GO Green Research and Education

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

The Nexus of Green Fintech and Corporate Financial Performance: A Catalyst for Sustainable Corporate Growth and Financial Success

Ibrar Hassan Khan

Research Scholar, Bahria University, Islamabad, Pakistan

Dr Syeda Faiza Urooj

Assistant Professor, Federal Urdu University of Arts, Science and Technology, Islamabad

Abstract

This research article explores green fintech and corporate financial performance relationships, particularly in the services sector. Businesses can use green innovation to gain a competitive advantage and achieve sustainable growth. Green innovation involves the eco-friendly adoption and development of technologies, procedures, and goods. Empirical data and a case study are used to show how banks can use green innovation to increase their financial performance and environmental resilience while also reducing their ecological footprint and increasing resource efficiency. The study also emphasizes the significance of green fintech, which encompasses digital solutions that facilitate sustainable finance and responsible investment. By examining green fintech initiatives implemented by progressive firms, the research showcases how these technologies can drive green investments, support renewable energy projects, and empower customers to make eco-conscious financial choices.Findings highlight the helpful impacts of green innovation and fintech on corporate financial performance within the services sector. It provides evidence that embracing these practices can lead to improved financial outcomes for companies, including cost reduction, increased access to finance, enhanced brand value, and compliance with environmental regulations. The study emphasizes that firms that effectively integrate green innovation and green fintech into their strategies are more likely to achieve sustainable growth and competitive advantage. Furthermore, the study recognizes the transformational leadership importance in successfully implementing green innovation and green fintech strategies. Bank leaders who exhibit a strong commitment to sustainability, effectively communicate a greener vision, and drive organizational change are more likely to inspire their teams to embrace eco-friendly practices, leading to enhanced corporate financial performance. In conclusion, this research article sheds light on green fintech, corporate financial performance green innovation relation within the services sector. To achieve financial success and promote sustainability, it emphasizes adopting environmentally friendly practices and leveraging innovative technologies.

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

Keywords: Green innovation, Corporate financial performance, Banking sector, Environmental sustainability, long-term financial success, eco-friendly technologies, green investments, Transformational leadership

1. Introduction

As a result of the fourth industrial revolution, our lifestyles have undergone significant changes and fintech has emerged as a result. Innovations in fintech enable new and profitable financial services concepts to be developed through the introduction of innovative technologies. The development of fintech has rapidly progressed in recent years and is widely seen as a demonstration of innovation within the financial industry. Numerous studies have illustrated the transformative impact of fintech in the services sector, reducing transaction costs by addressing information asymmetry caused by geographical barriers.

Outcome of the pandemic COVID-19, there is increased recognition of the importance of green and sustainable finance in the financial services industry. This growing awareness is driven by factors such as policy changes, regulations, market dynamics, and the rising demand from both corporate and retail consumers. These various influences have led to a greater emphasis on integrating sustainability principles into financial practices. Overall, the fusion of fintech and sustainable finance is becoming increasingly important, paving the way for innovative solutions that align economic growth with environmental protection. The adoption of green and sustainable finance practices is expected to continue shaping the financial services industry in a more environmentally conscious and socially responsible direction.

In contrast to traditional financial services, fintech generates revenue rapidly, delivers high-quality services, and lowers costs, thereby restructuring the financial industry and contributing to the stability of the overall financial system (Shin and Choi, 2019). According to Park and Kim (2020), the financial sector holds a significant responsibility in driving the economy's shift towards a sustainable future. Fintech products can play a vital role in addressing the investment shortfall caused by inaccessible information. The rise of fintech offers significant advancements in data handling and gathering, particularly with automation blockchain, digitization, and biometrics technology. These advancements can facilitate improved financial access for firms (Pizzi et al., 2021). Additionally, fintech innovations can help ease ecological concerns and boost performance in high-pollution sectors (Siddik et al., 2023). Fintech also serves as an important source of green

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

finance, supporting ecological investments and performance by smaller and larger firms (Nassiry, 2018; Guang-Wen & Siddik, 2022a).

This study aims to check the influence of both outside fintech and inner green transformational leadership (GTL) factors on the environmental performance (ENP) of businesses in Pakistan's service sector. This research is important as it expands upon previous studies that primarily focused on core factors, for instance GTL, that push ENP and green innovation in small and medium-sized firms (SMFs). The hypothesis suggests that senior executives of service sector SMFs should adopt GTL and foster internal capabilities necessary for green innovation to achieve ENP. This aligns with the idea that leadership plays a crucial role in strengthening understanding, predicting, and controlling staff behavior toward shared environmental goals.

Previous research has also highlighted the need for empirical studies exploring both internal and external factors in SMFs for gaining a deeper development, implementation, and maintenance understanding of proactive environmental strategies. Combining external factors, such as fintech, with internal capabilities and leadership, can contribute to enhanced innovation and performance in firms. Therefore, our study seeks to participate in the literature by examining both inner GTL and external fintech factors influencing the ENP of businesses in Pakistan's service sector. By considering the interaction between these factors, our research aims to provide insights into ways fintech adoption and GTL can drive green innovation and ultimately improve environmental performance from the perspective of emergent economies like Pakistan.

Our research is contributing to the existing literature on green knowledge management (GKM), environmental management, and technology adoption in several ways. Firstly, we focus on the absence of empirical research on sustainability and financial performance in firms. We uncover that service companies in Pakistan can utilize fintech innovation to improve their environmental performance and green innovation, highlighting the significance of fintech as corporate environmental performance driver. Secondly, we expand our study upon two important theories: Ability-motivation-opportunity (AMO) hypothesis and ecological modernization theory (EMT). We show that tech advancements, such as fintech, can assist ecological modernization, helping companies mitigate ecological effects. Also, we provide evidence that green technology leadership (GTL) is a crucial strategic resource that fosters expertise, encouragement, and opportunities for staff to drive eco-friendly innovation and improve overall environmental

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

performance. Thirdly, our research contributes to the understanding of eco-innovation by providing realistic proof of the implicit impacts of GTL and financial technology on enhancing organizations' environmental performance. Green innovation acts as a mediating factor in these relationships, showing how fintech and GTL influence environmental outcomes. Lastly, our study focuses on smaller and larger service corporations in Pakistan, expanding the existing knowledge on fintech and GTL in emerging economies. Our evaluation offers realistic confirmation for both the AMO and EMT hypotheses and provides insights into how GTL and financial technology affect environmental performance in emerging economies through eco-innovation.

1.2 Research Gap

The effect of financial technology (fintech) on organizational environmental and sustainability performance limited research exists. Previously focus of studies has primarily been on the fintech influence on financial performance, renewable energy utilization, and access to credit (Abbasi, Alam, Brohi, & Nasim, 2021). Yet, lack of exploration is there regarding the role of financial technology in improving sustainability performance, with most existing studies consisting of literature reviews and case studies (Agudo & Vergara, 2021 & Pizzi et al., 2021). Additionally, major research has centered on the overall organizational sustainability impact of fintech (Rao, Pan, He & Shangguan, 2022). Scholars have emphasized the need for empirical investigations utilizing primary data to examine the impact of automating finances on organizations' environmental and sustainability operations (Pizzi et al., 2021). Furthermore, the existing literature has a predominantly intensive influence on the various environmental and strategic factors of business ecological and sustainability routine, overlooking the position of technological drivers (Rashid, Masud & Kim, 2019). To fill these voids, this investigation aims to study how green innovation acts as a mediator between fintech adoption in the service sector and environmental and sustainability performance. By considering the involvement of different moderation and mediation in this relationship, this research aims to contribute a deeper understanding to the existing literature (Vergara & Agudo, 2021; Liu et al., 2021; Pizzi et al., 2021; Brohi & Nasim, 2021).

1.3 Problem Statement

Our research aims to investigate three key dimensions in the context of small and medium-sized firms (SMFs). Firstly, we seek to discover the financial technology (fintech) adoption impression over management of green knowledge and its implications for environmental performance (ENP). Secondly, we aim to assess the green transformational leadership (GTL) role as a catalyst for

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

promoting the adoption of green knowledge management practices and driving ENP in SMFs. Lastly, we will investigate the GKM mediation effect in the association between fintech adoption (FA), GTL, and ENP, while also considering the prospective moderation role of Green Innovation (GI) as a connection between fintech adoption and ENP. To enrich our understanding of these dimensions, we will draw on theoretical frameworks such as the ability-motivation-opportunity theory (AMO) and ecological modernization theory (EMT). By combining insights from the adoption of fintech, implementation of GTL practices, and effective green knowledge management, we aim to provide valuable insights into how these factors can contribute to enhanced environmental performance in SMFs.

2. Theoretical Foundations and Conceptual Framework

Diverse field professionals had examined the criteria for incorporating ecological considerations into business approaches. These criteria rely on conceptual frameworks such as impact on environment, considering social and economic considerations, effectively managing resources, and adopting a whole life cycle approach. Theoretical models although explain different aspects of the identical idea, they collectively contribute to understanding environmental and socioeconomic stewardship (Tang, Chau, Fatima & Waqas, 2022).

Our research builds upon two distinct theoretical frameworks to investigate the stimulus of Green Transformational Leadership and fintech innovation on corporations' green initiatives and environmental performance. Ecological Modernization Theory (EMT) proposed by Khan et al. (2022) suggests that by embracing technological advancements like fintech, organizations can enhance resource efficiency and address environmental challenges associated with economic growth. This theory emphasizes the need for environmental modernization and industrial adaptation within the global ecosystem and biosphere. Based on the EMT, we hypothesize that implementing advanced technologies like fintech can facilitate green innovation, ultimately leading to improved environmental sustainability.

In studies on Green Human Resource Management (GHRM) performance, Ability-Motivation-Opportunity (AMO) theory commonly used (Bos-Nehles, Van Riemsdijk & Kees Looise, 2013), which says Green Transformational Leadership (GTL) enables the implementation of Green HRM practices to enhance employee skills, motivation, and eco-friendly management opportunities (Haddock-Millar, Sanyal & Muller-Camen, 2016). This theory highlights the

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

importance of providing employees with the necessary information, skills development, and motivation through performance assessments and incentives to align with environmental objectives. Moreover, creating opportunities involves fostering employee engagement through data sharing, collaboration, and freedom (Sun et al., 2022). In line with AMO's outlook, we suggest that GTL seeks to inspire, entice, and maintain employee behaviors that align with goals of safeguarding environment. This, in turn, promotes green innovation within organizations and leads to superior environmental and social performance (ENP) (Sun et al., 2022).

2.1 Fintech Adaptation and Environmental Performance

Fintech adaptation enables organizations to optimize their financial processes and reduce resource consumption, leading to enhanced environmental performance (Xin et al., 2022). One specific area where fintech adaptation can make a difference is in payment systems. Traditional payment methods often involve physical mediums like cash or paper checks, resulting in significant environmental implications related to resource extraction, manufacturing, transportation, and disposal. Leveraging fintech solutions, such as digital payment platforms and blockchain technology, offers more efficient and sustainable payment options, reducing paper waste and carbon emissions (Toppinen et al., 2020). Moreover, fintech adaptation can facilitate the development of innovative financing models that support environmentally friendly projects. Platforms like crowdfunding, powered by fintech, enable individuals and organizations to invest in and support renewable energy initiatives, sustainable infrastructure projects, and eco-friendly startups (Davies et al., 2021). This promotes environmental innovation and improves the economy's overall environmental performance.

According to the theory, implementing fintech solutions across many industries, including the financial industry, can improve environmental performance. Drawing upon the Environmental Modernization Theory (EMT), which emphasizes the role of technical progress in improving resource efficiency for addressing environmental challenges (Tang et al., 2022; Khan et al., 2021b), we propose that fintech adaptation can contribute to improved environmental sustainability. Based on these considerations, we propose that fintech adaptation positively affects firms' environmental performance. By leveraging technological advancements in the financial sector, organizations can enhance resource efficiency, promote sustainable payment systems, and support

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

environmentally friendly projects. This integration of fintech and environmental considerations contributes to achieving a more sustainable and resilient economy.

H1. The integration and utilization of fintech solutions positively affect firms' ecological progress.

2.2 Green Transformational Leadership and Ecological Performance

Green Transformational Leadership (GTL) has indeed emerged as a valuable approach for enhancing environmental performance within the service sector. GTL involves leaders inspiring and empowering their employees to adopt environmentally responsible behaviors, thus promoting sustainable practices (Xie, Miao, & Fan, 2018). Empirical studies have consistently shown an optimistic association between GTL and ecological performance, highlighting potential benefits of this leadership approach (Zhang, Liu, & Cai, 2020; Chen, Qian, & Rahman, 2021).

To further understand how GTL influences environmental performance in the service sector, it is essential to integrate theoretical frameworks. The Achievement Motivation Theory (AMO) provides a valuable lens for examining this relationship in the service sector context. According to the AMO theory, employee performance depends on their ability, motivation, and opportunity (Appelbaum, Degbe, & MacDonald, 2012). GTL, through inspiring motivation and intellectual stimulation, creates awareness and a sense of purpose related to sustainability, providing the necessary resources and support to facilitate the adoption of environmentally friendly behaviors (Rae, 2018). By investigating the interplay between GTL, the AMO theory, and environmental performance, intent of our research is to participate in the understanding of sustainability routines in service sector. It seeks to provide practical insights for leaders on how to foster eco-friendly initiatives and promote environmental performance within their organizations. Through a comprehensive analysis of GTL's impact on employee motivation, abilities, and opportunities, this research endeavors to shed light on the mechanisms by which GTL influences environmentally responsible behaviors and ultimately contributes to positive environmental outcomes.

H2. Ecological sustainability of businesses is positively impacted by green transformational leadership (GTL).

2.3 Green Knowledge Management role with Fintech Adaptation and Green Transformation Leadership

Studies have highlighted the role of fintech in improving access to information and data analytics, enabling organizations to collect, analyze, and disseminate relevant green knowledge (Xin et al., 2022). Fintech solutions, such as advanced data analytics tools and platforms, provide

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

organizations with the ability to harness big data and derive meaningful insights to inform their environmental decision-making processes (Davies et al., 2021). Additionally, fintech adaptation facilitates better collaboration and knowledge sharing among stakeholders involved in environmental sustainability efforts (Wei et al., 2021). Through digital platforms, organizations can connect with experts, researchers, and other entities, enabling the exchange of best practices, innovative ideas, and knowledge related to green practices. This collaborative environment fosters the development and application of green knowledge within and beyond organizational boundaries.

Green Transformation creates awareness and a sense of purpose related to sustainability, providing the necessary resources and support to facilitate the adoption of environmentally friendly behaviors among employees (Rae, 2018). This motivational and intellectually stimulating leadership style fosters the development and dissemination of green knowledge within organizations, aligning with the principles of GKM. By actively managing and utilizing green knowledge, organizations can enhance their environmental performance. GKM facilitates the adoption and application of environmentally friendly practices, enables informed decision-making, and supports the development of innovative solutions to address environmental challenges (Wang. S. & Wang, 2020). Based on this we set hypotheses that the integration of fintech solutions, such as advanced data analytics tools and digital platforms, can enhance the acquisition, creation, dissemination, and application of environmentally friendly knowledge within an organization (H3). Additionally, Green Transformation, characterized by leaders inspiring and empowering employees to adopt environmentally responsible behaviors, is expected to enhance the development and utilization of green knowledge within organizations (H4). Furthermore, it is suggested that effective Green Knowledge Management can contribute to improved Corporate Environmental Performance by facilitating informed decision-making, innovative solutions, and the acceptance of environmentally friendly methods (H5) (Shou et al., 2021; Xie, Miao, & Fan, 2018; Begum et al., 2022).

H3. Fintech is positively related to Green Knowledge Management**.**

H4. Green Transformation is positively related with Green Knowledge Management.

H5. Green Knowledge Management positively related to Corporate Environmental Performance.

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

2.4 The mediating role of GKM between Fintech adaptation, Green Transformation Leadership, and Environmental Performance

Green Knowledge Management (GKM) acts a crucial part in improving ecological performance within organizations. By systematically acquiring, creating, sharing, and utilizing environmental knowledge, GKM supports sustainable practices and decision-making processes (Ketata, 2019; Lei et al., 2020). As shown consistently in research, effective GKM positively impacts organizations' environmental performance. GKM practices enable organizations to gather and disseminate information related to eco-friendly technologies, regulations, and best practices. This knowledge empowers employees to make informed decisions, adopt environmentally responsible behaviors, and contribute to innovative solutions that minimize environmental impact (Nguyen, 2018; Ekbia et al., 2020).

Moreover, GKM helps organizations identify potential environmental risks, develop mitigation strategies, and enhance overall environmental performance. By effectively managing and utilizing environmental knowledge, organizations align their operations with sustainability goals, cut resource spending, and raise the use of renewable energy sources (Shi & Wang et al., 2021). The successful implementation of GKM relies on the integration of Information Systems (IS). Environmental databases, knowledge repositories, and collaboration tools facilitate seamless sharing and access to environmental knowledge across different organizational levels. Additionally, leveraging advanced technologies such as artificial intelligence and machine learning enables the analysis and extraction of valuable insights from large volumes of environmental data (Mallmann, 2020; Hsueh et al., 2021). In conclusion, GKM is a considerable approach for businesses to enhance their environmental performance. By effectively managing and leveraging environmental knowledge, organizations foster a culture of sustainability, drive eco-innovation, and contribute to the achievement of long-term environmental goals.

H6. Environmental Performance and Fintech adoption are favorably mediated by GKM

H7. Green Transformation Leadership and Environmental Performance favorably mediated by GKM

2.5 Moderating function of Green Innovation between Fintech adaptation and environmental performance

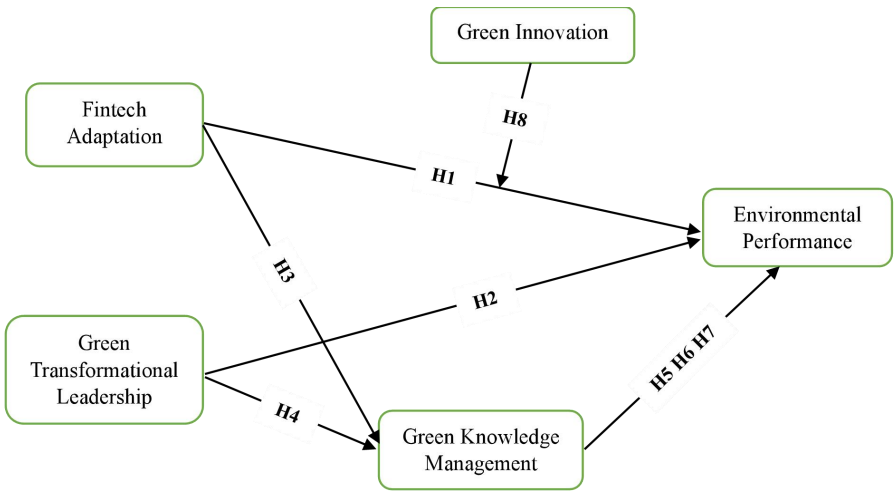
Green Knowledge Management (GKM) acts as crucial in upholding environmental performance within organizations. By systematically acquiring, creating, sharing, and utilizing environmental

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

knowledge, GKM supports sustainable practices and decision-making processes (Ketata, 2019; Lei et al., 2020). Consistently shown by research effective GKM has a definite effect on organizations' environmental performance. GKM practices enable organizations to gather and disseminate information related to eco-friendly technologies, regulations, and best practices. This knowledge empowers employees to make informed decisions, adopt environmentally responsible behaviors, and contribute to innovative solutions that minimize environmental impact (Nguyen, 2018; Ekbia et al., 2020). Moreover, GKM helps organizations identify potential environmental risks, develop mitigation strategies, and enhance overall environmental performance. By effectively managing and utilizing environmental knowledge, organizations align their operations with sustainability goals, moderate reserve use, and promote the use of renewable energy sources (Shi et al., 2021; Wang et al., 2021).

The thriving execution of GKM relies on the integration of Information Systems (IS). Environmental databases, knowledge repositories, and collaboration tools facilitate seamless sharing and access to environmental knowledge across different organizational levels. Additionally, leveraging advanced technologies such as artificial intelligence and machine learning allows for the analysis and extraction of valuable insights from large volumes of environmental data (Mallmann, 2020; Hsueh, 2021). GKM is a vital approach for institutions to enhance their environmental performance. By effectively managing and leveraging knowledge, organizations foster a culture of sustainability, drive eco-innovation, and contribute to the achievement of long-term environmental goals.

H8. The connection between Fintech adoption and Environmental Performance is moderated by Green Innovation (GI).



Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

Fig. 1. Conceptual model

3. Research approaches

3.1 Data sampling and collection

This study's theoretical framework employed a quantitative methodology to examine the collected data from respondents. By focusing on a quantitative approach, the study intended to stipulate empirical indications concerning innovation strategy's impact on financial performance. This relationship was assessed through the mediation of green knowledge management & moderation of green innovation within the business units of service companies in Pakistan.

To gather the necessary data, we utilized a survey technique. Selected respondents were distributed questionnaires, which were chosen using specific procedures. It should be noted that the attributes of the service sector show a significant role in influencing both the positioning and innovation capacity of corporations in relation to products and markets. According to Pitassi (2012), service sector innovations often differ from those in industrial sectors, which results in different organizational structures.

Service innovation process is typically characterized by extensive interaction, both internally and externally. Internally, this involves managers and employees engaging in various formal and informal interaction patterns. Externally, the interaction primarily takes place with customers (Sundbo & Gallouj, 2000). It is crucial to consider these interaction dynamics when examining the effects of innovation strategies on financial performance.

It is important to note that only a select few organizations engage in formal research and development (R&D) activities. As a result, any research that focuses mainly on these businesses or on R&D spending may be biased (Crépon et al., 1998). Taking this into account, this aims of study is to provide a comprehensive interpretation of the relationship between innovation strategies and financial performance, considering the unique characteristics of the service sector in Pakistan.

Measurement Instrument

In this study, a variety of questionnaire items were employed to evaluate the hypotheses, with the majority of the indicators coming from earlier research. However, it should be highlighted that due to the unique circumstances of this study, modifications to the research settings were necessary. Table 1 presents the variables derived from prior research, encompassing 23 items that measure factors such as financial attitude (FA), general trust in technology (GTL), general innovativeness (GI), & business environmental performance (ENP). Items of questionnaire

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

effectively capture the constructs of FA, GTL, GI, and ENP. To measure firms' financial attitudes, eight questionnaire items were developed by scholars specifically for this study. Standard concept reliability and validity measures were used to assess the validity and reliability of the items in a pre-test (see Table 2 for further information).

It should be noted that while there are many fintech services available in the world (such as crowdfunding services, digital wallets, blockchain, RegTechs, robo-advisors, InsurTechs, and cryptocurrency), the majority of fintech businesses in Pakistan are mobile financial services (MFS), payment system and service companies (Islam, 2022). MFS services are used for banking payments, business-to-business (B2B) transactions, utility payments, and salary payments on the rise. Therefore, in the context of Pakistan, financial attitude primarily revolves around disbursement systems (Siddik et al., 2023). Manager's general trust in the technology was assessed by six items adapted from the work of Chen et, al (2013). Additionally, from Singh et al. (2020) six items were adopted to determine the general innovativeness. Lastly, firms environmental effectiveness was assessed using the research conducted by Sajan, Shalij, Ramesh, and Biju Augustine (2017) consisting four items.

According to the survey's structure, participants were asked to compare the environmental performance of their company's main competitor to that of their own for previous three years. Five point scale was used for evaluation with "much worse" as the lowest score and "much better" as the highest. All survey questions, with the exception of the demographic questions, were graded from 1 to 5 on a Likert scale, with 1 as "strongly disagree" and 5 as "strongly agree." In addition, were asked participants for demographic information such as their, age, education level, gender, and total working experience. Overall, these survey questions were chosen with care in order to capture the necessary constructs and collect useful information from the respondents for this study.

Table. 1: Statistical Correlation and Descriptive analysis.

	Mean	SD	Skew	Kurt	I	II	III	IV	V
Fintech Adaptation			-	-	1				

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

	3.19	0.32	0.312	1.031					
Green Transformation			-	-	0.44				
Leadership	3.50	0.23	0.521	0.719	2	1			
Green Knowledge					0.34	0.64			
Management	3.13	0.97	1.634	1.230	2	2	1		
Green Innovation			-	-	0.45	0.54	0.74		
	3.64	0.07	0.364	0.844	2	2	2	1	
Environmental Performance			-		0.54	0.44	0.54	0.64	
	3.77	0.10	0.911	0.360	2	2	2	2	1

Table 2: **Construct Reliability and Validity**

	Items	**Loadings**	**Alpha**	**CR**	**AVE**
Fintech Adaptation					
We use fintech at our business regularly	FA1	0.709	0.714	0.875	0.501
We use fintech for merchant payments	FA2	0.711			
We use fintech for the staff salary payments	FA3	0.738			
We use FinTech for government dues	FA4	0.723			
We use FinTech for microfinance and crowdfunding	FA5	0.236			
We use FinTech for payments of loan	FA6	0.701			
We use FinTech for payments of insurance	FA7	0.733			
Green Transformation Leadership					
I motivate subordinates with environmental initiatives	GTL1	0.668	0.709	0.838	0.509
I convey to my staff an exclusive environmental vision.	GTL2	0.700			
I drive subordinates to develop an environmental strategy	GTL3	0.643			
I support my staff in achieving environmental objectives	GTL4	0.651			

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

I consider my staff's views on the environment	GTL5	0.701			
Green Knowledge Management					
In our organization staff members and partners have easy access to information on latest eco-friendly practices.	GKM1	0.776	0.802	0.852	0.591
The procedures in our company is in place to gain insights on ecological initiatives of our, suppliers, competitors, business partners and clients.	GKM2	0.811			
Structured mechanisms in our organization are in place to exchange best practices across multiple disciplines of business operations.	GKM3	0.667			
Our company has developed initiatives (such as meetings, seminars, and collaborative projects) that enhance green information sharing across units/stakeholders.	GKM4	0.813			
Green Innovation					
Our company continuously optimizes operational and manufacturing processes to make savings by using cleaner methods or green technologies.	GI1	0.648	0.705	0.882	0.557
Our business uses materials that generate least pollution.	GI2	0.721			
Our enterprise uses materials that intake less energy and resources	GI3	0.748			
Our company frequently refines existing products and services offerings	GI4	0.773			
Our company has introduced updated version of existing services and products for local	GI5	0.788			

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

customers					
Our company has increased the effectiveness for providing products and services	GI6	0.789			
Environmental Performance					
Reduction in environmental business waste	ENP1	0.812	0.707	0.902	0.608
Reduction in energy/ fuel usage	ENP2	0.658			
How much has your company contributed to environmental causes on a voluntary basis with Internal logistics	ENP3	0.801			
Management	ENP4	0.755			
Selling and Marketing	ENP5	0.753			
Support and assistance	ENP6	0.883			

3.2 Data analysis techniques

This research primarily focuses on exploring the mediation effects of green knowledge management on the relationship between fintech adaptation, green transformation leadership, and environmental performance. Additionally, the study inspects the moderation effect of green innovation. structural equation modeling (SEM) was used for hypotheses evaluation, with Partial Least Squares (PLS) 4.0 used for data examination.

Two procedures were employed in this research to evaluate the hypotheses. Firstly, the instantaneous effects of fintech adaptation, green transformation leadership, and environmental performance were examined. If the direct effects were found to be significant, the second procedure involved testing mediation effect of green knowledge management in the interaction between fintech adaptation, GTL, and ENP. Mediation factor evaluated using the difference approach of coefficient beta. The following actions were followed in the analysis:

1. Examination of the beta values as a straight measure of explanatory variable's effect on controlled variables, without considering intervening variables.
2. Examination of the beta values as an absolute effect of explanatory variables on controlled variables, considering mediating variables.
3. Evaluation of independent variables effect on mediating variables.

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

4. Evaluation of the intervening variables effect on controlled variables.
5. Assessment of moderating variable effect on the independent variable.

Table II's presentation of the reliability test and instrument validity findings provides crucial details on the caliber and consistency of the data gathered.

This study makes use of SEM and PLS to provide a thorough understanding of the intervening function of green knowledge management in the association between fintech adoption, ENP, and GTL, while also taking into account the role of green innovation as a moderator. The validity and reliability tests conducted further strengthen the robustness of the research findings.

4. Results

Descriptive analysis

Descriptive analysis in Table 2 related to latent constructs provides valuable insights into the mean scores of the variables FA, GTL, GI, and ENP. For FA score determined to be 3.19, GTL was 3.50, GI was 3.13, and ENP was 3.77 respectively. Kurtosis & skewness values were compared to the normality thresholds in order to gauge the data's normalcy. According to earlier studies (Kline, 2011), it was found that the values for kurtosis and skewness were below the corresponding criteria of ± 3 and ± 10. These findings imply that the data approximates a Gaussian distribution. Analysis of correlation was also performed to look at connections between the latent constructs. The highest observed correlation coefficient, 0.74, shows that there isn't any multicollinearity among the variables. It is obvious statistical models are appropriate for further inquiry due to lack of multicollinearity and data normality. Analysis results of these assist establish the applicability of the study model and offer a strong basis for following statistical methods.

Model Measurement analysis

Four number tests were carried out for evaluating the discriminant validity, internal consistency reliability, convergent validity, and item-level reliability, of the measurement model. The degree to which a construct's elements measure the same underlying construct is referred to as convergent validity. Factor loadings in this study for each item ranged from 0.236 to 0.883, all are above the suggested cutoff value of 0.50. This indicates that the individual items are reliable and contribute significantly to their respective constructs. Additionally, the values for average variance extracted (AVE) lie from 0.501 to 0.608, and meet the requirement of convergent validity, as Hair et al. (2016) suggested that the AVE value should be at least 0.50.

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

When two constructs are distinct and not statistically identical discriminant validity is established. Two approaches were used to determine discriminant validity: the correlational heterotrait-monotrait ratio (HTMT) and the Fornell-Larcker criterion. AVE's square root for each construct should be bigger than its correlation coefficient among the other constructs, according to Fornell-Larcker criterion. Fornell-Larcker criterion was satisfied in this study, confirming discriminant validity. Moreover, the value for HTMT should be beneath 0.85 for conceptually distinct variables, which were all less than 0.85, supporting the presence of discriminant validity. Item-level reliability and internal reliability were checked using composite reliability (CR) and Cronbach's alpha. The alpha values extend from 0.705 to 0.802, far above the tolerance of 0.70 suggested by Bernstein and Nunnally (1994), indicating strong internal consistency. The CR values, which should be above 0.60, were all above 0.60, proving the reliability and internal coherence of the factors.

In summary, measurement model demonstrates strong reliability and validity. The items exhibit good reliability, and the constructs show convergent validity. Also, HTMT approach and Fornell-Larcker criterion establish discriminant validity. Moreover, CR values and Cronbach's alpha confirm internal reliability. Findings in this study indicate the robustness of the measurement model.

Table. 3 Fornell−Larcker criteria

	ENP	FA	GI	GKM	GTL
ENP	**0.777**				
FA	0.316	**0.691**			
GI	0.478	0.169	**0.732**		
GKM	-0.456	-0.152	-0.422	**0.812**	
GTL	-0.226	-0.077	-0.293	0.148	**0.752**

Table. 4 HTMT Ratio

	ENP	FA	GI	GKM	GTL	VIF
ENP	0.777					
FA	0.316	0.691				1.047
GI	0.478	0.169	0.732			1.318

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

GKM	-0.456	-0.152	-0.422	0.812		1.249
GTL	-0.226	-0.077	-0.293	0.148	0.752	1.118

To assess multicollinearity in the analysis, the various inflation factor (VIF) was examined. With a general rule that values should be fewer than 5, The VIF is a metric used to evaluate a regression study's level of multicollinearity. Data analysis in Table 4 reveals that the VIF values are less than 5, which excludes any discernible multicollinearity. This indicates that the independent variables do not have an excessive amount of correlation and meet the criteria for discriminant validity (DV). The results support the assertion that there is no multicollinearity issue in the scrutiny, strengthening the validity and reliability of the findings.

Structural model

Afterwards, the measurement model, the next process involves hypotheses validation using Smart PLS4. This study used an inner model to assess the hypotheses pertaining to the examined model. The T-value and p-value were computed. In this study, acceptance of the hypothesis is made when the t-value exceeds 1.96 and the p-value below 0.05, and contrariwise. PLS-SEM4 is utilized, which employs a sampling technique bootstrapping with subsamples of 5000. In Table 6 and Figure 3, the hypothesis testing outcomes are displayed. Seven hypothesized associations were all determined to be significant in the model, according to the results.

Specifically, Table 6 shows that FA has a major impact on corporate ENP (b = 0.251, p = 0.000 & t = 5.451,), supporting H1. It indicates there will be a 0.251% increase in ENP due to 01% change in FA. Furthermore, GTL was found to significantly affect firms' ENP (b = 0.055, p = 0.003, t = 2.737), proving H2. Suggesting that there is a sure relationship between GTL and ENP. The findings support H1 and H2 by proving the statistical importance of these correlations.

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

Fig. 3. Structural model

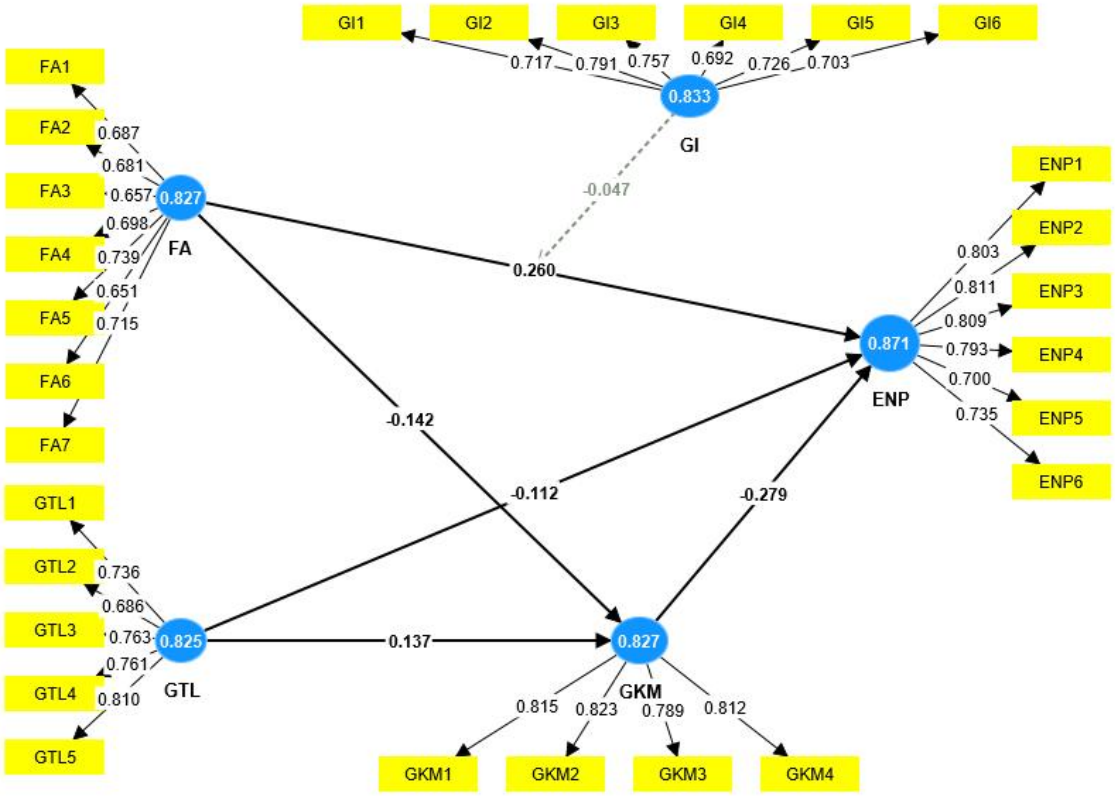


Table. 6 Results of Hypothesis Testing

Hypothesis	Path	Sample	mean	*stdev*	*t-stat*	*p-values*	Remarks
Direct Effect							
H-I	FA -> ENP	0.244	0.251	0.045	5.451	0.000	Supported
H-II	GTL -> ENP	(0.151)	(0.156)	0.055	2.737	0.003	Supported
H-III	FA -> GKM	(0.142)	(0.151)	0.064	2.207	0.014	Supported
H-IV	GTL -> GKM	0.137	0.146	0.067	2.049	0.020	Supported
H-V	GKM -> ENP	(0.397)	(0.394)	0.039	10.155	0.000	Supported
Mediating Effect							

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

H6	FA -> GKM -> ENP	0.056	0.059	0.024	2.305	0.011	Supported
H7	GTL -> GKM -> ENP	-0.054	-0.058	0.028	1.943	0.026	Supported
Moderating Effect							
H8	GI x FA -> ENP	-0.047	-0.052	0.054	0.87	0.192	Rejected

The results further support H3 by showing a positive relationship between FA and GKM, along with a *t*-value of 2.207, a coefficient of 0.064, and a *p*-value of 0.014. Similar to how GTL influences businesses' GKM favorably, H4 is supported by the *t*-value of 2.049, coefficient of 0.067, and *p*-value of 0.020 for GTL. Additionally, it was discovered that businesses' GKM strongly affects their environmental performance, supporting H5 by a 0.039 coefficient, a 10.155 t-value, and a 0.000 p-value. This means that improvement of 1% in GKM can boost an organization's 0.039% ENP.

An analysis of mediation completed to explore the effect of GKM on the relationships between FA, ENP, and GTL. The findings support H6 consisting coefficient of 0.024, a t-value of 2.305, and a p-value of 0.011, showing that GKM strongly mediates the FA-ENP association. The link between GTL and ENP is similarly mediated by GKM, by a 0.028 coefficient, a *t*-value of 1.943, and a 0.026 *p*-value supporting H7.Additionally, an analysis of moderation ensued to examine the influence of GI on the ENP-FA relationship. With a factor of 0.054, a 0.870 *t*-value, and a 0.192 *p*-value, the outcomes show that firms' GI fails to moderate the FA-ENP linkage, directing that the 8th hypothesis is not supporting, indicating that firms' GI does not moderate the relationship between FA and ENP.

5. Discussion

Based on the outcomes of the consideration, it was determined that there is substantial FA influence on firms' ENP, thereby confirming Hypothesis 1. Previous research in the areas of fintech and sustainability also supports this notion. Fintech has been shown to alleviate financial constraints for businesses operating in high pollution levels industries, directly impacting corporations. Additionally, the development of green finance is made possible through fintech

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

innovation, supporting sustainable environmental progress. This study expands on the concept of environmentally friendly technological improvements and their potential to solve environmental issues brought on by economic expansion.

Additionally, GTL was found to be a vital interpreter for ENP of firms, aligning using preceding writings that report a conclusive association between GTL & ENP. Businesses' ability, commitment, and potential in the green space are improved by GTL, which increases ENP. The AMO review suggests that corporations can mitigate ecological concerns via GTL. Likewise, the study confirmed that FA positively influences firms' GKM, which is consistent with preceding exploration of how fintech may improve GI for businesses. Corporate capital stream improved by Fintech, facilitates cooperation between stakeholders and company, and supports the inclusion and assimilation of critical expertise on GKM. Similarly, GTL was found to significantly impact GKM, in line with earlier analyses that have shown the GTL role for fostering GKM in businesses. GKM is identified as the highly pointed interpreter of company's ENP, as it promotes balanced enhancement through innovative technologies directing pollution avoidance, energy saving, and resource adeptness.

Moreover, the study revealed that corporate GKM facilitates the ways fintech and ENP are related, as well as GTL and ENP. Fintech innovation boosts GKM and improves ENP, while GTL acts as a driver of GKM, subsequently impacting ENP. Lastly, the study examined the moderating role of GI on fintech in the Pakistan services sector. Conversely, the results contradict this postulate. To conclude, this study adds to the previous literature by confirming the impression of FA and GTL on firms' ENP through enhanced GI and GKM. It highlights the participation of fintech and GTL in promoting ecological sustainability and gives empirical evidence supporting the relationship between technological innovations and firms' green performance.

6. Conclusions and Implications

The study focused on examining the effect of fintech advancement and GTL on Pakistani SMF's ENP in services industry. The SEM-PLS analysis findings showed that both fintech and GTL have a positive effect on firms' ENP. Fintech advancements have the potential to address environmental concerns and enhance the enactment of organizations operating in industries with dense contamination levels. This is achieved through the initiation of green financing, such as loans and green funds, which in turn promotes green growth and ecological sustainability. On the other

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

hand, managers with high levels of GTL inspire and influence their workforce to engage in green techniques that help to the achievement of ENP goals.

The sensitivity analysis of the SEM assessment revealed that FA emerged as the most important indicator of firms' ENP. It suggests that implementing fintech technologies is essential for enhancing ENP by facilitating investments in green process and product innovation and boosting access to funding. The mediator between ENP and FA, also between ENP and GTL, was found to be GKM. Innovations in the fintech sector help businesses to enhance their GKM, which benefits ENP. Overall, the study highlights the positive influence of technology advancements and GTL with ENP of service sector SMFs in Pakistan. It emphasizes the significance of leveraging fintech innovations to access capital and invest in green practices, as well as the role of GTL in motivating employees to engage in environmentally responsible behaviors. By improving GKM, businesses can enhance their environmental performance and contribute to ecological sustainability.

Theoretical implications

This study emphasizes the importance of strengthening GTL within HRM practices and adopting fintech expertise to boost firms' performance in sustainability in the face of emerging environmental concerns. The research has theoretical implications, expanding on the Environmental Management Theory and the Ability-Motivation-Opportunity proposition. Highlights by EMT the role of new technologies in mitigating the ecological bearings of commercial processes, while the AMO hypothesis suggests that GTL enhances employees' capacity, ambitions to drive innovation, and corporate environmental achievements (ENP). Study provides empirical evidence supporting these theories, demonstrating that adopting fintech improves firms' green innovation (GI) and ENP. Additionally, GTL is shown to have indirect impacts on ENP by fostering green knowledge management (GKM).

Furthermore, the study proposes a context for impending research on conservation management, particularly in the service sector. This framework considers the interactions among fintech adoption (FA), GTL, GKM, and organizational ENP, providing a comprehensive understanding of the relationships between these factors. The study also contributes to the green innovation study by examining the mediation role of GKM in the relationships between GTL, ENP, and FA. Previous research has primarily focused on GKM as a facilitator of ENP, neglecting its

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

mediating function. This research addresses this gap, demonstrating that GKM certainly mediates the linkages between FA-GKM-ENP also GTL-GKM-ENP. The outcomes imply that implementing fintech and creating GTL facilitates organizations to be involved in green innovation, and management, thereby enhancing ENP.

Additionally, the study expands the current knowledge base on the influence of FA on business performance. While previous research mainly focuses on consumer FA and its guidance on continuation behavior, at hand is limited practical studies on fintech role in improving sustainability performance at the organizational level. This study contributes to filling this difference by indicating the positive effects of FA on ENP and GKM. Lastly, our research contributes to the understanding of fintech and GTL in the context of emerging markets, specifically Pakistan. There is a scarcity of exploration on fintech and GTL in rising nations, and this study evaluates their adoption and impact in the Pakistani context. Furthermore, the study focuses on the service sector, which is underrepresented in existing literature. This expansion of exploration in Pakistan's service sector adds value to the existing research on fintech, GTL, GKM, GI, and ENP.

Managerial and policy implications

For both the businesses and government this study has significant policy ramifications. Firstly, governments ought to arrange fintech localization and green innovation, aligning them with the abilities and intentions of their respective countries. It is essential for national governments to understand and integrate these concepts into their economic objectives. By establishing clear directions, regulations and guidance can be planned and implemented in a flexible manner, increasing the likelihood of successful fintech adoption in the manufacturing industry and aligning with national sustainability goals.

Secondly, the government should focus on ensuring the stakeholder's participation and acceptability in financial technology adaptation and green management methods. As a developing nation, Pakistan should develop national strategies for fintech adoption & green knowledge management, supported by legislation that promotes their implementation. It is crucial for firms to play an active role in these efforts, as they are certainly responsible for promoting and integrating innovation while aligning with government objectives. Firms should prioritize the harmonization of industrial practices and innovation with the goals of other interested parties. Through effective

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

industry-government exchanges, high-tech advancements and fundamental changes driven by financial technology mixes and green knowledge management can positively impact sustainable development.

Furthermore, managers of manufacturing SMEs in emerging economies should develop strong green transformational leadership to stimulate their workforce to achieve goals of environment and exceed typical ecological standards. Business executives should encourage teams to attain, share, and execute the technological competence necessary for adopting green management practices and enhance the environmental performance (ENP) of their organizations. This requires a proactive approach to fostering a culture of environmental responsibility and providing the necessary support for employees to embrace and implement green practices. In summary, the policy implications of this study emphasize the importance of government support and collaboration, localization of fintech and green innovation, stakeholder engagement, and the development of GTL in achieving sustainability goals and enhancing environmental performance in the manufacturing sector.

7. Limitations and Future Research Gap

While this research provides valuable insights, it does have some limitations that should be acknowledged. First of all, the study recognizes that the data it has collected are preliminary and must be used only as a springboard to further investigate the connections between GTL, FA, GKM, and companies ENP. To better understand how these elements interact, more empirical research is required. One limitation is the inability to establish the moderation of green innovation (GI) in the associations between fintech adoption and ENP. Future study has the chance to investigate the precise function and effects of many GI categories, such as product, process, and managerial innovation. Additionally, Karachi, Lahore, Islamabad, and Rawalpindi were the principal areas of focus for this study. It's vital to keep in mind that businesses in other cities, as well as those operating in other rising markets and sectors, may have different technology capabilities and adoption rates for fintech. The applicability of the study's conclusions would be increased by investigating these various scenarios. A comparative analysis across different countries can also enhance the generality of the scores.

We also highlighted in this study, need for investigation of the influence of outside aspects, such as state support, R&D expenditure, ecological laws, and financial accessibility, as well as

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

inside aspects including executives' active proficiencies, and co-creation of green values, sustainability orientation. Understanding how these factors shape the interaction between GKM, FA, GTL, and ENP can offer a broader insight into the mechanisms at play. Lastly, the use of a cross-sectional research design limits our understanding of the longitudinal causes of GTL and fintech on GI and businesses ENP. Research in the future ought to consider studying longitudinal to capture the lasting-term impacts of these factors. In summary, while this research contributes valuable insights, there are opportunities for future research to address the limitations mentioned and further expand our understanding of the complex relationships between GTL, FA, GKM, ENP and GI in different contexts and over time.

References

Ahmad, B., Shafique, I., Qammar, A., Ercek, and M. N. Kalyar (2022). Examining the results of green transformational leadership and flexible skills in stimulating green product and process innovation.

Alhumaid, K. Habes, M. & Salloum, S, A. (2021). An integrated SEM-ANN method is used to examine the variables affecting the use of mobile learning during the COVID-19 pandemic.

Allameh S. M. (2018). Intellectual capital's causes and effects: the contribution of social capital, information exchange, and creativity. 858–874 in Journal of Intellectual Capital, 19(5).

Andersen, M. S.; Massa, I. (2000). Historical context, conundrums, and directions for ecological modernization. 2(4), 337-345, Journal of Environmental Policy & Planning.

Asadi, Abdullah, R., Samad, S. & Yadegaridehkordi, E., 2020, Examining how green innovation affects sustainability performance 258, 120860, Journal of Cleaner Production.

Bass, B, M. Avolio, B, J (1993). Adapting transformational leadership in the face of criticism. Perspectives and directions in leadership theory and research (pp. 49–80).

Camison-Haba, S., & Clemente-Almendros, J. A. Gonzalez-Cruz, T., (2019). How do technology-based businesses develop into extremely innovative businesses? The importance of knowledge, managerial and technological skills, and the history of entrepreneurs. 164–170 in Journal of Innovation & Knowledge, 4(3).

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

Caputo, A. Corbo, L and Pizzi S. (2021). Considerations for a circular economy and reflections on fintech and sustainable business models for SMEs. 281, 125217, Journal of Cleaner Production.

Chang C. H. (2011). The function of green innovation as a mediator in the relationship between corporate environmental ethics and economic advantage. Business Ethics Journal, 104(3), 361-370.

Chen, Y. S., and Chang, C. H. (2013). Green dynamic talents, green transformational leadership, and green innovation are the factors that determine the success of the production of green products. 107–119 in Journal of Business Ethics

Chiou, T. Y., Chan, H. K., & Chung, S. H. Lettice, F., (2011). The impact of greening the suppliers and green innovation on Taiwan's competitive advantage and environmental performance. Logistics and Transportation Review, 47(6), 822-836.

Cohen J. (1988). 2nd edition of Statistical Power Analysis for the Behavioral Sciences. Lawrence Erlbaum Associates, Hillsdale, NJ.

Cop, S., V. O. Olorunsola, and U. V. Alola (2021). Can green team resilience be used to achieve environmental sustainability through green transformational leadership policy? 30(1), 671-682. Business Strategy and the Environment.

Croutzet, A. Dabbous, A.(2021). Does FinTech promote the adoption of renewable energy? proof from OECD nations. 1608–1617 in Renewable Energy.

Fatima, A., Waqas, M., Tang, Y. M., Chau, K. Y., & 2022. Utilizing circular economy principles with Industry 4.0 technology: Business management tactics for environmental sustainability.

Ferdaous, D. J. and Rahman M. N. (2021). Finding the uptake of fintech by Bangladeshi households as banking transitions to digital. 1(1), 7–42, Journal of Innovation in Business Studies.

Fornell, C., and Larcker, D. F. (1981) Analyzing structural equation models with measurement error and unobservable variables.

Gao, J., Siddik, A. B., Khawar Abbas, S., Hamayun, M., Masukujjaman, M., and Alam, S. S. (2023) An Empirical study on the effects of e-commerce and digital marketing adoption on MSMEs' financial and sustainability performance during the COVID-19 pandemic.

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

Giaretta, E. and Chesini, G. (2021). Debt financing factors: the case of fintech start-ups.

Gu, J. Wiley, New York, (2022). Evidence from Chinese cities for the sharing economy, technological innovation, and carbon emissions.

Hair J. F. Sarstedt, Jr., M. Ringle, C. M. and Hult G. T. M. (2016). An introduction to structural equation modeling using partial least squares (PLS-SEM). Published by Sage in Thousand Oaks.

Hammadi T. Al. and Nobanee H. (2019). A brief review of fintech and sustainability. 10.2139/ssrn.3500873, SSRN Electronic Journal.

Henseler, J., Ringle, C. M., and Sarstedt, M (2015). Using partial least squares, examine the measurement invariance of composites. 33(3), 405-431; International Marketing Review.

Hoang, T. T., Q. Zhu, and Xie (2022). Financial performance and innovation in green processes.

Huber J. (2008). Theses from the perspective of ecological modernization theory on pioneer nations and the global diffusion of environmental improvements.

Islam J. (2022). Seven essential elements will drive fintech innovation. Daily Star, January 10. thedailystar.net/business/news/seven-key-factors-fuel-fintech-inno vation-2936416.

Jiang, Y., Gan, S., He, L., and Zhang, Q. (2022). Liu, J. Can corporate green innovation be encouraged by digital finance? 29(24), 35828–35840.

Keller, R. T., and Elkins, T. (2003). A review of the literature and conceptual framework for leadership in research and development enterprises.

Khan and Yu, Z. (2021). Eco-environmental performance evaluation: A PLS SEM technique with a practical perspective. 24(3), 303-321.

Khan, S. A. R. Sarwat, Yu, Z., Godil, S., Amin, D. I., & Shujaat, S. (2022). How circular economy principles with blockchain technology might boost organizational effectiveness. 25(4–5), 605–622

Kline R. (2011). Convergence of multilevel modeling and structural equation modeling. The Sage Handbook of Innovation in Social Research Methods.

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

Kraus, S. Rehman, S. & F. J. S. Garca (2020). Environmental strategy and green innovation play a mediating function in the relationship between corporate social responsibility and environmental performance. Social Change and Technological Forecasting, 160,120262.

Leong, K., & Sung, A. (2018). What is FinTech (financial technology) and how can it be used to generate business value in a fintech way? 9(2), p. 74–78 in International Journal of Innovation, Management and Technology.

Lewis, M. W., Andriopoulos, C. (2010). Leading product design businesses' ambidexterity teachings on managing innovation paradoxes. Planning for the Long Term, 43(1), 104–122.

Li, S., Anwar, M. (2020). Through both financial and other assistance from the government, SMEs can improve their competitiveness, financial performance, and environmental performance. 7860–7882 in Environment, Development and Sustainability, 23(5).

Malhotra, N. K. Kim, S. S. and Patil A. (2006). A comparison of different methodologies and a reanalysis of prior research are common method variations in scientific research. 52(12), 1865–1883 in Management Science.

Masud, H. U. Rashid, T. Khan, S. M. Bae, & J. D. Kim (2019). Corporate social liability and organizational approach: The triple bottom line's mediating role.

Michael Holgersson (2013). A review of the literature and an empirical investigation of innovation appropriation, patent propensity, and motivations in entrepreneurial SMEs. 21–36. R&D Management, 43(1).

Mittal, S. Dhar, R. L. (2016). A study of tourist hotels examines the impact of green transformational leadership on green innovation. 57, 118–127.

Nassiry D. (2018). Fintech's role in enabling green finance: Policy recommendations for developing nations. https://www.adb.org/publications/ role-fintech-unlocking-green-finance.

Porter, M. E. Linde, C. V (1995). The relationship between competitiveness and the environment in a fresh light.

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

Qu, Y., Rehman, S. U., and Zafar, A. U. (2022). Shahzad, M. use of environmentally friendly innovation technology to hasten sustainable growth in the manufacturing sector.

Rahman, M. Azma, N. Masud, M. A. K. & Y. Ismail (2020). Influence of behavioral and demographic factors on indebtedness.

Ramus, C. A., and Steger, U. (2000). The roles of environmental legislation and leadership attitudes in employee "eco-initiatives" at cutting-edge European businesses.

Riemsdijk, Bos-Nehles, and Looise, Kees, J. (2013). Employee opinions of line management performance are examined using the AMO theory to determine how well line managers have implemented HRM.

Ryu, H. S. (2018). The moderating impact of user type is what determines whether users are willing or reluctant to use fintech. 118(3), 541-569, Industrial Management and Data Systems.

Seman, N. A. A., Govindan, K., Mardani, A., et al (2019). The role of green innovation as a mediator in the interaction between environmental performance and green supply chain management.

Shangguan, He, J., Pan, X. & Rao, S. (2022). Quantity vs. quality in corporate green innovation and digital finance?

Sharma, S. K. and Sharma, M. (2019). An empirical examination into how trust and quality factors affect how mobile banking services are actually used.

Sheng, T. (2021). Evidence from China on the impact of fintech on bank lending to SMEs. 39, 101558; Finance Research Letters.

Siddik, A. B., Guang-Wen, Z., and 2022. The importance of green innovation in the impact of Fintech adoption on green finance and the sustainability of banking institutions during the COVID-19 pandemic.

Sun, H., Sun, W., Taghizadeh-Hesary, F., Cao, S., Nie, L., et al. (2021). Evidence from China's regional economies on the relationship between digital finance, green technology innovation, and energy-environmental performance.

Sun, H., Yan, and Muganyi (2021). Evidence from China for green finance, fintech, and environmental conservation. 10.1016/j.ese.2021.100107

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)

Sun, Y., and Yuan (2021). Industry-level evidence from the OECD on financial innovation, information screening, and green innovation in industries.

Tan, G. W. H., Dwivedi, Y. K., & Wong, L. W. (2022). A deep learning-based dual-stage PLS-SEM-ANN analysis of artificial intelligence-driven risk management for improving supply chain agility.

Tan, K., A. B. Siddik, F. A. Sobhani, M. Hamayun, & M. Masukujjaman (2022). Do environmental knowledge and planning help businesses perform better financially and environmentally? competitive advantage's function.

Umar, M. Khan, S. A. R. Yusliza, M. Y. & Farooq, K. (2022). new technologies' role in putting green practices into practice to create sustainable operations.

Vergara, C. C. and Agudo, L. F. (2021). Do fintech and sustainability interact in any way? 13, 7012; sustainability.

W. Zhao, L. Huang, and others 2022. Evidence from China on the effects of green transformational leadership, green innovation, and organizational support on the performance of sustainable businesses.

Waqas, M., X. Honggang, N. Ahmad, S. A. R. Khan, and M. Iqbal (2021). Big data analytics as a road map for environmental performance, competitive advantage, and green innovation. Cleaner Production Journal,

Yong, L., Siddik, A. B., and Rahman, M. N. (2023). A two-stage SEM-ANN approach to the role of fintech in circular economy activities to enhance sustainability performance. Research in Environmental Science and Pollution

Yu, L., Zhao, D., Xue, Z., and Gao, Y. (2020) Studies on the adoption of green control methods and the usage of digital money by Chinese family farms. Society and Technology, 62, 101323.

Zhou, S., Zhang, D., Lyu, & Zhang H. (2018). Does the concept of "mind acts upon mind" have an impact on how well green products are developed psychologically? the importance of integrating personal green values with green transformational leadership.

Journal of Business and Management Research
ISSN:2958-5074 pISSN:2958-5066
Volume No:2 Issue No:2(2023)