and in particular when studying trend figures. A few years ago, 100 pounds of veggies weighed precisely the same as they do now, but they were far less expensive to buy. Costs fluctuate over time. Prices for rooms, meals, beverages, and other services must change along with those for us, just as they do for our customers. It is important to evaluate the effects of rising expenses or prices inflation or the opposite deflation when comparing revenue and expense items over a considerable amount of time.

Take into account a restaurant with the volume of sales income increasing as follows. However, if inflation had caused restaurant menu prices to rise by 10% over the course of the year, our Year 2 sales income would have needed to be at least $110,000 to maintain parity with Year 1's volume.

To put it another way, when we attempt to compare sales revenue for subsequent periods in an inflationary or deflationary environment, as we are doing here, we are comparing different numbers. The value of a dollar today is not the same as it was last year. What a dollar could buy today might have cost $1.10 last year. Is there a way to translate the currency of one period into the currency of another so that trends can be more accurately analysed? By using index numbers, the answer is yes. One of the indices that is probably used and understood the most is the consumer price index. But numerous more indices are created by the government and other organizations. The translation of the previous period's currency into the current year's currency is accomplished by choosing the right index. Take a look at the trends in the following numbers for a restaurant's sales revenue over the previous five years.

This method is well-known if it appears like it. The trend index figures given in an earlier discussion were calculated using a similar methodology, which may also be applied to cost functions. By building its own trend index in this way, a restaurant may find that it is far more accurate as it only takes into account changes in its own prices. There may be elements in a national average restaurant trend indicator that have no influence on any specific operation. Such an individual trend index should ideally only be utilized if the operation's size and character have remained constant over the course of the review period; otherwise, the findings could be deceptive. Once the trend index has been created, it can be used to translate historical sales income into current dollars by applying the previously shown equation. The same type of handmade trend index might be used by a bar utilizing average customer spending.

A hotel or motel could utilize the average room prices translated to a trend index to calculate its room sales revenue. Using a suitable trend index for the specific expenses or costs under consideration, costs can be translated in the same manner. For instance, it would probably be fair to modify labour costs using a wage trend index. As was previously shown for hotel rates, an individual business might also be able to create its own trend index for each individual expense, basing it on a cost per guest or cost per room occupied. In fact, the entire income statements for previous periods can be rebuilt by changing them to the currency of the present period or current year. The majority of hotel or food service managers generally wouldn't need such extensive modifications. Regardless of whether a significant accounting conversion is employed, the effects of changing prices and cost levels should not be disregarded. Balance sheets experience the same issues. It can appear that there has been no change in the cash situation if the balance sheet for two consecutive years shows a cash balance on hand of $100,000. Will $100,000 today still buy the same amount as it did last year? In a similar vein, historical costs for land, structures, and equipment on balance sheets could also be deceptive. A thorough examination of inflation accounting or current dollar accounting, however, is outside the purview of this work [3]–[5].

DISCUSSION

Computer programs

A computer may create and print both comparative and standard-size vertical balance sheets and income statements, together with the pertinent dollar and percentage changes, using a spreadsheet program. Additionally, spreadsheets contain a graphical feature that can give managers information about the trend of particular things that is easier to interpret. These graphs can be displayed in a variety of ways, such as pie charts or bar graphs.Financial statement analysis entails linking the statements' many components to one another and to the

overall statement in order to interpret the findings. Users of financial statements may have varied perceptions of the data being viewed because they are interested in certain parts and particular elements. Based on the findings of their study, different readers of financial accounts are likely to draw different conclusions. One method for analysing financial accounts is comparative horizontal analysis, as shown in this chapter. In order to demonstrate changes in numerical value and the percentage that change reflects for each line item, subtotal, and total, two balance sheets or two income statements must be compared side by side. An explanation of the findings will be provided to wrap up the analysis.One balance sheet or one income statement is all that is needed for common-size vertical analysis of financial statements. Each line item, subtotal, and total on a balance sheet will be expressed as a percentage of all assets in a common-size vertical analysis. To express the percentage of each element as a percentage of total sales revenue, a common-size vertical analysis of an income statement divides each item aside from cost of sales, subtotal, and total appearing in the income statement by total sales revenue. Typically, the cost of sales is divided by the corresponding sales revenue [6], [7].

Ethical Condition

Based on sales revenue increases that have averaged around 5% over the prior year, a restaurant manager has received a bonus each of the last five years. The manager had an accountant make the necessary adjustments after the restaurant owner requested that the sales income data for the previous five years be adjusted for inflation. When evaluating the figures, the manager finds that sales revenues have essentially remained steady and have actually slightly decreased over the past year. The management chooses to alter the data to reflect an annualized rise in sales revenue of about 3% before submitting them to the owner. The manager aims to convince the owner that the annual bonuses were warranted by altering the adjusted data. Discuss the situation's ethical implications.

Comparative Horizontal Analysis of Balance Sheets

A basic set of financial statements includes a balance sheet as of a specific date and an income statement for the accounting period that ended on that date. Some sets of financial statements may have a balance sheet and an income statement for the previous and current accounting periods. When prior and current period statements are presented, changes between the two subsequent years or periods can be noted. These changes, however, might not be as obvious as you might expect. It is tough to mentally compare and contrast two sets of data, so the capacity to examine new data is quite useful. One method is to perform a horizontal comparative study of a balance sheet or an income statement. This approach requires a minimum of two continuous informational sessions.

The objective is to locate and recognize changes that have occurred during the course of an accounting period. Calculating the difference in dollar values expressed between the two statements for each line item, subtotal, and total in the statement yields a positive or negative dollar value change. The change, whether positive or negative, is divided by the dollar amount from the prior period to determine the percentage change. The difficult part of a comparison analysis is avoiding coming to a similar conclusion after examining each item, subtotal, and total that appears in a financial statement. The difficult part is figuring out what the analysis is attempting to tell you. Exhibit 3.1 includes the titles of all line items, subtotals, and totals for all assets, liabilities, and stockholders' equity from the balance sheets for the past two years. Two additional columns are also included for comparison analysis; one shows the change in dollar value, and the other represents the change in percentage for each reported line item [8]–[10].

Vertical Analysis of Common Size Balance Sheets

Another technique for examining balance sheet data is to transform the statement into a common-size vertical analysis format. Only one period of financial data is required for this method. The term common size indicates that all assets are valued at 100% and that the conversion value of each item represents a percentage of all assets. Because assets, liabilities, ownership equity, and each side of the balance sheet have the same total value, every line item, subtotal, and total on a balance sheet can be expressed as a percentage of total assets. Exhibit 3.2 converts the comparative balance sheet from Exhibit 3.1 to common size vertical.

According to the common-size statement, which was created by dividing the cash amount by all assets $22,900 / $1,448,800, the cash account in Year 0003 represented 1.6% of all assets. In Year 0003, accounts payable total $19,200/$1,448,800, or 1.3 percent of total assets. In Exhibit 3.2, the total assets for Year 0003 are divided by each balance sheet item. All of the component percentages for Year 0003 combined together will equal 100%, which is the product of total assets divided by total assets. Any component of the balance sheet can be converted into a common-size vertical format and studied separately, including current assets, fixed assets, current liabilities, long-term obligations, and ownership equity. Since each current responsibility is a part of the overall current liabilities, a common-size vertical analysis of current liabilities will express each individual current liability as a proportion of the whole.

Alterations Inflation or Deflation In Price and Cost Levels

When comparing operating outcomes, and in particular when examining trend numbers, the reader must be mindful of how shifting dollar values impact the conclusions. A few years ago, 100 pounds of vegetables cost much less to purchase than they do today, although weighing exactly the same. Prices change over time. Prices for accommodations, food, drinks, and other services must alter in tandem with those that apply to us, just as they do for our clients. When comparing revenue and expense items over an extended period of time, it's critical to assess the consequences of growing costs or prices inflation or the inverse deflation. Consider a restaurant where the income from sales is increasing as shown below.

To maintain parity with Year 1's volume, our Year 2 sales income would have required to be at least $110,000 if inflation had forced restaurant menu prices to increase by 10% throughout the year. Or, to put it another way, we are comparing different numbers when we attempt to compare sales revenue over succeeding periods in an inflationary or deflationary context, as we are doing here. A dollar's worth has changed from the previous year. What would cost $1.10 previous year might cost $1.0 today. Is it possible to convert money from one era into money from another in order to evaluate trends more precisely? The answer can be determined by using index numbers. The consumer price index is undoubtedly one of the indexes that is used and understood the most. But the government and other organizations also produce a huge number of additional indicators. By selecting the appropriate index, the currency of the preceding period is converted into the currency of the current year. Look at the trends in the sales revenue of a restaurant over the preceding five years in the statistics below.

CONCLUSION

The reader is introduced to the many groups of persons who might be interested in looking at a company's financial records in the first half of this chapter. The balance sheet and the income statement are highlighted while the fundamental analysis of financial statements is the focus of the remaining sections of the chapter. Financial information for at least two consecutive time periods is shown side by side in comparative financial statements. Each line item on the financial statement has a total and a subtotal, as well as the dollar and percentage

change. In order to perform a comparative horizontal analysis, at least two successive balance sheets, income statements, etc., must be employed, and their use must be carefully considered. Using a significant total, the common-size approach of financial statement analysis turns each line item in the statement to a percentage. This depicts how the process of converting cash amounts to percentages uses a vertical analysis. In this chapter, these techniques will be discussed and illustrated utilizing comparative horizontal analysis and common-size vertical analysis concepts.

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CHAPTER 7

EXPLORING INTERNAL CONTROL MANAGEMENT RATES: A COMPREHENSIVE INVESTIGATION

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ABSTRACT:
Management accounting and management control systems are covered in this text. Management makes judgments and puts policies in place to protect assets, keep costs under control, boost sales, and maximize profitability using the data provided by management accounting. To help managers fulfil their duties, the information provided must be accurate and up-to-date. All aspects of an establishment's activities, from procurement to sales, are subject to effective and efficient internal control rules and processes. entails keeping track of and being accountable for cash inflows and outflows as well as the numerous other resources an organization needs to run its business. Few internal controls are necessary in a small, owner-operated business like an independent restaurant or small motel since the owner, who is frequently present at all times and who handles all the cash coming in and payments going out, performs the control. One-person control is impractical in larger companies. In larger firms, it is actually important to divide operations into several divisions and to create an organizational chart. An effective internal control system is built on the organization chart itself, in fact. It develops channels of communication as well as degrees of power and accountability. Exhibits 5.1 through Exhibit 5.5 show organization charts for various sizes and types of hospitality enterprises. Lines of power, accountability, and communication get increasingly complicated in huge establishments, as the organization charts demonstrate. Consequently, a large establishment's internal control system will also be more complicated.

KEYWORDS:

Control, Cashier, Employees, Sales, System.

INTRODUCTION

These processes guarantee that staff members adhere to management policies, achieve operational effectiveness, and safeguard assets from waste, fraud, or theft. Cash, receivables-to-be-paid, inventory, equipment, structures, and land are all examples of assets. The use of safes for storing significant amounts of cash, locked storerooms for food and beverage inventory, limiting access to sites where cash and products are housed, and keeping all equipment in good operating order are some examples of the protections that are required. Reliable forms and reports that can be used to gauge staff productivity and effectiveness and identify issues. These reports offer data, typically of an accounting or financial nature, that can be examined to find areas of concern. If this information is to be useful, it must be current and accurate. It must also be cost-effective, which means that the advantages cost savings of an internal control system must outweigh the expenses of setting it up and maintaining it. The data generated must also be helpful. Money and effort have been wasted if the information is false and unusable.

These two important requirements may appear to be at odds with one another. For instance, the processes for securing and obtaining food products from storage and the paperwork needed to do so may be so onerous that staff members in departments like the dining room that require those products don't bother to restock worn-out supplies. Sales could be lost as a result, and the operation's efficiency is decreased. As an alternative, if workers comply with all paperwork requirements to guarantee they always have enough supplies on hand, the additional labour cost might outweigh any potential product losses due to theft or waste.

Although we will largely explore internal control from an accounting perspective in this chapter, control is not just confined to money-related issues. The system of internal control, for instance, includes the personnel policies of an organization. A corporation's policies on things like staff education and skill development are crucial since they eventually show up in the financial outcomes of the organization.

Specific Hospitality Industry Problems

Although internal control issues are a common concern for most firms, the hospitality industry has several particular issues that frequently complicate and make implementing absolute control more challenging. The subject of this section is a few of these traits. Nearly every hospitality operation can be categorized as a small business, therefore it is typically more challenging for a small firm to have as thorough a control system as a large corporation even if the particular property is part of a major worldwide chain.

Transactions In Cash

Even while many clients in the hospitality industry now pay with credit cards, many still pay with cash, especially in restaurants and beverage shops. This indicates that a significant amount of money is amassing in sales departments every day, making it simple for some of this money to disappear. The fact that several divisions in many hospitality operations are open 24/7 complicates cash management and its supervision even more. Even though the assets in inventory for the majority of hospitality operations only make up a small portion of total assets, many individual products in those inventories such as expensive food containers and bottles of fine wine are valuable to dishonest employees who may be tempted to steal them from the business for their own use or even to sell them for profit. Finally, compared to most other industries, the industry has a substantially greater rate of employee turnover. Because they are frequently untrained, employees frequently do not obtain the training they require, and they also frequently lack the loyalty to the company that long-term employees frequently build [1]–[3].

Make Management Supervision Standard

The majority of employees are trustworthy by nature, but some may succumb to temptation and become dishonest due to a lax internal control system or, worse yet, the complete lack of any controls. Why ought employees to care if management does not? Control mechanisms do not automatically fix every issue. The requirement for management to continuously monitor the efficacy of the system via supervision is not eliminated by the adoption of a control system. Fraud or theft cannot be stopped by a control system, but it can be detected if it is happening. Even with a top-notch control system, some types of fraud or theft could go undetected. Collaboration between two or more employees for dishonest ends may go unnoticed for a protracted length of time. It's crucial to keep in mind that no method of control is perfect. A good manager will be aware of this truth at all times.

Systems For Monitor Control

Any control system needs to be watched over to make sure it keeps giving out the right data. Therefore, the system must be adaptable enough to modify to meet various needs. Changes should be made to reporting forms if they need to be. When a form is no longer necessary, it should be completely discarded or changed for something better. It is expensive to ask employees to fill out paperwork that is never looked at, and when there doesn't seem to be any use to what they are being asked to do, employees quickly lose faith. Additionally, staff members may commit theft from the business by profiting from management's lack of interest [4], [5].

System For the Selection and Training of Employees

Employee training, competence, and reliability are crucial components of a good internal control system. This entails putting in place a sound system for interviewing candidates, choosing staff, and conducting regular evaluations as well as employee orientation and on-the-job training. Additionally, supervisory staff members need to be competent and skilled in upholding the operation's standards, inspiring the workers they manage, creating staffing schedules, preserving employee morale to lower the cost of employee turnover, and putting policies into place to control labour and other costs. A bad manager won't get the most out of their staff members, raising the expense of the business.

DISCUSSION

Identify your responsibilities

Making clear definitions of work duties is one of the requirements for effective internal control. Designing an organization chart is just one aspect of this. Who will be in charge of receiving, for instance, food deliveries to a hotel? Chapter 5 of the Internal Controls Will it be the cook, the storekeeper, someone whose primary responsibility it is to be the recipient, or someone who just so happens to be nearby when a delivery is made? Once the designated person has been identified, they must be given a list of receiving procedures, ideally in writing, so that they may be held accountable if mistakes or discrepancies are discovered.

Configure Written Methods

As previously stated, processes should be documented once they have been established for each region and each job type where control is required. Employees will be aware of the rules and processes in this way. In the hotel sector, where employee turnover is rather high and ongoing employee training is required to support the system of internal control, written procedures are particularly crucial. Because there are so many different types, sizes, and operating methods in the hospitality sector, it is hard to define rules in this chapter that will work in every case. Even in two establishments of comparable size and kind, the procedures for any particular control area may vary due to management philosophy, client type, establishment structure, or a variety of other factors. However, the following could be one example of how a written set of instructions could be created for the receiver in a culinary operation [6]–[8].

Keep Sufficient Records

Possessing quality written records is a crucial aspect of effective internal control. For instance, there should at the very least be a written record of what is to be supplied, from which suppliers, and at what costs on a daily order sheet for food deliveries. The authorized receiver can then compare the invoiceswhich come with the delivered productsto the actual goods and to the order form. More written records may be required for a larger establishment. A market quotation sheet, for instance, could be used to assign a responsible individual the task of requesting quotations from two or more vendors before any orders are placed. Employees won't be as interested about doing a good job without good records. The internal control system's forms, reports, and other records will vary greatly depending on the size and nature of the business.

Separate Asset Management and Record Keeping

Separating the tasks of documenting asset information from the actual control of the assets is one of the fundamental tenets of effective internal control. Think about the accounts of the visitors who have checked out of a hotel and charged their bills to a credit card or business account. Such accounts are assets known as accounts receivable, and at certain hotels, they

are kept there until they are paid. City ledger accounts are the name given to these accounts. The front office cashier receives checks received as payment and enters the payments on the accounts. At the conclusion of the cashier's shift, these checks are turned in together with additional cash and checks that were given to departing customers. There is nothing wrong with this procedure as long as the cashier is trustworthy! However, a dishonest cashier might engage in a practice called lapping. One of the receivables is Mr. X's $175 account from when he checked out of the motel [9], [10].

He submits his check for $175 when he receives his statement at the end of the month. Mr. X's account is not updated by the cashier with the payment. Instead, the cashier just places the check in the cash drawer and takes $175 out for their own use. At the end of the shift, the cashier's remittance will be in balance, but Mr. X's account will still have a $175 sum due. The cashier registers $175 as a payment on Mr. X's account, places the $285 check in the cash drawer, and removes an additional $110 in cash for personal use when Mr. Y, who has a $285 account in the city ledger, sends in his payment. A few days later, Mr. Z receives his $350 payment on his municipal ledger account. The cashier deposits the $350 check in the cash drawer, registers $285 on Mr. Y's account, and takes out an additional $65 in cash. The cashier will eventually be unable to cover a specific account due to the lapping of accounts, which will lead to the fraud being uncovered.

The unpaid balance may be so high, though, that it may be impossible to pursue the dishonest cashier for the money that was wrongfully taken. Receiving cash should be separated from recording it on accounts in order to help prevent this kind of loss. Cash or checks sent to the accounting office in payment for city ledger accounts could be deposited directly into the bank. The front office cashier only needs to be given a list of the accounts and sums received so that the correct accounts can be credited without having to handle any cash. However, there's a chance that the cashier and the person in the accounting office will collude despite this approach. Cash is not the only asset for which asset control and recordkeeping are separated. For instance, a storekeeper may control receive and issue food and beverage inventories maintained in a storeroom, but it is frequently a good idea to have the records of what is in the storeroom such as perpetual inventory cards maintained by some other person.

Reduce Access to Assets

Employee access to resources like cash and inventories should be strictly regulated. The risk of loss from theft or fraud increases with the number of employees who have access. The amount of cash and inventory should be kept to a minimal in a similar manner. This necessitates a delicate balancing act since cashiers must have enough money on hand to make change and the store's departments must maintain enough inventory to prevent frequent product shortages and inability to meet client demand. Additionally, the controls over who has access to those resources shouldn't be so onerous as to seriously hinder efficient operations. It is best to perform surprise checks such counting cash or taking inventory at odd hours. There are two concepts at play here: First off, the individual performing surprise checks should never be connected to the aspect of the business being examined. In other words, the person who typically conducts the storeroom inventory at the end of the month shouldn't be the one to write the surprise check. Second, these unexpected checks should be performed frequently enough to become usual but not according to a set schedule.

Share Responsibility for Connected Transactions

So that the work of one person may be confirmed by the work of another, responsibility for linked transactions should be divided. This is not meant to advise doing the same thing twice because it would be expensive, but rather having two things that must be completed for control reasons completed by two different personnel. This technique limits the amount of power one person has over assets and could help stop theft. For instance, on handwritten sales

checks, many restaurants list the goods sold and their pricing. When the customers pay, these checks are then placed into a cash register, which writes the total amount paid on the sales check and on an audit tape that runs continuously. The total sales are printed on the audit tape, which is subsequently removed by the accounting department, at the conclusion of the shift or the day the machine is cleared. The total amount of money received and the total sales recorded on the audit tape should match. However, there is no assurance that the audit tape value is accurate even if there is consensus. A sales check could have been rung up more than once, not at all, or without being put in the register. Over- or under-ringing could also happen. The cash would be short if the same transaction was rung up twice, and the over-ring [11], [12].

Control Internal

The lack of money. A cash overage, which may be taken by the cashier, would exist if a cash transaction was not rung up. Further supervision over sales checks is required in light of all these potential outcomes. All sales checks should first have their prices, extensions, and additions validated if time does not permit this daily, then it should be done on a spot-check basis. The order in which the sales checks were submitted should then be checked to make sure none are missing. The final step is to create an adding machine listing of the sales checks. The sum on this listing should be compared to the cash handed in, assuming that this adding machine listing was error-free. The register audit tape and the adding machine listing should match if there were no cashier mistakes. To make sure there are no missing sales checks, someone other than the cashier should check the sales checks for prices, extensions, additions, and other changes. The adding machine tape should also be prepared by this person. In this approach, the duty of overseeing sales is divided, and each individual confirms the other's job. As a result of fewer losses due to uncovered errors, the cost of the second person's time spent conducting the verification will typically be more than made up for in improved net profits.

Discuss The Reasons

The justification for assigning employees to conduct internal control activities should be made clear to them. For instance, it was advised in the part before that a second person check the cashier's job. Many dollars could be lost as a result of servers' mistakes when pricing things on sales checks, multiplying prices by quantities, and tallying sales checks. Losses from missing sales checks could also occur when a customer gave cash but a dishonest cashier or waiter pocketed the cash instead of destroying the sales check. The worker performing the task needs to be made aware of the significance of reducing these losses.

Render Jobs

Jobs should be alternated whenever possible. In a small business with few staff, it could be challenging to accomplish this. In a larger organization, cashiers may occasionally be transferred from one department to another, or members of the accounting office may rotate duties every few months. Employees are less inclined to be dishonest if they are aware that their position won't last for a long time. The likelihood of collusion is also decreased because the same two employees won't collaborate for an extended period of time. Another benefit of job rotation is that it keeps workers from getting bored by doing the same things all the time. Additionally, it adds flexibility to job descriptions and will help employees comprehend how different jobs are related to one another.

Apply Machines

Machines should always be utilized. Even if machines can't completely eliminate the possibility of theft or fraud, they can greatly reduce it. When a machine is installed, labor costs may be decreased if an employee is no longer needed to complete a task manually.

These devices include cash registers and/or point-of-sale POS systems for restaurants and bars, front office billing and auditing equipment, and mechanical or electronic drink dispensers. For instance, many losses resulting from the earlier described error categories will be eliminated by an electronic point-of-sale system. Additionally, the labor savings from eliminating the need for human verifications will go toward covering the cost of the apparatus.

Establish Standards and Judge Results

One of the prerequisites of an effective internal control system is to have a reporting system that shows whether every area of the company is running smoothly in addition to controlling the obvious visible objects, like cash or inventories. The food cost % is just one of the numerous benchmarks used in the food sector to gauge a manager's effectiveness. The management wants to know if the actual food cost % obtained is even remotely close to the desired level. As a result, the management needs a benchmark to which to compare the actual cost data. Standards of performance should be created when procedures have been developed and the individual personnel have received comprehensive written instructions on how to conduct duties. We'll explore how to set cost control standards and assess real results later on in this chapter.

CONCLUSION

Constant monitoring and review of the system is one of management's key duties in internal control. The need for this oversight and assessment stems from the system's obsolescence as a result of shifting business conditions. Moreover, the control system is susceptible to failure without constant observation. For instance, checking daily to see if there are any missing prenumbered checks on which sales are recorded is one of the crucial control measures in a food service company. After serving food and drinks, presenting the sales check, and collecting the cash, if an employee keeps both the sales check and the cash without being questioned, they will discover that the control mechanism is ineffective. The employee is then free to keep withholding sales checks and keeping cash in their pockets. The general manager is in charge of monitoring and reviewing the internal control system in small enterprises. The obligation for oversight and evaluation is delegated to the staff of the accounting department in larger enterprises. Internal auditing teams will be developed in very large firms. To make sure that internal control policies and procedures are being followed and assets are being adequately safeguarded, they will be in charge of evaluating the effectiveness of the operating and accounting controls as well as confirming the veracity of forms, records, reports, and other supporting documentation.

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CHAPTER 8

APPLICATION OF PRICING CONSIDERATIONS IN DIVERSE MANAGEMENT SCENARIOS

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ABSTRACT:
Approach presented in this chapter for figuring out meal selling prices and room rates to guarantee a sufficient return on investments has some drawbacks. The markup also known as cost-plus pricing method, which is used to set food and beverage prices in relation to the cost of the ingredients, does the same. The markup and return on investment approaches are both straightforward and simple to apply, but because of this, they overlook a lot of other elements that must be taken into account when determining prices. Because of this, return on investment and markup pricing should only be considered as guidelines and not as the primary factors in determining final rates. Additionally, estimates are made on seat turnover in restaurants and room occupancy rates in hotels. However, modifications can when it is observed that seat turnovers and/or room occupancies differ from those utilized in the original calculations, adjustments to pricing should chapter 6 the bottom-up approach to pricing be made to prices during the actual period. Unfortunately, the new choices can be the opposite of what would be appropriate given the situation. To give an example, imagine that a hotel had set its average room fee for the coming year of $79 based on a forecasted occupancy of 70%. The average room rate is adjusted upward to make up for the fact that real occupancy is closer to 65 percent throughout the year in order to maintain the intended profit operating income.

KEYWORDS:

Demand, Elasticity, Occupancy, Pricing, Prices.

INTRODUCTION

However, if you think about a normal business scenario, a price increase would frequently lead to a further decline in hotel demand, lowering occupancy even further. When all else is equal and an economy is functioning normally, the best course of action to increase demand is to drop prices, which will also increase net income. Bottom-up pricing approaches may lead to poor decisions, which could lead to unfilled hotel rooms and restaurant tables and thus lower profits. When market conditions are such that clients are willing to pay higher prices, prices may be raised above those determined using the markup approach, which could result in missed profit possibilities. Markup pricing can be effective when inflation is moderate as long as the economy isn't contracting at the same time and when there isn't an excess of hotel rooms or restaurant seats i.e., when there isn't an especially intense competitive environment. Although it is uncommon for this circumstance to occur, many hotels have started to use more complex techniques that systematically take into account all the pertinent aspects that should be taken into account when making the pricing decision. Yield management is one of these less basic strategies it will be covered later in the chapter. The sections that follow address a few of the other pricing factors.

Demand elasticity

is associated with how quickly demand reacts to price changes for a good or service. Elastic demand is defined as a substantial shift in demand caused by a minor change in prices. Inelastic demand is defined as a modest change in demand following a significant shift in prices. An equation to determine the elasticity of demand is given below:Therefore,

observing what happens to total sales income when prices change is the simplest way to determine whether demand is elastic or inelastic. If demand is elastic, a price drop will boost total sales revenue because, despite the fact that a lower price is being paid per unit, there are now enough extra units being sold to more than make up for the lower price. According to a generalization, if demand is elastic, a change in price will result in a change in total sales income that is the opposite of the change in price. If demand is rigid, a drop in price will result in a drop in overall sales revenue. The slight increase in sales revenue that takes place won't be enough to make up for the drop in sales revenue per unit. Again, generalizing, it may be said that if demand is rigid, a change in price will result in a corresponding change in total sales revenue. The presence of replacements is one of the elements that affects the elasticity of demand. Generally speaking, the highest price-charging hospitality businesses are able to do so because there are few alternatives available.

An elite hotel with minimal competition can charge more for rooms since its guests are used to paying more and can afford to do so. They also wouldn't typically switch to a less expensive, less opulent hotel if room rates were raised. The demand is rigid. On the other hand, if it increased its menu prices outside of line with its rivals, a restaurant that is one of many in a specific neighbourhood and caters to the family trade would undoubtedly lose a significant amount of business. Its commerce is extremely flexible. Customers who were price-conscious would just go to another eatery. In contrast, a restaurant with a high average check will likely encounter less opposition from patrons when raising menu prices. Therefore, it may be said that customers' demand is often more elastic the lower their income is and vice versa. The purchasing patterns of a company's clients are often tied to income levels.

Customers are less likely to object to an increase in costs the more habit-prone they are, as they have a tendency to develop brand loyalty to hotels and restaurants, just as they do with other things they purchase. Businesses that depend on recurring customers must be particularly aware of how pricing changes may affect that loyalty. Also keep in mind that as the amount of time under consideration grows, the demand for a good or service tends to be more elastic. Customers are creatures of habit, and while they do form loyalties, those loyalties and habits can shift over time. Therefore, any individual hospitality business needs to be aware of both the market's elasticity of demand and the level of client loyalty. In other words, its pricing strategy must be focused on the market. When making short-term decisions, such as reducing lodging rates on weekends and during off-peak seasons to boost occupancy or giving special food and beverage deals during sluggish times, this market orientation is especially crucial. Where demand is highly elastic, these discounted rates or prices are particularly appropriate.

Price Structure

Pricing selections are significantly influenced by a company's specific cost structure. In this context, the term cost structure refers to the division of costs into fixed and variable costs. The term fixed costs refer to expenses that typically do not fluctuate in the short term, such as manager salaries and insurance expenditures. Costs that fluctuate based on sales volume are known as variable costs. Cost of food is one instance. A company with more fixed costs than variable ones would probably experience fewer stable earnings when the volume of sales income fluctuates. Having the appropriate prices for the market becomes particularly crucial in this circumstance. In the short term, any price over the variable cost will result in a contribution to fixed costs and net income, and the larger the range of viable prices, the lower the variable costs must be. Any price between $10 and $95 will help offset fixed costs and boost net income, for instance, if the variable, or marginal, costs such as housekeeping labour, linen and laundry expense, for selling an extra room, are $10 and the room typically sells for $95. In such a scenario, individuals who set prices have a wide range of creative

marketing and pricing options at their disposal to attract additional business and optimize sales revenue and profits operation income. Keep in mind that this marginal or variable costing notion only works in the short term. In order to generate a long-term net profit, pricing must be set such that all costs both fixed and variable are covered. Chapters 7 and 8 of The Cost-Volume-Profit Approach to Decisions go into great detail on the subject of fixed and variable costs. A change in room rates' impact on volume and profits is specifically illustrated in Chapter 8 with the use of the breakeven equation [1]–[3].

DISCUSSION

The competitive environment of a hospitality business has a big impact on price. There aren't many monopolistic hospitality firms although there are few, like the restaurant owner with the sole concession at an airport. When there is a monopoly or a scenario that is close to a monopoly, the operator has more freedom in setting pricing and may actually have a tendency to charge more than is justifiably fair. The consumer still has the option to spend more or less money on a meal or beverage in these circumstances, as well as to stay fewer nights at the lodging. Additionally, new business owners are soon drawn to the monopolistic environment of high prices to provide competition. There is frequently an oligopoly in a more competitive but not entirely competitive environment.

An oligopoly often consists of one large, dominant firm and numerous smaller, competitive firms. In an oligopoly, the dominant firm frequently sets the price. The prices of the other firms also increase or decrease in response to changes in the price of the market leader. In a resort location with a single large resort hotel and a number of nearby motels that target slightly lower-income guests, an oligopolistic situation could develop. However, the majority of hospitality businesses operate in a purely competitive environment where the demand for any given establishment's goods and services is extremely sensitive to the prices paid. In these circumstances, there isn't much of a pricing difference between one restaurant and the next. When there is intense competition, competitive price will frequently win out without giving other factors a second thought. For instance, a business that uses competitive pricing may overlook the fact that a certain product or service is in some respects superior to those offered by rivals and thus be able to charge a higher price without affecting demand.

An intelligent operator will consider both the advantages and disadvantages of his or her own situation and those of the rivals in a highly competitive environment. Operators should consider how to set themselves apart from their rivals while assessing their strengths and weaknesses. The businesses with the greatest success in differentiating also enjoy greater latitude in setting their rates. This distinction can be found in areas like ambiance, decor, location, view, and related elements. In fact, psychological pricing is possible given distinction. According to psychological pricing, prices are set based on what customers anticipate paying for the different items or services provided. Higher pricing can be set as differentiation increases. This condition, for instance, is prevalent at upscale eateries and swanky resorts where a specific market niche has been developed. A monopolistic or nearly monopolistic situation may now be in effect. In conclusion, there isn't a single way to set prices for all hospitality businesses. Each business will have slightly different long-term 278 goals. pricing strategies relating to its overall objectives and will adopt suitable short-term pricing policies depending on its cost structure and market condition.

Selling hotel rooms is the primary objective of the rooms division in many hotels in order to raise the occupancy rate. The management's goal is to increase sales income or yield from the available rooms. Regrettably, many of the techniques employed to gauge a hotel's marketing efforts do not result in sales decisions that increase profits. The average room rate or the occupancy rate have traditionally been used to evaluate marketing efforts. Occupancy percentage has the drawback of not indicating whether or not sales revenue is being

maximized. For instance, even though a hotel may be fully booked, many of the guests may be paying less than the standard rack cost. In other words, managers whose success is determined by the number of occupied rooms are prone to try to boost occupancy at the expense of room rates. The average room rate is used to compare other managers. Once more, refusing to sell any rooms for less than the rack rate and driving away potential clients who won't pay this price would raise the average room rate. The goal is to maximize average room revenue at the expense of occupancy. As was covered in a previous section of this chapter, expressing average room rate as a ratio of maximum potential average rate can make it slightly more meaningful, but doing so alone does not paint a whole picture. The yield statistic is a more accurate indicator of a manager's performance than a high occupancy or high average rate:

The yield percentage is a single integrated statistic that is produced by multiplying the occupancy percentage and average rate ratio together. This statistic is much more significant and is a more reliable indicator of a hotel's performance, even though the occupancy percentage and average rate ratio by themselves do not provide all the information. Utilizing fundamental economic principles, yield management aims to optimize hotel room income by assigning the appropriate room to the appropriate visitor at a cost the visitor is willing to pay. Maximizing sales revenue is not a novel idea. In fact, hotel management have long recognized that, during sluggish times, they can boost demand for rooms by assessing the volume of prospective reservations they already have and then lowering the rates of any remaining rooms to encourage additional demand. On the other hand, during times of high demand when occupancy will be at or close to 100%, they can raise hotel rates because they know that guests are willing to pay more to ensure a reservation. The majority of hotel operators historically base their pricing on the supply and demand principle. A kind of yield management is used when a hotel's sales manager signs a contract with a conference group at a room rate that is less than that for transient visitors. Similar to this, offering transient rates that are cheaper on the weekends than they are during the week is another way to manage yield, as is refusing to lower prices than the rack rate during the busiest travel season.

To really benefit from yield management, managers must, however, go beyond these ad hoc methods of room rate pricing. For instance, it has long been standard practice for hotels to cease taking reservations on certain days once a certain number had been achieved. Empty rooms are the result of future cancellations and no shows. If more reservations had been made, these spoiled rooms might have been occupied. The level of these spoiled rooms can be monitored by a good yield management system, which can also indicate when additional reservations should be accepted. This increases room revenue and boosts customer satisfaction by allowing guests who would otherwise have their reservations declined to stay at the hotel of their choice. The amount of extra sales income that was generated as a result of management choices based on yield management can also be shown by a computerized yield management system. When a consumer inquires, many hotels customarily quote a rate often the highest, or rack rate, which is then dropped sometimes many times as the customer exhibits reluctance. Due to the large number of rooms sold at a discount, hotels that engage in this activity will experience a dropping average rate. Rational yield management has little to do with this method. As visitors become aware that they could have gotten a cheaper fee by putting up more resistance, there will also be an increase in consumer dissatisfaction.

Computer programs

Because computerized spreadsheet applications can quickly complete the calculations in what-if scenarios that would take hours to compile if done manually, they can be very helpful in pricing decisions. For instance, different room rates and an expected occupancy rate for each individual room rate can be entered into the computer. The projected level of variable expenses can also be input for each room pricing and occupancy percentage. In order to

educate management about which average room rate is the most profitable, the computer may then compute the total sales revenue and predicted departmental profit operation income for each scenario. More advanced software can also forecast the impact that a change in occupancy or room pricing will have on various departments, including food and beverage [4]–[6].

The calculations required for items like average checks, seat turnovers, menu gross profit, the Hubbart formula, and a discount grid as shown in Exhibit 6.8 can also be performed with ease using a spreadsheet software. Spreadsheets and specialized menu engineering software programs can be utilized to cut down on the time-consuming manual process of creating worksheets. Only the cost, selling price, and menu mix of each item must be entered; all other calculations are carried out automatically and written out. Finally, as was already indicated previously in this chapter, it is possible to create a yield management system using certain software packages that are now available on the market.The reader was introduced to the numerous pricing strategies that have been employed in the hospitality sector in this chapter. It made clear the need for both tactical and long-range pricing strategies. When Analyzing an income statement, it is customary to subtract costs from sales revenue and refer to any surplus as net income

The required revenue that must be achieved to cover all expenditures, including net income after tax, can be determined in advance each month, quarter, or year. On the other hand, if net income after tax is viewed as a cost, it can then be planned for like any other cost. This number enables us to compute the average check or the average client spending for a certain establishment. The calculation is as follows [7], [8]:

The average check does not represent the cost of every item on the menu; it is merely an average. Individual menu item price can be a challenging management issue that calls for taking into account a variety of variables. The price ranges on the menu that must satisfy the clientele, the gross margin of the various menu items, and the pricing of the competition are all taken into account. The impact of the menu sales mix on the average check, the gross margin, and the net income should all be considered. Never disregard the impact that seat turnovers can have on overall sales revenue.

A decreased average check might be offset by rising seat turnover. Menu engineering is a technique for menu analysis that combines each menu item's contribution margin gross profit with its level of popularity or demand among consumers of the restaurant. Following the categorization of menu items into one of four groupsstars, plowhorses, riddles, or dogsdecisions can be taken regarding how to alter the menu. The average room rate that a hotel or motel must charge to cover all expenditures, including net profits, can be computed similarly to how average restaurant checks are determined.

The average room rate is merely an average and not necessarily the rate for any particular category of rooms, just like the average check. A typical breakdown of the average room rate includes a rate for single rooms and a rate for double rooms. Additionally, the square footage of rooms of various sizes is taken into account when determining room rates. Average room rate and actual room occupancy together make up total room revenue.

The occupancy of rooms by day of the week should therefore be taken into consideration because a decline in room rate can be offset by an increase in occupancy, and vice versa. If the rack rate is discounted in room rate discounting, an equation can be used to determine the equivalent occupancy required to maintain total sales income minus marginal costs at the same level. The following equation is used to determine equivalent occupancy [9], [10]:

You can contrast the actual average with a prospective average room rate. Once an estimated average rate has been determined, different market segments can receive discounted

accommodation prices. Keep in mind that when determining actual prices, both the markup technique and the return-on-investment method should primarily serve as benchmarks. There are other additional factors to take into account. For instance, prices must be set in order to achieve the organization's long-term goals. In addition, crucial considerations include the elasticity of demand, the cost structure of the company the breakdown between fixed and variable expenses, and the competitive environment in which it works. The effectiveness of most hotels' rooms departments is assessed using either the average rate or the occupancy percentage, both of which have drawbacks. Utilizing the yield statistic, which combines the occupancy percentage and average rate, is an option. The chapter came to a close with a section on yield management, a technique for matching customers' purchasing habits and their demand for hotel rooms in order to provide more accurate occupancy estimates and maximize room revenue.

CONCLUSION

A hotel management has established a rack rate for all of the hotel's rooms for the following year. The rack fee charged could be lowered to a lower rate of early next year, and corporations, conventions, and conference groups have been informed of this possibility. The potential reduction will depend on the volume of business they give. The and room rate savings are available with restrictions, according to travel firms, which make a significant proportion of hotel reservations for independent visitors. The travel companies were also informed that reservations for rooms at the rate would result in a commission rise to 15% rather than the customary 10% for reservations at a discounted rate. When making a reservation over the phone, the hotel will initially quote a rate of; however, front desk staff are instructed to drop this price to but never to. Employees who book rooms must also inform prospective visitors of the limitations that are applicable at each pricing level. Talk on the situation's ethics.

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CHAPTER 9

ANALYZING CASH FLOW STATEMENTS AND THEIR IMPACT ON WORKING CAPITAL

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ABSTRACT:
Profit-oriented businesses have historically used the accrual foundation of accounting, which generates the income statement, balance sheet, statement of ownership equity, and a statement of cash flows. Financial statements serve as the foundation for all accounting period-specific evaluations of operations performance, financial situation, ownership status, and cash flow analyses. In accrual financial statements, the income statement and balance sheet display profitability and solvency, respectively. However, these statements do account for non-cash sales revenue and non-cash expenses. Therefore, questions regarding the cash inflows and outflows that have occurred over the course of an operational period cannot be satisfactorily answered using the core balance sheet and income statement alone. The primary use of the statement of cash flows SCF is to monitor and document the consequences of cash inflows and outflows for three different business activities. The three main areas of activity that make up a firm' routine operations are operation, investment, and financing. Since monitoring current assets and current liabilities on a daily basis is an essential part of managing any corporate operation, working capital analysis shares the idea of identifying cash inflows and outflows.

KEYWORDS

Account, Assists, Current, Capital, Income, Operating.

INTRODUCTION

The statement of cash flows (SCF) serves as a base for estimating future cash flows. Knowing how much money will be required for capital asset purchases, noncurrent debt repayment, and other noncurrent balance sheet items is essential. Owners and creditors concur that a business will likely continue to generate positive cash flows if it has done so in the past. Due to the SCF's documentation of the company's ability to generate cash, it provides this information on cash availability. The achievement of management in terms of cash management can also be measured using a SCF. The cash flow of a hospitality company may be positive when the net income is negative or it may be positive while the net income is negative. In the operating section of a statement of cash flows, the net income or net loss for an operational period is adjusted and contrasted with the net cash flow from operations. The change in the cash account is recognized when net cash flow, whether positive or negative, equals the change in the cash account and the amount of actual cash on hand at the end of the period is confirmed. Cash on hand, cash in the bank, and cash are all considered to be cash equivalents. Cash equivalents are frequently marketable securities and short-term investments that, when necessary, can be rapidly converted to cash. In this explanation, current asset accounts will be used to refer to marketable securities, short-term investments, and cash equivalents rather than actual cash accounts. There are two methods for calculating net cash flows from operations: the direct technique and the indirect strategy.

The direct technique is used to create the income statement on a cash basis utilizing cash receipts from operations and cash outlays.The indirect method starts with net income and alters it to reflect changes in current asset and current liabilities accounts. Only this chapter will discuss the indirect method in its entirety because it is often the more straightforward and widely used way. The investment and finance portions of cash flows from activities are

computed using the same formula, regardless of the technique employed to do so. Managers need to be familiar with the processes and their requirement in order to establish effective cash management rules and procedures. The SCF can respond to some of the important questions listed below: How much, if at all, has operating activity improved or worsened the cash position during the last accounting period? Did the majority of cash inflows come from ordinary corporate operations? How much was spent on long-term tangible assets, such as brand-new furniture, machinery, or other capital assets? How much money was made from the sale of furniture, equipment, fixtures, or other tangible, long-lasting assets? How much money was made through the sale of long-term assets?

How much was raised by establishing long-term liabilities? How much money was spent reducing or getting rid of long-term obligations? How much money was generated through selling equity? What amount was paid out as dividends? How much cash did the business owner or the partners withdraw? investigation of net cash flows 413 The SCF makes it possible to separate out cash flows from investing, operating, and financing activities. The three parts' primary objective is to display all cash flows that occurred throughout a specific time frame of activities. A SCF is created by converting the reported accrual net income or loss from an accrual basis to a cash basis by looking at the balance sheet accounts that have changed over an operational period. The ultimate result of the SCF is a positive or negative net cash flow, which is comparable to the total change in the cash account between the beginning and end of the year's balance sheets. With the exception of cash, all active current asset and current liability accounts in the operational sector are evaluated to ascertain the change in the account for the whole reporting period. The change is evaluated according to the type of account being checked, and it is categorized as either a rise or a loss. It entails adding a positive cash flow and subtraction of a negative cash flow to convert accrual net income or net loss to a cash basis.

Cash Flow Statement Value

The SCF is useful to management since it makes it possible to assess the operation's liquidity and provides a framework for looking at cash management. Additionally, it aids management in deciding on its financial and investment requirements and in creating a budget. Creditors such as providers of goods and services needed by the firm are also interested in an operation's capacity to meet its payment obligations. In general, these creditors prefer it when cash is generated through business operations rather than investing or borrowing to meet their obligations. Both short-term and long-term lenders can use a SCF to determine a company's capacity to continue making loan payments. Shareholders can use the SCF to assess a company's capacity to sustain or perhaps even increase dividend payments. Managers, creditors, lenders, and stockholders must evaluate and estimate the future using the SCF, a historical document that compares and analyses what has already happened [1], [2].

Analysis of Cash Flow Segmentation

The two primary operating accounts that are assessed and identified for changes in cash flow are current assets and current liabilities. Also included are particular modifications that are by definition noncash. The majority of transactions that have an impact on cash flows during actual operations occur in the principal operating accounts. The noncurrent account operations that affect cash flows but are frequently not regarded as typical everyday operating transactions are evaluated in the sections on investing and financing. Cash flows are the results of three different sorts of activities: operating, investing, and financing. This segmentation makes it possible to change accrual net income or loss by adding positive cash flow changes and subtracting negative cash flow changes. Each activity is discussed in the order that it appears in the SCF. A business's primary objective is to produce sales revenue inflows through the exchange of goods, merchandise, and services, which leads to inflows of

cash or credit. Credit card and accounts receivable are examples of current asset accounts generated by revenue inflows on credit. In addition to cash, other current assets, including as supplies, resaleable inventory, and pre-paid expenses, are created and used to support operations that generate revenue from sales. Expenses that are incurred as a result of the production of sales revenue are recorded when they are paid for in cash or on credit. Accounts Payable serves as the primary current operating liability account. Current obligations represent cash outflows when satisfied.

Ongoing expense outflows are caused by the payment of cost-of-sales items, staff costs, insurance costs, facility support costs, interest, taxes, and other essential recurring costs of operations. Depreciation and the reporting of gains or losses from the sale or disposal of long-term assets are two further adjustments that are made. Investment activity includes transactions involving noncurrent accounts. When a long-term asset is sold, cash flows in; when it is bought, cash flows out. Purchases of long-term noncash equivalent investments result in cash outflows; sales of such investments result in cash inflows. Financing operations comprise both actions that have an impact on ownership equity and the repayment or borrowing of long-term debt. A proprietorship's or partnership's financing operations are frequently influenced by the investment or withdrawal of equity capital and operating earnings or losses. A corporation's finance activities are affected by the cash inflows and outflows from the issuance of capital stock and treasury stock, respectively. Reissuing Treasury Stock results in a cash infusion. When long-term debt principal is taken on and repaid, cash flows are generated. When cash dividends are given to stockholders, there is a cash outflow. The accrual income statement shows the revenue inflows, expense outflows, and net gain or loss from operations for the whole operating period.

The income statement, however, makes it difficult for management to comprehend why or how cash movements occurred. Although the amount of net income or net loss may normally have an influence on the cash account, the reported net income or net loss will typically not match the rise. examination of the segmentation of the cash account's declining cash flow by 415 or more. At the end of an accounting period, the reported net income or loss is typically calculated using accrual accounting. The accrual model accounts for both noncash income transactions as well as noncash expenditures, gains, or losses related to the sale of long-term assets. Typical noncash accrual elements removed from net income or loss include depreciation and amortization costs as well as losses on the sale of long-lived assets. These non-cash loss and expense components, which are put back as adjustments in the SCF's operating operations section, do not call for cash outflows. Gains from the sale of durable goods are noncash earnings because no cash is brought in. These non-cash gains are deducted as adjustments in the operational activities section since they are part of net income and have inflated net income from continuing operations.

DISCUSSION

We now turn our attention to the comparative balance sheets in Exhibit 10.2, where we will examine the property and equipment fixed assets section to separate the acquisition and disposal of long-lived assets from the acquisition or disposal of noncurrent investments. Neither the building nor the land accounts have changed. The equipment part of the fixed asset table indicates an increase in equipment of $17,000 in year 0005, which is interpreted as a negative outflow and subtracted. The equipment was sold for $3,000, according to an analysis of this account Exhibit 10.5, which is viewed as a positive inflow and added back to cash. Additionally, throughout the time period, $20,000 in new equipment was bought; this expenditure is considered a negative outflow and is removed. The only other item in the fixed asset part that was altered was cumulative depreciation, which was reduced by $144,200 because it had already been applied to the operating operations section's depreciation expense noncash adjustment. 3. The other assets column reveals a $100,000 rise in the investment

account, which is considered a negative outflow and subtracted. A review of this account during that time reveals, however, that an investment was sold for $25,000, which is viewed as a positive inflow and added. Additionally, a new investment worth $125,000 was bought throughout the period and is being deducted as a negative outflow. Exhibit displays the results of these adjustments.

Revenues From Financial Activities, Net

We examine the comparative balance sheets in Exhibit 10.2 and the statement of retained earnings in Exhibit 10.3 to establish cash flow adjustments from financing operations. Long-term liabilities and stockholders' equity are the current topics of discussion. Identify any long-term liabilities accounts that have changed throughout the period, either positively a positive inflow or negatively a negative outflow. Find out whether any stock equity has been purchased, sold, or repurchased treasury stock, or if any cash dividends have been paid, a negative outflow. The mortgage payable on a building account has been decreased by $5,900 in year 0005, according to the long-term obligation section. However, $14,300 in cash was actually used. This sum is calculated using the existing mortgage due for the year 0004. The operation agrees to pay the present mortgage outstanding on the balance sheet during the following year or in year 0005 by doing so. So, in order to assess if we took on any new long-term debt throughout the year, we need to conduct some additional analyses. We can monitor events if we utilize a T-account [3].Compared to the current and acid test ratios, which are computed at a single point in time on the balance sheet date, this ratio has advantages. Ratios will be affected if the quantities utilized in the calculations on the balance sheet date are significantly greater or lower than usual.

Since the cash flow is for a year and the average current liabilities are taken from two subsequent balance sheets, the cash flow from operations to current liabilities ratio solves this issue. Everybody who reads financial statements prefers to see this ratio greater than lower. It is recommended that a ratio of at least 200 percent be preferred; the more the ratio deviates from that minimum number, the better the operation's liquidity will be. The suggested minimum is far greater than our result of 742 percent. The conventional current and acid test ratios should not be abandoned because of the usage of this ratio. They are still valuable, and many lenders demand that these ratios be maintained at a certain minimal level.Additionally, the cash flow from operations to average total liabilities ratio solves the issue that the total assets to total liabilities ratio does not account for the differing liquidities of the various assets employed in the equation. The operation's capacity to repay its various categories of debt is more accurately reflected by the ratio of total assets to total liabilities. A minimum acceptable ratio is said to be 20%, and the greater this ratio, the better the operation's ability to pay off its debts with cash. The suggested minimum is substantially higher than our finding of 3.8 percent. This low percentage would suggest that the business is heavily indebted, and lenders could be concerned about the security of their loans as a result.

Analysis Of Working Capital Changes

Additional data for efficient cash management and budgeting is provided by the SCF. The SCF and working capital analysis are closely intertwined, and the latter offers a different angle on the data to enable efficient cash management. Working capital is the difference between current assets and current liabilities, and it represents the amount of current assets above current liabilities that are accessible for use in revenue-generating activities. The value of working capital CA CL is equal to the total current asset minus the total current liabilities. Here is a list of these terms' definitions: Cash, marketable securities, notes receivable, credit card receivables, accounts receivable, inventories for resale, supplies, and pre-paid expenses are the different types of current assets. The resources that will be used to generate sales income during the upcoming operating term are known as current assets. Accounts payable,

accumulated expenses such as wages and salary due, interest due, and taxes due, and notes payable make up current liabilities. operational expenses that were incurred on credit and will be repaid during the following operational period are represented by current liabilities. In many ways, the creation of a SCF and the creation of a statement of changes in working capital are comparable. However, the working capital analysis differs from the cash flow analysis in a number of ways and serves various functions. For the following reasons, working capital analysis assesses changes to working capital over an operational period [4]–[6]:

Sources of working capital: INFLOWS

The main influxes or sources that will boost working capital are as follows. operating revenue. In general, accrued income is calculated as sales revenue less all costs including income tax incurred to generate the sales revenue intake. Sales revenue is produced through cash transactions or credit-based receivables that eventually convert to cash. Expenses are paid either right away in cash or on credit using payables. There will be a final payment of the payables, accounts payable, and accrued payables. The organization's working capital and cash accounts should rise as a result of net income. cumulative net income. After deducting non-cash expenses, this is calculated. These non-cash expenses depreciate long-term assets and/or accrue amortization costs in order to change their book or carrying value. Net income must be adjusted to include all capitalized costs in order to reflect the growth in working capital. This follows the same process that is used in the SCF's operating activities section. Franchise fees that have already been paid for or the amortization of other intangible assets like goodwill are examples of additional expenses that are handled in the same way as depreciation and amortization charges. sale of noncurrent assets or other long-term assets.

These could be a piece of real estate, a structure, furnishings, gear, or an investment. The proceeds from their sale are viewed as an inflow, which raises operating capital. With no equivalent impact on a current liability, the sale will result in an increase in a current asset, cash, or current receivable. Long-term liability growing. This is accomplished by establishing or expanding a loan, mortgage, debenture, or bond, which is an input that raises operating capital. A rise in a current asset, cash, or current receivable will result from taking on additional long-term debt, but there won't be any equivalent change in a current liability. the issuing of shares. Working capital is increased as a result of equity financing. Stock is not issued in a proprietorship or partnership an unincorporated business, but any investment made by the owners raises their equity capital accounts. A current asset, cash flow, or current receivable will increase as a result of the sale of equity or receipt of an owner's investment, while a current liability will not change in response.

Outflows: Working Capital Uses

The principal transfers or uses that will reduce working capital are as follows: operational loss. Working capital increases and decreases are both reflected in accrual net income and net loss. Operating costs have surpassed sales revenue when a loss arises, which lowers working capital. The net loss is adjusted in the same manner as net income for noncash expenses depreciation, franchise, goodwill, write-downs, or amortization. Any non-cash item listed on the income statement may be deducted from the net loss. buying a long-term asset or another non-current asset. This would include any investment that reduces operating capital, such as real estate, construction, furnishings, and equipment. Another outflow that reduces working capital is the price of a noncurrent asset, like the upfront payment of a long-term franchise fee. settlement of long-term debt. Working capital is depleted by any payment that lowers the principal balance due on a long-term noncurrent liability. exchange of shares. Treasury stock is any previously issued stock that the issuing corporation buys back; this is an outflow that reduces working capital [7], [8].

Uses Of Statement

The discussion starts with a statement of changes to working capital, then moves on to a statement of changes to specific working capital accounts. Let's take a look at the following three scenarios, which include three different restaurants and are shown in Exhibits 10.8, 10.9, and 10.10. Every restaurant boosted working capital by $12,000 from the $88,000 it had at the start of the operating year to the $100,000 it had at the conclusion. The same bank is willing to lend each eatery $15,000 at interest for three years. Their balance sheets provide information that is easily accessible, but without an explanation of the sources and uses of working capital input and outflow, it is difficult to determine the reasons for the increase in working capital. When complete, the statement will explicitly list each source of working capital inflow and outflow. We'll assume the banker gathered the exact same data.

The banker would grade the eatery as moderate to high risk based on this information. Although the restaurant also distributed $8,000 in cash dividends, it already has a loan that must be repaid with interest at the rate of $5,000 year. If a fresh loan were approved, it might be in doubt as to whether the restaurant could afford the $10,000 annual payments plus interest. A slight drop in net income over the coming years would reduce working capital and possibly make it more difficult for the restaurant to make debt payments and distribute dividends. If this were to happen, the risk would increase in direct proportion to the drop in net income. Therefore, the lender is at considerable risk [9]–[11].It would be exceedingly risky for the bank to lend this eatery $15,000 in this particular scenario. It appears that a net income of $4,000 was sufficient to cover the $4,000 current debt payment but not the interest. The payment of the dividend in this circumstance is in doubt in and of itself. The restaurant won't be able to fulfil its current debt obligation or dividends if net income stays at this level. The Restaurant C example may be a bit extreme, but it does highlight how the information offered by the statement of changes to working capital can be useful in making decisions.

CONCLUSION

The SCF and a statement of changes in working capital are two of the most helpful papers to accompany financial statements. Because they both examine current assets and current liabilities, these two statements are related to one another. The SCF ascertains the alterations to the cash account throughout a predetermined operational period. Using the statement, accrual net income or net loss is changed to a cash basis. The conversion process identifies cash sources and uses and is frequently used to assess a business entity's liquidity and solvency or net worth.

The statement is generally divided into three distinct categories of company activity, where net cash flows are shown as increasing or decreasing. Net cash flows from operations are examined in the first section. Net income and declines in current asset operating accounts apart from cash are two sources of cash. Increases in current asset accounts and operating net losses are both seen as cash outflows. Depreciation and amortization are two examples of non-cash expenses that are recognized in the operational activities section by adding them back.

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CHAPTER 10

STRATEGIC CAPITAL PLANNING AND EFFECTIV INVESTMENT DECISION MANAGEMENT

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ABSTRACT:
This chapter begins by discussing some of the problems that can occur while deciding whether to buy capital assets, such as the assets' protracted lifespans, high initial costs, and unpredictable future costs and benefits. The following two methods of assessing possible investments, the accounting rate of return and the payback time, are illustrated and explained. The concept of the time management value of money is next discussed, along with a discounted cash flow example. Then, discounted cash flow is integrated with two more investment measurement methods, internal rate of return and net present value. The explanation of capital investment control is followed by a comparison of net present value and internal rate of return. The chapter concludes by demonstrating how discounted cash flow can be used to guide decisions regarding leasing versus buying. The methods for selecting a long-term asset are covered in this chapter. Typically, this is referred to as capital budgeting. We are less interested in the budgeting process than we are in selecting whether to make a certain investment or which of two or more investments would be best. A hotel or food service operation's land and buildings demand the most investment, which is an uncommon investment choice for each specific facility. This chapter's major subject is more common investment decisions, such as those made for purchasing equipment, furniture, and replacements. Capital budgeting and investment decision-making are different from ongoing budgeting and everyday decision-making for a variety of reasons.

KEYWORDS:

Depreciation, Investment, Rate, Return, Saving.

INTRODUCTION

Assets with a reasonably lengthy lifespan are the subject of capital investment choices. Daily decisions on present assets are choices about things that change regularly, like inventories. The consequences of making the wrong choice when buying food are short-lived. But making the wrong choice when it comes to a piece of machinery a long-term asset can take years. The difficulty of calculating an asset's life span to determine how far into the future the benefits of its purchase will be distributed is brought on by the long life of a capital asset. Both physical damage to the equipment and obsolescencethe creation of a newer, better, and potentially more profitable piece of equipmentcan shorten its lifespan. Daily shopping decisions typically do not entail significant sums of money for any one transaction. The cost of purchasing a capital asset or assets, however, is typically high, thus one must be certain that the investment's net income will be able to cover the initial investment cost over time. future outcomes and costs future costs and benefits are taken into account in investment decision-making analytical approaches, as will be shown.

The future is never clear, but on the other hand, if we make a choice simply based on past costs and net income, we might not be any better off because those costs and net income may not be indicative of what they will be in the future. The asset's recovery scrap value after the end of its economic life, for instance, is one element taken into account. The choice would likely be made in Favor of the equipment with the highest potential trade-in value if two comparable pieces of machinery were being evaluated and the only difference from every angle was that one was predicted to have a higher scrap value than the other at the end of

their equivalent economic lives. But in five or more years, due to technology advancement, that choice can turn out to be incorrect.

resources to help in investing decisions

So, these are a few risks associated with choosing capital investing options. Hazards are rarely completely avoidable, but there are ways that the manager can use to lessen some of the uncertainty. Despite the fact that there are numerous strategies, just four will be covered in this chapter: 1. Return on assets in accounting 2. Repayment duration Net present value 3. Internal Rate of Return 4. Consider a restaurant that has an ineffective dishwasher as a backdrop for the accounting rate of return and payback period approaches. The dishwasher operator makes $4,000 per year in part-time pay. As the servers can run the dishwasher, the restaurant is evaluating the benefits of installing a new one to do away with the requirement for the part-time staff. We have information on the two computers under consideration, as seen in Exhibit.

In the above scenario, it was presumed that each of the five years' net yearly savings would be the same. This could not always be the case in practice. For instance, there might be one-time costs in year 0001 or in any of the other years, such as those associated with training or a significant revamp. As an alternative, the amount of an expense could fluctuate over time, such as with double-declining balance depreciation. For the duration of the full time under consideration, we forecast total savings and total costs for each year. The net saving amount for the full time period is calculated by adding the annual net savings. The total net savings amount can then be divided by the project's duration in years to produce an average yearly net savings value for the equation. Let's use Machine A just to demonstrate this. Savings and expenses are the same as in Exhibit 12.1, with the exception of the $1,000 special overhaul cost in year 0003 and the use of the double-declining balance method of depreciation instead of the straight-line approach. The asset has a life of five years; hence the depreciation rate is 40%. The results are shown in Exhibit 12.2. The sum of the net savings for each of the five years will represent the overall net saving. It comes to $7,000 in all. The average net save will be $7,000 each year, multiplied.

Since average depreciation is still $800 year and average tax and average net saving are also the same, depreciation alone had no impact on the ARR's change. In this instance, the $1,000 overhaul cost was the only thing that contributed to our ARR for Machine A falling from 51.3 to 46.7 percent. The accounting rate of return method has the benefit of being straightforward. It is used to contrast a proposal's expected return with a minimal desired return. The proposal is rejected if the return is insufficient. If the ARR of the proposal exceeds the targeted rate of return, a more thorough analysis of different investment strategies may then be performed. The accounting rate of return method's primary drawback is that it bases its calculations on net income or net savings rather than cash flow.Machine A recovers its original investment more quickly than Machine B, despite having a larger initial cost. This supports the findings of the earlier accounting rate of return calculation.

The only initial investment is the payback mechanism Net yearly financial savings 496 The cash flows up until the cost of the asset has been recovered are taken into account. The ARR method might be viewed as more realistic because it accounts for all benefit flows from an investment rather than just those that occur during the payback period. The ARR approach simply takes into account net savings, but the payback method also takes into account cash flows. It should be noted that in this example, straight-line depreciation was employed, and it was assumed that the amount of net yearly cash savings was constant throughout time. In practice, this might not be the case. For instance, using an accelerated depreciation technique such double declining balance will result in a higher initial depreciation expense. In turn, this will lower income taxes and boost cash flow in those years, making it a little more

challenging to calculate the payback period. Consider an initial investment of $6,000 and the ensuing annual cash flows to provide an example [1]–[3].

will have been recovered by the end of year three, with the final $300 to be recovered in year four. By dividing the remaining sum $300 by $900, the remaining amount will be recovered in one-third of a year. Therefore, the overall payback period will be 3.33 years. Although straightforward, the payback time analysis approach simply measures how quickly an investment might be recouped and not the qualities of the investment. It can be used to evaluate several proposals such that only those that are within a given payback period will be taken into account for further review using other investment approaches. However, the time value of cash flows, or the idea that money now is worth more than the same amount at some point in the future, is ignored by both the payback period and the ARR techniques. We will study the application of the internal rate of return and net present value methodologies after discussing this idea in the following section.

DISCUSSION

Considerate Benefits

The information required to make decisions may not just be the outcomes of investment decision processes. Even if some information is difficult to quantify, it can still be useful when making decisions. Prestige, goodwill, reputation, employee acceptability, and the ramifications for society or the environment are all things that shouldn't be disregarded. What financial advantages may a hotel receive, for instance, if it redecorates its lobby? The lobby may need to be redecorated in order to maintain customer goodwill, albeit these benefits may be hard to measure. How should the relative merits of investing $50,000 to upgrade the employee cafeteria versus allocating $50,000 for holiday incentives be determined? Then, in making such investing judgments, judgment must be used. Part-time remuneration for the dishwasher operator is $4,000 annually. The restaurant is weighing the advantages of adding a new dishwasher to do away with the need for the part-time workers because the servers can operate the current one. Exhibit shows the data we have on the two machines under consideration [4]–[6].

In the aforementioned scenario, it was assumed that the net annual savings for each of the five years would be the same. In actuality, this might not always be the case. In year 0001 or any of the subsequent years, there might be one-time expenses like those related to training or a sizable renovation. An expense could also change in size over time, for as with double-declining balance depreciation. We project overall savings and overall costs for each year of the complete time under consideration. The annual net savings are added to determine the net saving amount for the entire time period. The average yearly net savings value for the equation can then be obtained by dividing the overall net savings amount by the project's years-long lifetime. For the purpose of illustration, let's utilize Machine A. With the exception of the $1,000 special overhaul cost in year 0003 and the use of the double-declining balance method of depreciation instead of the straight-line approach, savings and expenses are the same. The depreciation rate is 40% because the asset has a five-year life. Exhibit

Depreciation alone had little bearing on the change in ARR because average depreciation is still $800 per year, and average tax and average net saving are likewise the same. In this case, the sole factor that caused our ARR for Machine A to decrease from 51.3 to 46.7 percent was the $1,000 overhaul cost. The simplicity of the accounting rate of return method is a plus. It is used to compare the predicted return on a proposal with the minimum return that is wanted. If the return is insufficient, the plan is turned down. If the proposal's ARR is higher than the desired rate of return, it may then be possible to conduct a more in-depth review of other

investment options. The main disadvantage of the accounting rate of return technique is that it uses net income or net savings as the basis for its computations rather than cash flow.

Despite having a higher beginning cost than Machine B, Machine A recovers its initial investment more rapidly. The results of the preceding accounting rate of return computation are supported by this. The payback method is the sole initial investment. Annual net financial savings 496 Considered are the cash flows up until the asset's cost has been recouped.

An Investment Choice

Because it accounts for all benefit flows from an investment rather than just those that happen during the repayment period, the ARR technique may be seen as being more realistic. The payback method additionally considers cash flows, whereas the ARR methodology only considers net savings. It should be emphasized that straight-line depreciation was used in this case, and it was presumed that the volume of net yearly cash savings remained constant throughout time. This might not actually be the case. For instance, utilizing a twofold decreasing balance accelerated depreciation technique will double the initial depreciation expense. This will thus result in a decrease in income taxes and an increase in cash flow in those years, making it slightly more difficult to determine the payback time. As an example, consider a $6,000 initial investment and the annual cash flows that follow:

by the end of the third year, with the remaining $300 being recovered in the following year. The leftover amount $300 by $900 can be recovered in one-third of a year by dividing it. The total repayment term will therefore be 3.33 years. Although simple, the payback time analysis approach does not evaluate the attributes of an investment; rather, it merely analyses how quickly an investment might be recovered. It can be used to compare a number of proposals such that only those that fall within a certain payback period are considered for further analysis using other investment strategies. However, both the payback period and the ARR methodologies overlook the time value of cash flows, or the notion that money now is worth more than the same amount at some point in the future. After addressing this concept in the section below, we will examine how the internal rate of return and net present value approaches are applied [7], [8].

Choosing between leasing and owning

The discussion of long-term or fixed assets up to this point has Centered on buying and owning them. However, there might be instances where renting or leasing makes financial sense. For instance, income tax is a factor. Leasing can be advantageous because, in general, lease payments are tax deductible. However, ownership enables tax deductions for both depreciation and interest paid on any debt used to finance the acquisition. What might be helpful in one circumstance might be harmful in another. Every case needs to be looked upon on its own merits. Let's examine a technique for evaluating the two options side by side. Let's say we are debating whether to purchase or rent brand-new furniture for a motel. The bank will have to finance $125,000 for the cost of the furniture. The furniture costs $125,000. The principal of the bank loan must be repaid in four equal annual payments of principal $31,250 each, with an interest rate of 8%. Over the course of five years, the furniture will be depreciated at a rate of $25,000. At the conclusion of that time, it is presumptively worth nothing in a trade-in.

The income tax rate is 50%. An alternative is to lease the furnishings for five years at a cost of $30,000 a year. To start, we must create a bank repayment schedule for the purchase plan that details principal and interest payments for each of the four years see Exhibit 12.10. Next, we must figure out the net cash outflow for each of the purchasing plan's five years. Displaying this is Exhibit 12.11. Note in Exhibit 12.11 that since interest and depreciation costs are tax deductible and the motel is subject to a 50% tax rate, there is a tax benefit

equivalent to 50% of these costs. As a result, in year 1, the $17,500 tax savings balance the $35,000 in expenses. After taxes, the final price is only $17,500. The bank loan principal payments of $31,250 must be added to this $17,500, and the depreciation expense of $25,000 must be subtracted since depreciation does not need a cash outlay. Thus, the net cash outflow for year one is $23,750. The figures for the other years are derived in a similar manner. Notably, the cash flow is positive rather than negative in year 5 due to the absence of interest expenses and loan payments.

The calculation of the annual net cash outflows under the rental plan is shown in Exhibit 12.12. Notably, since the hotel does not own the furniture, there are no depreciation costs or interest or principal payments under the leasing option. Finally, using the appropriate discount rate from Exhibit 12.4, the net cash flow data from Exhibits 12.11 and 12.12 have been moved to Exhibit 12.13 and discounted. The discount rate applied is 8%. Because it represents the current cost of bank borrowing, this rate was chosen. Exhibit 12.13 demonstrates that renting in this particular scenario would be preferable from a present value perspective because the total present value of cash outflows is $4,450 less $64,339 $59,889. There could be additional considerations in each buy-or-lease scenario. For instance, if a company chooses the purchase option, it may put some of its own money down and borrow a portion of the purchase amount rather than the entire amount. The down payment in this scenario is an extra financial outflow at the start of the first year. There may be a trade-in value at the conclusion of a purchasing plan as well [9]–[11].

The computations would treat this trade-in amount as a cash inflow at the conclusion of the term. In a leasing arrangement, the annual payment can be due at the start of the year rather than the end as in our example. As a result, the first rental payment is made at time zero, and the remaining annual instalments are each made one year earlier. There may be a buy option available to the lessee under a rental agreement at the conclusion of the rental period. The purchase will result in an additional financial outflow if it is used. Additionally, the conditions of borrowed funds may alter from one circumstance to another, and various depreciation rates and methodologies may be employed. An accelerated depreciation technique, for instance, will result in higher depreciation expense in the earlier years, lowering income tax and increasing cash flow in those years. Because of all these and other potential outcomes, each buy-or-lease scenario must be researched independently, taking into account all the known variables before a choice is made.

CONCLUSION

The payback period method's drawback is that it ignores events that take place after the payback period. The payback period and ARR techniques both have a flaw in common. The time value of money is not taken into account. Future cash flows may easily be discounted back to today's values thanks to the development of discounted cash flow tables, which are the opposite of compound interest tables. These tables are used by the NPV and IRR techniques. To calculate net present value NPV, the initial investment is subtracted from the sum of the present values of the future cash flows. If the NPV is positive, making the investment is wise; if it is negative, it shouldn't be done. With IRR, calculating the interest rate rate of return that will match the total amount of future discounted cash inflows with the initial investment is as simple as using the tables. The investment should go on if the rate of return exceeds the minimum desired return that the company has set; otherwise, it shouldn't. For any given investment, the NPV and IRR approaches will typically yield the same accept or reject result. The rankings, however, might be different if a variety of alternative projects were being considered. Regardless of the investment strategy employed, the outcomes of each investment should be examined in order to improve and streamline the investment process.

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CHAPTER 11

INTELLIGENT DATA MANAGEMENT-BASED CLINICAL INFORMATION MANAGEMENT SYSTEM FOR GENERAL SURGERY

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ABSTRACT:
In an effort to improve the efficacy of surgical clinical information management, this study combines intelligent data management technologies to develop a general surgery clinical information management system. The design of a clinical medical case information management system based on the design principle of layered architecture is examined in this study along with the reciprocal conversion between XML data and relational data. It is Centered on the creation of a system for managing clinical medical case information in general surgery. The modular design approach is primarily used in the clinical medical case information management system, which is built on the HDFS architecture. After the system function structure has been constructed, the system effect is tested using simulation. The experimental statistical results demonstrate the beneficial effects of the general surgery clinical information management system based on intelligent data management. Clinical data management (CDM), which generates high-quality, reliable, and statistically sound data from clinical trials, is an essential stage in clinical research. Clinical data management ensures the collection, fusion, and accessibility of data at the right price and calibre. It also facilitates the conduct, management, and analysis of studies across the entire spectrum of clinical research, as described by the National Institutes of Health (NIH). The ultimate objective of CDM is to ensure that study conclusions are robustly supported by the data. By achieving this goal, the public's health will be safeguarded and consumers' faith in promoted therapies will increase.

KEYWORDS

Achieving, Conversion, Clinical, Experimental.

INTRODUCTION

Clinical research associate, clinical research coordinator, and other job profiles are permitted in CDM. A clinical trial's planning and execution heavily rely on the clinical data management. Clinical trial results serve as the foundation for later safety and efficacy analyses, which in turn guide decisions on new product development in the pharmaceutical sector. Early conversations concerning data collecting alternatives are taken part in by the clinical data manager, who subsequently supervises the creation of data collection instruments in accordance with the clinical trial protocol. The data manager makes ensuring that data are gathered, vetted, consistent, and full after subject enrolment has started. The clinical data manager coordinates with additional data providers such as a central laboratory processing the blood samples collected and makes sure that such data are safely delivered and consistent with other data gathered during the clinical trial. The clinical data manager makes sure that all data intended to be recorded have been accounted for and that all data management tasks have been finished at the end of the clinical trial.

The clinical data manager sends the finalized data for statistical analysis at this point thermology varies, but common definitions include Database Lock, Data Lock, and Database Freeze. The case report form CRF, which can be paper-based or computerized, is the instrument used to collect data for clinical trials. Paper CRFs will be printed, frequently on No Carbon Required paper, sent to the clinical trial investigation locations for completion, and then couriered back to Data Management. Data can be directly entered into fields on

electronic CRFs using a computer and sent to Data Management electronically. The information that must be gathered in accordance with the clinical trial protocol and that is meant to be used in statistical analysis must be considered while designing CRFs. Standard CRF pages may be used to collect data that is typical of most clinical trials, such as subject demographics, when they are accessible. Electronic trial design also incorporates edit check programming in addition to CRF design. Edit checks are used to calculate fields like Subject's Age, BMI, etc., to fire a query message when inconsistent data is input, to move specific data points from one CRF to another, and more. Edit checks aid in improving the quality of clinical trial data by assisting investigators in entering accurate data at the time it is input. When an electronic CRF is in use, data entry is done by site workers who have been given the proper access at the investigational site where the clinical trial is being conducted.

When employing a paper CRF, data entry operators enter the pages. The best approach is to complete a first run of data entry before having an independent operator perform a second pass or verification phase. If there are any inconsistencies between the first and second passes, these can be fixed so that the data input accurately reflects what was captured on the CRF. The clinical data manager should be contacted if the operator is unable to interpret the entry so that the CRFW's author can clarify the entry. If the provided data does not comply with the standards for validation, a data query may be sent to the research location where the clinical trial is being conducted to get more information about the entry. Data requests must not be prescriptive that is, they cannot hint at the necessary rectification. Only site personnel with the necessary access may alter data entries in electronic CRFs. In the case of paper CRFs, the clinical data manager enters the database response to the data query and keeps a copy of the data query at the research site. An item or variable is said to have a discrepancy or query when an error or a request is made against it.When a data issue is found during a validation check, a query is the error that is produced. Every time a page is submitted and saved; validation tests are launched automatically.

They can spot issues with a single variable, between two or more variables on the same eCRF page, or between variables on other pages. Multiple validation checks may be attached to a variable. A single central laboratory may be used to analyse samples gathered during a clinical trial. In a Data Transfer Agreement, the clinical data management and the central laboratory agree on data formats and transfer times. To make sure that every sample that was obtained was examined, the CRF and the sample collection date and time may be compared. Data from clinical trials may be analysed by labs, image processing experts, or other outside parties. The clinical data manager communicates with these data suppliers to establish data transmission schedules and formats. To maintain consistency, data may be reconciled with the CRF.However, there is a different procedure that assures that major adverse events are recorded promptly. The CRF collects adverse events reported during the course of the clinical study. Data reconciliation between these processes is what the clinical data manager must make sure of. When the patient is asked to record information such as daily symptoms, a journal is given for them to fill out. It is necessary to manage this data differently than CRF data since, for instance, it is typically impractical to raise data queries. Either paper or electronic diary patient diaries can be created.

These electronic diaries often take the shape of a handheld device that allows the subject to enter the necessary information and sends it to a centralized server. The International Network of Clinical Data Management Associations (INCDMA) seeks to encourage global clinical data management organizations to cooperate together. It serves as a global venue for debate and input on current issues that are pertinent to the CDM field. It is made up of representatives from the boards of the SCDM, ACDM UK, DMB France, and PSDM The Netherlands, all of which take part in INCDMA funding and procedures. Additionally, it brings together subject-matter specialists and DM leaders from Australia, Israel, Japan,

China, Europe, and North America. In order to assist professionals in the management of clinical data, the Association for Clinical Data Management (ACDM) was established as a global organization in 1987.A global organization with 2,590 members, the Society for Clinical Data administration (SCDM) promotes excellence and quality in data administration. It offers webinars, online courses, certification, and an annual conference. A French data management association called the Association Française de Data Management Biomedicals (DMB was established in 1995. assembles data from CROs, software providers, universities, pharmaceutical companies, and anybody else interested in managing data for the development of new medications. The 2008-founded French network of data managers in academic biomedical research Academy intends to provide a forum for professional discourse on how to standardize and enhance procedures.

DISCUSSION

A system called the hospital information system is used in hospitals to gather, process, store, manage, retrieve, and transfer various data, materials, and other types of data. The inpatient management module, the pharmacy management module, the outpatient diagnosis and treatment management module, the drug storehouse management module, the dean query module, the electronic prescription module, the material management module, the media management module, etc. are currently the main functional modules of the hospital information system. Stronger guarantees are what the hospital information management system seeks to offer. Doctor visits, query functionality, hospitalization data, data setting and system management, among other fundamental tasks, are the system's key capabilities. The hospital information system's resident doctor and nurse work modules are two of them and are particularly significant in the area of clinical information construction. The work module of the resident doctor primarily carries out the duties of the clinician in the hospital, such as documenting the patient's condition, taking daily routine medical orders, and asking about the various inpatient examinations; the work module of the ward nurse, on the other hand, manages medical orders in each inpatient ward, monitors patients' hospitalization status, and prints various types of doctor's orders, checklists, and other items. Electronic medical records refer to a system that stores, manages, transmits, and reproduces patient medical records using electronic devices based on integrated circuit technology. The hospital information system and the electronic medical record are the two primary medical information systems on which the ward's clinical information management system is built. It replaces the usual manual transcribing technique of the nurses in the ward by obtaining the useful information about the patients, integrating it, and displaying it on the electronic screen interface [1]–[3].

The hospital's activity is included in the hospital information management system, or HIS, which also offers comprehensive information security for the entire medical procedure. Hospital information systems can be divided into three stages: management information system, clinical medical information system, and regional medical information network. The hospital information system suggests three main systems: the data model for the hospital information system, the data management model for the hospital information system, and the data application model for the hospital information system. These three major systems are derived from the closely related fields of technology, management, and business application. Database design, software development, and subsystem functional structure design are all included in HIS design. The hospital information data application system, the hospital information data host system, the hospital information data network system, and the hospital information data physical environment constitute the foundation of the HIS system's construction and design.

It discovers a new method for collaboration by relying on the combination of data and business. Hospital management systems, outpatient management systems, medical technology management systems, inpatient management systems, etc. are typically included

in hospital information systems. The hospital information system is comprised of several subsystems. There is a functional module framework for each subsystem. The database, which serves as the fundamental foundation of the hospital information system, is an essential component. Oracle and SQL Server are the databases that are utilized the most frequently The electronic medical record system in hospitals stores a significant amount of vital medical data in electronic form. Its information is identical to that found in a paper medical record. Webservices, which is mostly developed on the NET platform, is employed in the system's fundamental technological architecture. Based on the intelligent input module of XML technology, the electronic medical record fully utilizes its benefits to actualize the input mode of an efficient combination of free text input and form input [4]–[6].

It efficiently converts relational databases and XML documents and can quickly save XML documents into Oracle databases. Based on these circumstances, XML is able to easily implement the query function, has the capacity to perform post structural analysis of text information, can quickly transform text information into data elements, making it convenient for computer statistics, and can be shared and conform to Ministry of Health requirements. The electronic medical record system features specialized middleware for data integration and an open software architecture, which can simplify and streamline the formerly challenging and labour-intensive data integration process. Editing the necessary configuration file will finish the docking of the hospital information system, inspection system, and medical imaging system at the same time. There is no longer any need to modify the code at the level of the docking method. The typical completion time for read-only data integration is two to three days. The electronic medical record system is supported by the TCP/IP-based network communication infrastructure used by the medical services sector. This framework's main goal is to ensure a comprehensive medical information service. System integration and linkage between hospitals are made feasible by this essential function. The ultimate goal of this approach is to alter how clinical medical work and process coordination are typically done, and

Clinical Information Management System for General Surgery Based on Intelligent Data Management Entities, entity attributes, and relationships between entities are the essential components of an information model. A group of similar items in reality or an assortment of them make up the entities, which are further separated into independent and subordinate entities. Inter-entity relations refer to the logical connections that exist between entities, whereas attributes are the features or properties of an entity. In order to categorize the many types of information that need to be coded and to give the foundation for the business logic relationship for the design of the operating mode of the system, this design establishes an information model in accordance with the business flowchart. How to implement the transmission and storage of all information, as well as the processing of changes, is the key to the complete information system. The clinical pathway admission assessment flowchart is used to build the entity set of the information model [7]–[9].

illustrates a path admission evaluation information model diagram. Entities are separated into independent and subordinate entities, contain a variety of qualities, and one attribute—a numberis used to uniquely identify each instance. The independent entity's primary key, which is used to identify which independent entity is the child entity, inherits the dependent entity as one of its own properties. Patients, visiting departments, registration offices, auxiliary departments, and the clinical routes to which they belong are all considered distinct entities in the information model of path admission assessment. Additionally, other entities like the registration form that is related to the patient and the registration office department number exist because independent entities do. In this information architecture, the registration office and the registration form have a one-to-many correspondence that reflects the relationship between the two entities. The registration office creates the registration form.

Second, there is a one-to-one relationship between patients and registration slips, and the information model can account for all of this data. The fact that the information carrier can successfully send the target to the entity that needs the target is specifically due to the presence of such a logical relationship between these entities. This model's architecture serves as a foundation for the database's design and represents the objectives and criteria used in the path admission procedure.

The remote pathological consultation system is a crucial component of the regional pathological information management system. The region's imbalanced pathological resource problem is one of its design's primary objectives. It is vital to start consultation requests to higher-level hospitals because certain institutions lack the technology to resolve complex situations due to the restrictions of pathology levels in various regions. Patients or hospitals are frequently asked to submit specimens or slides to a higher-level hospital after getting consultation there, which significantly raises the expense of medical care in some isolated places. On the other hand, there are many patients in major hospitals, doctors have a high workload, and pathological investigations frequently need a long wait, which increases the likelihood that the greatest opportunity for diagnosis will be missed. The remote pathological consultation system makes long-distance pathological consultation possible by enabling the remote transfer of pathological data using contemporary medical information technology. It does this by removing geographical obstacles, drastically reducing the time required for pathological investigation and diagnosis, and fostering closer industry-specific communication through the use of the Internet.

By addressing the uneven distribution of pathological resources and recognizing the sharing of pathological resources, this encourages the medical re-education of pathology. The digital slide scanning technology is mostly used in pathology consulting to create full-field pathological slide images digital slides from the slide scans taken under the digital microscope. The patient information and digital slice information can be uploaded to the system once a lower-level doctor requests a consultation, and the higher-level doctor will give back the results based on the received patient information and digital slice information. Using a tablet computer, smartphone, or computer to log into the network environment, the remote pathological consultation system based on the B/S development model can complete a diagnosis. A process for a consultation started by a subordinate pathologist and is based on the local pathological information management system.

Verifying the Impact of a Clinical Information Management System for General Surgery Using Intelligent Data Management The system for this study is created on the MATLAB platform once the original system has been created. In order to test the general surgery clinical information management system based on intelligent data management proposed in this paper, the paper collects various types of information from hospitals as input and starts from the aspects of clinical information collection, clinical information processing, clinical information transmission, and user experience in the system. Results of the statistical tests the clinical medical case information management system's system function modules are divided into six categories: data integration, document management, template configuration, case retrieval, statistical analysis, and public interface. The six modules of the application have the following roles and connections. First, the system uses the data integration function to extract the relevant data from the relational database SQL Server and turns it into data that complies with the XML format definition [10]–[12].

The data are then entered into the XML database, where they can be used for later data queries and statistical operations. These functions include document browsing, case retrieval, statistical analysis, and others. Among them, the template configuration function module must be used to set the document viewing function module's data display style first. The XSLT file content is then used to configure the display mode, such as the horizontal version

and vertical version. The overall system's structure. its connection to other systems For converting relational data to XML data, there are two options. The data are first promptly imported into the XML database once each query is made from the relational database. Second, the entire relational database is queried out, all data is transformed into XML, and last, all of the XML data is imported. The first way has the advantage of a smooth connection, but it will take longer for the system's data to be integrated. The XML database will need to do a significant number of rollback operations if an error arises in the middle of this action, making it challenging to ensure the reliability of the data and the stability of the system. The second method consists of reading the XML data from the hard disk and storing it in the XML database after first converting the relational database data into XML and storing it on the disk. This takes a little bit longer overall than the first way because it generates XML data that needs hard drive space and is time-consuming to read from and write to. As a result, if there is a problem with the export process, the data in the XML database might not be affected because the processes for exporting and importing data from the relational database to the XML database are independent. As a result, the system uses the second data integration approach and the architecture of the data integration management module.

CONCLUSION

The clinical medical case information management system is a framework for efficient unstructured data processing and storage for information systems. It can use a tree structure to organize various data, including the multimedia resources the website needs. Additionally, the retrieval, archiving, and inclusion of varied unstructured data will provide challenges that can be addressed by the creation and deployment of the clinical medical case information management system. Additionally, it addresses the problem that unstructured data cannot be processed efficiently and provides perfect data processing services to the system's connected application systems. The clinical medical case information management system primarily uses the potent processing function of XML databases for unstructured data in order to address the problem that enterprise unstructured data are difficult to efficiently integrate into the information system, resulting in insufficient overall processing of enterprise data. This enables the information system to process all data consistently and effectively. This paper describes a clinical information management system for general surgery that incorporates sophisticated data management technology. The experimental statistical results demonstrate the beneficial effects of the general surgery clinical information management system based on intelligent data management.

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CHAPTER 12

INFORMATION MANAGEMENT FOR CONSTRUCTION PROJECTS: WIRELESS COMMUNICATION TECHNOLOGY

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ABSTRACT:
With the passing of the years, 4G mobile communication technology has had the opportunity to grow as well as electronic information technology around the world. The 5G mobile connection technology, which is now widely employed in construction engineering's intelligent information management, has seen an increase in transmission speed as a result. In light of the foregoing, this study opts for the research techniques of theory guiding practice and practice updating theory to direct the use of information technology. By starting with accurate construction specifications, this study analyses the scientific approach of information management building of construction projects from the perspective of BIM Technology, based on the real-world engineering scenarios. This article begins by systematically introducing the core BIM technologies, as well as associated ideas and the fundamentals of construction project management information technology. The three construction modes that ought to be used in standardizing construction are then explained and examined. The New York Freedom Building is used as an engineering case study in this research to evaluate the application of building information modelling BIM in architectural design. Relevant research can be used to actualize and ensure the integration of project management and information technology by providing theoretical and practical references.

KEYWORDS

Communication, Construction, Intelligent, Management, Theoretical.

INTRODUCTION

Wireless communication, or just wireless when the circumstances allow it, is the transmission of information telecommunication between two or more sites without the use of an electrical conductor, optical fibre, or other continuously directed medium. The most widely utilized wireless technologies make use of radio waves. Radio waves allow for communication at distances of millions of kilometres for deep-space radio communications or as little as a few meters for Bluetooth. Wireless networking, two-way radios, cellular phones, and personal digital assistants PDAs are just a few examples of the diverse fixed, mobile, and portable applications that are included. Additional examples of applications for radio wireless technology include GPS devices, garage door openers, wireless computer mouse, keyboards, and headsets, headphones, radio receivers, satellite television, broadcast television, and cordless telephones. There are a few fewer common means to create wireless communications, including the use of light, magnetic or electric forces, and sound[1], [2].

The term wireless has appeared twice in the history of communications, each time with a somewhat different definition. It was used for the early radio transmitting and receiving technology, such as in wireless telegraphy, from around 1890 until the new word radio replaced it around 1920. Non-portable radio sets were still referred to as wireless sets in the UK and the rest of the English-speaking world up until the 1960s. In the 1980s and 1990s, the term wireless was reintroduced primarily to describe digital devices that communicate without the use of wires or cables, such as the examples mentioned in the previous sentence. This changed in the 2000s as a result of the advancement of technology like mobile broadband, Wi-Fi, and Bluetooth.Wireless operations enable services like mobile and interplanetary communications that are difficult or expensive to provide with the usage of

cables. The term is widely used in the telecommunications industry to designate telecommunications equipment, including as radio transmitters and receivers, remote controls, etc., that wirelessly transmits information utilizing energy such as radio waves or acoustic waves.

Both short- and long-distance information transfer can be accomplished with this technique. The first wireless telephone conversation took place in 1880 when Alexander Graham Bell and Charles Sumner Tainter invented the photophone, a device that communicated sound by a beam of light. The effectiveness of the photophone was greatly diminished by the requirement for sunlight and a clear line of sight between the transmitter and receiver. It would take several decades before the fundamentals of the photophone were applied for the first time in fibre-optic communications and later in military communications. Several wireless electrical signalling approaches, such as transmitting electric currents through water and the earth using electrostatic and electromagnetic induction, were taken into consideration for telegraphy before practical radio systems were available. Many existing and proposed telegraphy and speech earth conduction systems, a William Preece induction telegraph system, and a Thomas Edison patented induction device that allowed a telegraph aboard a moving train to communicate with telegraph wires parallel to the rails were among them[3].

These programs, however, were never a financial success. The Great Blizzard of 1888 saw the employment of the Edison system by stranded trains, while World War I saw some limited usage of earth conductive systems between trenches.AM, FM, and other electrical devices operate inside the electromagnetic spectrum. The usable frequencies of the radio spectrum are governed by organizations like the international ITU-R, the American Federal Communications Commission, the British Ofcom, and the European ETSI since they are regarded as public resources.

Their regulations specify who can use which frequency bands and for what purposes. Chaos may result, for example, if airlines were unable to use specific frequencies and, in the absence of such control or alternative arrangements like a privatized electromagnetic spectrum, an amateur radio operator interfered with a pilot's ability to land an aircraft. 9 kHz to 300 GHz is the frequency range that is used for wireless communication.

In computers, it is also possible to wirelessly connect peripheral devices, either directly via an optical or radio-frequency RF peripheral interface or indirectly through a Wi-Fi network. These units initially employed massive, extremely local transceivers to connect a computer with a keyboard and mouse; but more recent generations have used smaller, higher-performance devices.

Although signal quality can be impacted by distance, physical impediments, competing signals, and even human bodies, radio-frequency connections, such as Bluetooth or Wireless USB, offer greater useful ranges, generally up to 10 feet. Concerns concerning the security of wireless keyboards first surfaced at the end of 2007, when it was shown that Microsoft's implementation of encryption in certain of their 27 MHz versions was extremely insecure. The process of wirelessly transferring electrical energy from a power source to an electrical load devoid of an integrated power source without the necessity of connecting connections. The two main basic methods for transferring wireless energy are separate. Energy can be transmitted using either far-field methods that use lasers or beaming power, radio or microwave transmissions, or near-field methods that use electromagnetic induction. The phrase used when wireless energy transfer and wireless information transmission are combined is wireless powered communication. Researchers from the University of Washington succeeded in far-field energy transmission in 2015[4], [5].

DISCUSSION

BIM Key Technology

BIM Technology enables the sharing of data produced by the 3D building model among all participating departments of the building based on the reality of the 3D building model. It truly fulfills the unified application and administration of information by integrating every stage of the whole construction life cycle of the project with each department individually. Each department develops a complete, thorough interpretation of the guidelines for each level. The same 3D building model is available to all departments working on the construction project, and all relevant building data has been added to the model to make it easier to extract what is needed. This research enables us to understand the benefits of BIM Technology in terms of integrating, managing, and exchanging all information during the whole life cycle of buildings. It can also ensure that drawings, data, and other information are transmitted and used in a consistent and coordinated manner across the profession. More importantly, it can quickly realize information sharing, information extraction, and information usage of accuracy and timeliness in many majors.

A 3D building information exchange application model is established because, in order to fully realize the functional benefits provided by BIM Technology, it is also necessary to develop an information application platform that can consistently manage the project construction information of all project participants. Based on the information application platform, an open information model known as IFC is created. BIM technology started in the United States and has since grown quickly, as can be observed by following its growth path. It has been used and pushed by numerous nations in just a few years, including Britain, Switzerland and other European nations, Japan, Singapore, and other industrialized nations. It was only after 2002, at the earliest, that BIM Technology began to be discussed and used in China. Famous Chinese researcher He Ganei stated that as the BIM model serves as the foundation for the entire BIM process, the BIM modelling software also serves as the core of the BIM software.

Project management that is information-based

Paper was frequently employed in the joint administration of information during earlier construction projects. Human subjective considerations have a significant impact on this paper's methodology. All types of data and information on this paper will be distorted and produce incorrect information if there is inappropriate storage or loss during the process of mutual transfer, which will influence the information of construction projects and the management quality of a significant amount of data. As a result, the use of BIM technology in the information management of construction projects efficiently corrects the flaws in the information management of existing construction projects and prevents issues with confusion or a lack of information. In light of this, participants can make advantage of the information query service function offered by the information management system and database to quickly access the data for construction projects that they require, so improving the effectiveness of their work and the project data management process.

Civil Engineering Information Management Technology Application Outline

Construction companies should focus first on implementing information technology completely. The management process involves a lot of manual labour, which is detrimental to the accuracy, integrity, and calibre of information about the building industry. Second, companies that specialize in construction engineering must regularly hire professionals with strong information management skills in order to bolster their own talent management teams. Many construction enterprises' hardware equipment levels have increased significantly in recent years, but enterprise internal management informatization is still at a low level. The

degree of information management must be further improved as some new procurement information management software is still under development. Third, construction engineering businesses need to be aware of the information management development process' phases and replan their information management projects at the height of strategic development. In order to lessen information management's resistance in the application process, we should also pay attention to the system planning process and present workable information management solutions in accordance with the enterprise's current financial situation, personnel situation, equipment situation, technical situation, and market situation [6], [7].

Using BIM Key Technology to Manage Construction Projects

The international trade building's old location in New York is now home to the freedom building. The freedom building has top-notch dining establishments, viewing areas, and the most cutting-edge news transmission equipment. In order to accomplish the goals of building safety, sustainability, and quality, other interior design areas of the building also utilize the most advanced design technology. The United States places a lot of importance on the project. The development of a new generation of buildings will be signalled by its completion. In order to effectively finish this avant-garde architectural design, SOM and other businesses have developed a partnership with the Autodesk consulting firm to realize the Autodesk Revit architectural information modelling platform. The freedom building project in the US is a complicated structure with a 450-meter height and a 40-degree rotation. The structure is intended to achieve the goal of spreading wind power while reducing the wind power of the Hudson River. In other words, the design of the building's floors varies.

A steel cable that serves as the freedom building's broadcast antenna is also used as a wind turbine to power the structure. The Brooklyn Bridge and the Freedom Building share a similar architectural style. Any complex design must rely on cutting-edge computer technology because even a little inaccuracy might result in enormous costs and delays during the construction phase. After evaluating a number of commercial software programs, SOM decides on Autodesk Revit as the project's top architecture design tool in order to realize the seamless integration of the other two BIM platform components and produce the suggested structural solution in real time. When the model data is updated during the design phase, all project participants in various fields can instantly see the most recent and comprehensive information about the entire project. The software also makes significant design collaboration possible. When a very intricate component of the original design is changed, it is frequently discussed in the vicinity of the design drawing. The architect merely needs to open the model on the screen and make the necessary changes with the aid of the Revit platform.

As the freedom tower serves as an illustration, Autodesk Revit structural software can assist architects in more effectively enhancing the integrity and coordination of the project in the area of engineering construction. This is so that design time and design modification time can be significantly reduced by the building information modelling, which can modify its own model in accordance with requirements. The project manager delayed a week to get a real-time snapshot of the building column rather than highlighting the issue. SOM divides the project into five sections using Autodesk consulting software: the foundation, the core structure, the area around the foundation, the area around the main tower, and the spire. It is clear that the Revit platform represents a technology advancement that has significantly aided in the construction of freedom buildings.

Information technology

Construction companies must utilize big data technology to its fullest potential in order to enhance the efficacy of collaborative management of construction projects. China's construction sector has been growing for almost ten years, and it is continually updating its tools and technologies. The practical application level of project collaborative management

can be greatly enhanced by using big data technology to build information in the construction sector. Utilize Cloud Technology Effectively to Create a Comprehensive Information Management Platform In order to keep up with the advancement of modern technology, China's construction sector must make the most of cloud computing technology, create a platform for collaborative information management, and support the widespread adoption of the information management paradigm. Construction engineering firms can fully capitalize on this favourable market environment to establish their own businesses, foster corporate growth, raise the bar for construction technology, and boost management effectiveness [8], [9].

Raise the project managers' level of information management

Engineers, operators, and those in charge of future maintenance might all receive specialized technical training from the engineering firm. Last but not least, the building engineering firm creates uniform measuring criteria through lectures and training, evaluates employees' learning progress, and periodically assesses the condition of employees who use information technology to direct their job. Utilize mobile communication technology effectively to expedite the project's information audit. The engineering construction company should accelerate the audit of project information construction while also enhancing the quality level of project information construction and the scientific effectiveness of project quality supervision and management. In order to advance and develop modern construction enterprises, wireless communication technology can be established to create an efficient wireless communication conveyor belt for the financial management, design department, construction management, human resources, and management of the entire construction enterprise. This is because the project management of a construction enterprise frequently has obvious timeliness and periodicity. Effective communication with the project manager can be significantly improved with this regular communication from the construction site and project management process. The widespread use of mobile communication technology will significantly alter how construction engineering businesses operate and are managed.

Architectural designers can transfer the unique conditions of the construction site under specific conditions to the actual application design drawings of construction engineering construction in real time thanks to research and development in wireless communication technology. In addition to the methods mentioned above, construction engineering businesses can improve the efficient management and monitoring of construction sites by utilizing the development of remote control and remote supervision technologies the adoption of information management technology can decrease resource wastage in construction project management and enhance management integrity. It is clear from the analysis of this paper that research on the use of information technology in construction engineering management will assist construction engineering enterprises in identifying the flaws in the current enterprise engineering management process from the perspective of issues and upgrading the management scheme appropriately. Therefore, to increase management effectiveness in management practice, construction companies should pay more attention to information technology and investigate countermeasures [10], [11].

CONCLUSION

Modern construction projects are being progressively pushed toward complexity and scope. The engineering construction management sector is facing previously unheard-of issues as a result of the complicated building structure. The sophisticated project management requirements of today cannot be satisfied by the conventional project management approach. BIM Technology thus appears in people's minds without dealing with the issues. BIM Technology integrates a huge number of complicated engineering information into a unified work platform in accordance with the unified IFC standard using the most recent information

collecting, processing, analysis, and sharing technology. Data and information linked to the project can be retrieved and queried by any relevant staff. As a result, BIM technology offers a quick and practical means of communication for all parties involved in engineering construction. In addition, it makes sure that once project information changes, all necessary personnel's information is updated in real-time.

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