Role of Green Management Information Systems in Employees' Green Attitude, Job Satisfaction, and Turnover Intentions: An Empirical Investigation

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Abstract

Green Management Information Systems, often known as GMIS, are cutting-edge information technologies that assist businesses in gaining a competitive advantage over their competitors and preserving the natural environment. This study aims to investigate the role that GMIS plays in employee work satisfaction and identify the elements that contribute to employee intentions regarding turnover. Specifically, it explores the impact of employees’ green attitudes on the parameters above. To obtain information from 322 respondents, the authors carried out their research using a quantitative methodology, which involved the distribution of questionnaires through self-administration. The convenience sampling technique was used to collect data from Pakistani manufacturing and service employees. The findings suggested that the perceived utility of the GMIS and its convenience significantly affected the employees’ attitudes regarding its utilization. Additionally, a significant positive association exists between employees’ green attitudes toward GMIS, job satisfaction, and their intention to leave their current positions. This research offers evidence concerning employee views and attitudes toward GMIS, work satisfaction, and plans to leave their current position and finish with policy implications.

Keywords:
Perceived usefulness, Perceived ease of use, Green attitude, Green management information systems, Job satisfaction, Turnover intention

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Business strategies have changed over the last two years concerning the worldwide pandemic of COVID-19 (Fu et al., 2022). Many researchers predicted the epidemic using different
technologies (Kim et al., 2022) and approaches and gave suggestions that can be useful in policymaking (Deng et al., 2022). This pandemic created uncertainty everywhere, and people realized there must be changes in business models (Albats et al., 2023). Most organizations understand the need for an hour and start implementing a comprehensive information system (IS) (Kumar & Ayedee, 2021). Organizations use Enterprises System Software (ESS) as integrated architecture tools as good application software, enabling them to integrate & process data through the IT system in real-time for internal and external value chains (De Simone et al., 2023). These organizations prefer to use Enterprise Resource Planning (ERP) as an Enterprise System (ES), which is evident from the popularity of the ERP in the ES market. Research shows that the success of ERP projects depends on ERP users’ attitudes (Pan et al., 2022). Organizations are motivated to invest in ERP to increase performance, effectiveness, and efficiency at the organizational level. The implementation of ES brings about an inevitable organizational change that randomly affects individuals working in the organization.

Various organizations adopted ERP systems as part of growing their business strategies. However, they should understand that the execution of an ERP system is a pathway toward the goal; this is not a goal itself (Ali & Ouda, 2021; Najam et al., 2022). The objectives are not achieved after successfully running the ERP system until the system is ultimately used. To assess the success of the implementation, the satisfaction of the employees and the whole performance must be calculated (Kumari, Ali, et al., 2021). Though the literature highlights the significance of investigating the effects of the information system at organizational and individual levels, only a few experiential studies observed these effects (Ali & Ouda, 2021; Wei et al., 2023). Some pragmatic studies proposed that to conceptualize the impact of ERP systems, one should consider the perceptions and beliefs of individual users regarding the changes that took place after the implementation of ERP (Kumari, Abbas, et al., 2021). Information systems present constructive information, which advances the decision-making capabilities of individuals. The analysis of the conclusion from the research based on technology acceptance does not match the implementation of technology research in an organization. Acceptance of new technologies occurs when people are open to using them in ways that benefit them and how they were intended. New items, tools, and machines are developed through the process of technological R&D, which includes their conception, design, and production. Configuration of ERP has a significant impact on the job. However, the effect of the implementation and configuration of ERP is hardly considered explicitly during the implementation and configuration process.

At the initial stage of Information Systems (IS) implementation, it is observed that user satisfaction is linked with the experience of the IS support staff. At the later stages of IS implementation, there was a minor link between the years of experience and user satisfaction of the support personnel (Ahmed et al., 2021). Every organization has a different IS structure concerning its organizational and technological environment, impacting other companies. ERP is a system not only for software purposes but also influences how jobs are done (Wang et al., 2022). Within the last decade, via the flare-up in IS-associated literature, it has been confirmed that the implementation and use of information technology is a very well-researched area in organization studies and significantly impacts the organization. Multiple studies (Cherian et al., 2021; Deng et al., 2022) show an effect of the implementation of IS on job satisfaction and turnover intention, but it can vary. Some results indicate that turnover in staff is not a direct
result of implementing the information system (Zhao et al., 2022). Its consequences are overcome by increasing an individual's job satisfaction through the organizational steps to reduce turnover rationale by guaranteeing individual's job satisfaction using various methods (e.g., work-life balance and reward systems, etc.).

Islami et al. (2021) examined the impact of attitudes toward using the Ruangguru online learning assistance application on actual system utilization among students in Makassar City, Indonesia. Perceived usefulness and perceived ease of use have a favorable and significant effect on attitude toward utilizing the computer program, according to the investigation. Similarly, Maier et al. (2013) found that HRIS significantly affected both HR workers' levels of job satisfaction and their intentions to leave their current positions. This research aims to determine the role of Green Management Information Systems (GMIS) in the green attitude of employees and then to analyze the role of green attitudes in the level of job satisfaction and turnover intention of the service and manufacturing sectors. The authors divide the target population into manufacturing and service sectors to demonstrate how implementing GMIS affects the organizational employee green attitude and further examine the impact of employees' green attitudes on job satisfaction and turnover intentions during and after the pandemic.

**Literature Review**

**Theoretical Foundation**

This research is based on the Functional Attitude Theory (FAT) by Katz (1960) and the Incentive theory of motivation. According to the FAT, one's beliefs and attitudes impact many psychological processes. One's attitude can affect many processes, from practical (sound) to social, value-related, or concerned with minimizing cognitive dissonance. They have the potential to be helpful and facilitate communication between individuals and their environment. The incentive theory by Skinner (1938) states that external rewards get people to perform things. The prospect of getting paid at the end of the week can be enough to get you to work every day. This theory of motivation relies heavily on behavioral learning principles, particularly association and reinforcement. There are parallels between this theory and the behaviorist idea of operant conditioning (Vikram, 2019). In operant conditioning, behaviors are learned through links between actions and consequences. A behavior can be bolstered by reinforcement while weakened through punishment (Fu et al., 2023).

Similarly, incentive theory posits that people actively pursue specific conduct courses to obtain benefits (Sarihasan et al., 2022). People are more driven to achieve their goals when they believe their potential benefits are high. We based our research on these two theories because we will analyze the employees' attitudes toward information systems and how this new technology affects their job satisfaction. After implementing information systems, what factors motivate them to shift to this technology and leave their old manual routine? Figure 1 represents the conceptual framework of the study.

**Green Management Information Systems**

For a long time, people didn't realize that toxic gases produced by corporations, chemicals leached into the water, waste products, etc., were hazardous to the environment (Shang et al., 2024). Many businesses nowadays consider environmental concerns at every stage of the product's life cycle, from research and development to marketing and customer support. For
this reason, eco-friendly practices are becoming increasingly popular (Qing et al., 2024). When people talk about the "green" philosophy, they usually mean cutting-edge technologies and eco-friendly items that have a long-term positive effect on the natural world and human conscience (Zhou et al., 2023).

Green Management Information Systems (GMIS) is a high-quality information data processing system that can aid in decision-making, coordination, control, data visualization, and analysis in a more environmentally responsible and effective manner (Sensuse et al., 2023). Managers are better positioned to make accurate, profit-oriented, and timely decisions because of computer technology (Pan et al., 2022). They describe GMIS as a tool that brings more benefits and gives organizations a new and better look while taking care of the environment. It allows the organization to reduce overhead by automating old labor-based activities and aligning them with modern eco-friendly processes (Khan & Abbas, 2022). It can be helpful to continue, maintain, and smooth the progress of communication in an organization's upward and downward chains (Fan et al., 2023; Qu & Liu, 2022).

According to research by Sarkis and Zhu (2008), Green IT relates primarily to hardware and other infrastructure that can be better managed and planned from an environmental perspective, while Green information systems refers to improving the flow and management of information. IS and IT that are environmentally friendly can have far-reaching effects, both inside and outside individual businesses and on many different scales (Chishti & Sinha, 2022). For instance, at large scales involving multiple organizations, research into the green value chain reveals that IS and IT can lead to environmental damage while providing potential for ecological betterment (Mao et al., 2022).

GMIS also permits the organization to transform data into information vital for business operations and decision-making (Beamish & Chakravarty, 2021). The individuals use GMIS as a system, and the information is captured. The acquisition of required talents and effective management can affect the implementation of GMIS. Talent management policies, activities, and processes will also be affected when we change technology and align it with the environment (Fernando et al., 2019). ERP intends to work on an organizational level, covering all the information gathered as raw data from the users in an integrated manner. The purpose of ERP is to control business processes using an integrated approach, increasing the efficiency and effectiveness of operations and minimizing costs (Golden, 2022).

ERP product and IS quality are essential for improving user satisfaction with the ERP system. For high user valuation, a plan must produce output meeting the accurate criteria of good information for better decision-making. The next aspect of user satisfaction is the user's updated knowledge and active involvement in the ERP environment (Ali & Tang, 2022). Yu et al. (2022) show that technology users' satisfaction is significantly affected when organizations align technology with the environment, promoting green knowledge management (Abbas & Khan, 2022). Like other areas in ERP, the Human Resource Information System (HRIS) is a significant tool in automating HR activities in the HR section, providing efficient HR services across the organization, and making the HR section a strategic performer (Al-Swidi et al., 2021).

To improve the efficiency and effectiveness of ERP implementation, companies must develop factors that affect users' satisfaction through Technology Acceptance Model (TAM). They also revealed that if the system improves users' performance and productivity, it can be
deduced that users are satisfied with the management information system/information technology. The introduction and application of GMIS bring different benefits, such as reducing costs, protecting the environment, improving customer response time, and enhancing organizational performance. It is worth mentioning that GMIS benefits vary from organization to organization, and not all using MIS attain a significant level of performance.

Dwivedi et al. (2019) revealed that adoption and application of IS/IT advances were significantly influenced by attitude. Specifically, conducive conditions and social influence had an impact on attitude. Hu et al. (2016) stated that environmental awareness, industry norms, internal preparation, and the attitudes of customers and equity holders all directly impact a company's green IT practices. A company's green IT practices may also be affected by the attitudes of its shareholders and consumers, as they have the power to influence the company's strategic decisions. Kuek and Hakkenes (2020) evaluated healthcare workers' digital literacy and attitudes toward information systems. It is vital to evaluate staff digital literacy levels and attitudes towards IS so that focused training can be provided to implement a new IS to ensure a successful outcome.

**Perceived Usefulness (PU) of GMIS and Green Attitude**

Perceived Usefulness (PU) is one of the critical measures in GMIS implementation that determines user satisfaction. It is the degree to which a person believes using a particular system would improve their job performance” (Guryanova et al., 2017). PU has two dimensions: Individual Perceived Usefulness and Organizational Perceived Usefulness. One can relate organizational perceived usefulness with fiscal benefits (cost savings and product quality) from adopting new technology (Golden, 2022). Individual PU comes through improvement in performing the job and users' motivation. Previous studies prove that perceived usefulness is the most critical factor for user satisfaction.

According to Abbas and Dogan (2022), green attitudes are defined as a person's propensity to answer positively or negatively to questions on environmental issues consistently. It is an individual's conduct toward green innovation adaptation (Abbas & Sağsan, 2019). People's perception of a new technology's usefulness and disposition toward adopting it are heavily influenced by their experience and education level (Sharma et al., 2022). Beliefs should be positively correlated with educational attainment because they provide insight into the potential users' capacity for learning (Antunes & Pinheiro, 2020; Tong et al., 2023). Researchers also discovered that employees' green attitudes are influenced by their education and experience, but only because they are regarded as valuable to the company. Perceived usefulness has been shown to impact attitude, and this effect has been supported by numerous prior investigations (Deng et al., 2022).

The success of a technological application depends on the positive green attitude of the people towards it and their behavior, which enables them to get the maximum benefit from it. The people-centered is a critical success factor for the implementation of ERP, and a perfect system can be achieved by involving the end-users (Harden et al., 2018). To implement green ERP, people-oriented procedures were built, which is user satisfaction. Ojo et al. (2019) studied the impact of perceived usefulness, perceived ease of use, computer attitude, and user experience of Web 2.0 applications as predictors of intent to use Web 2.0 by pre-service teachers for teaching in Midwestern universities in the United States. The study by Hamid et
al. (2016) analyzed the effects of perceived ease of use and perceived usefulness on consumer attitude and their impacts on purchase decisions on PT Tokopedia in Jabodetabek, Indonesia. Adam (2019) used the functional theory of attitude to study the attitudes and attitudinal functions of hotel frontline staff in Ghana concerning visitors with disabilities. Strombach et al. (2016) studied the most prominent motivational theories in biology, psychology, and economics—specifically, the role of monetary and non-monetary incentives. In the present study, our focus is to analyze the effect of the perceived usefulness of GMIS on employees' green attitudes by applying functional attitude theory and incentive theory of motivation. Hence, it is hypothesized that the extent to which people use the new GMIS depends on their green attitudes toward using the system; the study proposed the following hypothesis:

**H1:** A significant and positive relationship exists between the Perceived Usefulness (PU) of GMIS and a green attitude toward GMIS

Figure 1
Research Framework

**Perceived Ease of Use (PEOU) of GMIS and Green Attitude**

Perceived Ease of Use (PEoU) describes the condition of a person who believes the system he will operate would reduce physical and mental efforts. This assumption builds the user's attitude when he uses the information system. Hence, the system's usefulness would be greater if the user is more satisfied with its PEoU. Huang et al. (2022) also revealed that PEoU is proportional to PU. MIS literature shows that PEoU has been studied long-windedly. PEoU is the degree to which a person believes using a particular system would be effort-free (Malik & Annuar, 2021). The more straightforward the system is to interact with, the more likely the user will find it helpful and productive.

According to Lehmann et al. (2022), attitude is the foundation of compatibility. It includes a preference for self-service, technological advancements, and alternative living methods that contribute to making two people compatible. People's attitudes toward the new technologies tended to be more positive when they believed using them would improve their lives (Hooks et al., 2022). Attitude is how a person feels about engaging in a particular behavior. It can be either positive or negative. Someone would have a positive outlook on an activity if they believed engaging in that action would result in good consequences. However, if the person anticipates unfavorable effects, a pessimistic attitude will be held (Cherian et al., 2021). A user's attitude...
toward actual usage is governed by his expectation of how easy it is to use the system. Based on the existing literature, an individual's perception of the system's ease of use is crucial in establishing their "green attitude" toward its deployment and utilization (Hariharasudan et al., 2021). Users would raise concerns about the time and mental energy needed to utilize the program and the intricacy of the process.

Hamid et al. (2016) studied the perceived usefulness, perceived ease of use, attitude, and actual usage of a new financial management system. They attempted to examine the effect of system characteristics on user acceptance of computer-based information systems in the Uganda National Examinations Board. Their study involved new financial and information systems. Kamalul Ariffin et al. (2022) investigate the association between attitude functions and attitudes towards social media advertising among Malaysian Muslims. They also employ functional attitude theory to investigate the association between attitudes toward social media advertising and purchase intention. Ho and Thuy (2020) researched the time orientation on avoiding advertising based on the incentive theory of motivation in Vietnam. In the present study, the authors examine the impact of the perceived ease of use of GMIS on employees' attitudes toward greening in Pakistan's manufacturing and service sectors by applying the incentive theory of motivation and functional attitude theory. Thus, we hypothesized it as follows:

**H2:** A significant and positive relationship exists between the Perceived Ease of Use (PEU) of GMIS and a green attitude toward GMIS.

**Job Satisfaction and Turnover Intention and Green Attitude**

Job satisfaction is a blend of physical, psychological, and environmental conditions that makes an individual say, "I am satisfied with my job" (Kumari, Ali, et al., 2021). All organizations have significant concerns regarding an individual's job satisfaction. Task rewards and organizational rewards give satisfaction to the employee about his job (Ambad et al., 2021). Job satisfaction is "A positive (or negative) evaluative judgment one makes about one's job or job situation." An individual is satisfied, particularly when he signs the service agreement, but it weakens or strengthens as time passes (Kumari, Ali et al., 2022). Job satisfaction declines if a change is threatening or working in an uncomfortable environment (Nemteanu et al., 2021). Al-Ali et al. (2019) illustrated that an employee's level of job satisfaction decreases and rises instantly afterward before a job change. When the employees execute their duties more efficiently, they seem more committed to their organization, proving their satisfaction level. In this context, Metzker and Suler (2022) emphasize the importance of implementing the CSR concept in the company.

The Job Descriptive Index (JDI) is the universal measurement tool for job satisfaction that views satisfaction in five dimensions: present pay, work on a current job, opportunities for promotion, people in the present position (colleagues), and supervision. Researchers also stated some reasons that may cause a change in job satisfaction during the implementation of GMIS, such as a weak level of communication regarding the rationale of change. The positive impact of user satisfaction has been observed on users' jobs to improve performance, increase productivity and effectiveness, improve decision-making, and enhance job satisfaction (Ardalan, 2021). User satisfaction is linked with various benefits, i.e., managerial, operational,
Users' perception of cost escalation and loss of power over system relocation will affect the individual's satisfaction level using GMIS (Qu & Liu, 2022). Risks related to users' satisfaction are technical and business. Virglerova et al. (2022) highlighted that personnel risk influences the company's operational performance.

If firms empower employees, it will have a positive effect on the level of job satisfaction. It may not be sufficient over time; instead, as workers get experience, an increase in self-sufficiency becomes essential; such an increase looks like it is crucial not only to raise their level of job satisfaction but also to avoid declining job satisfaction. Researchers state that job satisfaction is the leading cause of turnover among IS professionals (Jang & Kandampully, 2018). The research studies regarding organizational behavior pointed out that job satisfaction significantly and optimistically influenced the individual's organizational commitment and work performance and pessimistically influenced the employees' turnover intention.

Among the GMIS personnel, the facets of job satisfaction are job-related, self-actualization, and social. An organization can communicate the job objectives, organizational tasks, job performance, and further associated information to its GMIS staff effectively and sufficiently to improve their job satisfaction (Hussain et al., 2019). The green attitude of an employee towards GMIS influences the level of job satisfaction and turnover intention. It may also significantly affect an employee's level of perception regarding the organization and work environment. For GMIS implementation, a green attitude is essential, and it is expected that users' green attitudes will change over time and that their experience with GMIS will produce their responses (Hwang et al., 2022). Using functional attitude theory, Herinanto et al. (2022) examined the correlation of attitudes, motivation, job satisfaction, and organizational culture on employee performance at KSP Mekar Sai. Using the incentive theory of motivation, Oamen (2023) investigated the causative influence of leadership style and policy engagement on job performance and the moderating effect of perceived reward among pharmaceutical managers. In the current study, the authors aim to analyze the effect of green employee attitudes toward GMIS on employees' job satisfaction in Pakistan's manufacturing and service industry by considering functional attitude theory and incentive theory of motivation. Hence, the following hypothesis was proposed:

H3: A significant and positive relationship exists between a green attitude towards GMIS and job satisfaction (JS).

We also aim to find the relationship between a green attitude towards GMIS and employee turnover intentions among Pakistan's manufacturing and service industry employees. Therefore, the following hypothesis was posited:

H4: A significant relationship exists between a green attitude toward GMIS and Turnover Intention.

**Method**

**Sample**

Companies in Pakistan's manufacturing and service sectors listed with the Securities and Exchange Commission of Pakistan (SECP) are the focus of this analysis, where the Management Information System is already in operation. Using a convenience-based sampling
technique, the scholar gathered data from the auto industry, education, FMCG, telecom, hospital, and textile sector employees who directly interacted with GMIS for one year. The study questioned 350 employees who were frequent users of the recently launched GMIS. The inclusion criteria were that the individuals must use the system daily to fulfill their work tasks. The personnel were questioned about beliefs and attitudes towards the ease of use and the usefulness of the GMIS. They were also asked about their degree of satisfaction and intentions to leave.

The researcher approached these companies’ employees, who were contacted in person and via electronic means (such as e-mail), and asked them to complete a questionnaire based on a seven-point Likert scale. The survey instrument compares the interaction of employees with the GMIS to determine job satisfaction and turnover intention. This questionnaire was also available online for 45 days. A total of 340 questionnaires were received, 18 incomplete, making only 322 usable. The survey was backed by top managers and project managers, who encouraged all employees to participate in the questionnaire. The survey was conducted anonymously, and the identity of the respondents was not revealed. Data on employee satisfaction and turnover intention were not provided to the organization's managers to limit the possibility of social desirability, as stated clearly in the survey rules.

The survey instrument has been given to three information system implementation company experts to vet its ease of understanding, sequence, relevance to information systems, and job satisfaction. It has been slightly customized based on their suggestions. Analysis of collected data from participant’s questionnaires revealed that 66.9% of the participants were men and 33.1% were women, so the majority were male. In addition, 205 participants (64.1%) were aged between 25 and 35 years, and 45.9% possessed a master’s degree. The work experience of 51.6% of participants was between 05 – 10 years. Table 1 provides the respondents’ detailed demographic information.

### Table 1

<table>
<thead>
<tr>
<th>Characteristics of Respondents</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>216</td>
<td>66.9</td>
</tr>
<tr>
<td>Female</td>
<td>106</td>
<td>33.1</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 25</td>
<td>31</td>
<td>9.1</td>
</tr>
<tr>
<td>25 – 35</td>
<td>205</td>
<td>64.1</td>
</tr>
<tr>
<td>36 – 45</td>
<td>68</td>
<td>21.3</td>
</tr>
<tr>
<td>Older than 45</td>
<td>18</td>
<td>5.6</td>
</tr>
<tr>
<td>Tenure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than five years</td>
<td>85</td>
<td>25.9</td>
</tr>
<tr>
<td>5 – 10</td>
<td>165</td>
<td>51.6</td>
</tr>
<tr>
<td>11 – 15</td>
<td>51</td>
<td>15.9</td>
</tr>
<tr>
<td>More than 15 years</td>
<td>21</td>
<td>6.6</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate</td>
<td>138</td>
<td>42.5</td>
</tr>
<tr>
<td>Masters</td>
<td>147</td>
<td>45.9</td>
</tr>
<tr>
<td>Others</td>
<td>37</td>
<td>11.6</td>
</tr>
</tbody>
</table>

### The Measurement Instruments

We adopted a survey instrument used by Maier et al. (2013) and Morris and Venkatesh (2010) to collect the data. To capture employees' opinions regarding the ease of use and usefulness of the implemented GMIS, we employed new units of measurement proposed by Davis et al.
One global statement was used to assess participants' perceptual beliefs: "Overall, I would find the green management information system useful in my job," and "Overall, I would find the green management information system easy to use." The employees' green attitude toward GMIS was measured using the Taylor and Todd's (1995) scale. Job satisfaction is a dependent variable. Four questions describing employee satisfaction at work were adapted from the study by Kumari, Ali, et al. (2021). Turnover intention is another dependent variable in our study. This variable represents an employee's desire to leave his current position voluntarily. This characteristic is distinct from both forced turnover and deliberate cuts in personnel. Our turnover intention measurement is grounded in studies focused on voluntary turnover, and sample items are "I plan to quit my job" and an intellectual component expressed as "I think about leaving my actual employer" or "I regularly think about quitting my job at my current company." These results are in accord with other research on employee turnover plans. We used the four demographic factors of age, gender, experience at work, and education to calibrate our findings. These have been hypothesized to affect how people rate technologies and what kind of results they see in the workplace. A pilot test with 32 replies from Lahore-based businesses was done to ensure the items' reliability and validity in the Pakistani setting. The results showed that the constructions with values were internally consistent, which is sufficient to meet the 0.7 value requirement of Hair et al. (2010). That's why the researcher set out to conduct an extensive investigation.

Data Analysis

The researcher utilized the SEM method to investigate the connection between GMIS, workers' Green Attitude, job satisfaction, and turnover intention because of the method's ability to establish a latent construct hierarchy and to correct measurement error bias (Kumari, Abbas, et al., 2022). SEM can be helpful since it allows researchers to quantitatively test their hypotheses about a study's results (Schumacker & Lomax, 2004). It is an extension of multivariate approaches and is therefore considered an advanced data methodology, as Hair et al. (2010) stated. Among the many benefits of SEM is its flexibility in testing hypotheses about latent variables. Furthermore, SEM shows the links between variables and how groups of variables define constructs (Byrne, 2013). Using SEM analysis, you can check how well your data supports a theoretical framework. The theoretical model must be revised, or a new model must be developed and tested if the results from the sample do not support it.

Results

Analysis of Measurement Model

The study's findings were deduced with the help of SPSS v.25 and AMOS v.25. Before proceeding with multivariate analysis, researchers should guarantee enough sample size, multicollinearity, and standard method bias (CMB). Hoelter (1983) suggested using at least 200 samples for factor analysis. The current study meets Hoelter's minimum sample size requirements due to its many participants (322). A check for multicollinearity using the Variance Inflation Factor (VIF) generated a result of 2.24, indicating the absence of multicollinearity. Podsakoff and MacKenzie (1989) state that CMB affects the outcomes if a single factor accounts for more than 50% of the total variance. To examine CMB, the researcher used Harman's single-factor test. A single factor contribution value of 38.91% was calculated,
significantly lower than the 50% cutoff value denoting the absence of CMB in the data. An instrument reliability test was also performed, and the value of Cronbach’s Alpha is .75, which shows the reliability of the construct. The value of KMO is .86, above .70, and Barlett’s test is also significant.

**Analysis of Structural Model**

After ensuring the model's accuracy, we evaluated it to see how well it fit the data. Thus, confirmatory factor analysis was employed to verify the construct of workplace deviance. There are several advantages to using AMOS for structural equation modeling. To begin, SEM is a good tool for analyzing measures of attitude or behavior. Second, compared to SEM, the signs of the coefficients of variables are sometimes reversed in other statistical procedures. For example, if we anticipate a negative relationship between two predictors, we may observe a positive relationship instead. It occurs because of incorrect model specifications and can be remedied with SEM. Third, it provides simultaneous tests for multiple parameter estimates and generalized goodness-of-fit tests. Last but not least, multicollinearity leads to erroneous and subpar findings. SEM, however, is an indispensable method for addressing multicollinearity.

In addition to using confirmatory factor analysis, the Average Variance Extracted (AVE) method allows us to examine the model's convergent and discriminant validity (Fornell & Larcker, 1981). It has been proposed that factor loading can be used to examine convergent validity (Awang, 2012). Awang claims that everything loading .60 or more is in a good position. In addition, the minimum value of AVE for all the constructs should be more than .50, as Molina et al. (2007) stated. The result gave a value of convergent validity of the questionnaire used (.70), which is larger than the suggested threshold of .50 (Fornell & Larcker, 1981). In addition, we used a factor-based method to determine the variation in chi-square methods to examine the discriminant validity of the instrument, whose value comes as .50 (larger than the correlation square, i.e., .12). Hence, it proves that our framework calculates all variables adequately.

Seven indicators, including chi-square to degrees of freedom (c2/df), the Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Normative Fit Index (NFI), Comparative Fit Index (CFI), Root-Mean-Squared Error of Approximation (RMSEA), and Standardized Root-Mean-Squared Residual (SRMR), were proposed by Kaynak (2003) to evaluate the quality of a measurement model's fit. To further guarantee the fitness of the measurement and structural model, the researcher additionally incorporated the Tucker-Lewis Index (TLI). The c2/df value of 1.09 for the measurement model meets the criterion of less than 3, set forth by Bagozzi and Yi (1988). In this case, the RMSEA value of .07 is well inside the .08 threshold that set by Browne and Cudeck (1992). The SRMR value was .04, which was lower than the .1 threshold set by Hu and Bentler (1990). Finally, Bagozzi and Yi (1988), Bentler and Bonett (1980), and Kaplan (2000) all propose using a value of .90 or higher for the GFI, AGFI, IFI, NFI, CFI, and TLI. So far, our goodness-of-fit analyses suggest that our hypothesized five-factor CFA model provides a decent fit to the data. The details of the measurement and structural models are given in Table 2.
Table 2

Model Fit Indices

<table>
<thead>
<tr>
<th>Index of Fit</th>
<th>Standard Value</th>
<th>Resulted Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>GFI</td>
<td>0 – 1</td>
<td>&gt; .90 (well-fitted model)</td>
</tr>
<tr>
<td>AGFI</td>
<td>0 – 1</td>
<td>&gt; .90 (well-fitted model)</td>
</tr>
<tr>
<td>IFI</td>
<td>0 – 1; lower values are generally perceived as &quot;acceptable.&quot;</td>
<td>&gt; .90 (well-fitted model)</td>
</tr>
<tr>
<td>NFI</td>
<td>0 – 1</td>
<td>&gt; .90 (well-fitted model)</td>
</tr>
<tr>
<td>CFI</td>
<td>0 – 1</td>
<td>&gt; .90 (well-fitted model)</td>
</tr>
<tr>
<td>TLI</td>
<td>0 – 1</td>
<td>0.90 indicates a good fit</td>
</tr>
<tr>
<td>RMSEA</td>
<td>0.08 - .1 (mediocre fit)</td>
<td>&lt; 0.08 (good fit)</td>
</tr>
</tbody>
</table>

Testing of Hypothesis

This research investigates the impact of GMIs on the green attitude of employees. It then assesses whether employees’ green attitudes affect their job satisfaction and turnover intentions. SEM was used for the structural analysis. As presented in Table 3, the study of the relationship between Perceived Usefulness and Green Attitude toward GMIS shows substantial positive results, $\beta = .31$ and $p = .003$. Thus, the first hypothesis about the connection between PU and Green Attitude toward GMIS is significant and accepted. This finding backs up the study by Upadhyay et al. (2018), which says that attitude and peer usage directly affect how people use technology. Perceived usefulness is a critical factor in shaping employees’ attitudes. The analysis of the association between Perceived Ease of Use and Green Attitude toward GMIS presents significant favorable outcomes by giving $\beta = .35$ and $p = .001$. Hence, the second hypothesis on the association between PEoU and Green Attitude toward GMIS is accepted. This finding supports what Islami et al. (2021) found in their study that PU and PEoU positively and significantly affect attitudes toward system use. The analysis of the relationship between Green Attitude towards GMIS and job satisfaction indicates substantial favorable results with $\beta = .33$ and $p = .001$, which supports our third hypothesis, i.e., there is a significant connection between Green Attitude towards GMIS and Job Satisfaction. This finding is related to Srimarut and Mekhum’s (2020) study on the relationship between workload and the attitude of co-workers toward job satisfaction. Their results show that a positive attitude leads to higher job satisfaction. The analysis of the relationship between Green Attitude towards GMIS and Turnover Intentions presents significantly positive results with $\beta = .21$ and $p = .009$, which supports our fourth and last hypothesis that a significant relationship exists between Green Attitude toward GMIS and Turnover Intention. These results back up what Guha and Chakrabarti (2016) found: an employee’s attitude about life and work significantly affects their turnover behavior.

Table 3

Testing of Hypothesis

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Constructs</th>
<th>$\beta$</th>
<th>$p$</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>$H_1$</td>
<td>PU $\rightarrow$ Green Attitude</td>
<td>.31</td>
<td>.003</td>
<td>Supported</td>
</tr>
<tr>
<td>$H_2$</td>
<td>PEoU $\rightarrow$ Green Attitude</td>
<td>.35</td>
<td>.001</td>
<td>Supported</td>
</tr>
<tr>
<td>$H_3$</td>
<td>Green attitude $\rightarrow$ JS</td>
<td>.33</td>
<td>.001</td>
<td>Supported</td>
</tr>
<tr>
<td>$H_4$</td>
<td>Green attitude $\rightarrow$ TI</td>
<td>.21</td>
<td>.009</td>
<td>Supported</td>
</tr>
</tbody>
</table>
Discussion

Our results demonstrate that the GMIS implementation significantly impacts the organization and its employees' daily routine and productivity using that system, in addition to socio-economic factors. Prior research by Qu and Liu (2022) has also discussed this coherence in Chinese contexts. This coherence can be noticed in employees' job satisfaction and turnover intention. Shahreki et al. (2019) investigated the effect of human resource information system application on employee satisfaction and turnover intention. His findings revealed two perspectives: from an opposing viewpoint, any organization must expect that a novel HRIS introduction will be perceived as annoying and threatening by HR workers, resulting in decreased employee satisfaction and, consequently, increased turnover intentions. On the other hand, based on his research, if a novel HRIS is launched positively, employee satisfaction will grow, and turnover intention will decline.

Our results show that the employees would be more satisfied with their jobs if implementing GMIS provided them with ease of use, usefulness, and convenience in their daily tasks (see Figure 1). Our data, however, also shows that employees' job satisfaction is on the wane, and turnover intention rises if the green attitude of employees towards GMIS is negative. Employees' morale will decline if an organization fails to build a good impression of GMIS. Our result also shows that if the implementation of GMIS is unsuccessful, employees' job satisfaction decreases, and turnover intention increases. In contrast, if the implementation is successful, the employees' job satisfaction rises, and turnover intention falls (see Figure 2).

Figure 1
Perceived Usefulness and Perceived Ease of Use is Directly Proportional to Green Attitude of Employees

Figure 2
Green Attitude Enhances the Level of Job Satisfaction of the Employees


**Theoretical Implications**

This study's findings add to the existing body of knowledge on how the relationship structure of perceived usefulness of GMIS, perceived ease of use of GMIS, and green attitude towards GMIS might affect employees' job satisfaction and turnover intentions. This research adds to the existing body of knowledge by integrating FAT (functional attitude theory), introduced by (Katz, 1960), and the incentive theory of motivation presented by Skinner (1938). The results of this study confirmed the principles of the FAT theory that assumes that attitudes have the potential to affect a wide variety of processes, including those that are utilitarian (useful), social, value-related, or concerned with minimizing cognitive dissonance. These findings are similar to Adam (2019), Kamalul Ariffin (2022), and Herinanto et al. (2022), who stated in their studies that a person's attitude affects how they respond to people, things, and circumstances in a unique way. Attitude is a learned and experienced condition of mental preparedness. They have the potential to be helpful and facilitate communication between individuals and their environment. They hypothesized that the same attitude toward a degree could serve diverse purposes for different persons.

Furthermore, the results support the assumptions of the incentive theory of motivation, which states that humans need incentives or prizes from the outside world to get them to perform anything. The prospect of getting paid at the end of the week might be enough to get you out of bed and on your way to work every day. This motivation theory relies heavily on behavioral learning notions, such as association and reinforcement. The results of this study align with those of Strombach et al. (2016), Ho and Thuy (2020), and Oamen (2023), who found that an employee's willingness to participate in work activities is influenced by the availability and sufficiency of incentives and rewards that affect productivity. In other words, the present study incorporates the FAT and incentive theory of motivation to explain the employees' attitude when GMIS was launched, whether they perceived it as beneficial for their jobs, and employees' job satisfaction and turnover intentions after implementing GMIS. From the FAT point of view, this study confirms the impact of a green attitude on the level of job satisfaction and turnover intention of the employees, as the attitudes held by the individuals are integral to psychological functioning. Our results also support the norms of the incentive theory of motivation. The green attitude of the employees who foresee that implementing GMIS will give them a chance to learn and grow to a higher position was more progressive than the others.

**Practical Implications**

First, the findings show that a business may positively influence the green attitude of its employees, which in turn boosts job satisfaction and reduces turnover intentions, so long as it prioritizes the system's effectiveness and ease of use. The empirical study addressed outcomes that will equip business owners and policy managers with the needed information to improve overall productivity and impact. The results indicate that by ensuring the system's usefulness and ease of use, an organization can positively influence job satisfaction and turnover intention. We analyzed workers in the company who thought their jobs were in jeopardy due to excessive clicks and the time required to manage the system, and they reported lower levels of job satisfaction. Furthermore, numerous workers complained that the wait when opening attachments interrupted their usual work routines, especially in those divisions that receive a high volume of applications. People also didn't like accepting paper applications, meaning they
had to enter their information manually. Therefore, the company emphasized these features of the new system's usefulness and ease of use to boost adoption when it was put into place. Second, our findings suggest that to foster a favorable green attitude toward the GMIS, project management must do more than convince the staff of the new system's ease of use and usefulness; they must also provide reassurance. If workers have confidence in the GMIS in these ways, they are more likely to be satisfied in their jobs and less likely to consider leaving.

Finally, these findings imply that managers should consider the function of GMIS in increasing job satisfaction, which can lead to better job performance. Managers who effectively implement and manage GMIS might enhance job satisfaction, which leads to higher performance and productivity. As a result, managers must understand the influence of GMIS on job satisfaction as part of their planning and decision-making processes. This study can also help IT professionals plan and manage their employees' satisfaction and performance. The findings indicate that IT experts can improve job satisfaction by creating a good fit between the person and the job and adequately utilizing GMIS.

**Conclusion**

The findings provide a foundation for further investigation. As we have already established, researchers studying the effects of GMIS implementation in Pakistan should broaden their focus to include the workplace. The newly proposed dimension of individual-level repercussions should be included in research on GMIS consequences in addition to the more traditional focus on organizational-level effects. However, in the future, researchers may look into how a green attitude toward the new GMIS affects the repercussions one experiences at work. It would be interesting to see if the system's implementation significantly impacts job satisfaction and turnover intent during the early stages of implementation (as in our case) or after the system has been up and running for a certain period. Employees have used it in their daily work. By analyzing data collected throughout a system's rollout, we show that GMIS significantly impacts employees' green attitude in the workplace, affecting workers' contentment with their jobs and their likelihood of leaving their current positions. Our findings show that the new GMIS directly affects green attitudes, affecting turnover intent. By incorporating work satisfaction and turnover intention as two significant organizational variables, our model contributes to the study of technology adoption.

**Research Limitations**

There are some limitations to this study as well. Data is collected from the staff using green management information systems, and other staff members are overlooked; their thoughts might be worth considering. So, researchers should incorporate these perspectives in future studies on the subject. Secondly, we gathered the data by sending the questionnaire to experts in information system implementation companies to get their point of view on operationalizing the research instrument; experts' opinions formed the basis for the data collection, which may introduce bias. The influence of biases cannot be ruled out entirely, despite the author's examination of reliability—the current research utilized data from Pakistan's service and manufacturing companies. The study's authors have argued that it needs to be expanded to encompass additional countries. Therefore, we suggest that future authors include the cultural variable in their conceptual model to conduct research in this field, as the cultural factor is very
significant and plays a critical role in the implementation and post-implementation processes of GMIS.

Declarations
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