

Untangling the Influencing Factors of Intention to Adopt Green Supply Chain Management Practices: An Integration of Toe Framework and Self-Determination Theory

Noor Fatima

Institute of Business Administration (IBA)
University of the Punjab Lahore, Punjab 54000, Pakistan
Email: noorshafique234@gmail.com

Muhammad Abrar

Lyallpur Business School,
Government College University Faisalabad, Punjab 38000, Pakistan
Email: abrarphd@gcuf.edu.pk

Muhammad Shahbaz

UE Business School
University of Education, Lahore, Punjab 54000, Pakistan
Email: shahbaz755@yahoo.com (*Corresponding Author*)

ABSTRACT

This study aims to empirically investigate the predictors of intentions to adopt green supply chain management (GSCM) practices. Technology-Organization-Environment framework has incorporated as a primary theoretical lens in which technological factors (relative advantage, compatibility, and complexity), organizational factors (corporate social responsibility, organizational readiness and top management support) and environmental factors (normative pressure, coercive pressure, mimetic pressure and government support) were ruminated which is further extended with Self-determination theory factors (intrinsic motivation and extrinsic motivation). The data was collected through an online survey from the employee of manufacturing SMEs in Pakistan and received 409 valid responses for hypothesis testing. The results demonstrated that all the selected predictors are significantly associated with intentions to adopt GSCM practices. The findings of the study contributed to the literature on intentions to adopt GSCM practices and provide intuition to scholars and practitioners.

Keywords: *green supply chain management, SDT theory, technology adoption, TOE framework,*

1. INTRODUCTION

The rise in industrial development intensely disturbs the natural environment due to several waste emissions like carbon footprints, contaminated water, toxic chemicals, air pollution and waste material. Industrial pollution is one of the significant environmental causes of diseases and more than 9 million premature deaths globally (Pollution, 2020). The World Health Organization (WHO) report on industrial pollution highlighted that in 2021, 7 million people are

assumed to be affected by air pollution and water contamination promotes diarrheal deaths up to 500,000 in a single year (Omondi, 2021). This alarming situation brings attention towards environment-friendly activities among government, regulatory authorities, and organizations (Srivastava *et al.*, 2022). Firms in these days are becoming more concerned about reducing their harmful environmental impacts and degradations after receiving pressure from stakeholders, government, competitors, and consumers (Lin *et al.*, 2020). In response to these issues, firms are transforming their traditional supply chain practices into green supply chain management (GSCM) practices (Kohli & Hawkins, 2015). The concept of GSCM practices is holistic organization environmental philosophy, which comprises reducing water contamination, carbon emission, hazardous waste management, transportation optimization, and recycling and reuse of products (Lin *et al.*, 2020). The study of Savita *et al.* (2012) stated that the whole product life cycle from supplier selection, purchasing raw material, process and procedures, operations, warehousing, logistics management to delivering the final product to the customer as well as reverse logistics activities are included in the GSCM practices from the perspective of eco-friendly Khan & Qianli (2017) emphasized that the GSCM practices are the whole process production. Furthermore, of creating synergy (collaboration) between the firm's operations and environmental sustainability activities. Therefore, the researcher gap exists regarding to investigate GSCM practices adoption especially in developing countries.

Industrial pollution is one of the major issues of environmental degradation in developing countries like Pakistan. Pakistan is listed 12th most polluted country in

Asia whose environmental pollution is reached to a severe level due to which more than 6.5 million people get sick and are hospitalized annually (Ajmal Meer Mehdi, 2019). To tackle this issue, organizations are now proactively investing in green practices to save their environment, just like General Motors invested 2.5 billion in adopting green practices (Khan & Qianli, 2017). GSCM practices are a novel matter in Asian developing economies compared to developed nations due to different cultural, social, and economic factors (Lin *et al.*, 2020). In this regard, fewer studies have explored the factors influencing GSCM practices' adoption in emerging nations' context (Jum'a *et al.*, 2022; Lin *et al.*, 2020; Vanalle *et al.*, 2017). Lack of empirical studies on GSCM practices adoption leaves the gap in understanding how environmental, organizational and technological factors influence the firms to make adoption decisions of these practices in developing countries. Fewer studies in Pakistan highlighted the importance and investigated the perceived impacts of GSCM practices on organizational performance (Ahmed *et al.*, 2019; Khan *et al.*, 2018; Khan & Qianli, 2017) and suggested that future researchers should investigate the adoption behavior. Paucity in the empirical literature on GSCM practices adoption in Pakistani SMEs promotes ambiguity in understanding its importance. SMEs are a significant part of the economic development and environmental sustainability in emerging economies (Lin *et al.*, 2020). SMEs are most pertinent for GSCM practices due to their economic and environmental importance and also the flexible structure of SMEs firms allows the firms for green transformation (Benjamin *et al.*, 2023; Yahya *et al.*, 2014). According to the report of SBP (2022) SMEs contribute a major portion in overall GDP of Pakistan which is 40% and also 25% in exports. Moreover the report also mentioned that there are more than 5 million SMEs in Pakistan which makes it the backbone of economy and country; therefore, there is a dire need to study the influencing factors of GSCM practices adoption (Jayarathna, 2015) specially in SMEs of developing nations like Pakistan.

Moreover, in the adoption and implementation of technological innovation, employees' motivation plays a significant role as it reflects the users' behavior towards the adoption intention (Chiu, 2018). The study of Shahbaz, & Khan, (2021) persuaded that motivational factors are equally important along with the organizational, environmental, and technological predictors when investigating the particular technological innovation adoption. Green motivation plays a significant role when firms want to incorporate green activities in the organization's operations to successfully adopt and implement such activities (Li *et al.*, 2020). In the study of Ahmed *et al.* (2021) defined green motivation as the employee's green intrinsic and extrinsic motivation to adopt environment protection activities as employee's willingness for environmental protection activities influence the adoption behaviour. The growing concern of several forces for adopting GSCM practices persuades the firms towards the adoption intention. Therefore, it is worthwhile to study the motivational factors in the context of GSCM practices adoption to bridge the existing gap in the literature.

Present study to bridge the cited research gaps aim to investigate the GSCM practices adoption intention in SMEs of Pakistan. This study incorporated technological, organizational, environmental, and motivational factors which drive the firms towards adoption intention of GSCM

practices in SMEs of Pakistan. Technology-Organization-Environment (TOE) framework is used as a base theory in this study. To explore the technological factors, the current study used innovation diffusion theory (IDT) factors (relative advantage, compatibility, and complexity) because it is most widely used factors in the context of current study (Lin *et al.*, 2020), and used institutional theory (IT) factors (normative pressure, coercive pressure, mimetic pressure, withgovernment support) as environmental factors. Furthermore, present study used self-determination theory (SDT) factors (extrinsic motivation and intrinsic motivation) as the motivational factors to strengthen the proposed model. The results of this study concluded that all proposed factors are significant predictors of intention to adopt GSCM practices.

2. THEORETICAL PERSPECTIVE

TOE framework is the first model, which gives a holistic view (general view) of the adoption and execution of the innovation proposed by Tornatzky and Fleischer (Awa & Ojiabo, 2016). It embraces the technological, organizational, and environmental factors which may affect the enterprises to adopt the change. This framework is flexible for the firm size and industry; therefore, it gives a comprehensive view of the innovation adoption including the internal and external obstacles, influencing factors, and capabilities regardless of the industry and the firm size. In contrast with other theories of adoption like the technology acceptance model (TAM) the factors of this theory are perceived usefulness and perceived ease of use (Marzuki *et al.*, 2016), theory of planned behavior (TPB) covers the factors of attitude, perceived behavioral control and subjective norms (Cheunkamon *et al.*, 2020), and Task- technology fit (TTF) which comprises the factors technology characteristics and task characteristics (Shahbaz, Gao, Zhai, Shahzad, & Khan, 2021), the TOE does not focus only on the technological factors but also captures the organizational and environmental aspects which affect the firms in the adoption of innovation (Shahzad, Xiu, *et al.*, 2020). Based on the above stated arguments, this study found that the TOE framework is most suitable in the context of green innovation adoption. In the technological context of TOE, the Innovation diffusion theory (DOI) has been widely used because it demonstrates how individuals or groups perceive the new technology and their process to adopt it (Lin *et al.*, 2020). Roger (1983) proposed the five crucial factors of technology: compatibility, trialability, complexity, relative advantage, and observability. This study focused on compatibility, complexity, and relative advantage because these three factors have been most used and recommended in technological adoption by many prior studies (Hwang *et al.*, 2016; Nedbal *et al.*, 2011; Yahya *et al.*, 2014). Therefore, this study inducted DOI theory to expand the technological factors.

Furthermore, institutional theory factors are key while we are exploring the environmental factors to investigate the adoption intentions of a potential user (Ahmed *et al.*, 2019). IT theory explains how institutional pressures affect organizational management decisions (Yen, 2018). The organization's decisions reflect the regulations, norms, and socio-cultural environment in which they operate, and institutional theory used to grasp these constructs (Saeed *et al.*, 2018). Institutional pressure is classified into three

groups (normative pressure, coercive pressure, and mimetic pressure), these three forces together measure the impact of environmental constructs on the adoption of GSCM practices (Hsu *et al.*, 2013). Environmental factors are the most critical factors while studying GSCM practices because these practices purely emphasize the environmental perspective of the supply chain and also pressure from mentioned forces emphasized firms to adopt green activities (Biedova & Mahdikhani, 2023) therefore, this study used IT theory to induct the environmental factors as this theory address those influencers which enforces an organization towards ecofriendly friendly activities.

Despite all these benefits which have been mentioned above, TOE still has some limitations. According to many previous studies, TOE is more suitable in developed countries because technology users in developed countries are more motivated towards the ecofriendly activities than in developing countries (Deif, 2011; Li *et al.*, 2020; Lin *et al.*, 2020). Motivation is specifically related to the execution of an innovation means adoption of those activities which are new in organization because an employee's motivation indicates the preferences they seek in their working environment (Chiu, 2018). Moreover, Shahzad, Xiu, *et al.* (2020) suggested that motivation influences the insight of the potential user regarding to adopt a particular technological innovation therefore, it is also a key determinant to investigate the adoption intention. Empowered employees are more committed and intended to adopt the innovation (Muduli & Barve, 2013). The expected outcome may not be achieved if the employees are not passionate and motivated because motivation drives the intention (Li *et al.*, 2020). Based on the above cited conclusions, it is a dire need to study motivational factors in the context of developing countries. Therefore, this study belongs to a developing country and based on the arguments extended the TOE framework with the SDT theory factors as presented in **Figure 1**. The details of factors presented in **Figure 1** is discussed below one by one. In the context of current study innovation refers to the transformation of traditional supply chain activities into GSCM practices.

2.1 Relative Advantage

Relative advantage (RA) is the degree to which the potential user perceives an innovation beneficial than the prior they are using to accomplish the same task (Nghah *et al.*, 2017). The adoption users perceive the advantage in different ways like ease of use, performance, gratification, and reputation. These perceived benefits could be social and economic (Hwang *et al.*, 2016). Companies are inclined to initiate and execute that innovation which they perceive will provide extra economic benefits and better achievements of the task than other technologies (Lin *et al.*, 2020). Previous research showed that the greater the perceived RA, the more likely firms are to adopt it (Agrawal, 2015). In adopting green supply chain practices, firms may see the RA as less carbon emission, better product stewardship, saving the manufacturing cost, less cost of recycling, and reducing waste, etc. The study of Hwang *et al.* (2016) suggests that adopting green supply chain practices will bring a competitive advantage if it provides a higher RA. Furthermore, Deif (2011) demonstrated that when companies adopt green manufacturing, it enhances the

quality of products which in turn gives a competitive edge to a firm and attracts environmentally conscious customers. Numerous researchers concluded the positive relationship of RA with the adoption of innovation (Chen *et al.*, 2018; Kuei *et al.*, 2015; Shahbaz, Gao, Zhai, Shahzad, Luqman, *et al.*, 2021; Tran *et al.*, 2020).

Based on the mentioned arguments, the employees of organizations will adopt the GSCM practices if these are relatively better than the existing practices. Therefore, this study hypothesized.

Hypothesis 1: *Relative advantage has a positive association with intention to adopt GSCM practices.*

2.2 Compatibility

Compatibility is the extent to which users of the innovation perceive it as consistent with his/her current business values and operational activities (Nghah *et al.*, 2017). Compatibility is considered as the pivotal element of the new technology adoption. The study of Hernández-Ortega (2011) described that the intention to adopt innovation would increase if the user perceived it as synergic with the job requirements. Another study of Yuen *et al.* (2021) examined that the high level of compatibility would require less change in the potential user's working norms, which leads a firm to successful adoption of innovation. The study of Alhasan *et al.* (2022) also concluded the positive impact of the compatibility towards the adoption of innovation. In the literature of GSCM practices, the compatibly found significant predictor of GSCM practices adoption (Ozaki, 2011). GSCM practices will be adopted more easily if it fits the existing operations rightly (Hwang *et al.*, 2016) which means the more the GSCM practices would be compatible with existing activities, the chances of adoption would be high. Many prior studies (Chen *et al.*, 2018; Choe & Noh, 2018; Pinho *et al.*, 2021) investigated and concluded the significant influence of compatibility on adoption because compatibility increases the chances of adoptability by reducing the ambiguities. Hwang *et al.* (2016) Concluded the significant relationship of compatibility in GSCM practices adoption in semiconductor industry perspective. Therefore, based on the above stated arguments, this study hypothesized that:

Hypothesis 2: *Compatibility is positively associated with the intention to adopt GSCM practices.*

2.3 Complexity

Complexity (CLX) is the extent to which the potential user of the innovation perceived that it is comparatively ambiguous and oppressive as compared to the existing one (Nghah *et al.*, 2017). Taylor & Todd, (1995) suggested that the easier and simpler technology is to understand, the more technology users would be likely to adopt it. Similarly, Pinho *et al.* (2021) considered that if the firms have to adopt the innovation, then it should be less complex in nature and does not require extra effort in the comparison of existing practices. Many other studies of behavioral intention also concluded that the greater level of complexity in the innovation, the less it attracts the adopters to execute and use the innovation (Jamshidi & Kazemi, 2020; Kuei *et al.*, 2015). Therefore, the higher level of complexity reduces the user's

intention to adopt. In fact, complex technology needs extra mental efforts to understand the innovation, which diminishes the adoption intentions. In big data analysis context, Agrawal (2015) argued that the complex innovation will cost the firm in terms of financial resources and requires the expertise to operate the system, which will disturb the firm's activities, which subsequently discourage the adoption intention. In this study context, the complexity might create environmental and social issues like difficulty in managing the waste material, prohibition of environment, and drainage & ejaculation of cleaning (Hwang *et al.*, 2016) that ultimately discourage the user from adopting a complex innovation. Based on prior studies, the complexity in innovation negatively affects the adoption of a particular innovation. It will demotivate the potential user to use it, and they would try to avoid the innovation. Therefore, we hypothesized that:

Hypothesis 3: *Complexity is negatively associated with the intention to adopt GSCM practices.*

2.4 Corporate Social Responsibility

Corporate social responsibility (CSR) has been introduced in early fifties and increasingly studied in the field of academia since 1950 (Luo *et al.*, 2021). CSR is a vast term that does not specify one activity but embraces the overall treatment of the firm with its environment, society, and humans (Andersen & Skjoett Larsen, 2009). CSR motivates the firms to incorporate those activities which create value for their environment, society, and its stakeholders and also triggers to cut down the harmful impact on the environment (Wang *et al.*, 2020). Integrating CSR activities with the supply chain gives the competitive advantage and reflects the company's good reputation (Kohli & Hawkins, 2015). In the supply chain, CSR promotes a sustainable competitive advantage (Huang *et al.*, 2021). CSR enables the firms to become more socially responsible, work ethically and reduce their negative environmental impacts, which may change the organization's working norms, therefore those firms who have good CSR are more inclined to adopt GSCM practices (Wang *et al.*, 2020). In addition, Kohli & Hawkins (2015) demonstrated that CSR activities for small and medium firms could be an incremental procedure that allows them to have a competitive advantage over time. Luo *et al.* (2021) Identified that incorporated CSR helps the firm's growth because consumers are more likely to buy from that company, which is ethically responsible, that will make the firm more intended towards adoption of GSCM practices. CSR does not only reflect the transparency and societal benefits of the firm but also motivates the organizations and employees to adopt a specific innovation that makes CSR activities stronger (Andersen & Skjoett Larsen, 2009). Adopting the GSCM practices is also based on the how strong base of CSR exist in the organization because the concern GSCM practices are mainly to reduce the harmful impacts of organization on its environment thus, good CSR makes the firms more inclined for ecofriendly activities (Kohli & Hawkins, 2015).

CSR has been used in enormous studies to determine the organizational environment impacts in simpler context of this study, it is considered as a critical predictor (Andersen & Skjoett Larsen, 2009; Kohli & Hawkins, 2015; Luo *et al.*,

2021; Wang *et al.*, 2020). Based on these arguments, this study hypothesized that:

Hypothesis 4: *CSR has a positive association with the intention to adopt GSCM practices.*

2.5 Organizational Readiness

Organizational readiness (OR) refers to the degree to which the potential users of the innovation are mentally and physically prepared to adopt the change (Shea *et al.*, 2014). According to Zhang *et al.* (2020) OR is the extent to which the firms have enough essential capabilities (expertise, knowledge, and resources, etc.) to execute the green innovation. OR varies across the organizational culture and the type of innovation that will be adopted (Ngah *et al.*, 2017). Transforming the traditional business activities OR has been considered a key predictor of adopting and executing the innovation (Zhen *et al.*, 2021). Moreover, OR is an assisting factor for executing green innovation with sustainable capabilities (Zhang *et al.*, 2020). In contrast, the low level of OR leads towards the adoption's failure, which could end up in the loss of effective adoption. Therefore, obtaining essential benefits and investigating the adoption intention of the innovation OR is an essential factor to study (Shea *et al.*, 2014). Zhang *et al.* (2020) Argued that green innovation is a relatively time taken process compared with the other innovations, to strain out the benefits of green innovation, organizations should have enough capabilities and resources that ultimately create readiness in the organization's employees. OR makes the adoption and implementation of innovation more effective and efficient by utilizing the resources of the firm to its optimal level (Zhen *et al.*, 2021). The study of Shea *et al.* (2014) stated that OR is an essential element for bringing the change in organization which stimulates the innovation. For instance, Ogunyemi & Johnston, (2012) posit that the behavior of potential users of innovation, existing infrastructure and culture of an organization etc. resist the adoption of particular innovation which would be eliminated through OR for make the adoption process simple and easier. Several initiatives would be helpful in generating the OR according to the need of an organization such as training of employees, commitment of organization for bringing change and flexible culture (Shea *et al.*, 2014).

According to previous literature, the OR is suggested as a pivotal determinant for adopting innovation (Abed, 2020; Ngah *et al.*, 2017; Shea *et al.*, 2014; Zhen *et al.*, 2021) in different contexts. Therefore, this study also hypothesized that:

Hypothesis 5: *Organizational readiness has a positive association with the intention to adopt GSCM practices.*

2.6 Top Management Support

Top management support (TMS) indicates the commitment of upper-level management to implement the innovation (Abed, 2020). Lin *et al.* (2020) Argued that to implement the green practices in the organization the support from the upper management motivates the potential users of innovation to adopt. According to Yen (2018), top management commitment and support is the main driver which stimulates the firm to take initiatives towards

environment-friendly programs. TMS is a pivotal determinant to implement successful sustainable practices (Aboelmaged, 2018). TMS has been widely used in prior studies since the 60s and is still considered a critical factor in organizational activities (Oliveira *et al.*, 2019). Similarly, Nedbal *et al.* (2011) investigated that top management support is a critical success factor for the adoption of innovation. Previous researchers found that innovation adoption relies on the TMS by providing sufficient resources and motivation (Lin *et al.*, 2020).

Moreover, support from the senior managers is also a crucial determinant in GSCM practices adoption because it yields a sustainable relationship with the supplier and promotes successful supply chain practices (Yen, 2018). Several studies have been conducted using the TMS to adopt innovation and found it a significant determinant (Lin *et al.*, 2020; Nedbal *et al.*, 2011; Oliveira *et al.*, 2019). Thus, in this study, we hypothesized that:

Hypothesis 6: *Top management support has a positive association with the intention to adopt GSCM practices.*

2.7 Normative Pressure

The normative pressure (NP) is the extent to which a firm's adoption behavior is influenced by the shared beliefs and norms of the entities such as customers, suppliers, and the public (Oliveira *et al.*, 2019). Firms or individuals in similar industries put NP on the organizations (Jayarathna, 2015). Ahmed *et al.* (2019) Stated that execution of GSCM practices is a key NP from the supplier and customer because they are expecting high environmental sustainability from the manufacturer. According to the study of Zailani *et al.* (2012), manufacturers of emerging economies face many issues to handle the environmental impacts and address these issues to the customers, general public, and societies put pressure on the firms to incorporate GSCM practices, which reduces the harmful environmental impacts. Moreover, Jayarathna (2015) stated that sharing similar norms among all entities in the same industry promotes the potential users to adopt GSCM practices. NP highly affects firms that deal with foreign clients as they are more conscious about the environment (Ahmed *et al.*, 2019). Further Liu *et al.* (2010) emphasized that taking the influence of NP facilitates the firms to be in the long-term relationship with other parties by sharing similar norms and culture. Defining the role of NP in adoption of GSCM practices, Dubey *et al.* (2015) noted that NP aids the firms in adoption of environment friendly activities as the related firms already set the culture of eco-friendly operations which motivate other firms to align their operation also.

Numerous studies have investigated the impact of NP on the adoption of GSCM practices (Agarwal *et al.*, 2018; Jayarathna, 2015; Saeed *et al.*, 2018; Vanalle *et al.*, 2017) and concluded it as a significant predictor of GSCM practices adoption. Therefore, based on stated arguments, this study hypothesized that:

Hypothesis 7: *Normative pressure has a positive association with the intention to adopt GSCM practices.*

2.8 Coercive Pressure

Coercive pressure (CP) is the extent to which the focal firm adheres the external rules and regulations from the

authorities, and these authorities might include the parent companies, resources dependent corporations, international & national regulatory entities, and societal incorporations (Oliveira *et al.*, 2019). Organizations incorporated these regulations as a threat of being banned/penalized and also to gain the advantage of acquisition with these bodies in terms of awards, certificates, funds and goodwill (Saeed *et al.*, 2018). According to Yen, (2018), eco-regulations and laws are considered decisive factors of external pressure, leading to the firms' adoption intention towards GSCM practices. Similarly, Ahmed *et al.* (2019) stated that complying the environmental management activities are induced by CP, which is an essential factor in emerging economies. According to the Zailani *et al.* (2012), CP persuades firms to adopt environmental management activities like eco-design, green purchasing, and reverse logistics.

Enforcement of regulations from these entities makes the firms adopt environment-friendly activities (Agarwal *et al.*, 2018). Moreover, parent companies also put obligations and determine specific rules and regulations on the subsidiary companies even in the developing countries (Zailani *et al.*, 2012). The study of Yen, (2018) investigated that the higher pressure from external regulatory entities makes firms more inclined to adopt GSCM practices. Therefore, the present study hypothesized that:

Hypothesis 8: *Coercive pressure has a positive association with the intention to adopt GSCM practices.*

2.9 Mimetic Pressure

Mimetic pressure (MP) is the extent to which firms compete with their competitors by employing the same practices as their competitors do (Oliveira *et al.*, 2019). According to Jayarathna (2015), the MP refers to the degree to which focal firms abide by the similar strategies of their competitor by setting the benchmarking. Firms try to adopt the best practices than their competitors to have a competitive advantage (Ahmed *et al.*, 2019), which simultaneously increases the firm's intention to adopt innovation. In the study context to the adoption of Software-as-a-system (Oliveira *et al.*, 2019) empirically investigated that firms depend on their competitors to initiate innovation adoption first and then follow up innovation to avoid uncertainty, risk of failure and stay in the market. According to the study of Zailani *et al.* (2012), to sustain a competitive advantage, firms should reduce their environmental pollution, carbon footprints, product stewardship, and maintain sustainable strategies, which will maximize the firm's intention to adopt GSCM practices. Previous studies (Imamoglu *et al.*, 2010; Oliveira *et al.*, 2019) proved that the MP reflects the firm's intention of adoption GSCM practices. Therefore, this study hypothesized that:

Hypothesis 9: *Mimetic pressure has a positive association with the intention to adopt GSCM practices.*

2.10 Government Support

Government support (GS) plays a crucial role in adopting and implementing GSCM practices by supporting the firms financially and technically (TA *et al.*, 2020). Lin *et al.* (2020) Argued that by implementing rules and regulations, the government can both encourage and

discourage the firms from adopting technological innovation. Government grants, taxes reductions, and environmental awareness persuade firms to adopt GSCM practices (TA *et al.*, 2020). Environmental standards for materials and technologies have been introduced by the government globally to reduce the environmental impacts of productions which promotes the firms to adopt GSCM practices (Balasubramanian & Shukla, 2017). Orji *et al.* (2020) argued that in the logistics industry, GS and Programs are vital factors that influence the use of GSCM practices. In similar stance Zailani *et al.* (2012) points out that government, after recognizing that the businesses foster the country's economic growth, the government has instituted several green initiatives that make the firms more inclined towards GSCM practices. Furthermore, Jugend *et al.* (2018) concluded that GS is a pivotal determinant that fosters innovation.

Moreover, Lin *et al.* (2020) investigated the positive relationship of GS with the adoption of GSCM practices and summarized that GS stimulates the adoption decision of the firm. A study of Zailani *et al.* (2012) suggested that the government intervention and supporting activities in the emerging economies motivated the firms to initiate the GSCM practices. Therefore, this study also hypothesized that:

Hypothesis 10: *Government support has a positive association with the intention to adopt GSCM practices.*

2.11 Intrinsic Motivation

According to the self-determination theory (SDT) and motivational model, intrinsic motivation (IM) is the extent to which employees are self-governed and determined to perform a specific task for his/her personal satisfaction (Chiu, 2018). IM is a crucial factor that makes the employees fulfill the task intensely in the absence of any monetary reward or compensation (Ahmed *et al.*, 2021). Li *et al.* (2020) stated that when employees show more interest and devotion to perform the new task, they become more skilled, which eliminates the hazards in the adoption of innovation. Similarly, another study stated that intrinsically motivated persons are inclined to adopt innovation without concerning the external reward (Shahbaz *et al.*, 2023; Shahzad, Xiu, *et al.*, 2020). According to (Kwon & Chidambaram, 2000), IM arises when people feel autonomous and competent to deal with situations. Employees who have high IM are more confident of performing creative and challenging tasks, as an innovation could be both creative and challenging, therefore, adoption of innovation is highly influenced by intrinsic motivation (Chiu, 2018). While investigating the behavioral factors of green supply chain management (Muduli & Barve, 2013) suggested that motivated employees are more determined to engage in sustainable environmental activities. Shahzad *et al.* (2020) argued that IM is a critical predictor

which stimulates the employee's behavior towards innovation adoption.

Furthermore, Ahmed *et al.* (2021) concluded that IM has a significant positive association with green practices. Similarly, Li *et al.* (2020) investigated that employee's IM for performing green environmental activities increases creativity which yields the expected outcome. Dafne *et al.* (2018) in his study of social sustainability in supply chain emphasizes that supply chain social initiatives established on the IM to protect the environment are more consistent and gain more permanent outcomes in terms of consistency in performing eco-friendly activities, employees feel inner satisfaction while performing the task. Recognizing the importance of IM from previous studies, this study also hypothesized that:

Hypothesis 11: *Intrinsic motivation has a positive association with the intention to adopt GSCM practices.*

2.12 Extrinsic Motivation

Extrinsic motivation (EM) is the extent to which a potential user shows his/her willingness to fulfill the assignment/ task because of external rewards and penalties (Shahbaz, Gao, Zhai, Shahzad, & Khan, 2021). Another study defined that EM is exerted from external factors, either monetary or nonmonetary just like flexibility in work time, experiential rewards, gifts, additional time offs etc. (Ahmed *et al.*, 2021). Chiu (2018) stated that extrinsically motivated employees perform the task for their promotion, extra compensation & to maintain high living standards, which are beyond the task itself. According to Muduli & Barve (2013) firm's motivational strategies should address the employees' basic needs by offering financial rewards bonuses. Initiatives based on EM primarily focus on attaining monetary benefits (Dafne O.C. Morais *et al.* 2018). Ahmed *et al.* (2021) Argued that EM makes the employees more sensitive towards green environmental activities.

Furthermore, (Shahbaz, Gao, Zhai, Shahzad, & Khan, 2021) emphasized that EM is a key factor in determining the particular technological innovation adoption and promote intention. EM encourages the behavioral intention of employees (Chiu, 2018). In the context of present study, Morais & Silvestre (2018) revealed that EM makes employees more inclined to contribute in green environmental practices by eliminating the resistance of adoption from employees through giving them incentives of extra bonus, time offs, compensations and promotions. The study of Kwon & Chidambaram (2000) investigated that EM significantly influences particular behavior's adoption intention. Therefore, this study hypothesized that:

Hypothesis 12: *Extrinsic motivation has a positive association with the intention to adopt GSCM practices.*

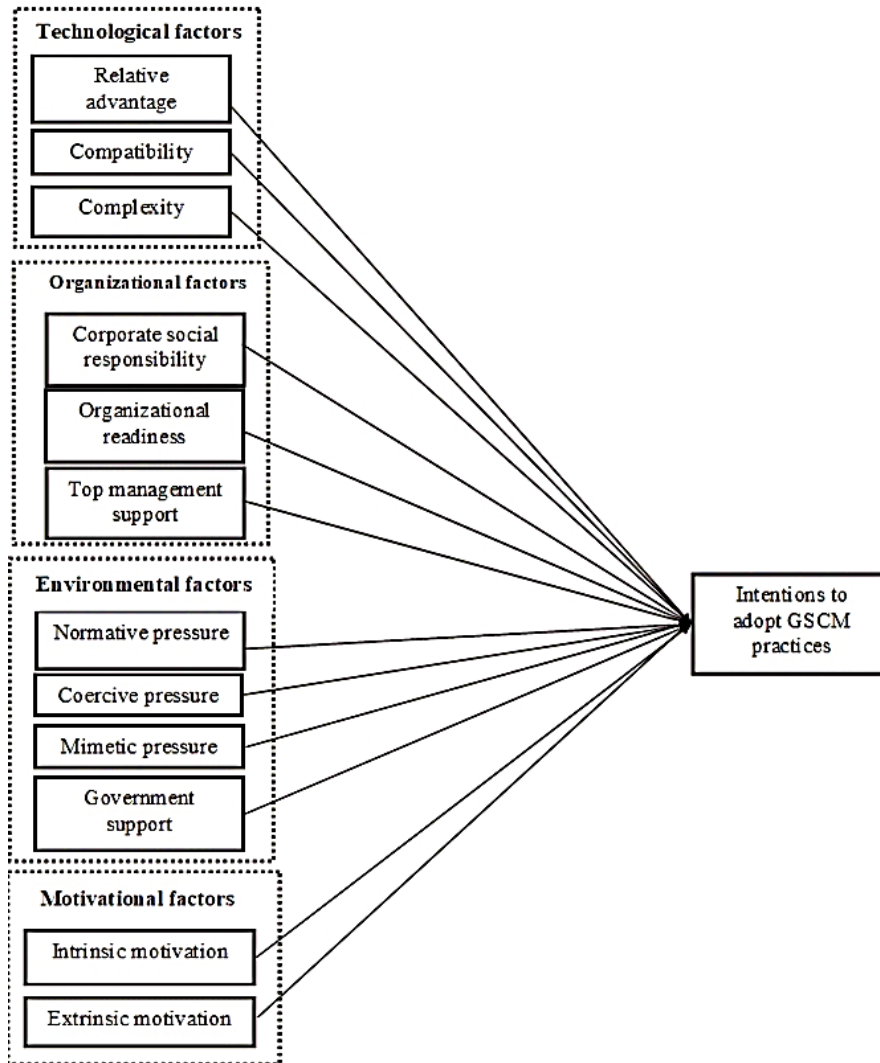


Figure 1 Proposed research model

3. METHODOLOGY

3.1 Measures

In this study, the authors utilized validated measures from previous studies in a similar context to maintain content validity, as presented in Appendix **Table 1**. Data collection was conducted using a questionnaire that comprised three sections. The first section provided a general introduction to the research and assured participants that their responses would be kept confidential and solely used for research purposes. The second section gathered personal information, including gender, qualification, and age. The final section contained questions designed to measure the selected variables. A 7-point Likert scale, ranging from strongly disagree to strongly agree, was employed for data collection. This scale has been recommended in previous studies and is widely used for measuring attitudes and opinions (Agarwal *et al.*, 2018; Dawes, 2008; Shahzad, Du, *et al.*, 2020; Singh & El-Kassar, 2019). Three items scale of RA, three items scale of compatibility, and four items scale of complexity were adapted from the study of (Shahbaz, Gao, Zhai, Shahzad, & Khan, 2021). Three items scale of TMS was adapted from the study of (Shahzad, Xiu, *et al.*, 2020). Six

items scale of CSR was adapted from (Turker, 2009). Five scale items of OR were adapted from the study of was adapted from the study of (Abed, 2020). Four items scale of GS was adapted from (Lin & Ho, 2008). Six scale items of CP, seven scale items of NP, and three scale items of MP were adapted from (Zhu *et al.*, 2013). Four items scale of EM, three items scale of adoption intention, and three items scale of IM were adapted from (Shahbaz, Gao, Zhai, Shahzad, & Khan, 2021) and (Shahzad, Xiu, *et al.*, 2020) respectively.

3.2 Sampling and Data Collection

The survey method is the most used method to evaluate the proposed research model (Becker, 2002), so this study aims to use the survey method to test the proposed model empirically. The targeted population of this study is the employees of manufacturing SMEs of Pakistan. Employees who are associated with the supply chain department were selected for the response. To develop the questionnaire, Google forms were used and the questionnaire was distributed through emails and other communication sources with the help of HR departments. A total of 800 questionnaires were distributed in which 431 were received.

After eliminating the biased and missing values responses, 409 remained for analysis.

respondents are under the age of 50, and 70% have graduate or post-graduate degrees. Therefore, the sample size of the present study is educated, young, and gender diverse.

4. RESULTS

Demographical information of respondents is presented in **Table 1**. In which 78% of respondents are males. 95% of

Table 1 Demographics

Category		Frequency	Percentage
Gender	Male	319	78.0
	Female	90	22.0
	Total	409	100.0
Age	18-29	97	23.7
	30-39	262	64.1
	40-50	31	7.6
	Above 50	19	4.6
	Total	409	100.0
Sector/ Industry	Textile	220	53.7
	Cement	70	17.1
	Glass and ceramics	80	19.5
	Auto-parts Manufacturing	39	9.5
Education	Undergraduate	73	17.8
	Graduate	131	32.0
	Postgraduate	86	21.0
	Other (Diploma/ professional education)	119	29.1
	Total	409	100.0

4.1 Measurement Model

The current study first examined the convergent reliability and validity. The correlation level of numerous indicators in related structured studies is measured through convergent validity (Sarstedt *et al.*, 2014). **Table 2** presented the outcomes of average variance extracted (AVE), composite reliability (CR), Cronbach's alpha, and factor

loadings. The values of Cronbach's alpha ranged from 0.809 to 0.973, values of CR ranged from 0.813 to 0.973, and values of AVE are ranged from 0.592 to 0.923. All the values presented in **Table 2** are within the acceptable range (Fornell & Larcker, 1981; Sarstedt *et al.*, 2014), which demonstrated that no issue found regarding convergent reliability and validity.

Table 2 Convergent reliability and validity test

Variables	Items	Loadings	Cronbach's alpha	CR	AVE
Normative pressure	NP1	.734	.966	.0966	.805
	NP2	.894			
	NP3	.884			
	NP4	.908			
	NP5	.896			
	NP6	.917			
	NP7	.770			
Corporate social responsibility	CSR1	.931	.959	.961	.806
	CSR2	.881			

Table 2 Convergent reliability and validity test (Con't)

Variables	Items	Loadings	Cronbach's alpha	CR	AVE
Corporate social responsibility (Con't)	CSR3	.724	.959	.961	.806
	CSR4	.902			
	CSR5	.905			
	CSR6	.751			
Coercive pressure	CP1	.736	.910	.911	.630
	CP2	.758			
	CP3	.727			
	CP4	.700			
	CP5	.742			
	CP6	.781			
Organizational readiness	OR1	.735	.919	.991	.694
	OR2	.741			
	OR3	.783			
	OR4	.757			
	OR5	.742			
Extrinsic motivation	EM1	.829	.959	.959	.854
	EM2	.842			
	EM3	.810			
	EM4	.844			
Government support	GS1	.785	.930	.932	.774
	GS2	.812			
	GS3	.792			
	GS4	.865			
Complexity	CLX1	.803	.907	.909	.715
	CLX2	.824			
	CLX3	.867			
	CLX4	.777			
Compatibility	COM1	.979	.965	.966	.904
	COM2	.963			
	COM3	.952			
Mimetic pressure	MP1	.814	.973	.973	.923
	MP2	.802			
	MP3	.805			
Intrinsic motivation	IM1	.762	.851	.856	.665
	IM2	.813			
	IM3	.776			
Adoption intention	AD1	.776	.963	.963	.897
	AD2	.764			
	AD3	.784			

Table 2 Convergent reliability and validity test (Con't)

Variables	Items	Loadings	Cronbach's alpha	CR	AVE
Relative advantage	RA1	.759	.926	.934	.827
	RA2	.723			
	RA3	.777			
Top Management support	TMS1	.758	.809	.813	.592
	TMS2	.709			
	TMS3	.701			

Furthermore, the current study also examined the discriminant validity, which shows the degree of empirical variance among constructs of the study (Sarstedt *et al.*, 2014; Shahbaz *et al.*, 2019). The square root of AVE and association of correlation among variables are used to

measure the discriminant validity (Hu & Bentler, 1999). The square root of the AVE and association matrix is presented in **Table 3**, proving that discriminant validity is accurate (Larcker, 1981).

Table 3 Square root of AVE and association matrix

	NP	CSR	CP	OR	EM	GS	CLX	COM	MP	IM	AD	RA	TMS
NP	0.897												
CSR	0.383***	0.898											
CP	0.408***	0.384***	0.793										
OR	0.398***	0.455***	0.541***	0.833									
EM	0.447***	0.378***	0.464***	0.492***	0.924								
GS	0.365***	0.339***	0.534***	0.486***	0.438***	0.880							
CLX	0.300***	0.317***	0.432***	0.455***	0.444***	0.418***	0.846						
COM	0.005	-0.010	0.012	-0.028	-0.020	0.029	0.074	0.951					
MP	0.403***	0.399***	0.559***	0.648***	0.397***	0.418***	0.384***	0.005	0.961				
IM	0.386***	0.408***	0.470***	0.477***	0.448***	0.410***	0.373***	0.027	0.452***	0.816			
AD	0.430***	0.432***	0.596***	0.575***	0.508***	0.480***	0.323***	0.086†	0.526***	0.492***	0.947		
RA	0.344***	0.430***	0.585***	0.507***	0.470***	0.486***	0.422***	0.014	0.498***	0.436***	0.544***	0.909	
TMS	0.428***	0.450***	0.591***	0.612***	0.506***	0.471***	0.340***	-0.060	0.516***	0.462***	0.578***	0.514***	0.770

The square of Average variances extracted are the diagonal values in the table. Below the diagonal values Pearson correlation values are shown. *** = P > 0.000.

The data was collected from one source therefore, common method variance (CMV) needs to be addressed. The current study examined CMV through several tests. At first, this study examined Harman's single factor test by exploratory factor analysis (EFA) via SPSS. After categorizing all items into 13 subgroups, the first factor explains only 37.235% variance which is under the acceptance point of 40% (Riaz *et al.*, 2021; Sarstedt *et al.*, 2014). Secondly the current study compared the thirteen-

factor model with single and double factors model in SEM. Each factor at least has three variables and embodies the subsequent informant who provide the data on these variables. The results showed that current study model (X² = 2326.169, df = 1299) is better than single factor (X² = 2987.14, df = 741.12), and double factor model (X² = 3621.10, df = 663.21). The study followed the third approach as suggested by Williams *et al.* (Williams *et al.*, 2010) to conduct the series of SEM based test by using marker

variable (i.e. organization reputation) which was not theoretically related to the study. The results justified those relationships among latent variables not disturbed by the CMV. The above series of analysis proved that current study have no issue of CMV (Siemsen *et al.*, 2010).

Furthermore, to confirm the consistency and validity of the variables of the proposed research model, this study examined the confirmatory factor analysis (CFA) via AMOS. The results of CFA presented following values: CMIN/DF, 1.791; CFI, 0.958; SRMR, 0.040; RMSEA, 0.044; PClose.1.000. All the values are under the threshold which proves the fitness of the model.

4.2 Hypothesis Testing

For the testing hypothesis of the study, path analysis was conducted by AMOS. At first, the study examined the model fitness. The results of CMIN/DF= 1.623, PCLOSE= 0.841, RMESA= 0.039, and CFI= 0.988 indicated that the fitness of the model is excellent. Moreover, the results of SEM is shown in **Figure 2** which represents that controlled variables that are education ($\beta=.002$, $P=.939$), age ($\beta=.013$,

$P=.792$), and gender ($\beta= .021$, $P=.798$) which shows that controlled variables are insignificant relationship with intention to adopt GSCM practices which ensured no impact of control variables. Moreover, the technological factors relative advantage ($\beta=.189$, $P= 0.000$), complexity($\beta=-.108$, $P=.014$), and compatibility ($\beta=.093$, $P=.034$) are significantly associated with intention to adopt GSCM practices. Furthermore, organizational factors OR ($\beta=.149$, $P=0.000$), TMS ($\beta=.119$, $P=.007$), and CSR ($\beta=.092$, $P=.036$) are also positively associated with GSCM practices adoption intention. Similarly, environmental factors CP ($\beta=.214$, $P=.001$), NP ($\beta=.088$, $P=.043$) MP ($\beta=.113$, $P=.010$) and GS ($\beta=.105$, $P=.016$) have also resulted in a significant predictor of GSCM practices adoption intention. EM ($\beta= .158$, $P=0.000$) and IM ($\beta=.116$, $P=.008$) are significantly associated with intention to adopt GSCM practices as the motivational determinants. Based on the results, the study confirms the hypothesis H1, H2, H3, H4, H5, H6, H7, H8, H9, H10, H11, and H12. The study results also highlighted that the value of R² is 0.52 which demonstrated that 52% change in the observed variable is caused by predictor variables.

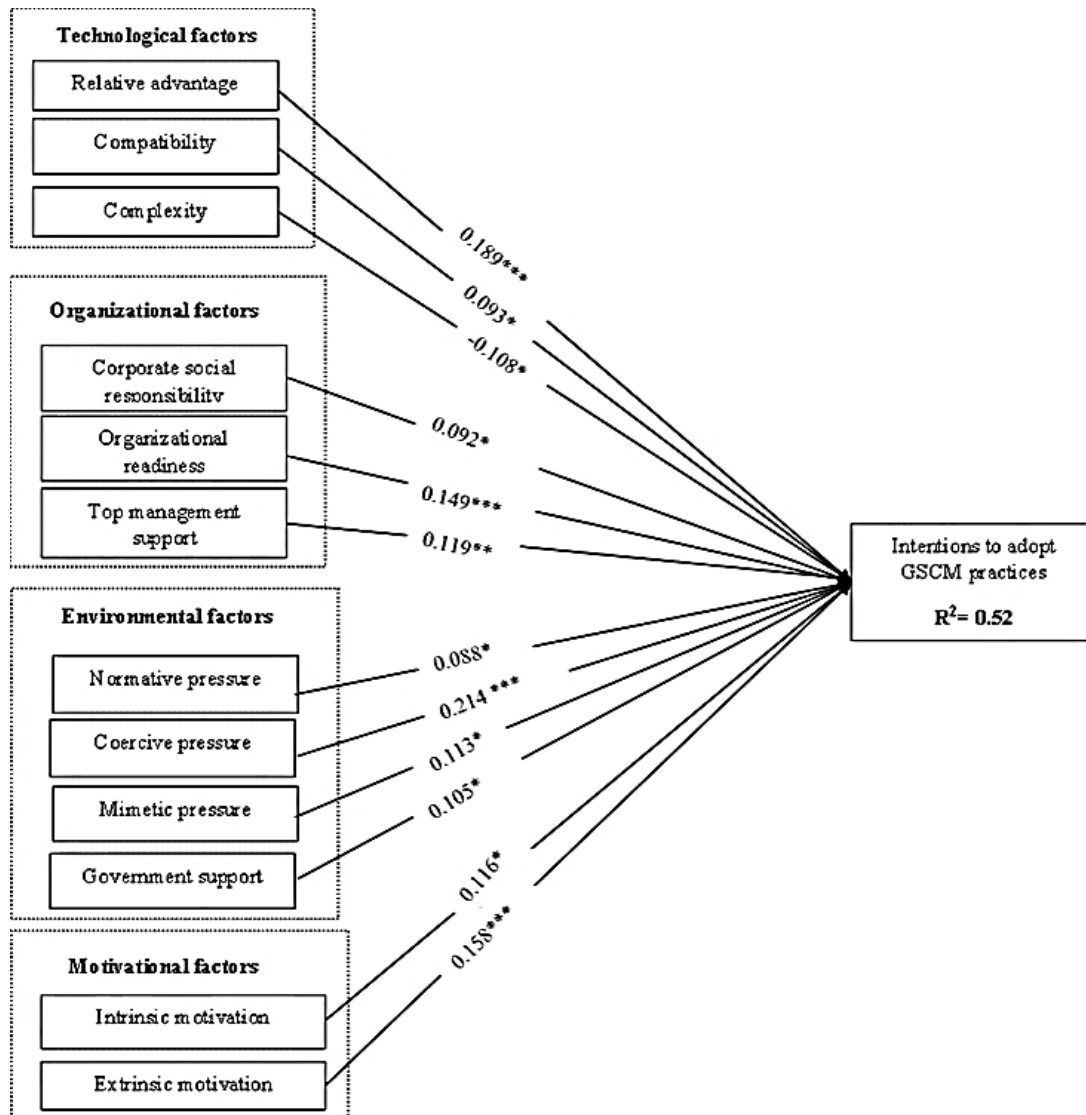


Figure 2 SEM Results

5. DISCUSSION

The rapid change in natural climate has threatened the core existence of living creatures, which has captured the attention of governments, societies, regulatory authorities, and organizations. Firms are concerned regarding the ecosystem protection and consider environmental friendly activities as a part of their technological, business, and operational projects (Vanalle *et al.*, 2017). Despite this intensity, there is a lack of empirical studies that bring out the determinants that foster the organizations to adopt GSCM practices, especially in developing countries like Pakistan (Khan & Qianli, 2017). In this regard, the current study aims to investigate technological, organizational, environmental, and motivational factors to illustrate how these determinants motivate the firms to incorporate GSCM practices. The study used IDT and IT theories as lenses to extract technological and environmental factors. SDT theory is used to explore motivational factors. TOE framework was used as the base framework in the study. Empirical results of the study demonstrated that compatibility is positively associated with intention to adopt GSCM practices, which means that the more the GSCM practices would be compatible with its users' skills, the more the user will be intended to adopt the GSCM practices. The top management in SMEs of Pakistan ensured that GSCM practices should be compatible with the employees' skills for successful adoption. Furthermore, the results proved that complexity negatively associated with intention to adopt GSCM practices. This relationship verified that if the GSCM practices would be more complex in the perception of potential users than they would avoid it rather to adopt. High level of complexity relegates the user's adoption intention; therefore, managers should make efforts to simplify the innovation, or they should arrange the training and orientation session for better understanding to adopt GSCM practices. Moreover, results demonstrated that RA is also positively associated with intention to adopt GSCM practices. Which exposed that if the employee senses that GSCM practices are relatively more effective than the existing ones, then they would be more inclined towards adoption. The results of the technological factors are similar to the findings of previous studies, which proved the consistency of the research (Hwang *et al.*, 2016; Lin & Ho, 2011; Yahya *et al.*, 2014).

Furthermore, organizational factors that are TMS, CSR, and OR are positively associated with intentions to adopt GSCM practices in SMEs of Pakistan. The results revealed that the firm's internal factors are an integral part of the adoption process, which means that top managers encourage employees to adopt GSCM practices. Moreover, if the organization considers the environment protection activities in their CSR report, then, it will become part of employees' job to fulfill these policies. Moreover, firms' readiness also matters in terms of several resources that are needed to adopt GSCM practices. According to the results, if the organization has sufficient resources, it will be more persuaded to adopt GSCM practices. The results of the current study of organizational factors are similar to previous studies, which validates the results of the present study (Wang *et al.*, 2020; Yen, 2018; Zhang *et al.*, 2020).

Moreover, the study's environmental factors, CP, NP, MP, and GS, positively influence the adoption of GSCM practices in SMEs of Pakistan. These forces emphasized the firms to adopt GSCM practices to protect their natural environment. The results revealed that firms take pressure from their external environment in which several forces like consumers, suppliers, regulatory authorities, parent companies, etc. are included. Furthermore, support from the government also helps the firms in adoption. Several grants, tax rebates, and facilitations motivate the organizations to adopt GSCM practices. The current study results are consistent with previous studies (Ahmed *et al.*, 2019; Imamoglu *et al.*, 2010; Savita *et al.*, 2012; Yen, 2018).

Furthermore, the study results disclosed that EM and IM are significant predictors of GSCM practices adoption among SMEs of Pakistan. The results demonstrated that if employees are motivated through monetary and nonmonetary incentives, they will be more willing to adopt GSCM practices. Motivation works as a pillar for the employees towards adoption. In developing countries like Pakistan, employees are less motivated both intrinsically and extrinsically, and they resist the adoption. So, motivation paves their path for adoption as they get recognition or any monetary incentive. Therefore, managers should motivate their employees both intrinsically and extrinsically to adopt GSCM practices. The current study results are supported with previous researches results, which strengthen the current results (Ahmed *et al.*, 2021; Li *et al.*, 2020).

6. IMPLICATIONS

The findings of the current study have several contributions from a theoretical and practical perspective.

6.1 Theoretical Contribution

This study makes notable contributions to the field of GSCM practices within the context of Pakistani SMEs by combining the IDT and IT theory to investigate the intention to adopt GSCM practices. The TOE framework is utilized for the first time, supported by the aforementioned theories, in the Pakistani context. By incorporating organizational predictors, this study offers valuable insight to future researchers on how internal organizational factors influence the adoption of GSCM practices among Pakistani SMEs. Furthermore, this study extends the TOE framework by integrating the SDT to examine the intention to adopt GSCM practices, thereby providing a unique perspective on the adoption of GSCM practices within the Pakistani SME context. To our knowledge, this study is the first to apply this framework in the Pakistani SME context, adding to the body of literature on GSCM practices in developing economies. This study makes a significant theoretical contribution by empirically examining the role of motivational predictors in the context of GSCM practices adoption in Pakistani SMEs, which was previously lacking in the literature. The theoretical implications of this study extend beyond its immediate findings by providing a foundation for future research to build upon. Specifically, this study advances the theoretical understanding of GSCM practices adoption in developing economies, particularly in Pakistan, by contributing to the knowledge base of motivational predictors that can influence the adoption of such practices. The findings of this study are likely to inspire future research

in this area and have important implications for policymakers and scholars who seek to promote sustainable business practices in developing countries. Overall, the theoretical contributions of this study offer a solid foundation for future researchers to build upon and contribute to the development of sustainable business practices in the country.

6.2 Managerial Contribution

The study holds significant practical implications for managers and practitioners operating in the context of Pakistani SMEs. One of the primary contributions of this research is its potential to reduce environmental pollution, a critical issue that has been amplified by the rise of industrialization. Through the adoption of GSCM practices, firms can mitigate their negative impact on the environment. This study sheds light on the factors that influence the adoption of such practices, providing managers with valuable insights that can guide their decision-making. By identifying the motivational predictors that influence the adoption of GSCM practices, this study provides valuable insights into how managers can design effective strategies to promote and sustain the adoption of such practices. The study's emphasis on the role of internal organizational factors, in combination with technological and environmental factors, highlights the need for SMEs to align their organizational goals and values with sustainable business practices. Furthermore, the study's theoretical framework, which combines IDT, IT, SDT, and TOE, can guide managers in understanding the complexities involved in the adoption of GSCM practices and assist them in making informed decisions. By understanding the intention to adopt GSCM practices, managers can proactively plan and strategize to implement these practices in their organizations. This can lead to a variety of benefits, such as cost savings, improved efficiency, and enhanced reputation. Furthermore, the study highlights the need for regulatory authorities to promote and incentivize the adoption of GSCM practices in the SME sector. Moreover, different bonuses, allowances, promotions, and increments also emphasize the employees to make their intentions for fulfilling the particular task so, managers must encourage their employees in terms of some monetary benefits.

Lastly, this study provides managers with a framework to assess and enhance their organizations' environmental sustainability. By adopting GSCM practices, firms can not only reduce their negative environmental impact but also improve their bottom line. The findings of this research can guide managers to make informed decisions that align with their sustainability goals and improve their overall performance.

6.3 Limitations and Future Directions

Despite several managerial and theoretical contributions, the study also has some limitations. On the grounds of those limitations, we recommend some future directions. The study was conducted in a short time, and the data of the study was collected once. Therefore, future researchers should conduct a longitudinal study to better understand the adoption behavior because the longitudinal studies also analyze the different behavioral changes of the respondents. Secondly, the data of the study was collected from Pakistani SMEs therefore, the study results are limited

to developing nations and do not represent the developed nations. Future researchers should investigate these factors in any developed country as their results may demonstrate different perspectives. Thirdly, this study extended the TOE framework with SDT theory, future researchers should also extend it with other frameworks like the Ability motivation opportunity (AMO) model. Future researchers should also specify intrinsic and extrinsic motivation to examine what kind of monetary and nonmonetary factors stimulates the employee's intention for the adoption of GSCM practices in Pakistan. This study also suggests the researchers examine the relationships between factors to add critical analysis among factors.

7. CONCLUSION

Globalization has penetrating impacts on the ecosystem, resulting in severe climate changes, environmental degradation, and contamination. Such alarming conditions seize the attention of government, organizations, and societies towards itself for restraining environmental degradation. Notwithstanding, there is still paucity in the literature that gives practitioners an all-inclusive vision to detect the drivers of GSCM practices among SMEs of Pakistan. To bridge this gap, the current study proposed a holistic framework for adopting GSCM practices among SMEs of Pakistan. In this regard, the present study used the TOE framework as a base model with the integration of SDT theory. IDT theory and IT theory were considered to investigate technological and environmental determinants. The results of the study indicated that technological, organizational, environmental, and motivational factors are significant predictors of GSCM practices adoption among SMEs of Pakistan. Theoretically, it is one of the first studies that extend the TOE framework with SDT in the context of Pakistani SMEs to investigate the intention to adopt GSCM practices. Practically, the study offers valuable insights for managers to understand the organizational factors that influence the adoption of GSCM practices, which can help to control environmental pollution caused by industries. By adopting GSCM practices, SMEs in Pakistan can not only reduce their negative impact on the environment but also enhance their competitiveness in the market.

Based on this, this study concluded that managers should try to adopt those practices which are less intricate, relatively more advantageous than previous practices and are aligned with the employees' skills. Likewise, internal organizational determinants also influence the GSCM practices adoption intentions because if the organizations' top managers support their employees and mention these practices in their CSR report, they would feel more motivated to adopt new practices. Similarly, when organizations have adequate resources, they would be more intended towards adoption. In addition, motivation also plays an essential role in boosting employees' morale to adopt GSCM practices among SMEs of Pakistan. Motivation operates the human behavior to perform a particular task. The current study unveils that the more the GSCM practices are controlled by extrinsic and intrinsic motivation, the more employees tend to adopt it. For instance, when the rewards are the basis on performance-contingent, employees give their best to attain those rewards especially in developing

countries like Pakistan. On the ground of this, managers should identify those actions which work as stimuli for the adoption of GSCM practices in Pakistani SMEs.

REFERENCES

- Abed, S. S. (2020). Social Commerce Adoption Using TOE Framework: An Empirical Investigation of Saudi Arabian SMEs. *International Journal of Information Management*, 53(March), 102118. <https://doi.org/10.1016/j.ijinfomgt.2020.102118>
- Aboelmegeed, M. (2018). The Drivers of Sustainable Manufacturing Practices in Egyptian SMEs and Their Impact on Competitive Capabilities: A PLS-SEM model. *Journal of Cleaner Production*, 175, pp. 207–221. <https://doi.org/10.1016/j.jclepro.2017.12.053>
- Agarwal, A., Giraud-Carrier, F. C., & Li, Y. (2018). A Mediation Model of Green Supply Chain Management Adoption: The role of internal impetus. *International Journal of Production Economics*, 205, pp. 342–358. <https://doi.org/10.1016/j.ijpe.2018.09.011>
- Agrawal, K. P. (2015). Investigating the Determinants of Big Data Analytics (BDA) Adoption in Asian Emerging Economies. *2015 Americas Conference on Information Systems, AMCIS 2015*. <https://doi.org/10.5465/ambpp.2015.11290abstract>
- Ahmed, M., Guo, Q., Qureshi, M. A., Raza, S. A., Khan, K. A., & Salam, J. (2021). Do Green HR Practices Enhance Green Motivation and Proactive Environmental Management Maturity in Hotel Industry? *International Journal of Hospitality Management*, 94. <https://doi.org/10.1016/j.ijhm.2020.102852>
- Ahmed, W., Najmi, A., Arif, M., & Younus, M. (2019). Exploring Firm Performance by Institutional Pressures Driven Green Supply Chain Management Practices. *Smart and Sustainable Built Environment*, 8(5), pp. 415–437. <https://doi.org/10.1108/SASBE-04-2018-0022>
- Ajmal Meer Mehdi. (2019). Industrial Pollution in Pakistan. The Nation. <https://www.nation.com.pk/07-Jan-2019/industrial-pollution-in-pakistan>
- Alhasan, A., Audah, L., Ibrahim, I., Al-Sharaa, A., Al-Ogaili, A. S., & M. Mohammed, J. (2022). A Case-Study to Examine Doctors' Intentions to Use IoT Healthcare Devices in Iraq During COVID-19 Pandemic. *International Journal of Pervasive Computing and Communications*, 18(5), pp. 527–547. <https://doi.org/10.1108/IJPC-10-2020-0175>
- Andersen, M., & Skjoett-Larsen, T. (2009). Corporate Social Responsibility in Global Supply Chains. *Supply Chain Management: An International Journal*, 14(2), pp. 75–86. <https://doi.org/10.1108/13598540910941948>
- Awa, H. O., & Ojiabo, O. U. (2016). A Model of Adoption Determinants of ERP within T-O-E Framework. *Information Technology and People*, 29(4), pp. 901–930. <https://doi.org/10.1108/ITP-03-2015-0068>
- Balasubramanian, S., & Shukla, V. (2017). Green Supply Chain Management: An Empirical Investigation on the Construction Sector. *Supply Chain Management*, 22(1), pp. 58–81. <https://doi.org/10.1108/SCM-07-2016-0227>
- Becker, W. (2002). A European Food Consumption Survey Method—Conclusions and Recommendations. *European Journal of Clinical Nutrition*, 56, pp. 89–94. <https://doi.org/10.1038/sj.ejcn.1601432>
- Benjamin, A. K., Shee, H. K., & de Vass, T. (2023). Sequential Impact of Green Supply Chain Initiatives on Sustainable Performance: Food and Beverage Processing SMEs in Australia. *Operations and Supply Chain Management*, 16(2), pp. 214–228. <https://doi.org/10.31387/oscm0530384>
- Biedova, O., & Mahdikhani, M. (2023). Emerging Topics in Supply Chain Management Literature: A Scientometric Analysis. *Operations and Supply Chain Management: An International Journal*, 16(4), pp. 462–472. <https://doi.org/10.31387/oscm0550404>
- Chen, G., Luo, C., & Xu, H. (2018). Understanding Usage Intention of Social Media's Innovative Functions: Based on Expanded Innovation Diffusion Theory. *Proceedings of the International Conference on Electronic Business (ICEB)*, 2018-December, pp. 700–709.
- Cheunkamon, E., Jomnonkwo, S., & Ratanavaraha, V. (2020). Determinant Factors Influencing Thai Tourists' Intentions to Use Social Media for Travel Planning. *Sustainability (Switzerland)*, 12(18). <https://doi.org/10.3390/SU12187252>
- Chiu, H. H. (2018). Employees' Intrinsic and Extrinsic Motivations in Innovation Implementation: The Moderation Role of Managers' Persuasive and Assertive Strategies. *Journal of Change Management*, 18(3), pp. 218–239. <https://doi.org/10.1080/14697017.2017.1407353>
- Choe, M., & Noh, G. (2018). Combined Model of Technology Acceptance and Innovation Diffusion Theory for Adoption of Smartwatch. *International Journal of Contents*, 14(3), pp. 32–38. <https://doi.org/10.5392/IJoC.2018.14.3.032>
- Dawes, J. (2008). Do Data Characteristics Change According to the Number of Scale Points Used? An pp. using 5-point, 7-point and 10-point Scales. *International Journal of Market Research*, 50(1), pp. 61–77. <https://doi.org/10.1177/147078530805000106>
- Deif, A. M. (2011). A System Model for Green Manufacturing. *Journal of Cleaner Production*, 19(14), pp. 1553–1559. <https://doi.org/10.1016/j.jclepro.2011.05.022>
- Dubey, R., Gunasekaran, A., & Samar Ali, S. (2015). Exploring the Relationship between Leadership, Operational Practices, Institutional Pressures and Environmental Performance: A Framework for Green Supply Chain. *International Journal of Production Economics*, 160, pp. 120–132. <https://doi.org/10.1016/j.ijpe.2014.10.001>
- Fornell, C., & Larcker, D. F. (1981). Structural Equation Models with Unobservable Variables and Measurement Error: Algebra and Statistics. *Journal of Marketing Research*, 18(3), pp. 382–388. <https://doi.org/10.1177/002224378101800313>
- Hernández-Ortega, B. (2011). The role of Post-Use Trust in the Acceptance of a Technology: Drivers and Consequences. *Technovation*, 31(10–11), pp. 523–538. <https://doi.org/10.1016/j.technovation.2011.07.001>
- Hsu, C. C., Tan, K. C., Zailani, S. H. M., & Jayaraman, V. (2013). Supply Chain Drivers that Foster the Development of Green Initiatives in an Emerging Economy. *International Journal of Operations and Production Management*, 33(6), pp. 656–688. <https://doi.org/10.1108/IJOPM-10-2011-0401>
- Hu, L. T., & Bentler, P. M. (1999). Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria Versus New Alternatives. *Structural Equation Modeling*, 6(1), pp. 1–55. <https://doi.org/10.1080/10705519909540118>
- Huang, J., Wang, X., Luo, Y., Yu, L., & Zhang, Z. (2021). Joint Green Marketing Decision-Making of Green Supply Chain considering Power Structure and Corporate Social Responsibility. *Entropy*, 23(5). <https://doi.org/10.3390/e23050564>
- Hwang, B. N., Huang, C. Y., & Wu, C. H. (2016). A TOE Approach to Establish a Green Supply Chain Adoption Decision Model in the Semiconductor Industry. *Sustainability (Switzerland)*, 8(2). <https://doi.org/10.3390/su8020168>
- Imamoglu, O., Karaman, A., & Omurtag, Y. (2010). Green Supply Chain Management Applications in Turkey. *31st Annual National Conference of the American Society for Engineering Management 2010, ASEM 2010*, pp. 661–667.
- Jamshidi, D., & Kazemi, F. (2020). Innovation Diffusion Theory and Customers' Behavioral Intention for Islamic Credit Card: Implications for Awareness and Satisfaction. *Journal of Islamic Marketing*, 11(6), pp. 1245–1275. <https://doi.org/10.1108/JIMA-02-2018-0039>
- Jayarathna, B. (2015). Building a Conceptual Model for Adopting

- Green Supply Chain Practices. In *International Journal of Management and Applied Science* (Issue 7). <http://repository.kln.ac.lk/handle/123456789/11993>
- Jugend, D., Jabbour, C. J. C., Alves Scaliza, J. A., Rocha, R. S., Junior, J. A. G., Latan, H., & Salgado, M. H. (2018). Relationships Among Open Innovation, Innovative Performance, Government Support and Firm Size: Comparing Brazilian Firms Embracing Different Levels of Radicalism in Innovation. *Technovation*, 74–75, pp. 54–65. <https://doi.org/10.1016/j.technovation.2018.02.004>
- Jum'a, L., Ikram, M., Alkalha, Z., & Alaraj, M. (2022). Factors Affecting Managers' Intention to Adopt Green Supply Chain Management Practices: Evidence from Manufacturing Firms in Jordan. *Environmental Science and Pollution Research*, 29(4), pp. 5605–5621. <https://doi.org/10.1007/s11356-021-16022-7>
- Khan, S. A. R., & Qianli, D. (2017). Impact of Green Supply Chain Management Practices on Firms' Performance: An Empirical Study from the Perspective of Pakistan. *Environmental Science and Pollution Research*, 24(20), pp. 16829–16844. <https://doi.org/10.1007/s11356-017-9172-5>
- Khan, S. A. R., Zhang, Y., Golpîra, H., & Qianli, Q. (2018). The Impact of Green Supply Chain Practices in Business Performance: Evidence from Pakistani FMCG Firms. *Journal of Advanced Manufacturing Systems*, 17(2), pp. 267–275. <https://doi.org/10.1142/S0219686718500166>
- Kohli, A. S., & Hawkins, E. (2015). Motivators to Adopt Green Supply Chain Initiatives. *International Journal of Information Systems and Supply Chain Management*, 8(4), pp. 1–13. <https://doi.org/10.4018/ijisscm.2015100101>
- Kuei, C. H., Madu, C. N., Chow, W. S., & Chen, Y. (2015). Determinants and Associated Performance Improvement of Green Supply Chain Management in China. *Journal of Cleaner Production*, 95, pp. 163–173. <https://doi.org/10.1016/j.jclepro.2015.02.030>
- Kwon, H. S., & Chidambaram, L. (2000). A Test of the Technology Acceptance Model: The Case of Cellular Telephone Adoption. *Proceedings of the Annual Hawaii International Conference on System Sciences*, 2000-Janua.
- Larcker, C. F. and D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18(1), pp. 39–50.
- Li, W., Bhutto, T. A., Xuhui, W., Maitlo, Q., Zafar, A. U., & Ahmed Bhutto, N. (2020). Unlocking Employees' Green Creativity: The Effects of Green Transformational Leadership, Green Intrinsic, and Extrinsic Motivation. *Journal of Cleaner Production*, 255. <https://doi.org/10.1016/j.jclepro.2020.120229>
- Lin, C. Y., Alam, S. S., Ho, Y. H., Al-Shaikh, M. E., & Sultan, P. (2020). Adoption of Green Supply Chain Management among SMEs in Malaysia. *Sustainability (Switzerland)*, 12(16). <https://doi.org/10.3390/su12166454>
- Lin, C. Y., & Ho, Y. H. (2008). An Empirical Study on Logistics Service Providers' Intention to Adopt Green Innovations. *Journal of Technology Management and Innovation*, 3(1), pp. 17–26.
- Lin, C. Y., & Ho, Y. H. (2011). Determinants of Green Practice Adoption for Logistics Companies in China. *Journal of Business Ethics*, 98(1), pp. 67–83. <https://doi.org/10.1007/s10551-010-0535-9>
- Liu, H., Ke, W., Wei, K. K., Gu, J., & Chen, H. (2010). The Role of Institutional Pressures and Organizational Culture in the Firm's Intention to Adopt Internet-Enabled Supply Chain Management Systems. *Journal of Operations Management*, 28(5), pp. 372–384. <https://doi.org/10.1016/j.jom.2009.11.010>
- Luo, J., Bi, M., & Kuang, H. (2021). Design of Evaluation Scheme for Social Responsibility of China's Transportation Enterprises from the Perspective of Green Supply Chain Management. *Sustainability (Switzerland)*, 13(6). <https://doi.org/10.3390/su13063390>
- Marzuki, M., Abdullah, D., Bahri, S., & Kamal, M. (2016). The Role of Perceived Interactivity, Perceived Ease of Use, Perceived Usefulness, and Perceived Enjoyment toward Intention to Use Online Mapping Service Applications An Integration of Graduate Competency Model for Hotel View Project Hospitality Interactiv. *International Academic Research Journal of Business and Technology*, 2(2), pp. 135–139. <https://www.researchgate.net/publication/311676123>
- Morais, D. O. C., & Silvestre, B. S. (2018). Advancing Social Sustainability in Supply Chain Management: Lessons from Multiple Case Studies in an Emerging Economy. *Journal of Cleaner Production*, 199, pp. 222–235. <https://doi.org/10.1016/j.jclepro.2018.07.097>
- Muduli, K., & Barve, A. (2013). Modelling the Behavioural Factors of Green Supply Chain Management Implementation in Mining Industries in Indian Scenario. *Asian J. of Management Science and Applications*, 1(1), pp. 26. <https://doi.org/10.1504/ajmsa.2013.056007>
- Muhammad Shahbaz, Sheraz Ali, Waqar Ahmad, N. Fatima. (2023). Integration Of Task-Technology Fit (Ttf) And Motivation Model To Investigate The Adoption Of M-Marketing. *ILMA Journal of Social Sciences & Economics (IJSSSE)*, 4(1), pp. 36–57.
- Nedbal, D., Wetzlinger, W., Auinger, A., & Wagner, G. (2011). Sustainable IS Initialization through Outsourcing: A Theory-Based Approach. *17th Americas Conference on Information Systems 2011, AMCIS 2011*, 3, pp. 2282–2291.
- Ngah, A. H., Zainuddin, Y., & Thurasamy, R. (2017). Applying the TOE Framework in the Halal Warehouse Adoption Study. *Journal of Islamic Accounting and Business Research*, 8(2), pp. 161–181. <https://doi.org/10.1108/JIABR-04-2014-0014>
- Ogunyemi, A. A., & Johnston, K. A. (2012). Exploring the Roles of People, Governance and Technology in Organizational Readiness for Emerging Technologies. *The African Journal of Information Systems*, 4(2), pp. 100–119. <http://digitalcommons.kennesaw.edu/ajis/vol4/iss3/2>
- Oliveira, T., Martins, R., Sarker, S., Thomas, M., & Popović, A. (2019). Understanding SaaS Adoption: The Moderating Impact of the Environment Context. *International Journal of Information Management*, 49, pp. 1–12. <https://doi.org/10.1016/j.ijinfomgt.2019.02.009>
- Omondi, B. (2021). The Most Polluting Industries in 2022 | Eco Jungle. Eco Jungle. <https://ecojungle.net/post/the-most-polluting-industries-in-2021/>
- Orji, I. J., Kusi-Sarpong, S., & Gupta, H. (2020). The Critical Success Factors of Using Social Media for Supply Chain Social Sustainability in the Freight Logistics Industry. *International Journal of Production Research*, 58(5), pp. 1522–1539. <https://doi.org/10.1080/00207543.2019.1660829>
- Ozaki, R. (2011). Adopting sustainable innovation: What Makes Consumers Sign Up to Green Electricity? *Business Strategy and the Environment*, 20(1), pp. 1–17. <https://doi.org/10.1002/bse.650>
- Pinho, C., Franco, M., & Mendes, L. (2021). Application of innovation Diffusion Theory to the E-Learning Process: Higher Education Context. *Education and Information Technologies*, 26(1), pp. 421–440. <https://doi.org/10.1007/s10639-020-10269-2>
- pollution. (2020). The World Bank.
- Riaz, M. U., Guang, L. X., Zafar, M., Shahzad, F., Shahbaz, M., & Lateef, M. (2021). Consumers' Purchase Intention and Decision-Making Process through Social Networking Sites: A Social Commerce Construct. *Behaviour and Information Technology*, 40(1), pp. 99–115. <https://doi.org/10.1080/0144929X.2020.1846790>
- Saeed, A., Jun, Y., Nubuor, S. A., RasikaPriyankara, H. P., & Jayasuriya, M. P. F. (2018). Institutional Pressures, Green Supply Chain Management Practices on Environmental and Economic Performance: A Two Theory View. *Sustainability*

- (Switzerland), 10(5). <https://doi.org/10.3390/su10051517>
- Sarstedt, M., Ringle, C. M., Smith, D., Reams, R., & Hair, J. F. (2014). Partial Least Squares Structural Equation Modeling (PLS-SEM): A Useful Tool for Family Business Researchers. *Journal of Family Business Strategy*, 5(1), pp. 105–115. <https://doi.org/10.1016/j.jfbs.2014.01.002>
- Savita, K. S., Dominic, P. D. D., & Ramayah, T. (2012). Eco-Design Strategy among ISO 14001 Certified Manufacturing Firms in Malaysia: Green Drivers and its Relationship to Performance Outcomes. *2012 International Conference on Computer and Information Science, ICCIS 2012 - A Conference of World Engineering, Science and Technology Congress, ESTCON 2012 - Conference Proceedings*, 1, 154–159. <https://doi.org/10.1109/ICCISci.2012.6297230>
- SBP. (2022). State Bank of Pakistan Challenge Fund for SMEs Expression of Interest. 04. <https://www.sbp.org.pk/smefd/circulars/2022/C4-Annex-A.pdf>
- Shahbaz, M., Gao, C., Zhai, L. L., Shahzad, F., & Hu, Y. (2019). Investigating the Adoption of Big Data Analytics in Healthcare: the Moderating Role of Resistance to Change. *Journal of Big Data*, 6(1). <https://doi.org/10.1186/s40537-019-0170-y>
- Shahbaz, M., Gao, C., Zhai, L. L., Shahzad, F., & Khan, I. (2021). Environmental Air Pollution Management System: Predicting User Adoption Behavior of Big Data Analytics. *Technology in Society*, 64. <https://doi.org/10.1016/j.techsoc.2020.101473>
- Shahbaz, M., Gao, C., Zhai, L., Shahzad, F., Luqman, A., & Zahid, R. (2021). Impact of Big Data Analytics On Sales Performance in Pharmaceutical Organizations: The Role of Customer Relationship Management Capabilities. *PLoS ONE*, 16(4 April 2021), pp. 1–22. <https://doi.org/10.1371/journal.pone.0250229>
- Shahzad, F., Du, J., Khan, I., Shahbaz, M., & Murad, M. (2020). Untangling the Influence of Organizational Compatibility on Green Supply Chain Management Efforts to Boost Organizational Performance through Information Technology Capabilities. *Journal of Cleaner Production*, 266. <https://doi.org/10.1016/j.jclepro.2020.122029>
- Shahzad, F., Xiu, G. Y., Khan, I., Shahbaz, M., Riaz, M. U., & Abbas, A. (2020). The Moderating Role of Intrinsic Motivation in Cloud Computing Adoption in Online Education in a Developing Country: a Structural Equation Model. *Asia Pacific Education Review*, 21(1), pp. 121–141. <https://doi.org/10.1007/s12564-019-09611-2>
- Shea, C. M., Jacobs, S. R., Esserman, D. A., Bruce, K., & Weiner, B. J. (2014). Organizational Readiness for Implementing Change: A Psychometric Assessment of a New Measure. *Implementation Science*, 9(1), pp. 1–15. <https://doi.org/10.1186/1748-5908-9-7>
- Siemsen, E., Roth, A., & Oliveira, P. (2010). Common Method Bias in Regression Models with Linear, Quadratic, and Interaction Effects. *Organizational Research Methods*, 13(3), pp. 456–476. <https://doi.org/10.1177/1094428109351241>
- Singh, S. K., & El-Kassar, A. N. (2019). Role of Big Data Analytics in Developing Sustainable Capabilities. *Journal of Cleaner Production*, 213(4), pp. 1264–1273. <https://doi.org/10.1016/j.jclepro.2018.12.199>
- Srivastava, A., Vyas, V., & Gurtu, A. (2022). Supply Chain Management and the United Nations Sustainable Development Goals. *Operations and Supply Chain Management*, 15(4), pp. 505–515. <https://doi.org/10.31387/oscm0550362>
- TA, V. L., BUI, H. N., CANH, C. D., DANG, T. D., & DO, A. D. (2020). Green Supply Chain Management Practice of FDI Companies in Vietnam. *Journal of Asian Finance, Economics and Business*, 7(10), pp. 1025–1034. <https://doi.org/10.13106/jafeb.2020.vol7.no10.1025>
- Taylor, S., & Todd, P. (1995). Decomposition and Crossover Effects in the Theory of Planned Behavior: A Study of Consumer Adoption Intentions. *International Journal of Research in Marketing*, 12(2), pp. 137–155. [https://doi.org/10.1016/0167-8116\(94\)00019-K](https://doi.org/10.1016/0167-8116(94)00019-K)
- Tran, T. M. T., Yuen, K. F., Li, K. X., Balci, G., & Ma, F. (2020). A Theory-Driven Identification and Ranking of the Critical Success Factors of Sustainable Shipping Management. *Journal of Cleaner Production*, 243. <https://doi.org/10.1016/j.jclepro.2019.118401>
- Turker, D. (2009). How Corporate Social Responsibility Influences Organizational Commitment. *Journal of Business Ethics*, 89(2), pp. 189–204. <https://doi.org/10.1007/s10551-008-9993-8>
- Vanalle, R. M., Ganga, G. M. D., Godinho Filho, M., & Lucato, W. C. (2017). Green Supply Chain Management: An Investigation of Pressures, Practices, and Performance within the Brazilian Automotive Supply Chain. *Journal of Cleaner Production*, 151, pp. 250–259. <https://doi.org/10.1016/j.jclepro.2017.03.066>
- Wang, C., Zhang, Q., & Zhang, W. (2020). Corporate social responsibility, Green Supply Chain Management and Firm Performance: The Moderating Role of Big-Data Analytics Capability. *Transportation Business and Management*, 37(December 2019), 100557. <https://doi.org/10.1016/j.rtbm.2020.100557>
- Williams, L. J., Hartman, N., & Cavazotte, F. (2010). Method Variance and Marker Variables: A Review and Comprehensive CFA Marker Technique. *Organizational Research Methods*, 13(3), pp. 477–514. <https://doi.org/10.1177/1094428110366036>
- Yahya, N., Nair, S. R., & Piaralal, S. K. (2014). Green Practices Adoption Framework for Small and Medium Sized Logistics Firms in Malaysia. *Sains Humanika*, 23(3), pp. 79–84. <https://doi.org/10.11113/sh.v2n3.439>
- Yen, Y. X. (2018). Buyer–Supplier Collaboration in Green Practices: The Driving Effects from Stakeholders. *Business Strategy and the Environment*, 27(8), pp. 1666–1678. <https://doi.org/10.1002/bse.2231>
- Yuen, K. F., Cai, L., Qi, G., & Wang, X. (2021). Factors Influencing Autonomous Vehicle Adoption: An Application of the Technology Acceptance Model and Innovation Diffusion theory. *Technology Analysis and Strategic Management*, 33(5), pp. 505–519. <https://doi.org/10.1080/09537325.2020.1826423>
- Zailani, S. H. M., Eltayeb, T. K., Hsu, C. C., & Tan, K. C. (2012). The Impact of External Institutional Drivers and Internal Strategy on Environmental Performance. *International Journal of Operations and Production Management*, 32(6), pp. 721–745. <https://doi.org/10.1108/01443571211230943>
- Zhang, Y., Sun, J., Yang, Z., & Wang, Y. (2020). Critical Success Factors of Green Innovation: Technology, Organization and Environment Readiness. *Journal of Cleaner Production*, 264, 121701. <https://doi.org/10.1016/j.jclepro.2020.121701>
- Zhen, Z., Yousaf, Z., Radulescu, M., & Yasir, M. (2021). Nexus of Digital Organizational Culture, Capabilities, Organizational Readiness, and Innovation: Investigation of SMEs Operating in the Digital Economy. *Sustainability (Switzerland)*, 13(2), pp. 1–15. <https://doi.org/10.3390/su13020720>
- Zhu, Q., Sarkis, J., & Lai, K. hung. (2013). Institutional-Based Antecedents and Performance Outcomes of Internal and External Green Supply Chain Management Practices. *Journal of Purchasing and Supply Management*, 19(2), pp. 106–117. <https://doi.org/10.1016/j.pursup.2012.12.001>

APPENDIX

Table 1 Measuring items

Variables	Abbr.	Questions
Extrinsic motivation	EM1	I am determining to adopt the GSCM practices as I could obtain extra compensation.
	EM1	I will set goals for myself as I intensely concerned of the extra benefits.
	EM1	Every time I think to use the GSCM practices I expect extra compensation and benefits.
	EM1	I will adopt the GSCM PRACTICES if I'll offered for some monetary incentives and promotional benefits, even if I don't want to adapt.
Intrinsic motivation	IM1	I perceive that adopting GSCM PRACTICES would be pleasurable.
	IM2	I perceive that the authentic process of using GSCM practices would be enjoyable.
	IM3	I perceive that using GSCM practices would be pleasant.
Top management support	TMS1	I perceive that the management would encourage to use GSCM practices.
	TMS2	I believe that my manager will assist to use GSCM practice.
	TMS3	I expect that my coordinator will endorse the use of GSCM practices.
Relative advantage	RA1	Using GSCM practices would enables me to complete my tasks more instantly.
	RA2	use of GSCM practices would elevate my efficacy on the job.
	RA3	I believe that GSCM practices would make my work smarter.
Compatibility	COM1	I perceive that GSCM practices is consistent to all my work forms.
	COM2	I feel that the GSCM practices is fitted rightly to my codes of doing work.
	COM3	I perceive that the GSCM practices suits my work style.
Complexity	CLX1	use of GSCM practices would not demand extra mental efforts.
	CLX2	my understating with GSCM practices is unambiguous and understandable.
	CLX3	I think that the GSCM PRACTICES is simple to use.
	CLX4	I perceive that with the GSCM practices I would able to the thing I want I to do.
Government support	GS1	I perceive that government would accommodate financially to develop GSCM practices.
	GS2	I believe that government would motivate firms to come up with green supply chain projects.
	GS3	I perceive that the government would assist in coaching the manpower for GSCM practices expertise.
	GS4	I perceive that government would pose environmental arrangements for the logistics industry.
Corporate social responsibility	CSR1	I believe that my company would motivate us to engage in GSCM practices activities.
	CSR2	the strategies of my company motivate its employees to enlarge their expertise and profession.
	CSR3	Employee's needs and wants is the fundamental concern of our management.
	CSR4	Our company's implemented policies are adjustable which brings an easy work and life stability for its employees.
	CSR5	I believe that our managers take those decisions that are fair for employees.
	CSR6	I believe that my firm encourage those employees who wants to gain supplementary education.

Table 1 Measuring items (Con't)

Variables	Abbr.	Questions
Coercive pressure	CP1	I perceive that federal environmental ruling (like cleaner production or excess emission) drives our firm to adopt GSCM practices.
	CP2	I perceive that federal resource saving and preservation rulings would encourage firms to adopt GSCM practices.
	CP3	I feel that the firms will be forced to use GSCM practices by provincial ecological regulations.
	CP4	I feel that regional preservation and resource saving rulings would have an impact on the adoption of GSCM practices.
	CP5	I perceive that the ecological regulations of the export countries encourage the companies towards the use of GSCM practices.
	CP5	Export countries preservation and resource saving rulings would have an impact on the use of GSCM practices.
Normative pressure	NP1	I believe that the exports lead us towards the adoption of GSCM practices.
	NP2	I believe that the sales to the international customers would promotes the company to adopt GSCM practice
	NP3	I perceive that the ecological demand from the national customers would have an impact adoption of GSCM practices.
	NP4	I believe that the awareness of the consumers about environment would drive the GSCM practices adoption.
	NP5	GSCM practices are promoted when companies try to develop its green image.
	NP6	I feel that our industry is being followed by news media critically.
	NP7	I feel that the public communities' awareness about ecology would bring the GSCM practices in firms.
Mimetic pressure	MP1	I perceive that the green strategies of direct competitors would force the firm to adopt GSCM practices.
	MP2	I feel that the green strategies of the manufacturer who produces the alternate product of my firm would enforces us to initiate the GSCM practices.
	MP3	I believe that industrial specialist group enterprises would encourages the adoption of GSCM practices.
Organizational readiness	OR1	MY firm have financial resources to adopt GSCM practice.
	OR2	My organization have sufficient technological resources to use GSCM practices.
	OR3	My organization provide enough infrastructure that help to use GSCM practices.
	OR4	Many of our employees have full access to use the green equipment.
	OR5	Most of our employees are educated to use GSCM practices.
Green supply chain management	GSCM1	I intended to utilize GSCM practices.
	GSCM2	I intended to fulfill my job tasks using GSCM practices.
	GSCM3	I will use GSCM practices consistently.

Noor Fatima is a Ph.D. Candidate at Institute of Business Administration (IBA), University of the Punjab Lahore, Pakistan. She earned her MS (Business Administration) degree from Lyallpur Business School; Government College University Faisalabad and the present work was the part of her master's thesis. Her research interests revolve around and at the Green supply chain management, Sustainable organizational performance, and Technology adoption.

Dr. Muhammad Abrar is a professor of Management Sciences (Marketing), and currently, he is serving as a Professor / Director at Lyallpur business school at Government College University, Faisalabad, Pakistan. He received his PhD in Business Administration (Marketing) from The Huazhong University of Science and Technology, Wuhan, P.R.China. He is a well-known scholar in his research areas (Brand Management, Supply Chain Management, Digital Marketing, Services Marketing, Management, and Business Education). His scholarly peer-reviewed research articles have been published in the top journals, e.g., International Journal of Contemporary Hospitality Management, Journal of Enterprise Information Management, Management Decision, Journal of Competitiveness, Asia Pacific Journal of Marketing and Logistics, Total Quality Management & Business Excellence, Marketing Intelligence & Planning, Economic and Industrial Democracy, International Journal of Emerging Markets, Chinese Management Studies, Autex Research Journal, SAGE Open, Quality & Quantity, Industria Textila, Journal of Islamic Marketing.

Dr. Muhammad Shahbaz is working as Associate Professor of Business Administration (Marketing) at UE Business School, University of Education Lahore, Pakistan. He earned his PhD (Management Sciences) degree from Harbin University of Science and Technology China. His research interests include Big data analytics, Technology adoption, Digital Marketing, M-Marketing, Green Supply Chain Management, Tourism and Sustainable sales Performance. He has published his work in well-known peer-reviewed international academic journals like journal of Cleaner Production; Journal of Big Data, Technology in Society; Complexity; Behaviour and Information Technology; Asia Pacific Education Review, and Journal of Business Economics and Management.