

Research To Study The Damage Caused To The Construction Projects Due To The Lack Of Workers On Site

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ABSTRACT

Construction is an integral part of the global economy and research has found that there is currently a labor shortage in this industry. This is causing difficulties in economic growth. In today's competitive environment, absenteeism is a problem. It can be difficult for organizations to keep their employees happy and productive, especially if they're absent too often. The problem is that there are many reasons why it's hard to be successful at your job, such as not being given enough support or not being given a good enough salary. If you want your workers to be available all the time, it's essential to keep them on schedule. There is no evidence that workers who are not on construction projects cause any damage. There isn't enough information available to help us figure out how to do these projects and recover the money we lost. Construction workers are not available to work on-site as often as they used to, which has caused the productivity rate to drop. Therefore, this study addresses this gap by identifying the damages to the projects due to the worker's absence and providing strategic measures to reduce the absence rate and recover the loss. If people don't show up to work, businesses can't do their jobs as well as they would if everyone were there. This can lead to less productivity, less service delivery, and less performance. This can have a negative impact on the company's sustainability. Several companies have closed because there aren't enough workers to do the work. It is important that we take care of this gap to succeed in construction projects. The problem is that there are a lot of people who can't work because they're injured or sick, and this means that businesses can't get as much done as they would if there were more workers. This is a problem for all countries because it's hard to get the economy moving when so many people are out of work. This investigation is important because it will help close the construction industry gaps. This study used qualitative research methods to get a better understanding of what was going on. A systematic review of research was done to find strategies to help minimize workers' absences. This study is going to help all the contractors and other people in the construction industry, who are planning or doing construction projects. The study is more important in that it serves as a reminder to the organization of the importance of human resources to its growth. If a worker is absent from a construction site, they will likely know what will happen to the project and take appropriate measures to avoid it.

Key Words: *Absenteeism, Contractors, Construction Projects, , Mitigation, Project damages.*

1. INTRODUCTION

The absences of workers in a project result in a shortage of workers for that project. When manpower is not available to manage projects, project timelines and financial budgets suffer. It should be noted that construction workers play an essential role in the execution of the project. Lack of manpower or absenteeism affects both the clients and the workers themselves. Believe that no job, no pay! We need money to meet our daily needs Hussain1, Xuetong1, and Hussain2 (2020) observed that unskilled labor has a significant negative impact on project performance during the construction phase, while the results confirm that skilled labour has a significant positive impact on project performance to increase the success rate of projects during the construction phase. According to Matemani1 and Ndunguru2 (2019), it is generally believed that project performance is based on the skills of workers in the project implementation process, and their skills and abilities will affect the progress of the project. This is especially the case for construction projects. Typically, projects are managed and supervised by a project manager, assistant project manager, construction engineer, project architect,

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contractor, or subcontractor, and tasks are performed by performing manual labour on a construction site. The construction industry is a labor-intensive industry. The performance of any industry is important to achieve measures to ensure sustainability and competitiveness. To address widespread labour shortages, many companies have begun offering aggressive incentive programs, including wage increases, benefits, and more overtime opportunities that can be extended from region to region, local to neighboring regions. However, these solutions are only temporary, and if the potential impact of labour issues is not considered, companies may incur greater liability over time.

RESEARCH AIMS

This study will focus on identifying the damage caused to the construction projects as the workers are staying away from the sites and the measures to be taken to complete these projects and recover the loss?

RESEARCH QUESTIONS

- a. What are the damages to the construction projects if workers are always absent from site?
- b. What measures can be taken to complete these projects and recover the loss?

2. MATERIALS AND METHODS

Information from the participants was gathered through the use of a qualitative research method in this study. The main goals of the research were attained through the utilization of both primary and secondary sources. Six active contractors in the construction sector were interviewed. The interview question was left open so that the contractors would have an opportunity to express their opinions on the harm that the lack of labor on the job site had caused to the projects. Face-to-face interviews were conducted. To eliminate bias, interviews with each contractor were conducted independently. Through an open question, the participants' unambiguous opinions were gathered. There were no records of participant names, contact information, or biographical information. However, participant cost impacts were not considered in this investigation. This study primarily considered more peer-reviewed books, journals, and papers published during the last ten years to retain quality. This is because it's wise to base a study on sources that were published within the last ten years. These resources represent the most recent findings, theories, procedures, and best practices and are more up-to-date. The most recent research enables academics to keep pace with fresh arguments, advancements, and trends in this area of study as well as discover new writers. However, both public and private construction projects were considered in the analysis. The problem was researched via a literature review, and evidence acquired through interviews supported the findings of the review on the harm projects suffer from a shortage of staff on site.

3. LITERATURE REVIEW

According to Matemani¹ and Ndunguru² (2019), a lack of skilled laborers can have a significant impact on a project's production. The authors discovered that labour issues were related to training, craft worker, supervisor, and foreman competency. Additionally, they discovered that the essential element with the greatest potential for increasing project productivity is the laborers' qualifications. Improved labourer training effectiveness has a considerable impact on increased project productivity. According to the report, the absence of trained laborers with experience or their availability directly contributes to the productivity of construction projects declining. The scientists also discovered a strong correlation between the inability to hire skilled staff and the decline in project productivity. Projects with a shortage of experienced labor typically experience higher material and labour costs, longer project timelines, scheduling issues, and poor quality. According to the authors, a labour shortage happens when there is a gap between the supply and demand of individuals who are qualified, available, and eager to work in a given occupation. According to this paper, recognition and a positive work environment are crucial for keeping employees and addressing labour shortages within a business. The survey also revealed that many academics emphasize low pay and promotion as the sole important factors while ignoring a positive workplace culture and appreciation. The findings demonstrated the significance of promotions and a positive work environment in retaining employees. Poor service delivery and economic stagnation are the results of the construction industry's severe human resource problems, which include insufficient staffing, and imbalances in the deployment and retention of professional construction specialists and supporting staff. The government is responsible for developing effective regulations and safe working conditions.

Sicani, Lee, and Robinson (2011) revealed that several research efforts have been made to address absenteeism in the construction industry. The study found that the measures to minimize worker absenteeism from construction sites were: (1) Absenteeism is reduced when management stresses that absenteeism is averse. (2) Absence rates are lower when employees find their work rewarding. (3) Management plays an important role in reducing absenteeism from the workplace. However, there are still unknown factors that prevent us from fully understanding absenteeism and how to reduce it. For example, the understanding of absenteeism in industrial construction is outdated or not comprehensive. A

more systematic and thorough understanding of absenteeism is required due to the complexity of large-scale industrial development (such as the lengthy operational periods and the enormous range of trades and roles involved). To better understand absenteeism in industrial construction, for instance, a tool that can be used in a variety of industrial projects to gather and analyze absenteeism data would be highly beneficial (e.g., the difference between the causes of absence in remote vs. local job locations). However, the knowledge of absence is limited because this kind of technology has not yet been created. Workflow and task completion are disrupted by absenteeism, which also raises overtime and worker weariness. If the employee's absence is not anticipated by the supervisor, the effects of employee absenteeism on workflow interruption and productivity loss may worsen. In addition, the authors divide absenteeism into planned and unintentional absences.

According to Hui (2018) report, human resources, particularly construction employees, are crucial to the construction industry. For construction to succeed, a human workforce is essential. Despite the importance of the human workforce to the construction industry, it is also thought that this resource is the most difficult to manage. Employee absenteeism is a problem at construction sites since the industry as a whole is severely affected by its negative effects. The supply of welfare measures to employees should be used to address job tiredness, which is the major factor causing employee absenteeism and having led to the loss of productivity on construction sites. According to the study, productiveness can be increased with the help of efficient resource management. Labor productivity has a significant role in determining how quickly a project can be completed in the construction industry. Construction labour is therefore a crucial factor in determining whether a project is successful or unsuccessful.

According to Alvanchi and Hashemi (2020), the performance of labour-intensive construction projects is significantly impacted by workers' absence. Construction project managers may better organize their projects, cut down on absences, and increase productivity by recognizing certain absence trends. Among the most important determining factors are the working group sizes, organizational policies, and the time of year. One of the suggested policies for lowering the absence rate is to improve the sense of teamwork. Another is to enforce severe consequences for workers' absences. A third is to increase managers' site visits. They advocate enhancing safety, encouraging an open-door policy for the management, and making workers' attendance known to the public as the best approaches for lowering absenteeism. According to the study, organizational managers could allocate day-care facilities, offer both part-time and full-time contract choices, and include workers' absence control policies throughout the recruitment process to minimize the number of workers. When the unemployment rate was high in Canada, it was discovered that using punitive measures for employee absences was successful. They also discovered that disclosing the typical absence rate at the employment site will work. According to the study, changing personnel policies, getting workers regular medical check-ups, feeding them every day, and establishing organizational policy can all help reduce worker absenteeism from construction projects.

Engetou (2017) believed that people are employed by organizations to help them continue to interact profitably with their customers. Employees build businesses for an organization's failure or success. The author found that the best way to accomplish each task was to carefully match each worker to each task, closely monitor workers, and use rewards, punishments, and motivations. In this study, the problem of carefully matching each employee to each task requires that each organization have enough employees and that managers closely monitor employees, motivated by rewards and punishments. In addition, well-trained and qualified personnel are needed to work closely with the company, not just your employees, to achieve your company's goals. The report describes influence as a force or action that exerts a powerful influence on a situation or person. Influence is conceived as a situation primarily intended to control something or someone. The report describes influence as a force or action that exerts powerful domination on a situation or person. Influence is conceived as a situation primarily intended to influence something or someone. The author further warns that understaffing causes stress. However, stress is considered a universal factor. Therefore, people inevitably feel stress. Analysis showed a negative association between stress and job performance, indicating that increased motivation and increased administrative support in the work environment leads to improved performance. The study found that staffing shortages within organizations lead to increased workload and decreased oversight. Many managers and supervisors are under the impression that the level of employee performance at work is proportional to the size of the workforce. Workloads are responsible for more work. This is a normal phenomenon in many organizations today. Intra-organizational workload occurs when employees take on and perform more activities within an organization than is expected of them. More work leads to less supervision.

A report by Sichani, Lee, and Robinson-Fayek (2022) found absenteeism to be particularly common and a major problem in large industrial construction projects. The negative effects of absenteeism on construction projects are well known, the authors say. The study added that absenteeism leads to further increases in the workforce to meet staffing needs. It also leads to lost revenue because project schedules are not met. Capital investments such as tools and equipment are underutilized due to absenteeism. Workflow and task fulfilment are interrupted. This increased the need for overtime and increased employee fatigue. The authors also found that absenteeism leads to a loss of employee productivity and goodwill. Replacing absent highly skilled workers with similarly skilled workers still poses performance and safety problems, the report warns. The study argues that these negative outcomes are exacerbated by the long-term detrimental effects of absenteeism on job satisfaction, performance, and organizational climate.

Pailwan¹ and Tatar² (2020) emphasized that today's construction industry is labour-oriented and its work depends on human labour. The study reiterates that, among the many problems facing the Indian construction industry, absenteeism is one of the major issues directly impacting productivity on construction sites. The report found that the higher the absenteeism, the greater the loss of productivity in the field. The authors showed that the absenteeism of Indian workers was due to rural orientation and frequent urges to flee the country. According to Pailwan¹ and Tatar² (2020), in the modern construction industry, the occurrence of job fatigue, malnutrition, and poor working conditions exacerbates the sense of change of industrial workers, sometimes requiring them to rest and relax frequently. They will have to visit their homes. Social and religious rituals also divert workers from work to social activities. Workers further face housing problems and a loss of interest in work. Low wages force workers to look for part-time jobs to earn extra income. This often leads to constant fatigue that forces them to miss work the next day. Working conditions on construction sites are frustrating and intolerable.

Volo and Beveridge (2022) indicated that heat, humidity, noise, vibration, lack of lighting, dust, and overcrowding affect worker health and cause workers to be absent for long periods of time. The high absentee rate is also due to the lack of adequate social facilities. Social activities include clean drinking water, canteens, accommodation, toilets, washrooms, bathing facilities, first aid supplies, etc. Some regular drinkers donate their entire salary to drinking purposes on the first week of every month. Therefore, they are off work for 2-3 weeks after receiving their salaries. Every worker who engages in financial transactions usually borrows from moneylenders at very high-interest rates. To avoid moneylenders, they usually decide to be out of work because they are unable to return the money within the prescribed time. Favouritism and nepotism-based policies in the construction industry frustrate workers. This also leads to reduced efficiency, lower productivity, and adverse relationships between employees and managers, leading to absenteeism. When employers fail to provide time off opportunities, workers are forced to take unscheduled leave, resulting in unexpected absenteeism.

According to Ahn et al. (2013), one of the primary causes of absenteeism is a schism or division between construction management and workers. Personal and family illness, reluctance to work, doctor or dental appointments, drug or alcohol use, and a lack of responsibility were identified as the primary reasons for the lack of workers on site, according to the study. Furthermore, worker absences were discovered to be influenced by accidents, severe weather, and hazardous working conditions. Managers frequently attribute a significant portion of employee absences to discretionary mechanisms, according to the survey, but employees typically blame their own absences on a variety of uncontrollable life events.

Absenteeism, according to Kocakülâh et al. (2017), is more than just missing a day of work. However, Employees who take longer breaks during the day than planned, or who arrive or leave early are on a partial shift absence. While the occasional extended lunch or late start may have no effect on productivity, repeated abuse reduces output and morale. Employees who see their co-workers taking an extended lunch break or leaving the office early believe they have the same right to the same amount of time off. Even when employees arrive at work, this does not always imply that they will be fully functional. According to a growing body of research, the problem of employees working but not producing at their usual level can reduce individual productivity by up to one-third (Kocakülâh et al. 2017). The term "absenteeism" refers to a phenomenon that is most clearly associated with illness. For example, when employees arrive at work sick, they not only work slower than usual, but they also hinder others' ability to recover and spread the illness throughout the office. The authors contended that presenteeism refers to any situation in which an employee is physically present but not performing to the best of his or her ability. A worker's absence from work can have a wide range of general effects on the organization's productivity. The only disadvantages of missing work for the employee are potential pay loss and disciplinary penalties, but the co-worker will bear the brunt of the blame immediately. Co-workers will have a lot of work to do to compensate for the decrease in corporate productivity, which may result in more overtime and its associated costs. This increase in co-workers' workload will influence the entire work group. Coordination issues will worsen if the replacement worker has lower skill levels than the missing worker, and productivity may suffer.

According to Utting (2010), the skills gap is not limited to South Africa and is exacerbated by some of the hiring practices used abroad. Other people's ideas are not always viable and have yet to be tested. According to the report, there are no real-world examples of the construction industry successfully resolving skill shortages, and the problem is global. According to the paper, the issues in South Africa are exacerbated by the legacy of a government that ensured that more than 80% of the population was unprepared to run a construction sector before handing over a building industry that had been decimated. The situation became so bad that construction could not fulfil its promises of providing for most of the population's fundamental necessities due to the injection of enormous sums of money for reconstruction and development and the exodus of vital talents. The author found that the dangers facing the construction business include a lack of skilled labour, high government spending on healthcare and education, capacity issues in the sector, and clients' strict deadlines for delivery. With a higher percentage of unskilled workers, the quality of output is at stake, and a skills shortage is a growing risk making the business less appealing as a career.

Oyomba (2017) found that wages have an impact on absenteeism. According to the respondents, the organization's performance-based employee compensation system encouraged employee absenteeism. According to the study, attitude

affects absenteeism. The author thought that the organization's absenteeism was impacted by employees' unfavourable attitudes at work. The survey also found that job design has an impact on absenteeism, and most respondents claimed that because job design in the organization was not clearly specified, it resulted in goals that were in contradiction. According to the survey, working conditions have an impact on absenteeism, and employees stressed that their atmosphere at work was unfriendly. The organization now suffers a worker shortage because of this.

The effective use of all resources, including human resources, is essential for a construction's financial stability and success. Absenteeism is a situation that can have a substantial negative influence on construction. The results show that absenteeism is primarily caused by family obligations, especially childcare. Other causes included strikes, exhaustion, transportation issues, and actual illness. The findings make it clear that the misuse of sick time and the expense of absenteeism can have a negative impact on the provision of quality services. The degree of a job is directly correlated with absenteeism. According to reports, blue-collar workers who make less money, have fewer responsibilities and work more repetitively have higher rates of absenteeism. When compared to white-collar workers, this group of workers also has fewer fulfilling jobs. Income and job levels are directly correlated. The low wages in the construction sector are a well-known truth, and this has impacted the consistency of the labour input (Mukwevho, Nesamvuni, & Roberson 2020).

To guarantee that they are not influenced by labour availability, contractors must completely comprehend the clauses specified in contracts, according to Lorenz (2018). According to the report, there is still a significant labor shortage in the construction sector, particularly for projects that are both commercial and residential. According to the author, many businesses must offer strong incentive programs that include higher compensation, more perks, and more opportunities for overtime that can extend beyond local areas to neighbouring areas to overcome this pervasive scarcity. The paper argued that if the possible consequences of labour difficulties are ignored, the offered solutions will only be a short-term remedy and may eventually expose businesses to more risk. Even though each construction contract is unique, all of them will have clauses that specify how much money is paid and when the project must be completed, both of which could suffer from a labour shortage. Companies should address these concerns upfront when examining contracts to prevent future obligations for all parties.

Karimi et al. (2018) reveal that a skilled labour shortage in the North American construction industry started in the 1980s and has persisted as a cyclical pattern over the past three decades. Researchers have given this issue a lot of attention, but the report found that quantifying the effect of skilled labour availability on project success has gotten less attention. The authors also stated that by quantitatively modelling and clarifying the impact of skilled labour availability on construction project cost performance; this work contributes to the body of knowledge by filling a gap in the existing literature. The major analysis of the results, according to Karimi et al. (2018), reveals that projects with artisan shortages saw noticeably larger growth in cost overruns than projects without. The study found that the main advantage of performing risk estimation in a project is to give project management teams the ability to decide whether mitigation methods are necessary to avoid probable shortages in project cost performance. Developing motivation for industry leaders, communities, and construction stakeholders to address the issue of skilled labor scarcity in the construction industry can start with an understanding of the extent to which craft shortages affect project performance.

4. DAMAGE TO THE CONSTRUCTION PROJECTS DUE TO THE LACK OF WORKERS ON SITE

According to Jones (2022), previous studies have shown that industrial labour is frequently characterized by absenteeism. It prevents industrial growth. According to the report, a labour shortage has an impact on both the company and the employees. A worker's pay is significantly diminished because of his or her frequent absences. This is due to the basic tenet of "no work, no compensation." As a result, workers lose money when they are absent from work. However, the employer must bear a bigger loss because of absences. However, there is less production on the job site since it disrupts efficiency and discipline.

Batra (2022) added that industries should also keep a second labour force on hand to deal with emergencies and strikes. In certain circumstances, workers that show up at the site gates are hired. They are substituted for workers who are not present during strikes. Because such personnel typically do not demonstrate that they are capable of working, their adjustment causes major issues. Higher absenteeism is bad for both employees and employers, and it eventually has a negative impact on how much an industry produces. The country suffers a tremendous loss due to a lack of workers, according to earlier literature. The construction industry is a significant contributor to the nation's economy, both directly and indirectly, and it primarily relies on its workforce. As a result, the country will also suffer losses because of the construction workers' absenteeism.

Cushard (2022) asserts that the inability to complete projects on time due to a lack of workers results in revenue loss. That could also result in construction projects being delayed if there are fewer personnel on site. Each day a project is put off, additional expenses are incurred to keep it going. Costs are borne by the project owner, the contractor, or both, which results in revenue losses. Companies must take all steps possible to increase their profit margins because of declining

profit margins. This entails lowering the absenteeism rate. Unplanned absences cause project delays, which lower revenue, and they are a common construction project problem since they indicate poor planning.

Medcalf (2022) cautioned that overmanning (increasing the number of labour crews above the ideal) can result in a scarcity of resources, whereas having fewer workers can result in underutilization of investments. Because businesses spend a lot of money on equipment, the cost should be recouped over the life of the equipment. However, underutilization of resources may result in a poor return on investment for the company. Only by successfully managing equipment operation (a requirement that cannot be met when there are insufficient personnel on site) can productivity from equipment use be ensured. Work crews with new or inexperienced members, according to the author, become inefficient due to absenteeism.

Waldschmidt (2022) was of the view that contractors must hire new employees to fill in for qualified workers who are absent to complete projects on time. Paying for the shifted disparity may have a negative impact on performance, safety, and cost per unit. Adding more people disrupts the flow of ongoing tasks being worked on by the original crew. As a result, the work crew's productivity and task completion suffer. Extensive training is required to acclimate new employees to the project and site. This adds time to the project's expected completion date. The original staff may be required to work more slowly to mentor the new employees or give them time to catch up with the project. All of these factors contribute to workplace inefficiencies, which reduce labor productivity.

Cushard (2022) cautioned that retaining existing employees is less expensive than recruiting new employees. Hiring, training, and recruiting all cost money. As a result, attracting and retaining employees is the most profitable investment a construction company can make. When there are fewer people on the job and project deadlines are approaching, businesses are forced to hire more people. Construction companies may end up spending more money than expected on recruiting and training new employees, increasing labour costs and decreasing project profitability. The report warns that replacing absent employees costs both money and time. Employers must spend a significant amount of time and money in order to find talented employees. This includes creating job advertisements, conducting interviews, screening candidates, recruiting them, onboarding them, training them, and correcting any errors they make during the training process. The amount of time lost during the hiring process is frequently greater than the amount of time required to train a new employee.

According to Singh, Chetty, and Karodia (2016), employee absenteeism is linked to low morale; thus, a high absenteeism rate may contribute to low morale, which may then lead to an increase in absenteeism. Employee morale has been shown to suffer because of absenteeism in the construction industry. Employees who are absent frequently become disengaged from their jobs. The inverse is also true, which means that underutilized employees frequently have poor attendance. All these influence employee productivity at work. This also has a significant economic impact. Once the bids are sealed and the contractors are awarded the job, a completion date is set for the project. To remain competitive, businesses must adhere to the estimated timeline and complete the project as planned. Other employees are forced to work extra shifts when some employees fail to show up due to the pressure to complete projects on time. When this happens, employees become tired, which reduces their productivity at work.

A report by Norman and Paul Jr. (2021) revealed that a labour shortage could have serious and long-term consequences for the economy. Furthermore, in contrast to previous labour shortages, the current one affects both skilled and unskilled workers. All of the evidence points to a much larger problem that will linger for years and have a variety of short- and long-term consequences. If the labour shortage persists, we can expect higher wages, inflation, and supply chain issues in the medium term. Furthermore, the competitive job market has increased worker power and given them bargaining power with employers. Businesses must respond to requests for better job quality, better working conditions, and higher pay in order to fill positions in a worker's economy. Although a pay increase is good for employees, a slow employment recovery could increase inflation and impede economic growth. Long-term labour shortages could slow GDP growth, trigger a recession, and stymie or hinder the expansion of businesses that primarily employ manual laborers and blue-collar workers. Demand has increased, but the willingness to return to work has not, at least not under the same conditions.

Matemani¹ and Ndunguru² (2019) discovered that the consequences of the construction industry's skills gap are: Due to a lack of experienced construction workers, there are fewer experienced workers available to pass on their knowledge to new hires, affecting the quality of work. When there is a labor shortage, new hires are also more likely to sustain workplace injuries. Employers should invest more money in educating new hires about safety practices and trade skills at a time when they are under pressure to meet increased demand. Previously, businesses would pair seasoned employees with newly hired employees to teach them specific workplace skills and best practices. When there aren't enough skilled workers, this type of mentoring becomes more difficult. The report added that another effect of the skills gap that may cause problems is the entry of some commercial contractors into the residential construction market. The subcontractor pool and skill set for commercial and residential construction are vastly different. Experts have expressed concern about commercial contractors accepting bids for work in which they lack expertise. For these and other reasons, the economic

pressure to meet the urgent housing demand during this labour crisis has exacerbated the safety risks for many construction workers.

Understaffing, according to Divincenzo (2022), is a major cause of workplace stress, which in turn is a major contributor to attrition. Employees in firms with a shortage of personnel may not feel they have any control over the rapidly expanding task. The organization may suffer from the low work performance of this frantic environment. In other words, overworked employees frequently experience high levels of stress. A recent study found that stress causes more than half of workers to lose interest in their jobs, lowering productivity. If your employees believe they are constantly facing deadlines or a never-ending list of chores, their stress levels will undoubtedly rise. Workplaces where employees feel a sense of belonging to a team that distributes tasks evenly, on the other hand, are typically far more productive and happier. Employee turnover is another drawback of a staffing shortage, claims Divincenzo (2022). The possibility of employee turnover may be reduced by making sure the company has the right number of employees. By doing this, your company will be able to keep its top personnel for a long time and avoid the costs associated with turnover. Finally, businesses with persistently low staffing levels may also experience an increase in workplace accidents. Employees who are exhausted and preoccupied are not only less productive but also more likely to sustain workplace injuries, which could increase the expense of workers' compensation (Divincenzo 2022).

Long (2015) asserted that the growing use of technology in conventional sectors is one important factor contributing to the skilled labour shortage. Modern machinery and equipment are much more technologically advanced, but the retraining of the aging workforce in the skilled trades has not kept up. Additionally, it is a constant struggle to draw new generations into the trades, which aren't traditionally viewed as desirable career paths. A company's growth may be slowed by a lack of skilled labor. In a previous survey, manufacturers listed the following as the top three effects of skills shortages: they are forced to hire unqualified candidates; production opportunities are lost, and less money is invested in the business and product development, all of which hurt manufacturers' ability to compete. Slow growth may then force a business to make corners elsewhere to save money and boost profitability. Less strict maintenance or quality-control procedures could result in losses as a result of this. For instance, failing to maintain equipment properly can lead to costly repairs and investment losses that may not be covered by insurance and that the business would have to pay for out of pocket. Inadequate quality control might also lead to pricey product liability lawsuits, which would raise insurance claims and consequent premiums. In extreme circumstances, it might even lead to a reduction in coverage. Lack of appropriate skills among employees may have an impact on the quality of the work. That could raise the price of having to fix subpar work or pay for damages caused to third parties because of negligence on the part of an under-qualified worker.

Holtmann (2022) maintained that the skilled labour shortage cannot be solved easily; it will require a mix of education, training, and a shift in the public's opinion of the trades. Businesses can increase their future talent pool by collaborating with regional colleges and universities. In addition to offering students a head start in their careers, co-ops and internships also allow employers the chance to identify and hire potential employees ahead of their rivals. The moment is now for businesses to act due to an aging workforce and a lack of new talent pools. Those who succeed will be able to hire and keep skilled workers who generate high-quality work, which will reduce risk and pave the way for further success.

Oke, Aigbavboa, and Khangale (2018) believe that a lack of workers has harmed the country's economy and international participation. The study discovered that a lack of skills has a significant impact on a country's socioeconomic growth and development. According to the report, the inadequate and lack of basic skills in the construction industry is threatening the industry's future and will continue to do so, especially as demand for construction products rises. As the demand for construction products and services grows, so does the problem of skill shortages, which is caused by many senior employees with adequate skills and a small number of younger employees taking their place. To be successful in the construction industry, artisans and professionals must have technical, business, managerial, and other skills. According to the authors, in order for construction firms and contractors to attract skilled artisans and professionals, there is a need to improve their welfare, raise their salaries and wages, and increase their total compensation. The lack of adequate construction skills has a negative impact on the growth and development of Small, Medium, and Micro Enterprises (SMMEs). However, due to a lack of skilled labour, many emerging construction firms have failed. The authors cautioned that a lack of skills leads to ineffective management strategies at the start or early stages of a project, which eventually leads to the failure of construction projects. According to the study, the construction industry's skills shortage has impacted the quality and productivity of construction projects over the years. The shortage of skills has put pressure on the construction industry, and as a result, the industry is struggling to meet the industry's rapidly increasing service demands. According to the study, the construction industry frequently experiences workforce shortages, which cost both contractors' and other stakeholders' resources in terms of time and money.

According to Bloom (2021), a global labour crisis is hindering the recovery of small and medium-sized firms from the epidemic. If small enterprises had enough staff to handle everything from production to customer service, they would increase production and move near to pre-pandemic levels. Small and medium-sized businesses (SMBs) are less robust and more vulnerable to problems because of their size. Productivity is impacted by a staffing shortage. Projects are done

more quickly the more skilled people are available. How many projects SMBs can take on is impacted by this. Reduced income and profit are the results of a lack of productivity. In some cases, this has affected small businesses to the extent that they are no longer operational. There are fewer options and fewer opportunities for innovation (Bloom 2021). The report also indicated that skill shortages have an impact on safety. Workers may try to do physically challenging work on their own and injure themselves. This can be a huge drain on the finances of a small business. Customer relations suffer as a result. When a company lacks sufficient manpower, it struggles to meet its production and delivery targets. Customer expectations are constantly rising, and businesses that fail to meet them will struggle to compete. Customer service is critical today because customers who do not receive the service they require will quickly move on to another provider. Meeting changing employee expectations has an impact as well. Employee expectations have shifted significantly because of the COVID-19 pandemic. Understanding what employees want and meeting those needs is critical to resolving the talent shortage. Many business owners are currently working on incorporating new types of flexibility into roles, such as a mix of in-person and remote work. Another step that businesses can take to address labour shortages is to invest more in training and development programs. They could assist current employees in transitioning into new roles that require new skills. They must also look outside of the business for talent that they cannot develop in-house, as well as cultivate talent communities on which they can rely.

According to Paul (2020), the following are two ways that understaffing can harm a business in the following ways:

- **Loss of sales and customers** - Understaffing can be one of the most serious problems for any business.
- **Revenue loss** -- right, that's if you don't have enough people to answer the phone or interact with new customers, how can you possibly give them the care and attention they need to buy from you? Even dividing your sales team to cover both new and existing customers will not work. You will continue to lose new sales and have customers leave you, the author added.
- **Brand damage** can result from poor customer service, which can be caused by the smallest of factors. Customers waiting on the phone for an extended period, for example, may not be able to find someone in the store to assist them, or there may be no one to assist them in a live chat on your website. Customers become frustrated because of these issues and leave a negative review. It can take years for a company to build a good reputation, but it only takes a few months for all that hard work to be undone.
- **Work quality** will inevitably suffer as there will be more projects to manage and less time to work on each project. With more workers to handle, the construction team will have less time to understand individual construction requirements; the marketing department, as well as all other departments rushing around to finish their projects, will have less time to thoroughly check their work. All with less care and more errors. It's possible that the increased workload isn't the cause of the poor work quality. Employees may simply dislike the workload; they are unconcerned about the outcome. They simply have too much work to do and have lost all motivation to do it well.
- **Employees who are stressed** - Increasing the workload not only reduces the quality of work but also puts employees under extreme stress. Many people may become stressed as a result of the additional work, as they struggle to complete it all on time. Stress can cause a variety of mental health problems, requiring employees to take several days off to recover. While these employees are away, you will be left with even fewer employees to cover your business, which means even more work for the few remaining employees, causing them to become stressed and take more time off.
- **High staff turnover rate** - Why would anyone want to work for a company where they are overworked and stressed, as well as customers who are constantly complaining and leaving negative reviews? The simple answer is that they wouldn't. Employees will quickly leave for companies that care about their employees and have enough staff to cover the workload. All of this necessitates the hiring of additional personnel, which incurs additional costs for recruiting, interviews, and training. This is after it has become extremely difficult to hire anyone due to the high turnover rate, causing your company to have a reputation as a bad employer.

Cushard (2022) discovered that absenteeism influences individual productivity. According to the author, if someone works less, they are more likely to be less productive. Employers should consider root causes like burnout and disengagement, as well as those that may necessitate accommodations like childcare or illness. These issues must be addressed immediately by organizations. If an employee is frequently checked out, it could indicate a lack of morale, engagement, and passion for their work. The study also looked at the effect of absenteeism on team performance. According to the report, as missed work time increases, employees in the office are left to make up for work not completed by absent employees. Spending more time per week dealing with absences and preparing for/adjusting workflow to keep things moving has an impact on supervisor productivity as well. According to the author, one of the most significant negative effects of absenteeism on the employee experience is the additional workload that colleagues must bear in order to cover absent employees.

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Absenteeism was also discovered to reduce profit margins in the sense that increased costs reduce profit margins unless revenues increase. For example, if organizations spend more money on overtime pay and contract workers, direct costs rise while profit margins shrink. According to the report, absenteeism can reduce revenue if employees with specific roles are not present. The author used the example of construction plant operators who are experts in plant operation. When such employees are absent, they will undoubtedly have less time to achieve their objectives, resulting in a decrease in revenue, Cushard (2022) says.

5. THE STRATEGIC MEASURES TO BE TAKEN TO COMPLETE THE PROJECTS AND RECOVER THE LOSS

Contractors must fully understand the provisions outlined in contracts, according to Lorenz (2018), to ensure they are not impacted by labour availability. The research revealed the key to avoiding the following pitfalls:

- **Common contract pitfalls** - While each construction contract is unique, every agreement will include provisions governing payment and project timing, both of which may be impacted by a labour shortage. Companies should address these issues when reviewing contracts to avoid potential liabilities for all parties down the road.
- **Labour provisions** - During a labour shortage, one of the most common ways projects get into legal trouble is by failing to meet labour requirements. Most contracts will hold the general contractor responsible for providing adequate labour to carry out the work outlined. Before entering into an agreement, it is critical to ensure that the companies can provide the necessary amount of labour for the project. In contrast, if an owner discovers that its general contractor (GC) is unable to meet the contract's proposed deadlines due to staffing issues, it may be time to rethink the project.
- **Project delays** - In addition to specific labour provisions, businesses should review contract language regarding project timing and delays, particularly as it relates to labour. These provisions can be difficult to identify because they are frequently not listed in the labour provisions mentioned above but have similar consequences if not followed. Failure to meet contract deadlines due to a labour shortage could be viewed as a direct breach of contract by the GC or as an uncontrollable market condition that all parties must endure, depending on the contract language. Regardless of the language, it is critical to understand the potential consequences of failing to meet deadlines due to a lack of sufficient labour.
- **Liquidated damages** - For projects that require a hard, specific completion date based on the owners' business (such as schools, restaurants, or retail establishments), owners will frequently include contract provisions outlining liquidated damages that could be enforced if project deadlines are not met. These are primarily included as financial safeguards for the owner, ensuring that it will be compensated if the project is not completed on time. When reviewing these provisions, owners and general contractors should make a game plan for dealing with potential labour issues that could disrupt the project schedule and jeopardize the timely completion of the work.
- **Payment structures based on contract milestones** - Contracts may include clauses that govern payment terms based on project milestone completion. For example, a project that begins in April may be scheduled to be completed in November. However, for the contractor to be compensated for 50% of the job, the owner may require that 50% of the work be completed by August. This means that contractors must plan their schedules accordingly, projecting labour requirements based on work status. Beyond the confines of a contract, there are numerous other ways for businesses to protect themselves during a labour shortage, particularly for ongoing projects.
- **Invest in training new employees** - Labour shortages in the industry frequently result in higher employee churn rates. Construction companies may become so desperate for more workers that they hire less-than-qualified workers for specific jobs. In these cases, it's critical to remember that quality trumps quantity — simply having more people on a job doesn't guarantee that it will be completed correctly or on time. Instead, consider establishing an apprentice program aimed at developing new talent. Showing a commitment to developing and retaining employees gives owners additional assurance that the work outlined in contract agreements will be completed accurately and on time. Furthermore, businesses will always have a pool of eager workers who are trained and prepared in the event of an unexpected project.
- **Be proactive about worker safety** - The construction industry is inherently dangerous, and in a tight labour market, every employee counts. To reduce the number of workplace accidents, construction companies should reconsider current safety protocols. This may include reviewing daily walk-around procedures, inspecting common risk zones such as scaffolding, holes in flooring, ladders, and so on, as well as hosting regular safety demonstrations.
- **Check that your insurance is adequate and up to date** - Most construction companies do not review their insurance policies on a regular basis, which exposes them to a slew of unnecessary liabilities. Is your professional liability insurance adequate to protect your business in the event of a labor shortage delay? Should you think about purchasing an additional policy or policies? Are our boundaries adequate? When reviewing current construction projects and projecting potential future construction needs, all these questions should be addressed. It is critical to consult with a qualified construction

practitioner who is familiar with the construction industry. Above all, owners and contractors should be aware of this economic shift and be open and honest with one another during the project and contract development phases. To avoid surprises once work begins, carefully scope all timelines, budgets, and staffing schedules. And, as always, taking the time to have contracts reviewed by a qualified legal team who is familiar with your industry is the best way to ensure that all risk mitigation options have been explored, according to Lorenz (2018).

Dozol (2022) discovered that companies are generally having difficulty hiring people for open positions, whether it's finding replacements or increasing staff. In fact, there is a shortage of qualified manpower, or talent, as many prefer to call it. The study identifies the following methods for dealing with labour shortages:

- **Handling manpower shortages** - When defining the skills required to fill a job, it is critical that they are based on the activities that will be performed. Leaving some of them out to increase the chances of finding candidates results in overburdened recruiters and suitable candidates being overlooked. However, "loading up" on requirements eliminates good potential candidates. They may have the necessary skills and experience to fill the position, but they are overlooked. This strategy also impedes the operation by allowing an open position to go unfilled for an extended period. That is why familiarity with the activities and routines that a worker will perform is critical. Having a well-written description of positions and roles with the necessary and desired requirements will make it easier to publicize it and look to leaders for assistance in completing these tasks.

- **In-house treasure hunting** - Filling a position with internal staff is one hypothesis that is sometimes overlooked. This concept may appear to be counterproductive at first. It will solve one problem while potentially creating another in the area or role that the professional is leaving. However, the position created by the reallocation may be easier to fill through external recruitment than the original position. It is critical for the success of this strategy to have the support of software that provides a map of organizational competencies. This will assist you in locating professionals who are compatible with openings and demonstrating the extent to which a reallocation could have an impact.

- **Anticipating needs and solutions** - It is preferable to anticipate needs rather than hoping for an improvement in labour shortages. Prepare your workforce to respond to strategic demands. Map the fundamental roles required to achieve your company's strategic goals using them as a starting point. With this information in hand, create a competency inventory to identify existing gaps. Based on this, invest in training activities to develop, and equip the team to meet the demands of the company's growth. The need to open external positions can be reduced while also contributing to lower turnover.

According to Volo and Beveridge (2022), report on What Can Employers Do to Overcome the Labour Shortage, companies that do nothing to address the labour crisis risk facing severe consequences. Productivity loss, setbacks in achieving organizational goals, and high work pressure all exacerbate worker burnout. Sign-on bonuses, referral bonuses, and retention bonuses are all common financial incentives. However, as predicted by wage drift theory, higher wages and other economic motives will spread to other companies and sectors, reducing their effectiveness. Instead, proactive employers should emphasize providing competitive working conditions and take a human-centered approach. As a result, we see many companies offering hybrid and remote working options, expanding wellness benefits, and creating a more appealing work environment overall. The study added that focusing on People, Brands, and Culture can help to alleviate labor shortages. The most common reason for employees leaving their jobs is a strained relationship with their boss. Profits are generated by successful organizations, but so are thriving employees. As a result, a positive work culture that provides meaning and empowers employees can attract and retain exceptional talent. This includes having a clearly defined larger purpose, high levels of trust, and genuine caring in an environment where people want to be a part of the company and believe they can contribute. Leaders must first recognize the importance of a positive company culture! This will help to attract and retain great people in the long run. It is necessary to improve employee benefits and working conditions. To attract workers in a highly competitive job market, the simplest and most straightforward solution is to create better jobs. The study discovered the following methods for overcoming labor shortages in the industries:

- a. Encourage flexible working:** Transitioning to a hybrid working structure has been extremely successful for us and is now widespread throughout the organization. The ability of those individuals to work in both our award-winning office environment and from home is a major selling point in our recruitment.

- b. Promote well-being:** The business culture is changing for the better, with organizations openly supporting their employees' well-being. Companies are putting more emphasis on mental health and promoting physical activity to make their employees happier - the end result is that they are fulfilling their responsibility as an employer, increasing staff retention, and becoming more appealing to prospective employees.

- c. Satisfaction:** You are already building a good reputation by keeping your current employees happy in their roles. If they are happy with their workload, personal growth, compensation, and environment, they will gladly tell others about

available opportunities. We have implemented a program in which employees are rewarded if they refer a vacancy to a candidate who is successfully hired.

d. Provide Opportunities for Development and Growth: To boost retention rates in blue-collar jobs, companies are lowering educational requirements, providing job training, career path guidance, or even funding education.

Jones (2022) reiterates that the global demand for new infrastructure means a greater demand for labor, but the skills shortage makes this increasingly difficult. While the world recovers from the effects of the Covid-19 pandemic, the construction industry is hard at work planning projects and designing new infrastructure for the coming year and decades. However, Jones (2022) advised that the industry will only be able to keep up with the growing demand for new construction and new home services if it attracts new workers—young people, women, immigrants, and military vets. It's also important to understand how to encourage older, skilled workers to stay on the job as long as possible. The study discovered the following labour shortage mitigation measures:

i. Implement in-house apprenticeship programs- Apprentices are in high demand for vocational careers and trades. Registered apprenticeship programs are supported by employers and labour management organizations. Apprenticeships enable aging workers to train young people in their trades, passing on their knowledge to the next generation. Because young workers take longer to train and are more likely to drop out, extra assistance should be made available if possible. You should also be aware that apprentices are typically paid from the start of training and that a permanent position is likely to be offered upon completion. This pay and job security are likely to make this work more appealing to young workers, helping to alleviate the labour shortage.

ii. Let women know why they are welcome - Apprenticeships are more popular with men than with women; in 2016, women accounted for only 3% of construction apprentices, with the majority working behind the desk, in design, management, or administrative roles. Nonetheless, despite a labour shortage, a lack of women in the industry, and age-old stereotypes, the construction industry outperforms others in terms of the gender pay gap. Showcase how your company is inclusive of women by offering equal pay and learn how women are treated differently on the job. Consider how you can improve the culture on your own site to make it more welcoming. Make sure women feel safe at work and are recognized for the high quality of their work.

iii. Retraining workers from other industries - Workers with important skills from other industries are a great resource. Veterans are a great example. Every year, approximately 250,000 people leave the military in the USA, eager to find work in another industry, such as construction is another way to address the labour shortage.

iv. Advanced onboarding to reclaim lost time - Orientation is the most tedious task on the job. Workers and managers waste valuable time completing site orientation and qualification. Allowing employees to complete orientations online from any location creates a more flexible work environment. By offering online orientations, you give construction workers hours back in their day, allowing them to spend more time with family and break ground faster.

v. Productivity Impact - The relationship between manpower and company projects is straightforward: manpower is proportional to productivity. The greater the number of people available to work, the faster projects can be completed or the more projects a company can take on. In contrast, a lack of sufficient manpower prevents businesses from completing tasks. A decrease in productivity results in a decrease in revenue and profit, which in some cases means the business, cannot continue to operate.

vi. Maintaining Safety Needs - When a company employs enough people, workers do not need to work a lot of overtime hours. Because there are more people to handle tasks, the assigned workload is more appropriate. As a result, employees are typically less stressed and more rested and alert. Similarly, when there are enough workers on the clock, there are more people to ensure that safety regulations and policies are followed, and workers can seek assistance for physically demanding work. A good level of manpower thus aids in the prevention of issues such as burnout and injury. As a result, lawsuits and workers' compensation claims may be reduced.

vii. More Options and Innovation - When a company's manpower is adequate, it has more options in how it operates. It has some leeway in terms of who covers shifts; it is easier to find people to fill in. Additionally, the company has a larger pool of workers from which to form strong teams and is more likely to have employees with the skills, knowledge, and abilities to address current company problems. Furthermore, the company has more employees who can contribute their own ideas and viewpoints. As a result, it may find it easier to remain innovative and competitive. For these reasons, Forbes magazine recommends interviewing from a diverse talent pool to ensure that you can hire the people you need in your various departments.

viii. Customer Relations and Finance - Adequate manpower enables businesses to keep production and delivery promises. Companies that do this can establish and maintain positive client relationships. This may result in additional productions. At the same time, keeping promises can keep businesses from having to pay fines and penalties, which keeps profits higher.

ix. Greater Employee Representation - Most businesses in the United States operate on the traditional master-servant model. This simply means that the employer makes the majority of the decisions, and the employee is expected to work for the benefit of the company. However, if not reined in, some employers abuse the power that this type of relationship provides. Employees are better able to band together and lobby for fair treatment when there is a large amount of manpower in a company. For example, if managers only receive one complaint, they may not give it high priority. However, if the company receives 1,000 complaints, managers will find it more difficult to ignore the problem. As a result, manpower is a critical tool for holding companies accountable.

According to Batra (2022), one of the industry's biggest challenges has been a labour shortage in construction for several years. Despite steady industry growth, companies are still struggling to fill key jobsite roles, putting them at risk of losing jobs or extending project timelines. Instead of resigning to accomplishing less with fewer workers than needed, the author advised construction company leaders to take steps to overcome the construction labour shortage. According to the study, the following strategies for increasing the labour pool should be considered:

a. Make recruiting a year-round activity - Do not put off finding and hiring skilled workers until your busy season. If you don't have time in your already hectic schedule to devote to recruiting, consider hiring a part-time human resource professional. This employee can assist in the creation and maintenance of a recruitment process, as well as keeping your company's name and interests in front of potential job candidates.

b. Provide financial incentives for employee loyalty - Because your current employees are likely to have other options for employment, it is critical to provide them with incentives to stay with your company. Consider rewarding skilled workers when a project is completed on time or under budget.

c. Provide adequate training for your employees - Today's workers want opportunities to continue learning and growing professionally, and you can keep them engaged by providing training. Giving training is a win-win situation. It results in more highly qualified employees for your company, as well as goodwill toward these employees, who will feel valued because of the time and money you invested in them.

d. Ensure that your company is in good working order - The best employees will gravitate toward companies that appear to value them. Make certain that you have everything in order, such as establishing a strong workers' compensation policy, providing training and using appropriate safety equipment. These efforts will ensure that you can meet the needs of your customers while continuing to perform at a high level.

e. Attract and retain workers by promoting safety - While construction companies frequently have programs in place to ensure on-site worker safety, there is still room to promote road safety. Reducing accidents on the way to job sites makes the company a safer place to work. By making your workplace safer, you demonstrate to your employees that you care about their health and well-being and that you value them as people, not just employees.

f. Reduce rising job costs by downsizing the fleet - With fewer workers, available projects are taking longer to complete, increasing construction companies' costs. You can compensate for these time-consuming costly jobs by maximizing fleet utilization. This begins with rightsizing, which ensures that you have the appropriate number of vehicles and assets to run your business successfully.

g. Increase productivity through preventative maintenance - Having assets and vehicles constantly in and out of shops reduces not only profits but also productivity. As job lengths increase due to fewer workers, every vehicle and piece of equipment plays an important role in completing more projects on time. By automating your current preventive maintenance schedules, you reduce machine downtime, which increases workforce productivity and helps reduce job length. In addition, when dealing with a labour shortage, increasing productivity can compensate for having fewer employees.

According to Holtmann (2022) research, the following are strategic ways to overcome labour shortages:

i. Engage in Social Activities - It's a digital world, and job seekers are more connected than ever. Job seekers are looking for leads everywhere, not just on industry job boards and job search websites like Monster, LinkedIn, and Indeed. Even for construction, social media advertisements on Face book, Twitter, and Instagram can be extremely effective at targeting the right people at the right time. Based on search habits, likes, interests, and organizations, advertisement algorithms can filter and pinpoint potential hires. Social media advertisements can significantly increase your reach.

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ii. Network - It is time to look outside the box. Use the resources available from your partners, suppliers, and vendors in addition to reaching out to friends and friends of friends. Other parts of the state or country may be experiencing a decline in local employment, and good workers may be willing to travel or relocate in search of good, solid dependable jobs.

iii. Increase Demand - With every construction company competing for the same skilled workers, reputation alone isn't enough. It's also an opportunity to discuss what makes your company so special. Construction workers are said to be among the most satisfied and happy workers. Current employee testimonials can help potential hires understand what it's like to work for your company.

iv. Hire Interns - The use of drones on construction sites is increasing. Mentorships and apprenticeships abound in the construction industry, helping workers advance their skills and positions. Some companies offer internships with the possibility of guaranteed hire upon graduation to secure workers before they even leave the halls of education. With job prospects for recent graduates bleak, this is a welcome sigh of relief for some.

v. It's Time to Talk Technology - Construction technology advancements are fantastic! Construction applications may be unfamiliar to potential employees. Virtual reality, 3D printing, and drones are becoming more common in the construction industry. It's also unusual to see a contractor open the truck door and have papers, documents, and receipts poured out. Viewpoint-integrated construction software streamlines and integrates all aspects of a project, large or small.

According to Waldschmidt (2022), it was suggested that recruiting and retaining the next generation could help to solve labour shortages. Companies that have solved this problem recognize that the workforce development crisis is not about millennials. According to the author, contractors who participate in mentorship have better hiring success because they already have name recognition with students. The study also recommended that the following be considered:

☐ **Work culture in construction** - Taking responsibility for the construction recruitment and retention problem necessitates a close examination of company culture. Every company, for better or worse, has a culture. How that culture has evolved is determined by how it is emulated and nurtured daily. Work culture has been identified as a major factor in the departure of many skilled-trade veterans from their employers or the industry entirely.

☐ **Alternative talent pipelines** - In addition to young people, there are numerous other viable talent pools and untapped markets that can help fill the skilled-worker pipeline. Among the options are prisons, foster care systems, and the military. If you can provide people with opportunities and jobs after they are released from prison, their chances of returning are very low. The trades must be viewed as a viable option. You can feed your family, and travel around the country - there are many options depending on where you want to take it. While continuing education retention is required in the construction industry, employers should also consider training that provides employees with a path toward a goal they value, such as moving from apprentice to superintendent. Currently, and in this economy, you must invest in workforce training. A loyal employee is one who stays with the company.

☐ **Changing the narrative** - While the narrative that construction is a dead-end job is a systemic issue, individual companies can begin to reframe the conversation and illuminate the opportunities today. People learned skills, created things, and built things to build a country. Nobody can claim that a country was founded because people went to college. That's what we need to keep pushing for, said Waldschmidt (2022).

According to another recent study by Hall (2019), subcontractors must be proactive in order to mitigate the risks associated with construction labour shortages. The following suggestions were made by the study:

a. Strategize and plan - Excessive competition is one of the leading causes of a shrinking labour pool. Consider what you can do differently or better to stand out to attract and build the best staff possible. When competing with more established companies, it may be worthwhile to conduct research into their preferred strategies in order to up your game.

b. Get assistance with your hiring process - We all know that hiring is time-consuming and difficult. Consider the following to make the hiring process go more smoothly:

i. Hiring an employment agency to handle all the heavy liftings in recruiting new employees - This gives you more time to focus on developing your current employees while potential candidates are appropriately screened, and your hiring process runs more smoothly.

ii. Make it known that you are hiring.- Try posting open positions on well-known job boards or social media business platforms like LinkedIn.

iii. Encourage word-of-mouth - Notify your staff that you're hiring and offer financial incentives to employees who refer qualified candidates.

iv. Provide competitive wages and benefits - Benefits packages are one of the most important factors employees consider when selecting a company to work for, and they also influence whether workers will stay. People will be more inclined to notice what embodies your business culture if you provide good health insurance, paid time off, competitive wages, and financial assistance for further education. Make these advantages stand out. Because of the high demand for workers, there are construction labor shortages in qualified skilled tradesmen in some areas. Offer additional incentives, such as flexible hours, in addition to higher benefits, to get people through the door.

v. Ensure that your subcontractors are "up to speed" - Some trade schools now offer construction technology classes. By providing training, these programs can assist new workers in gaining access to various jobs on larger projects (e.g., software design, power tools, and automated equipment). While these courses frequently necessitate a high level of commitment, the skills learned can boost productivity while also improving career and job satisfaction. It also implies that your workforce is highly specialized. Consider reaching out to the next generation of subcontractors by attending career fairs or contacting schools to give presentations to their students.

vi. Collaborate with other businesses - The business environment is becoming increasingly competitive. This means that collaborating with other businesses is sometimes a good strategy and sometimes a requirement. Subcontractors can band together and sign contracts with businesses, for example, if one contractor needs more workers and another has open slots in their schedule, thereby benefiting both parties. Consider paying a good wage to borrow workers with specific skills from other companies.

vii. Be the best place to work - There are a few things you can do to make your workplace more appealing:

- Implement sick leave and vacation policies.
- Provide employees and their families with discounts or complimentary services (e.g., restaurant vouchers, gas cards).
- Make your construction site a fun place to be. Organize company events that encourage collaboration, boost morale, and foster relationships.
- Provide flexible schedules. People are more motivated and productive when they have a say in a weekly routine where schedules and project timelines frequently change.

viii. Embrace construction technology - As the construction industry becomes more technologically focused, businesses are constantly developing new ways to improve processes and make life easier for their project teams. There are numerous types of technological tools available to help you improve your work management processes. These tools can assist you in keeping track of employees' time off requests, shift trades, availability changes, and other important information. These systems can also be integrated with payroll software to provide information about employees' hours worked per pay period, overtime requirements, and so on.

ix. Embrace Artificial Intelligence (AI) - Artificial Intelligence is the future of the construction industry. AI can be used to boost productivity, cut costs, and transform how you manage projects on the following ways:

- Increase safety: AI systems equipped with sensors can monitor many aspects of a construction project, including safety. This means that the software can analyze risks and alert users to potential dangers and hazards.
- Reduce waste and rework while avoiding cost overruns: AI assists subcontractors in intelligently forecasting supply and demand and providing more accurate estimates.
- Keep schedules: When it comes to managing tasks, scheduling, and deadlines, AI and automation do the heavy lifting.
- Stay within your budget and avoid cost overruns.

According to Medcalf (2022), there is no simple solution to the skilled labour shortage. However, as the problem becomes more prevalent, the author suggests four steps that businesses can take to begin addressing it:

a. Increase Salaries - Companies can mitigate the effects of the skilled labor shortage on their projects in the short term by posting job opportunities with industry-leading salaries. With the current job market becoming increasingly competitive, jobs with higher pay often win out. While this will help the company find the talent it requires, it may not be beneficial to the industry.

b. Expand Apprenticeship Programs and Incentivize Training - The next step for businesses is to upskill current employees and/or offer (more) apprenticeships. If you have good employees who are missing certain skills, it may be worthwhile for your company to pay for or incentivize their training. Similarly, if more companies offer apprenticeships, the industry will produce more trained professionals while also increasing enrolment in apprenticeship programs. However, both solutions are dependent on having either unskilled labour or students to draw from.

c. Inspire Young People - The third step that businesses or individuals can take is to advocate for the industry by writing or meeting with local schools, writing or meeting with local politicians, and joining or creating a trade training outreach program through an industry association.

d. Use Technology to Your Advantage - The final step in mitigating the impact of the skilled labour shortage on your company is to adopt specific equipment and technologies that reduce labour requirements. A small excavator and one operator could do the same job as a three-person crew equipped with hand tools. You can eliminate the need for a site surveyor by using a drone. By implementing project management software, you can reduce the time it takes to complete a variety of tasks, making your team more productive and reducing labour needs.

According to Long (2015), one potentially positive outcome of the construction labour shortage is that businesses must become more efficient. The study revealed some ways to use technology to reduce waste and save time and materials, allowing your company to accomplish more with fewer resources:

i. Save Time with Mobile Technology - You can save time on your construction site by accurately planning and adjusting schedules in real time. You don't want people standing around waiting for their tasks to begin because a previous job hasn't been completed or materials and equipment haven't arrived. Mobile technology will help you keep track of the work each day and will notify managers back in the office if schedules need to be adjusted. This way, you can ensure that when trades and workers arrive on-site, they can complete their tasks, reducing lost production time.

ii. Use Technology to Your Advantage - Technology can assist you in better managing your job site so that you are not impacted by the construction labour shortage. You can use geo-location on mobile devices to track exactly when workers are on-site by requiring them to include their location when clocking in and out. This will help you keep track of who is where. Don't overspend on overtime because workers are present but unable to complete a task. You can also save administrative time in the office by implementing a Cloud or mobile-based solution that eliminates the need to manually enter all of this data into a spreadsheet or other tool. Technology also reduces the time it takes for approvals to be processed between the job site and the office. Managers on-site and in the office can always have access to the most recent data and information, allowing them to get answers and make informed decisions more quickly.

iii. Keep Workers Safe - An accident on your construction site is bad for everyone, and it will have serious consequences for your timeline and business reputation. Workers' safety should always be a top priority. Conducting a job safety analysis and providing adequate worker training is critical, and they can be completed more quickly when the process is digitized and completed on a smartphone or tablet. You must also manage time and resources effectively so that employees are not working longer hours than necessary or rushing and taking shortcuts because you are understaffed and trying to meet a deadline.

A report by Hall (2019) indicated that today's construction industry is failing to attract and retain a workforce capable of meeting the complexity and demand of the current economic environment. There appears to be a significant shortage of human capital in the construction industry, ranging from field labour to management. As contractors attempt to hedge the additional risk they are assuming by committing to project delivery in an uncertain labour environment, the upfront cost of construction and schedule will soon be impacted. Long-term effects may even jeopardize the viability of an industry for future generations, and thus the way of life (e.g., a depressed construction industry means limited new structures). The author further added that the workforce shortage could be mitigated by:

a. Rebuild a Strong, Long - Term Construction Workforce - Construction is a resilient industry that has overcome numerous challenges over the years and will undoubtedly overcome the current labour shortage. The question is, how should it look when it bounces back? Let us reimagine construction as the appealing, challenging, one-of-a-kind, and rewarding industry that it is. Building a strong, sustainable pipeline of quality construction professionals capable of meeting the industry's diverse and imminent needs is critical and will pay dividends to the industry and the marketplace at large.

b. Collaboration - The efforts in vetting and cultivating strong relationships with trade contractors will pay off on the projects. Because there is so much work available, the carrot of "the next job" is no longer the primary motivator. Trade contractors, on the other hand, may be more likely to perform well if interest is shown in them as valued business partners. In fact, one top contractor recently changed their company nomenclature from "subcontractors" to "trade partners" to communicate their commitment to this level of partnership both internally and externally.

c. Communication - Early and frequent two-way communication with parties upstream and downstream will improve your ability to manage projects in uncertain labour conditions. Consider hiring project managers to oversee and support quality, safety, and other job site activities, particularly if new workers or subcontractors are involved. Watch for warning signs, especially at the end of the day, when key personnel are absent (to avoid the tendency for others to "fill in"), and when activities are near completion against a hard deadline. Be wary of brokered labour and keep an eye on subtler payments to ensure your valuable workforce remains viable. Considering the current "hot market," address schedule, manpower, escalation, and contingency concerns early in the prime contract with the owner.

d. Reboot Interest in the Construction Industry - Construction is the oldest industry in the world. That is an exciting and inspiring viewpoint that we should use to attract and retain talent, rekindle enthusiasm, and revitalize interest in construction. The authors stated the three important ways for us to do this and no better time to start than now.

According to the report by Pailwan¹ and Tatar² (2020), knowing the causes of absenteeism allows absenteeism to be dealt with much more effectively because the cause is treated directly. Absenteeism can be dealt with by implementing proper personnel policies, as laborers fall under the purview of Human Resources. The study discovered that health issues are the leading cause of workers' absenteeism. Seasonal and climatic changes are to blame for laborers' health problems. According to the authors, health issues can be reduced by holding regular medical check-up camps for laborers. According to the report, absenteeism can be reduced if the employer can provide at least one meal of the day which is a properly balanced meal. Along with the weekly off, a set number of holidays can be assigned to employees on a monthly or yearly basis. It was also discovered that semi-skilled and unskilled labour have higher absenteeism rates than skilled labour. However, the study insists that absenteeism is one of the causes of cost overruns that are rarely considered (loss of time and production), and that increasing productivity while decreasing time will result in higher profits. Workers' socioeconomic conditions will improve as their income increases, allowing them to live better lives. Furthermore, Pailwan¹ and Tatar² (2020) discovered some unique solutions to labour shortages in construction projects. The authors stated that incorporating a communication, motivation, and leadership plan is the best way to keep employees motivated at work and in good spirits. Regular staff meetings should be held to establish communication with employees, emphasizing positives and downplaying negatives, recognizing, and acknowledging their work, and clarifying expectations and job requirements. Finding out what motivates employees, showing appreciation, encouraging stress relievers, fresh air, and vacation days, and increasing compensation are all ways to motivate employees. Employees can be led by developing leadership skills, sending them to training, and delegating tasks. Surprisingly, in today's age of technological closeness, the constant intertwining of work and home life through technology has been a leading cause of employee stress and burnout. Some employers go out of their way to keep a safe distance between their personal and professional lives in order to keep employees engaged with the company's goals. The study identified several job stressors that may be linked to depression, including high job demands, limited job control, and a lack of social support at work. However, depression is a complex condition, and changes in the workplace environment will not necessarily result in significantly lower rates of depression throughout the workplace. Employers must be both proactive and reactive in order to ensure that employees receive all necessary care in relation to this phenomenon. Employers should take the lead in creating a work environment that reduces the risk of depression caused by stress, bullying or harassment, or other workplace issues. Employers should be proactive in responding to employees who are already depressed by providing assistance such as depression recognition screenings, employee assistance programs, supervisors who have been trained in depression recognition, and ensuring workers have access to needed psychiatric services.

Pailwan¹ and Tatar² (2020) also stated that an effective employee absence plan should be implemented to deal with attendance issues in order to prevent excessive and unnecessary absences for any reason. The plan should define expectations clearly and outline disciplinary actions for employees who do not behave appropriately, as well as incentives for those who do. Through recruiting and training, the company can take preventative measures to reduce absenteeism. Positive reinforcement of good attendance and the implementation of flexible scheduling are two other effective strategies that businesses can use to reduce absenteeism:

i. Create an Absence Policy - Creating an airtight absence policy is the first step in developing a system of controls to prevent absenteeism. Employees will have a clear understanding of what the company expects as a result. This will pave the way for the establishment of an organizational culture centred on exceptional attendance. When developing an absence policy, the company should ensure that clear expectations are established. They should inform employees of the amount of time they have before being considered late, as well as the point at which they will be considered absent. When establishing these expectations, the company must take the time to explain the distinction between paid and unpaid time off. They should clearly explain any deadlines or restrictions for requesting time off. Furthermore, the terms and

conditions for paid holidays, military, religious, jury duty, and family and medical leave should be defined. At this point in the control process, the company policy for disciplinary actions should be developed and documented so that all employees are fully aware of the rules. Furthermore, management should set a good example by arriving on time every day and only taking absences that are authorized by company policy (Pailwan¹ and Tatar² 2020).

ii. Proactive Recruitment - An absence policy is useless if employees are not competent or hardworking enough to follow company guidelines. Employees will be less likely to feel singled out and resent the attendance policy if it is applied consistently throughout the company. Employees should be hired on the basis of their competence and attendance, among other things. When looking for candidates who will take company guidelines seriously, using professional venues to attract employees is the best option. Once those employees are hired, the company should take the time to train them on company policies and ensure that they understand what is expected of them in terms of absences. Furthermore, communication should be maintained throughout the employee's tenure with the company to ensure that absences are used positively. Any absence issues should be addressed, and the company should be present to inquire whether increased absences could benefit employee morale while decreasing presenteeism.

iii. Reinforcement - After the initial hiring and training phase is completed, programs for positive reinforcement of attendance should be implemented to keep employees moving toward company goals. Financial incentive programs, recognition programs, lottery programs, and information feedback programs are the four major types of positive reinforcement plans:

- **Financial incentive schemes** - These programs financially compensate employees for excellent attendance. For example, at one company, employees who had no absences received a cash bonus at the end of the year. Employees who missed one or two days may be given a little cash bonus. Companies can also pay employees for every sick or personal day missed or offer extra days for the following year in exchange for perfect attendance.

- **Programs of recognition** - Some companies hold personal recognition events at the end of the year or quarter to recognize excellent service, whereas other companies award employees with few absences with congratulatory cards signed by the manager or with custom-designed, engraved jewelry commemorating the event and the company.

- **Lottery games** - Lottery programs allow employees who have few or no absences to enter a lottery and win a prize. Companies will be given lottery tickets based on the number of absences they have accumulated during the period, and if their name is drawn, they will be eligible to win a prize designated by the company.

- **Programs for information feedback** - There is no financial incentive in this type of program, but employees are notified with each pay-check of their absence situation and how their level of attendance compares to that of other employees. It appears that implementing some combination of the above types of programs to incentivize employees to do what is right before disciplinary actions must be carried out in accordance with rules is the most effective way of influencing employees.

iv. Flexible Scheduling - Many businesses have implemented some form of flexible scheduling to avoid some of the costs associated with absenteeism in the future. Flexible hours, compressed workweeks part-time work, or job sharing are all examples of flexible scheduling (a structured form of part-time work) that could reduce the rate of absence.

Utting (2010) investigated the risks of construction skill shortages, and many organizations are dealing with them by accepting the new reality that the market, not the company, will determine the movement of their employees. Managing retention entails controlling the flow's direction and speeds rather than trying to dam it. While an increase in skilled foreign nationals helps to alleviate pressure, obtaining work permits to bring in skilled foreign nationals is frequently a lengthy process fraught with unnecessary delays. Migrant workers on temporary work permits primarily perform manual labor. Visible management support is critical in convincing teams that they are serious about career programs and not just performance management. Graduate programs and mentoring are becoming more common, and many contractors offer construction skills training centres. However, some contractors are transferring all risks to project owners, who will eventually be forced to cancel projects that are no longer feasible based on a reassessment of risks and rewards. According to the study, the government is dealing with the shortage by implementing policies such as the Joint Initiative for Priority Skills Acquisition, South Africa's Accelerated and Shared Growth Initiative, and the Construction Transformation Charter Group. These are expected to keep the industry going and transform it.

6. RESULTS AND DISCUSSION

Findings from six vibrant construction contractors revealed the key damages to the construction projects due to the lack of workers on site. These damages are indicated as follows:

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CONTRACTOR - A

Contractor A indicated that a lack of workers on site could cause a delay in project delivery. The contractor also stated that the project's timeline would be jeopardized.

What exactly is a construction project delay? Construction project delays occur when project events occur later than expected due to causes related to the client, consultant, and contractor, among others. Construction delays in residential and light construction are frequently the result of miscommunication between contractors, subcontractors, and property owners. A project delay is an unplanned and unexpected postponement of a project due to an event or occurrence that prevents the project from starting or continuing. It is the length of time that causes the project duration to be extended and the delivery of project goals and objectives to be disrupted. Project delays are frequently caused by circumstances that create barriers to the start and continuation of project activities. A delay is rarely caused by a request from the customer, sponsor, or other stakeholders to have sufficient authority over their project. Unexpected project delays are uncontrollable and have a negative impact on project activities and results. An unanticipated delay lengthens the overall duration of project activities and raises project costs. It causes time-related cost effects, which increase resource consumption and require more time to complete the project.

CONTRACTOR - B

Contractor B was also concerned about the project's delays. The contractor insisted that it is the workers who can ensure successful delivery. The participant stated that when there are labour shortages on a project, the project is bound to run over its deadline. Contractor B shares the same viewpoint as Contractor A.

CONTRACTOR - C

Contractor C believed that a lack of workers leads to cost overruns and project delays. The participant also mentioned that materials and equipment would be wasted. It was also stated that a labour shortage would have an impact on the project's original timetable.

What, however, can we say about project cost overruns? - A cost overrun is an unexpected change in the project budget that raises the overall project cost. Inadequate cost management, inefficient project design, and underutilization of resources can also lead to project overruns or cancellations. Project overrun, also known as project cost overrun, is a situation in which the actual cost of the project exceeds the initial budget. This results in a shortfall in the project's financial requirements, which can slow or halt the project entirely.

What does it mean when materials and equipment are wasted? - Construction waste occurs when materials or equipment are not used as intended. Due to a lack of workers, fragile construction materials may sustain damage when not in use. If construction equipment is not used as planned, it can be a financial waste. This primarily affects rented equipment. To avoid the accumulation of additional costs, equipment and materials should be used when planned.

CONTRACTOR - D

Contractor D believed that a lack of workers for a project could result in project delays and damages. The report also stated that the project time schedule will be impacted due to a lack of workers to complete the work activities within the construction schedule. The participant also believed that the production rate would be reduced. In other words, construction productivity will be low.

What exactly do we mean by low construction productivity? - Given that productivity is the engine of economic growth, governments, and the private sector must work together to maximize levels within a workforce. The low productivity in the industry indicates waste and a country's failure to maximize the potential value of its workforce across a sector. This same ethos applies to businesses as well as countries. To help a business grow, a highly productive workforce is desired. Construction is an intriguing industry to examine through the lens of productivity because it has a well-deserved reputation for having a high number of inefficiencies.

CONTRACTOR - E

Contractor - E was motivated by the fact that a lack of workers or worker absenteeism has a significant impact on the project's timeline. The participant also believed that if a job was not completed or completed late, it could result in a breach of contract and financial loss. If this occurs, it may have an impact on the company's reputation in future projects. When a project exceeds the original project budget, money is lost.

But what exactly is a breach of contract? - When one of the agreed-upon terms and conditions of a binding contract is violated, this is referred to as a breach of contract. A breach can range from late payment to a more serious breach such as failure to deliver promised good. If it can be proven that a contract was broken, the remedy is usually to give the victim what they were promised in the first place. A breach of contract is not considered a crime or even a tort, and punitive damages for failing to perform promised obligations are rarely awarded.

What exactly is financial loss? - This generally refers to losses incurred by one or more parties to the construction contract, such as loss and expense, which refers to direct loss and/or expense as a result of the progress of the works being materially hampered by relevant matters for which the client is responsible. Any physical loss, damage or destruction, theft or misappropriation of any money, bank note, negotiable instrument, or other property belonging to the company is considered a loss of money. For any period, project loss refers to the amount, if any, by which all Project Outlays for that period exceed all Project Receipts for that period. Additional resources added to a project will have an impact on the project's planned financial aspect.

CONTRACTOR - F

Contractor - F revealed that if a project is not completed on time due to a labour shortage, it may result in the project being delivered late. The participant also stated that the issue may necessitate the involvement of additional resources, which will have an impact on the project's budgeted finances. When employees fail to show up on a consistent basis, it can lead to financial instability.

7. CONCLUSION

The construction industry is a people-oriented industry with various forms of skilled and unskilled workers. Although these people are interdisciplinary, their focus is on providing services to improve sustainable project performance for the satisfaction of clients and other stakeholders. As such, there is an increasing shortage of required skills in the industry, and this study explored the impact of this phenomenon on the sustainability of construction projects and the industry as a whole. A shortage of skilled workers in the construction industry leads to problems such as higher project costs, project delays, lower quality, more on-site accidents, rework, and lower workforce productivity. Other impacts include reduced competitiveness of organizations, the complete collapse of companies, higher wages for construction workers, and reduced number and size of construction and construction worker sectors. The availability of the necessary construction technology impacts project success in terms of sustainability, quality, cost, time, health and safety, and stakeholder satisfaction. To cope with this situation, the construction industry's more skilled workforce, i.e., craftsmen and professionals, needs to be absorbed and trained to improve the performance of construction projects. Given this, public and private sector construction companies and other affiliates should invest in training to develop employees across sectors. There is also a need for government agencies such as the Construction Education and Training Authority (CETA) to invest in technical schools to introduce young people to construction-related fields at an early stage of their education. The impact of absenteeism is felt directly by individuals, teams, and entire organizations, putting pressure on productivity and profitability. By discovering and addressing the root causes of absenteeism and taking steps to address these issues, construction leaders can directly impact company performance and employee morale.

8. RECOMMENDATION(S)

- Further studies are required to discover the root causes of the lack of workers on site.

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CONFLICT OF INTEREST

The author declares no conflict of interest in this study.

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