PAKISTAN BUSINESS REVIEW

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Efficient Talent Acquisition: Technology Adaption in Employee Recruitment Process in Pakistan

Ahsen Hussain* Waqar Akbar** Ramesh Kumar***

Abstract

The research investigates the effect of the adaption of technology on the recruitment processes in Pakistan. The use of the digital recruitment process, technology in recruitment, talent acquisition, and quality of recruitment are independent variables, whereas the efficiency of the recruitment process is the dependent variable in this study. The study collects data from 200 HR managers of Pakistan employed in several organizations using close-ended questionnaires. The data analysis was carried out using SPSS software. This research suggests that there is a significant positive relationship between the dependent and independent variables. The study adds to the literature on the impact of technology adaptation on recruitment efficiency in the developing world. This study also suggests that top management and HR practitioners must implement specific actions to foster a positive attitude towards technology adaptation in employee recruitment. The study also provides the avenue to study further the use of technology in HR.

Keywords: Technology adaption; digital recruitment process; quality hiring; talent acquisition; efficient recruitment.

JEL Classification: O32, M51

*Faculty, Faculty of Management Science, Shaheed Zulfikar Ali Bhutto Institute of Science and Technology, Karachi, Pakistan. Email: ahsenhussain94@gmail.com
** Faculty, Faculty of Management Science, Shaheed Zulfikar Ali Bhutto Institute of Science and Technology, Karachi, Pakistan. Email: waqar.akbar@szabist.edu.pk
*** Faculty, Faculty of Management Science, Shaheed Zulfikar Ali Bhutto Institute of Science and Technology, Karachi, Pakistan. Email: rameshkumaranu2012@gmail.com

1.   Introduction

Technology cannot just be understood as something everyone implements and consumes to get the work done or increase communications. It is highly impacting the processes of many businesses to the extent of completely transforming the practices (Nasreem et al., 2016). Such an influence is expected to be experienced by the Human Resource Department of a business precisely in their recruitment performs. It is also now believed that technology in recruitment brings profound positive changes like hiring employees has become more efficient. And so, employers are now able to extract more incredible talent from the overall talent pool of candidates (Fair, 2007). Technology has become an extended term in today's business environment.

It is innocuous to say that no industry has not been affected by technology in one way or the other (Khan & Rasheed, 2015). Every industry and business have identified the importance of technology to increase overall operations and proficiency (Sattar et al., 2015). This implies on every level and department of a particular organization, including Human Resource Management (Ahmad & Allen, 2015). Even though this subject matter has gained significant attention globally, many organizations worldwide seek excellent knowledge and implement immense technological changes in their practices (Sheikh et al., 2016). But Pakistan still appears to be a sluggish goer in the application of technology. However, the importance has been majorly identified in various organizations. Nevertheless, much has to be done in this matter (Sabir et al., 2015). The importance of investigating technological implementation in recruitment and selection stalks from the significant part of employment performs in the present massive competitive and global aptitude trend (Ekwoaba et al., 2015). The adaption of technology in recruitment has become an actual implementation for recruiters desiring a competitive advance in the labor market and enticing limited acute talent (Smita & Sarika, 2015). The subject matter analysis will thus deliver abundant practical effects and suggestions for recruiters and fill prevalent research gaps in the Pakistani industry. Nowadays, the majority of the companies have adopted and designed a portal for HR rather than a physical resource (Khan & Rasheed, 2015). However, the scenario is different and immature in Pakistan's market as the company still cannot comprehend how well and efficiently incorporate it with the practices (Naqvi & Bashir, 2015). Nevertheless, it is believed that Pakistan can dramatically change the situation of recruitment (Khattak et al., 2015).

Recent researches show in the Pakistan market that the organizations which have efficaciously implemented sophisticated HR technology tools overtake those that do not (Khalid & Tariq, 2015). Nevertheless, since most establishments already have programmed basic HR administration, the general automation of HR procedures can no longer guarantee a competitive gain (Gates & Podder, 2015). Instead, businesses need to control how to use these technologies to alter their recruitment actions and market the brand to attract maximum candidates and increase the chance of hiring the best-fit talent for a particular job.

Another problem in the Pakistani market that needs significant attention is that employees' job roles are inappropriately defined, leading to inefficiency in the job and this overall ineffectiveness to achieve the targets (Shah et al., 2016). It is believed that such situations occur just because most the employers are unable to analyze the job properly and its specific roles; thus, they are unable to identify which candidate is the best fit for the position and thus leading to diminishing performances and demotivation in the job (Asadullah et al., 2015). The point here remains that appropriate education on what the employers are supposed to do is absent yet and, in this situation, technology can be of great use (Naz et al., 2016).

`Technology can guide the step-by-step processes of the necessary actions required to be taken, and efficient analysis can be complete, providing better results overall (Ashraf, 2017). The methods through which human resource actions are consummated must be changed intensely in the coming few years. Recruitment processes are dignified as one of the most vital assets of an organization. Nevertheless, significantly fewer companies in Pakistan can comprehend all the potentials it has. Unquestionably, Human Resource Management, besides specific recruitment in organizations, has reached more strategic importance, and the implication of its implication in Human Resource Management and business approaches are well-comprehended (Owusus-Ansah & Nyarko, 2014).

In human resource management, recruitment remains the process of examining and choosing suitable applicants for a specific organization (Zia-ur-Rehman et al., 2015). Essentially, the method comprises pursuing and attracting a pool of talented candidates incorporating numerous viable recruitment approaches (Nasir & Mahmood, 2016). The former practices incorporated by organizations entailed communicating networks or current employee referrals, attracting executive hunts, using newspapers classified advertisements, and different mediums. However, in recent times, obtaining and keeping high-quality talent is challenging to an organization's profitability because the talent market has become increasingly more competitive, and the accessible skills are cultivating intensely diverse.

Recruiters must be more proficient with their responsibility since bad recruiting decisions can yield long-term negative impacts, including significant training and development expenditures to limit the incidence of deprived performance and high turnover that eventually impact staff determination. And all of it can affect in overall diminishing profitability of the organization and fading competitive edge (El Ouirdi et al., 2016). Thus, technology adaption has been encouraged as a prospect for human resource (HR) specialists to become deliberate associates with top control of their respective organizations. The notion has been that technology will help recruiters become more proficient in providing effective results and decision-making ability.

Considering the above limitations, this research will further help in knowing what are the significant factors of technology in the recruitment process? What is the overall impact on talent acquisition through technology in the recruitment process? The study will also help identify the transforming field of Human Resources and enhanced activities of the recruitment practices. This study is highly significant for the recruitment practitioners to understand the various pros and cons of technology and comprehend whether or not technology is bringing more notable upgrades in their processes to incorporate it into their practices and increase proficiency. This study is also vigorous for the recruiters to know how technology can help improve their job roles.

The few objectives of the study are: 1) to come up with and identify the factors of technology that are causing changes or effects in the process of hiring and selecting employees. 2) The recruiters of human resources have the accountability to take the main selection choices, including whom to recruit, what message to communicate, and how to operate recruitment purposes with help of technology. 3) How the implication of the application of technology in each ground of organization is growing speedily. 4) Lastly, how technology will help in the recruitment of quality talent acquisition.

2.   Literature Review

The assessment of how and why an individual implement or discard a specific technology has been a noticeable subject matter in the field of information system (IS), advertising, and social science (El Ouirdi et al., 2016). For the last three decades, researchers like (Azeem & Yasmin, 2016) have intended to comprehend, forecast, and elucidate the aspects that impact the implementation of technology at specific and organizational levels. Other behavioral concepts transfer from the discrete to emphasis either on the behavior itself or associations amid behavior, entities, and the communal and physical surroundings in which they befall (Khan & Rasheed, 2015). Consequently, abundant technology implementation theories and models have been advanced and consumed to exploit the elements and instruments of users' implementation choices and behaviors (El Ouirdi et al., 2016).

Ladkin and Buhalis (2016) stated that comprehensive consideration of the occurrences understudy is more significant than parsimony. While Naz et al. (2016) contended that the stability between parsimony and their influence to consider should be assumed when assessing the models. For example, choosing a precise model may yield overflow which means that certain concepts are not obligatory or essential, and might also produce overflow circumstances, which means that other constructs are desirable to apprehend the phenomenon under examination (Fair, 2007). Consequently, it turns out to be commanded to assess these models in terms of their theoretical foundations (Naqvi & Bashir, 2015).

Furthermore, without understanding the backgrounds, progresses, and variations along with the limits of this technology, there can be no inclusive and precise research in the field (Sattar et al., 2015). Furthermore, while most of these technological adoption models and concepts appreciated extensive use and associated literature had developed immensely, to the best of our information, there are not many analyses of literature about the association of technology adoption models at the individual level. This examination and analysis will thus fill the gap between technology and Human Resource Management. Henceforth, in this article, we deliver a valuable, lengthy and inclusive review of the most significant concepts and theories in the field of technology, investigating their theoretical bases, classifying their advances, key mechanisms, assets and weaknesses, additions, boundaries, and their module paradigms (Kaminski, 2011).

This section evaluates an assortment of prevailing models to relate and distinguish them from the factors selected in this study. Certain factors are extensively used among theorists, just like information diffusion (Ashraf, 2017). The technology lifecycle theory as well as the coherent selection theory. Others are more frequently comprehended in the theoretical domain, such as 'the Theory of Coherent Action', 'the Theory of Strategic Behavior', 'the Technology Approval Models', and the integrated model. Diffusion concepts "Diffusion is the course through which a technology conversed through definite networks over time among the associates of a social system." thus, diffusion of innovation is the theory of how, why, and at what rate new ideas and technologies spread through a defined community.

Diffusion of innovation (DOI), the most renowned and most extensively used, is the diffusion of innovations model from Rogers (Kaminski, 2011), which has become the foundation for broadly used theorists' technology models. While he deliberates a theory for innovations and technology that can be a notion, an action, or a purpose, most of his illustrations are technological innovations. According to the concept, several factors affect the diffusion of innovation. To seize this complication, the technology, the communication networks or how evidence about the innovation is conversed (El Ouirdi et al., 2016), the innovation-decision progressions and the technological innovation of an organization, and the nature of the communal classification into which the innovation is being familiarized.

2.1   Use of Digital Recruitment Process in Human Resource Management

The initial period of the 21st century is commonly measured as the initiative of a novel era of investigation and expansion in Pakistan. Due to a considerable upsurge in the yearly budget for advanced education and investigation in the year 2000 and subsequently, and succeeding formation of human resource management of Pakistan in the year 2002, research philosophy in Pakistan started growing in this era. Human Resource Management took numerous forthcoming concerns with advantages, thus accelerating the procedures and methods of research in Pakistan (Sabir et al., 2015).

Organizations are nowadays recruiting with help of different internet processes, on-line portals, and methods such as interviews on Zoom, telephonic hiring, etc. which were never used to be in the past like publishing posts in the newspapers, notice boards, etc., and then conducting face-to-face interviews. No doubt, it eliminated the costs of hiring and also recruitment procedure has been speeding up with the latest technology. Efficient recruitment and selection have continually been one of the greatest essential for the organizations in the instructive subdivision because of not having any outright methodology for enticing, selection, and lastly, finding the right person for the job and a position in the company (Ahmad & Allen, 2015).

Investigators reviewing numerous human resources perform have been concentrating endlessly on recruitment and selection among other Human Resource services. On the other hand, it has elevated several explanations on the preceding examinations on the extent of recruitment and selection that their utmost emphasis has been the big organizations with dissimilar recruitment and selection actions (Gates & Podder, 2015). The recruitment practices have been stimulated by the initiation of information technology, information structures, and digital technology (Moomal & Masrom, 2015). Investigators have emphasized that Information technology delivered prospects to change organizations and support them attain competitive advantages (Sheikh et al., 2016).

In diverse fields of research, studies from Pakistan have initiated performing in apparent local journals (Ashraf, 2017). As an outcome, journals of Pakistan based on Human Resource Management investigation have also considerably augmented (Azeem & Yasmin, 2016). Nevertheless, notwithstanding its development in numbers in the last one and a half years, Human Resource Management exploration in Pakistan still necessitates a focused course and plan that makes it more applicable to native matters and encounters (Nasreem et al., 2016). A foremost part of Pakistan-based Human Resource Management study contracts, in one way or another, with Human Resource actions link (Naqvi & Bashir, 2015).

Meanwhile, the technological uprising parsimonies initiated rising promptly in established countries and far ahead on this procedure of mounting businesses and markets prolonged to the entire world that curved into large-conclusion among big companies functioning in both public and private subdivisions (Owusus-Ansah & Nyarko, 2014). The world revolved into a global village that stimulated measure of Knowledge, Skills, and Capabilities across the philosophies in the diverse companies in the country that instigated the investigators' emphasis on the human resource management field to counter diverse features connected to the employees' behavior, predominantly recruitment and selection, one of a crucial human resource management purpose (Ahmad & Allen, 2015).

H1: There is a positive and significant impact of digital recruitment on the efficiency of recruitment.

2.2   *Impact of Technology Adaption on Human Resource Management*

After studying the existing literature on HRM practices, the investigators have established that technology does get influenced by peripheral and core influences which directly or ultimately affect other variables such as employee's approach, employee-employer associations, economic performance, employee efficiency, etc. and eventually subsidize to inclusive business performance (El Ouirdi et al., 2016). The emergence of universities' recruitment portals, Facebook, LinkedIn and Twitter, and other online platforms have made it easier for companies to reach out to potential candidates.

Numerous academics have deliberated that handling people is more challenging than managing technology or resources (Zia-ur-Rehman et al., 2015). Nevertheless, those organizations that have erudite how to achieve their human resources well would have control over others in the long run for the reason that obtaining and positioning human resources efficiently is unwieldy and takes much longer. The efficient management of human resources necessitates proficient Human Resource Management structures. Azeem and Yasmin (2016) describe Human Resource Management as a characteristic method of service management that pursues to acquire a competitive advantage by positioning an extraordinarily dedicated and experienced staff, using a selection of systems. To progress into a proficient Human Resource Management system, the association must have sound Human Resource Management actions. Human Resource Management denotes structural measures focused on dealing with the pond of human resources and guaranteeing that the resources are engaged in the direction of the contentment of structural objectives (Smita & Sarika, 2015).

Technology distresses Human Resource Management to an extensive level because a great notch of communication between technology and Human Resource exists. Technology varies the way we work, the parts we assume, and the connections through which work gets completed (Sheikh et al., 2016). Shah et al., (2016) contended that technology enables the development of a multinational company nonetheless creates a concurrent problem of "unpluggedness" between discrete workforces. Owusus-Ansah and Nyarko (2014) recommended that technology remains at the business industry's core. It delivers a chain of business advantages. Technological expansions modify the framework of Human Resource actions and the way they are applied (Sekhar & Patwardhan, 2015).

H2: There is a positive and significant impact of technological adoption on the efficiency of recruitment.

2.3   *Quality Recruitment with Technological Advancements*

The occurrence of the technology has transformed the conventional technique of recruitment in Pakistan as it has globally. However, Pakistan still stands in an initial stage of technological implementation in the recruitment process. In the past few ages, technology has intensely altered the face of Human Resource recruitment and the customs establishments think about the recruiting purpose in Pakistan, particularly in the private segment (Ahmad & Allen, 2015). Implementing the influence of technology to attain Human Resources aims not merely to upsurge efficiency but also cut time and money (Asadullah et al., 2015). Technology-driven recruitment is recruiting workers by incorporating innovations, technology, and digital internet sources (Ashraf, 2017). By combining Technology-driven recruitment facilities, job hunters get an improved chance to upsurge their potential job prospects. These facilities give time flexibility and more opportunities to entice impassive job hunters and subsequent in a better chance to get the best person for hiring requirements. In the future period, digital recruiting and employment are predictable to endure their volatile evolution (Hyder & Lussier, 2016).

Technology-driven recruitment has been accepted in numerous Pakistan organizations, from large to small organizations (Azeem & Yasmin, 2016). Most establishments are currently incorporating technology-driven recruitment to post jobs, receive resumes on digital mediums, and resemble the candidates by e-mail (Ekwoaba et al., 2015). In the current vibrant era, technology has transformed the domain and curved it into a global village. Job hunting around the country has turned highly common for applicants skilled in surfing and who have access to digital means (El Ouirdi et al., 2016). Currently, job hunting on digital means has turned out to be a very common implement for job searchers (Gates & Podder, 2015). It lets them discover their anticipated job and construct their job in any part of the country. The virtual recruitment inclination has been ongoing in western countries for many years (Hyder & Lussier, 2016). In Pakistan, this inclination has developed in the last 7 years. Numerous CVs are directed or uploaded daily on business websites and online supports.

Subsequent, to internet examination, numerous job searchers used the internet efficiently to attain the formation of potential employers. Several of them are looking for a business website, online contact recruiters on diverse job portals, and list themselves on online job panels or online job supports (Khattak et al., 2015). Those sites eventually perform as a medium that attaches the job searchers with businesses. There are numerous advantages of incorporating web-based job examination; it improves the competence of job searchers, it protects applicant's procedure cost and time, job searchers can grasp employer at diverse level, indifferent to any conventional searching technique that would extend a local or nationwide collection (Khan & Rasheed, 2015). Since job searchers in Karachi city concentrate comprehensively on online bases to gain prospects (Khalid & Tariq, 2015) has given immense importance to technology in this concern.

H3: Quality of hiring with technology has a positive and significant impact on the efficiency of recruitment.

2.4   *Significance of Technological Implementation in Talent Acquisition*

Prior academic researchers have investigated that to progress an association between employee contentment and the size of the organization, the kind of technology-driven recruitment strategies, the incorporation and amalgamation of technology-driven recruitment play a critical role in the overall procedure (Sabir et al., 2015). To measure the efficiency of the variables, different influences such as demographics, stage of job contentment, job assurance and structural assurance are the effects that make a difference between customary recruitment methods and technology-driven recruitment. This recruitment improves job hunters' suitability in withdrawal of the correct type of data in a short time and smearing organizations' websites rapidly.

The overall exploration has explained that Human Resource Management is transforming immensely in today's world. More specifically, the recruitment process in human resource management plays a vital role as it helps in attaining the right fit for the job and the best person performing adequately in their job roles will eventually fulfill the organization's strategic goals. In the present era, the conduct of recruitment has advanced considerably and the occurrence of technology-driven recruitment has transformed the commercial background forever at all levels within the context of Pakistan (Azeem & Yasmin, 2016). Due to continuous flow in the direction of innovation in technology and clutching conducts to deliver more effectual techniques for companies to cultivate considerably, the commencement of e-recruitment seems to be one of the supreme and vital approaches for numerous organizations functioning in vibrant situations (Ashraf, 2017).

Recruitment is a significant assertion of human resource actions. It is a twofold procedure that includes employers (Organizations) and candidates (Job hunters). Sattar et al. (2015) recognized organizations penetrating for potential employees as a searching concept of recruitment. In exercise, nevertheless, potential employees pursue out establishments as well (Hyder & Lussier, 2016). This assessment, characterized as a coupling theory of recruitment, seems more convincing. The valuation of desirability from both parties endures from the preliminary recruitment procedure to the final selection consequence (Naz et al., 2016). The customary recruitment procedure is eagerly recognized as time-consuming with extended employment cycle times, high expenses per procedure, and little geographic spread (Sheikh et al., 2016). On the other hand, digitalization has indeed transformed recruitment, the chief and significant human resource management procedure stage, from a structural and a job searcher's point of view (Nasreem et al., 2016).

H4: Talent Acquisition has a positive and significant impact on the efficiency of recruitment.
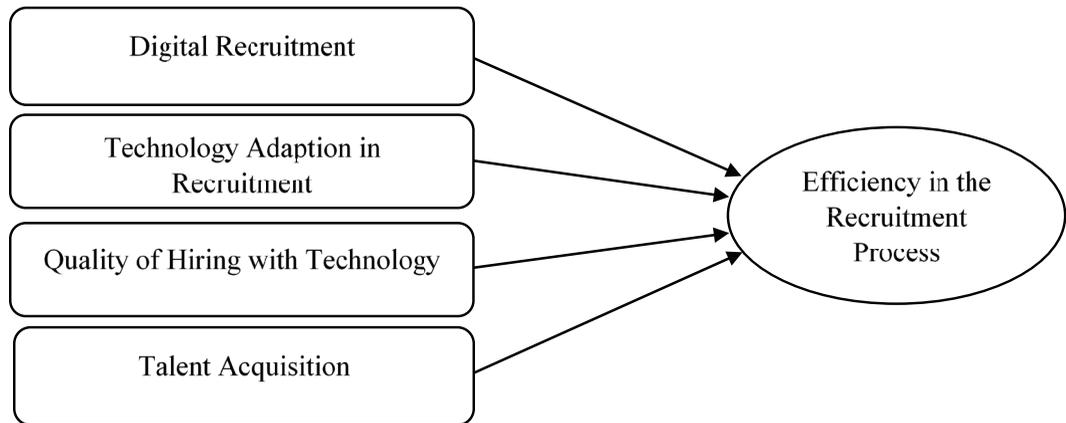
Figure 1: Theoretical Framework

3.   **Research Methodology**

Research philosophy is a conviction about how data needs to be collected to analyze particular phenomena or a problem, how it will be analyzed and how it will be used. It is the systematic approach to focuses on examining the objective measurements and analyzing the statistical data using different computational techniques (Neuman, 2013). Research philosophy is based on two key terms i.e. epistemology which refers to what is a known fact and considers the truth and on the contrary, the second statement is doxology which is believed that it is true. The positivism research philosophy is the most commonly utilized. It is mostly used in the quantitative research method because it aims to determine the social truth based on logical reasoning. However, the reasoning is made on the perception as a method to understand the actions of humans in certain ways. This philosophy stresses the reflections and reasoning of how certain human behavior is expected and involved in a certain phenomenon.

`The tradition of the positivist approach emphasizes quantitative research involving large-scale surveys. The ultimate aim is to get a perspective of society as a whole to identify the social truth about the research problem. Such type of investigation helps in developing an improved research model so that the research objective could be described in a more enhanced way with a detailed amount of knowledge (Gomm, 2008). Positivism focuses more on trends and patterns rather than individual opinions. Moreover, the positivism approach of research methodology seeks to identify the relationship and impact between the variables. This study aims to analyze the impact of technology adaptation in recruitment on the efficiency of the entire recruitment process. The research philosophy adopted in this research is positivism, as the data has been collected using the quantitative method.

The collected data is measurable and can be verified statistically. Moreover, the study aims to identify the relationship between independent and dependent variables; hence positivism philosophy is the best suitable approach for the current study. To evaluate how the adaptation of technology in recruitment can increase the efficiency of the entire recruitment process, the study has implemented a quantitative research method. Moreover, the data was intended to be collected from 200 respondents through a closed-ended questionnaire. Five Point Likert scale survey has been used for quantifiable data. All the respondents were HR managers or somehow involved in the HR process within their respective organizations.

Data is collected from two sources i.e. primary and secondary. When the data is collected from first-hand sources, it is known as the primary data source. The advantage of using first-hand data is that it is fresh and accurate and the researcher knows about the quality of data as it is collected by him/her. Many researchers rely on the already existing data for their data analysis because it is time-consuming and expensive to collect data. Hence scholars collect primary data when secondary resources are unavailable. The tools for collecting primary data are surveys, focus groups, one on one interviews, telephonic interviews, etc.

To determine the relationship between technology adaptation in recruitment and efficiency in the recruitment process, the primary data source has been used. The reason behind using this approach is because there are hardly any studies conducted in Pakistan in the same domain hence, being the first one to research this topic, the primary data was collected using a quantitative survey. For the current research, the sampling procedure selected is non-probability sampling. The study aims to analyze the use of technology adaptation by HR managers in several organizations; hence the respondents had to be someone who is involved in the HR process within the organization. The aim is to identify the general link between the identified variables hence, the study doesn't focus on a single organization or industry.

The data has been analyzed using SPSS statistical testing software. The collected data is first inserted and coded on SPSS software. The descriptive analysis has been conducted using SPSS. For inferential analysis and to make this research a hardcore quantitative study, the coded questions are computed into independent and dependent variables. Once the variables are computed, correlation analysis has been conducted to test the hypothesis and identify the significance and relationship between the variables. The reliability test for each variable is also conducted to see which variable is more reliable and possesses similar results if the research is conducted again. Lastly, regression analysis is conducted to identify the impact of the independent variable on the dependent variable.

4.   Data Analysis

The research method that has been implemented in this research is the quantitative method. The data is analyzed using descriptive statistics and inferential analysis by

implementing SPSS and running the relevant tests. The purpose of the current research is to gauge the impact of technology adaptation in recruitment and its impact on the efficiency of the recruitment process in Pakistan's context. The first test that has been done on the data is a reliability test. The reliability test in this test explains the survey questions for each variable or whether the scale for each variable is reliable or not. The hypothesis is tested using correlation analysis and lastly, the regression analysis has been conducted to see the final impact of IV on DV.

4.1   Reliability Test

The test of reliability is conducted to identify whether the scale used in the survey can provide constant and reliable results or if the same scale has been measured again and again. The reliability test calculates the level of variation in a given scale and the results are derived by testing the relationship between one variable and another. The higher association signifies the greater liability as compared to those variables that score low on the test. The measure that is utilized in this test is known as Cronbach Alpha. The majority of the researchers selected Cronbach alpha as a measure of reliability and consistency of the gathered data for the research. Measuring the Cronbach is most effective when the survey possesses many Likert Scale questions. Hence this test indicates whether the scale used in this research is reliable or not. The Cronbach alpha ranges from 0 to 1. The closer the Cronbach alpha is to 1, the higher the reliability and better. The higher value signifies that there exists higher covariance and correlation among the tested variables. Each of the five variables, including both independent and dependent has been tested for reliability separately.

Table 4.1
Reliability Test

Reliability Test of Variables	Cronbach's alpha
Digital Recruitment Process	0.68
Technology Adaption in Recruitment	0.684
Quality of Hiring with Technology	0.792
Talent Acquisition through technology	0.293
Efficiency in Recruitment Process	0.69

The Table above shows the Cronbach for each of the variables. The first variable is the Use of Digital recruitment and Cronbach alpha's value of this variable is 0.68. Although this value is not more than 0.5 and closer to 1, this variable possesses high variance and the scale used for the statements of this variable in the survey is reliable. Technology and recruitment is the next variable with a Cronbach alpha value of 0.684. Again, this value signifies

that the scale used is consistent and dependable and high covariance exists between the variables. The following variable listed is the Quality of Hiring with technology with Cronbach's alpha value of 0.792. This variable has the highest level of variance among other variables and the scale seems to be highly reliable. Talent acquisition with technology is the fourth variable and the Cronbach alpha's value is pretty low i.e. 0.293. This value is closer to 0, which means that this scale is unreliable and possesses more negligible covariance with other variables. The last variable used is Efficiency in Recruitment Process with the Cronbach Alpha value of 0.693 which again signifies a reliable scale and high covariance.

4.2   Correlation Analysis

Table 4.2
Correlation Analysis

	DRP	TAR	QHT	TAT	ER
DRP	1				
TAR	.190**	1			
QHT	.708**	.417**	1		
TAT	.609**	.398**	.632**	1	
ER	.419**	.450**	.502**	.620**	1

Note: Digital Recruitment Process = DRP, Technology Adaption in Recruitment = TAR, Quality of Hiring with Technology = QHT, Talent Acquisition with Technology = TAT, Efficiency in Recruitment = ER

The Pearson correlation explains the relationship between two variables. This is usually conducted to see the relationship and prove the hypothesis. All the hypothesis results are positive and have a significant impact on the dependent variable.

4.2.1   Correlation between Use of Digital Recruitment Process and Efficiency in Recruitment:

The significance value between the use of digital in recruitment and efficiency in the recruitment process is 0.00. This sigma value is < 0.01, which indicates that there exists a significant relationship between these two variables. The Pearson correlation value is coming to 0.419 which is not very high but still positive. The sigma value and correlation value identify that the relationship between digital recruitment use and efficiency in the recruitment process is positively significant. This means if digital use is increased for recruitment, it will increase efficiency as well.

4.2.2   Correlation between Technology in Recruitment and Efficiency in Recruitment:

The significance value between technology in recruitment and efficiency in the recruitment process is also coming to 0.00 which is < 0.01. This value indicates that there exists a significant relationship between the two variables. The Pearson correlation value between these two variables is coming to 0.450, a moderately high value but positive. The sigma value and correlation value demonstrate a positively significant relationship between these two variables, meaning if more technology is used in the recruitment process, it will increase the efficiency of the recruitment process.

4.2.3   Correlation between Quality of Hiring with Technology and Efficiency in Recruitment:

The significance value between the quality of hiring with technology and efficiency in the recruitment process is 0.00 which is < 0.01. This value indicates that there exists a significant relationship between the two variables. The Pearson correlation value between these two variables is coming to 0.502, which is comparatively higher than the last two relationships and is positive. The sigma value and correlation value demonstrate a positively significant relationship between these two variables, meaning if technology increases the quality of the hiring process, it will also increase the efficiency of the overall recruitment process.

4.2.4   Correlation between Talent Acquisition with Technology and Efficiency in Recruitment:

The significance value between talent acquisition with technology and efficiency in the recruitment process is 0.00, which is < 0.01. This value indicates that there exists a significant relationship between the two variables. The Pearson correlation value between these two variables is coming to 0.620, the highest among all other relationships. It is upbeat and closest to 1 as compared to different correlation values. The sigma value and correlation value demonstrate a positively significant relationship between these two variables, meaning if the use of technology improves, the talent acquisition will also improve the efficiency of the overall recruitment process.

4.3   Regression Analysis

While correlation identifies the relationship between the independent and dependent variables, regression analysis measures the impact of one variable on the other. However, correlation and regression both are predictive analysis tools. The essential values to read in regression analysis are R-square. The value of the coefficient variant is between 0 to 1, the closer the value of r-square to 1, the higher the impact of independent variables (x) has on the dependent variable (y). The model summary Table 4.3 below shows that the value of R is

higher at 0.665; however, the value of R-Square is 0.442. This value is moderately high only, which means that the impact of IVs on DV is not very high. It implies in Pakistan's context if the level of technology is increased in recruitment and talent acquisition, it will have a 44% impact on the recruitment process's efficiency.

Table 4.3
Model Summary Regression Analysis

Model	R	R Square	Adjusted R Square	Std. The error in the Estimate
	.665[a]	.442	.432	1.75803

Looking at the ANOVA Table 4.4, the most critical value is the sigma value which is 0.00 < 0.01, which signifies that the impact of IV on DV is significant. Moreover, the coefficient Table illustrates the p-value or sigma value of each of the independent variables.

Table 4.4
Anova

	Sum of Squares	df	Mean Square	F	Sig.
Regression	526.937	4	131.734	42.623	.000[a]
Residual	664.494	215	3.091		
Total	**1191.432**	**219**			

The P-value of the use of digital in technology is 0.708, which means that the impact of this independent variable is not significant on the efficiency of the recruitment process. Moving on use of technology in overall recruitment has a p-value of 0.00, which indicates the high impact of this variable on the efficiency of the recruitment process. Quality of hiring with technology has a p-value of 0.194, which is higher than 0.01, which again means it doesn't significantly impact efficiency in the recruitment process. Lastly, the p-value of talent acquisition with technology is 0.00, which is lesser than 0.01, indicating the higher significance with efficiency. Hence, the regression results entail that two independent variables have a positive impact and two variables have no effect on the dependent variable.

Table 4.5
Coefficient Table – Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	6.447	1.281		5.034	.000
Use of digital recruitment	.031	.082	.029	.375	.708
Technology and recruitment	.329	.087	.222	3.781	.000
Quality of hiring with technology	.105	.081	.106	1.304	.194
Talent acquisition with technology	.701	.111	.447	6.286	.000

5.   Conclusion

The results of this study have been quite beneficial in understanding the aspect of employee recruitment with the help of technology. Nowadays, the majority of the companies have adopted and designed a portal for HR rather than a physical resource (Khan & Rasheed, 2015). However, the scenario is different and immature in Pakistan's market as the company still cannot comprehend how well and efficiently incorporate it with the practices (Naqvi & Bashir, 2015). Nevertheless, it is believed that Pakistan can change the situation of recruitment dramatically (Khattak et al., 2015). Recent research shows on the Pakistan market shows that the organizations which have efficaciously implemented advanced HR technology tools overtake those that do not (Khalid & Tariq, 2015). Nevertheless, since most establishments already have programmed basic HR administration, the general automation of HR procedures can no longer guarantee a competitive gain. Instead, businesses need to control how to use these technologies to alter their recruitment actions and market the brand to attract maximum candidates and increase the chance of hiring the best-fit talent for a particular job.

Moreover, the companies today implemented resume databases and applicant tracking technology. This is usually implemented by those organizations that hire very frequently. This type of technology enables them to keep the record and track the employee who has applied at some point within no time. Moreover, companies have also developed online test and assessment tools that can easily be given to the candidate to test their eligibility and IQ and get the results in no time. Quality of recruitment with technology shows a high relationship with the efficiency in the overall recruitment process.

6.   Discussions

The current study attempts to determine the effect of adaption of technology in the recruitment practice in Pakistanis' industries as no such earlier studies have been carried out in Pakistan to date to see the impact of technology adaption on inefficient talent acquisition. An increase in the emergence of technology does not only increase innovation within organizations but the findings have been in-line with targeted goals and objectives. The reliability test of each variable reveals very high covariance and Cronbach alpha above 0.5 which means the scale is reliable however, only the talent acquisition with technology possesses low Cronbach alpha. This doesn't signify that its impact on the efficiency of the recruitment process is lesser. On the other hand, the correlation shows a positive correlation between the use of digital in recruitment and efficiency. The literature above proves that recruitment is very similar to marketing, where the company is marketing itself as the best place to work.

All these technologies indeed improve the quality of recruitment. This statement can be proved with correlation analysis. In the above analysis, the only values that are considered are those that predict the relationship between IVs and DV however, correlation also tells the relationship between the independent variables. So, to prove this statement that technology in recruitment adds quality to the recruitment process, the sigma value between technology in recruitment and quality of recruitment also comes to 0.00, which is significant and the Pearson correlation value is also positive. The literature and the data analysis have signified that talent acquisition with technology has a high impact on recruitment efficiency. Talent acquisition is a sub-group of recruitment or a department within recruitment that is witnessing automation at the current time.

7.   Research Implications

This research would certainly help HR heads, policymakers, and decision-makers of different companies and industries. There has been an emergence of a plethora of digital platforms due to which the recruitment process has also been digitalized. For instance, Facebook, LinkedIn, and Twitter have made it easier for companies to reach out to potential candidates. This use of digital platforms for posting the vacancies has undoubtedly helped in the cost reduction in the recruitment process, decreased the response time from the candidates, and improved the overall efficiency of the recruitment process. The technology in recruitment is also observing advancement. It provides more options or platforms for job seekers to find their careers. Moreover, technological advancement also facilitates the HR manager to streamline their hiring processes.

The literature has revealed that traditionally in Pakistan, HR managers had to invest considerable costs in giving advertisements for jobs, but they received few resumes. On the other hand, with the increased use of technology, organizations get hundreds of resumes

daily, which causes them to sort and filter the resumes that again require technology. The current research has also revealed a significantly positive relationship between the use of technology and efficiency in the recruitment process. The study has also identified some of the most commonly used technologies in recruitment. Such as Internet Job Boards which can be explained as only portals on different websites or social networking sites where every organization can post about a vacancy.

Many companies have already incorporated it, especially multinationals in the acquisition space. The automation in talent acquisition aims to gather the data of candidates, compile a list of potential candidates after automated screening and send the report to the recruiter. The recruiter then approaches selected candidates with their skill set and work experiences. The technology in talent acquisition has become highly advanced. There has been the development of such software that even conducts the first round of interviews or screening for employers.

Overall the results show that there exists a high correlation between all the independent variables and dependent variables. The regression analysis also shows that technology in recruitment and talent acquisition has the highest impact on the efficiency of the recruitment process in Pakistan. The data or information will be safe easily and it will help further the organization achieves its goals. Through this, an organization can easily get benefits of improved productivity along with this turnover will be decreased and profitability will increase. Somehow, by this, the new partnership can be signed, and new things can easily build up.

7.1   *Limitations*

Future researchers are recommended to use these recommendations to overcome the current research's limitations. The qualitative approach has been recommended so that it can provide more in-depth data and results. The use of a longitudinal time horizon has been advised so that the data can be collected in a more stretched time. Future researchers are recommended to conduct this research on different industries and countries for different outcomes. Future research is also recommended to use other variables. The use of causal design has also been recommended to examine the causation between variables.

7.2   *Future Outlook*

Technology has become an extended term in today's business environment. It is safe to say that no industry has been affected by technology in one way or the other (Khan & Rasheed, 2015). Every industry and business has identified the importance of technology to increase overall operations and proficiency (Sattar et al., 2015). This implies on every level and department of a particular organization, including Human Resource Management (Ahmad & Allen, 2015). The research aimed to measure the impact of technological adaptation

in recruitment in Pakistani organizations and their impact on the efficiency of the recruitment process. The study has revealed an overall positive and significant effect of different types of technological adaptation by the HR departments of Pakistani organizations. The highlighted factors include the use of digital platforms in recruitment, implementation of technological advancement software for managing the database and candidate pool, overall quality of the recruitment process, and use of technology in talent acquisition. Finally, the overall impact of talent acquisition on the recruitment process is also significant and relatively high.

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References

Ahmad, M., & Allen, M. (2015). High-performance HRM and establishment performance in Pakistan: an empirical analysis. *Employee Relations, 37(5)*, 506-524.

Asadullah, M. A., Marie, P. J., Bourgain, M., & Najam, U. (2015). Line Managers' Perception about Quality of HR Function in Pakistan: A Case Study. *South Asian Journal of Human Resources Management, 2*(2), 189-204.

Ashraf, J. (2017). Examining the public sector recruitment and selection, in relation to job analysis in Pakistan. *Cogent Social Sciences, 3,*1-11.

Azeem, M. F., & Yasmin, R. (2016). HR 2.0: linking web 2.0 and HRM functions. *Journal of organizational change management, 29*(5), 686-712.

Ekwoaba, J. O., Ikeije, U. U., & Ufoma, N. (2015). *The Impact of Recruitment and Selection Criteria on Organizational Performance, 23*(2), 11-33

El Ouirdi, M., El Ouirdi, A., Segers, J., & Pais, I. (2016). Technology adoption in employee recruitment: The case of social media in Central and Eastern Europe. *Computers in Human Behavior, 57*, 240-249.

Fair, C. C. (2007). Militant recruitment in Pakistan: a new look at the militancy–madrasah connection. *Asia policy, 4*, 107-134.

Gates, S., & Podder, S. (2015). Social media, recruitment, allegiance and the Islamic State. . *Perspectives on Terrorism, 9*(4), 107-116.

Gomm, R. (2008). Social research methodology: A critical introduction: *Macmillan International Higher Education*.

Hyder, S., & Lussier, R. N. (2016). Why businesses succeed or fail: A study on small businesses in Pakistan. *Journal of Entrepreneurship in Emerging Economies, 8*(1), 82-100.

Iqbal, A., Tufail, M. S., & Lodhi, R. (2015). Employee loyalty and organizational commitment in Pakistani organizations. *Global Journal of Human Resource Management, 3*(1), 1-11.

Kaminski, J. (2011). Diffusion of innovation theory. *Canadian Journal of Nursing Informatics, 6*(2), 1-6.

Khalid, S., & Tariq, S. (2015). Impact of employer brand on selection and recruitment process. *Pakistan Economic and Social Review, 53*(2), 351-372

Khan, A. S., & Rasheed, F. (2015). Human resource management practices and project success, a moderating role of Islamic Work Ethics in Pakistani project-based organizations. *International Journal of Project Management, 33*(2), 435-445.

Khattak, A. N., Ramzan, S., & Rehman, C. A. (2015). Organization Development through effective Hiring System: A phenomenological study of business organizations. *Journal of Commerce, 7*(4), 152-168.

Ladkin, A., & Buhalis, D. (2016). Online and social media recruitment: Hospitality employer and prospective employee considerations. *International Journal of Contemporary Hospitality Management, 28*(2), 327-345.

Moomal, A., & Masrom, M. (2015). ICT Development and Its Impact on e-Business and HRM Strategies in the Organizations of Pakistan. *Journal of Advanced Management Science, 3*(4), 344-349.

Naqvi, S. M., & Bashir, S. (2015). IT-expert retention through organizational commitment: A study of public sector information technology professionals in Pakistan. *Applied Computing and Informatics, 11*, 60-75.

Nasir, S. Z., & Mahmood, N. (2016). Determinants of Employee Retention: An Evidence from Pakistan. . *International Journal of Academic Research in Business and Social Sciences, 6*(9), 182-194.

Nasreem, S., Hassan, M., & Khan, T. A. (2016). Effectiveness of e-recruitment in small and medium enterprises of IT industry of Lahore (Pakistan). *Pakistan Economic and Social Review, 54*(1), 143-164

Naz, F., Aftab, J., & Awais, M. (2016). Impact of Human Resource Management Practices (HRM) on Performance of SMEs in Multan, Pakistan. *International Journal of Management, Accounting & Economics, 3*(11), 699-708.

Neuman, W. L. (2013). Social research methods: Qualitative and quantitative approaches: Pearson education.

Owusus-Ansah, S., & Nyarko, K. S. (2014). Leveraging information technology (it) in recruitment and selection processes- A comparative study. *International Journal of Network and Communication Research, 2*(1), 16-44.

Radhika, R., & John, F. (2016). E-recruitment–an organizational change. *International Journal of Multidisciplinary Approach & Studies, 3*(4), 78-86.

Sabir, F., Abrar, M., Bashir, M., Baig, S. A., & Kamran, R. .. (2015). E-HRM impact towards company's value creation: Evidence from banking sector of Pakistan. *International Journal of Information, Business and Management, 7*(2), 123-143.

Sattar, T., Ahmad, K., & Hassan, S. M. (2015). Role of human resource practices in employee performance and job satisfaction with mediating effect of employee engagement. *Pakistan Economic and Social Review, 53*(1), 81-96.

Sekhar, C., & Patwardhan, M. (2015). Employee's Perception towards e-HRM Implementation: Indian Service Sector. *SCMS Journal of Indian Management, 12*(3), 82.

Shah, S. T., Kazmi, Z., Shah, T. A., & Jamil, R. A. (2016). International human resource management: A review paper from Pakistani perspective. . *International Journal of Information, Business and Management, 8*(1), 114.

Sheikh, M., Hasnu, S., & Khan, I. (2016). Link between HR practices and organizational performance in small firms: A case for the manufacturing sector of Pakistan. *Management Science Letters, 6*(1), 71-86.

Smita, P., & Sarika, M. (2015). Analysis of the pros and cons of online recruitment methods in India. . *International Journal Of Engineering and Management Sciences, 6*(2), 65-67.

Zia-ur-Rehman, M., Faisal, H., & Khan, R. A. (2015). In Public Sector Organizations, how the Performance of Employees is influenced by the HR Practices-Analyzing the Perspective. *Journal of Managerial Sciences, 9*(1), 50-68.

The Influence of Technological, Organizational, and Customer Competency on Innovative Performance with Mediating Role of Research and Development

Muhammad Imran* Rubina Akhtar** Muhammad Mutasim Billah Tufail***
Rao Mazhar Hussain**** Sohail Aslam*****

Abstract

In this digital era, the innovative performance of any industry is vital. The main objective of this research is to investigate the effect of technological, organizational and customer competencies on the innovative performance of the IT industry (Software Houses) in Pakistan. Organizational Management Competency of 287 responses was collected through a questionnaire from Software houses of Pakistan. The Smart PLS has used to analyze the data and draw the results. Technological, organizational and customer competencies found their positive and significant relationship with the innovative performance of software houses in Pakistan. Moreover, the mediating role of R&D is found between organizational management competency, customer competency and innovative performance. However, the findings of the current study suggest that software houses should focus on the allocations of their resources to enhance their technology capabilities, which allow them to remain flexible in business conditions that are always shifting.

Keywords: Innovative performance; technological competency; organizational management competency; customer competency; research and development.

JEL Classification: M51, O32

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*International Senior Lecturer, School of Business Management, Universiti Utara Malaysia, Malaysia & Assistant Professor, Department of Project and Operation Management, The Islamia University of Bahawalpur, Pakistan. Email: muhammad.imran@uum.edu.my; muhammad.imran@iub.edu.pk

**Research Scholar, Institute of Business Management & Administration Sciences, The Islamia University of Bahawalpur, Bahawalpur, Pakistan. Email: ruby_sweet_bina@yahoo.com

***Sr. Assistant Professor, Department of management studies, Bahria University Karachi Campus, Karachi, Pakistan. Email: mutasimtufail.bukc@bahria.edu.pk

****Additional Director (QEC), Ph.D. Scholar at the Islamia University of Bahawalpur, Bahawalpur, Pakistan. Email: mazhar.rao@iub.edu.pk

*****Assistant Professor, Department of Project & Operation Management The Islamia University of Bahawalpur, Bahawalpur, Pakistan. Email: sohail.aslam@iub.edu.pk

1.   Introduction

Innovation has been acknowledged as the critical factor that underlies the sustainable performance of any firm. It is considered as the essential element in gaining a competitive advantage (Dougherty & Hardy, 1996; Zirger & Maidique, 1990) To become successful in a competitive environment continuous innovation is essential. Although there are numerous models but very few have discussed innovation in terms of organizational competency. In today's competitive environment multiple core competencies become evident for constant growth (Jalil et al., 2019). Organizations have several competencies but only a few of them can be identified as the core competencies. Several authors have identified technology competency as one of the core dimensions of performance (Pérez-López & Alegre, 2012). The consequence of IT is seen by shifts and revolutions over a decade. The IT industries are very vast. The geographical dispersion of advanced technical resources is now aligned with new development prospects (Que & Cantwell, 2016). The IT industry is one of Pakistan's fast-growing markets, accounting for approximately 1% of Pakistan's GDP, at about USD 3.5 billion. In the last four years, it has doubled, and analysts plan it to rise to $7 billion by another 100% in the next two to four years.

Pakistan's IT Sector Exports Trend 2006 to 2018 increased by 18K to 157K. As of now, more than 2500 IT firms are enrolled with exceedingly gifted and taught professionals in Pakistan. The deals of the IT industry are over $ 2.8 billion, out of which $ 1.6 billion has a place to the send out of software and IT administrations. As per the report, 25 tech incubators, co-working spaces, and quickening agents are in ownership of the Pakistan IT industry. Three OSCAR grants are gotten by Pakistani IT software engineers due to colossal commitment to Life of Pie etc. Actually gifted and Microsoft-certified experts are including esteem to the IT industry and Financial improvement of the nation (Shahzad et al., 2017).

Recently, Pakistan has mostly mislaid out of the worldwide worth chains allotted associate mediocre rank of issuing relatively short cost products or services and being paid allowances from usually low ability hand W.H.O usually go overseas, rather than adding worth reception by contributory within the increasingly interconnected world service economy. Worldwide Development File (GII) 2017 position of Pakistan is 113th available of 127 nations in Universal innovations. Costs on instructions are 2.7 percent of GDP and tertiary registration is 9.9%. Additionally, the state ranked 74th in the field of knowledgeable labor (Dutta et al., 2015). Many organizations generate diverse forms of skills and incorporate the experience into emerging knowledge and innovation (Helmi, 2020).

Organizational innovation is directly proportional to the availability of relevant and accurate information which can be utilized for the process optimization of both service and product (Boadi et al., 2020). Innovative performance has been frequently studied and researched in several scientific disciplines (Hameed & Haq, 2021), so it has varied

understandings in various perspectives from various sources of literature by combining elements of ability and attitude with elements of achieving competency-based results (Sajid & Nouman, 2019; Kosasih, 2019). Theoretically, the study focus on our framework of study to determine the innovative performance of basic three competencies technological competency, organizational management competency, and customer competency, and the mediator is research and development.

The objective of this study is to identify the role of technological advancement on the performance of the organization. It further analyzes the role of organization and customer competency with the mediating effect of research and development.

2.   Literature Review

Thus, literature reviews concentrate on the value of three competencies (technological, organizational, and customer) that impact and improve IT industries' creative output.

2.1   *Innovative Performance (IP)*

Innovation has been considered the critical element of success in the current business environment (Shahzad et al., 2017). The dependent variable (DV) of this study is Innovative performance (IP). Industries must not only evolve in order to produce positively but also thrive and overcome the existing competition (Cefis & Marsili, 2006; Hassan & Hashmi, 2020). In previous studies, the creative success of the industry has been the target of research (Roberts & Amit, 2003; Berchicci, 2013). The current study treats the IP success of the IT sectors as incorporated into its innovation phase in the different components of competencies and highlights innovative performance by research and development in three fields.

2.2   *Technological Competency*

Technological Competence is vital for human development (Burke & Ornstein, 1995; White Jr, 1962). The research describes the first independent variable (IV) as technological competency (TC) Technological competencies include practical and theoretical information and techniques, ex-service, and devices required for the production of new goods and form part of technology skills (Wang et al., 2004). An industry with strong technological expertise can rapidly improve products and processes which bargain different assistances and generate worth for consumers using their scientific expertise.

Hypothesis 1: The technology competency (TC) has a positive relationship and does influence the Innovative performance (IP).

2.3   *Organizational management competency*

The term competency can be defined as the potential and willingness of an individual to perform a given task (Hemani & Rashidi, 2016). The second independent variable (IV) used in this research is organizational management competency (OMC). Organizational management competency (OMC) to achieve first, early, and higher innovates operational expertise (Roberts & Amit, 2003). Some scholars find that the deduction of organizational management competency (OMC) from insufficient change is greater than those of excessive change (Zajac et al., 2000). Business sense, client communication, and customer response are organizational management competencies (OMC) relevant to the implementation of customer coordination. Market sensing is the company's capacity to detect patterns before rivals and to predict market occurrences.

Hypothesis 2: The organizational management competency (OMC) has a positive relationship and influences the Innovative performance (IP)

2.4   *Customer Competency*

The third and last independent variable (IV) used in the research is customer competency (CC). Those agencies with well-advanced consumer competencies (CC) are flourishing caution of customer demands and they are accomplished fee development on all factors of a product or service which might be crucial to the consumers (Day, 1994). Customer competence (CC) supports product feature choices in the realistic growth process. The promotion of products, including identification of main consumers and locations, demand evaluations, and research, typically plays a primary role in product testing. Customer plans, advertising, and delivery of goods are activities involving marketing experience in the marketing stage of the product (Swink & Song, 2007; Hafeez et al., 2002).

Hypothesis 3: Customer competency (CC) does influence and has a positive relation with innovative performance IP.

2.5   *Research and Development (R&D) as a mediator*

The R&D is an overarching attempt to increase the expertise of the industry. This may involve scientific, individual, cultural, or even social awareness. The application of this expertise is concerned with the creation of new goods. The organization's durability relies on emerging consumer technologies due to rapid developments in technology, which can lead to competition (Fiaz et al., 2011).

In those years R&D has been rising steadily due to cautious and gradual technical developments, high production expense, increasing difficulty due to rapidly increasing technological capabilities, and competitive advantages (Finne, 2003). Large companies earn high profits through the production of more inventions (Hameed & Irfan, 2019) with more R&D.

As per published studies technology competency is crucial for higher innovative performance in any organization (Bolívar-Ramos et al., 2012; Dahms et al.,2020). However, some researchers stressed that the direct role of technology competency is not clear yet how it is increasing the level of innovation performance of the organization (Swink, 2000; Swink & Song, 2007). Thus, the current is proposing the following hypothesis that R&D can play the mediating role to clarify the link between technology competency and innovative performance.

Hypothesis 4: The mediating effect of R&D is associated between technological competency (TC) and innovative performance.

Furthermore, Peeters and Van Pottelsberghe (2003) stated that effective organizational management competency influences the organization's innovative performance positively. One more study also stressed that innovation in any company cannot be achieved without active organizational management competency (Waheed et al., 2019). Anyway, the way forward without the role of R&D strategy, the organization also cannot the achieve the higher innovation performance (Peeters & Van Pottelsberghe, 2003). Thus, R&D can play the bridging role between organizational management competency and innovative performance.

Hypothesis 5: The mediating effect of R&D is associated between organizational management competency (OMC) and Innovative performance (IP).

Always innovation demand comes from the customer side, the firm which has a strong link with the customer they have the more innovative product in the market (Stanko & Bonner, 2013). In other words, customer competency increases the innovative performance of companies. Besides, the past research suggested that organizations cannot neglect the R&D process's role in customers' higher demand for innovative products or services in the market (Ernst et al., 2011; Wind & Mahajan, 1997). The continued process of research and development only can give the solution or meet the customer demands (Vendrell-Herrero et al., 2021). Hence, based on past studies the current study proposes the following hypothesis.

Hypothesis 6: The mediating effect of R&D is associated between customer competency (CC) and Innovative performance (IP).

The framework of the variable is described as follows. In this framework, every variable is directly linked with one another.
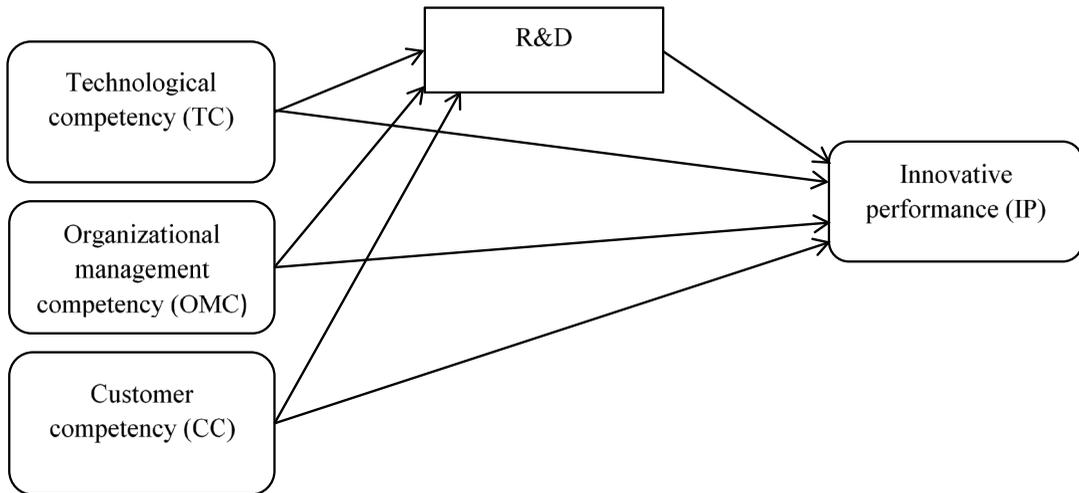
Figure 1: Research Framework

3.   Methodology

The above discussion provides a general idea of the appropriate literature concerning IP, TC, OMC, CC, and R&D. This section is seized toward making clear the research methodology and the techniques engaged in the way to attain the research purposes. In specific, this section includes the research population, the size of the studied sample, the sampling method, and the method or techniques concerning data collection and data analysis.

3.1   *Population*

Our main population of the data collection is the software houses of Pakistan. A total of 1169 software firms are registered on the software export board of Pakistan. A total of 287 respondents are taken for this study (Krejcie & Morgan, 1970). The data has been collected from respondents through a structured questionnaire with a seven-point Liker scale. The manager of software houses was taken as respondents of the study. The random sampling technique was used to distribute the questionnaire to respondents. Table-1 has been used to target the software houses all over Pakistan through e-mail.

Table 1
Detail of IT industries in Pakistan

Sr no.	City/ Location	No. of IT industries	Total
1	Islamabad	268	268
2	Karachi	411	679
3	Lahore	315	994
4	Rawalpindi	112	1106
5	Peshawar	45	1151
6	Other	18	1169

Source: http://www.psed.org.pk/company

3.2   *Research instrument*

This study is carried out via a questionnaire-based survey. The instrument is used to designate a 7-point Likert scale 1-7 ("strongly disagree to strongly agree"). The questionnaires are distributed among the managers of the IT Industries of Pakistan. The scale of technological competency, organizational management competency, and customer competency was adopted from the study of Lokshin et al. (2009). Moreover, the scale of research and development was taken from the study of Jantunen (2005) and the scale of innovative performance was acquired from the study of Dogbe et al. (2020).

4.   Results

This analysis contained the validation of the variables discussed in the research model. A questionnaire survey has directed the result of which have been analyzed over Smart PLS-SEM (Weissman et al., 2005) and PLS graph (Chin et al., 2003). Three analysis techniques were run in the software, the first one in PLS algorithms is Cronbach's Alpha and the second one is Fornell and Larcker criteria.

Reliability is a quantity to signify the range to which a measuring instrument is appropriate or error-free and therefore reliable and stable crossways phase and also numerous items in scale (Sekaran & Bougie, 2016). The most common test of inter-item consistency is the Cronbach's alpha Coefficient. In this research, Cronbach's alpha Coefficient consistency is applied to study the inner stability of the variables.

Cronbach's alpha technique is used for assessing the reliability and is priceless due to its strength to overwhelm the matters. Cronbach's alphas pragmatism has been the dictating force behind its use, mostly in the playing field management sciences. This research engaged

Cronbach's alpha coefficient to test the measurements' reliability. Here method shows the item's consistency when measuring the same construct by indicating that they display the top consistency and share the top tendency to measure it (Nunnally, 1994).

Table 2
Cronbach's Alpha

Constructs	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Customer competency	0.849	0.85	0.898	0.689
Innovative performance	0.865	0.869	0.908	0.713
Organizational management competency	0.912	0.912	0.93	0.653
R&D	0.855	0.856	0.912	0.776
Technological competency	0.889	0.89	0.919	0.693

4.1   Discriminant Validity

Here Fornell-Larcker method is used to demonstrate the discriminant validity of the construct. In the Fornell-Larcker validity assumption if the square root of AVE is greater than the latent variable correlations then the assumption of the discriminant validity among the construct is supported. The Table depicts that the square root of AVE (upper diagonal values) is enough greater than all the correlation values in their row and columns. Hence, the discriminant validity is established.

Table 3
Fornell and Larcker

Constructs	Customer competency	Innovative performance	Organizational management competency	R&D	Technological competency
Customer competency	0.827				
Innovative performance	0.829	0.845			
Organizational management competency	0.844	0.855	0.808		
R&D	0.856	0.776	0.832	0.86	
Technological competency	0.883	0.866	0.861	0.89	0.833

4.2   *Structural Equation Model (SEM)*

The structural equation model is used to examine the relationship among constructs as well as the predictive abilities of the outer model. Structural Equation Modeling (SEM) is implied to test the hypotheses. The SEM is based on regression tools. According to (Hornsey et al., 2018), regression analysis is a statistical valuation to analyze or estimate the relationship between the independent and dependent variable(s). Generally, the regression analysis is run to estimate the causal effect of a variable on another variable.

Discussion of the direct relationship between technology competency, organizational management competency, customer competency, and innovative performance. Here below mentioned Table shows the decision-making of hypothesis testing (direct effects of IVs on DV), whether they are supported or not. According to Table 4.9, the results of H1 show that there is a positive effect of Technological Competency on innovative performance OMC, and this effect is statistically significant (β=0.22; t=2.88; p=0.00); hence H1 is supported. Moving on to the results of H2 shows that Organizational management competency positively affects the Innovative Performance and this effect is statistically significant (β= 0.36; t=4.29; p=0.00); hence H2 is accepted. About H3, the proposed results show that there is a significant positive relationship between Customer Competency with Innovative Performance (β= 0.37; t=4.05; p=0.00); so H3 is also accepted and supported.

Table 4
Results of direct relationships

Hypothesis	Beta	Standard Deviation	T Statistics	P Values
H1: Technological competency -> Innovative performance	0.23	0.079	2.886	0.004
H2: Organizational management competency -> Innovative performance	0.37	0.086	4.295	0.000
H3: Customer competency -> Innovative performance	0.32	0.078	4.050	0.000

4.3   *Discussion of indirect relationships (mediating role of R&D)*

Here below mentioned Table shows the decision-making of hypothesis testing (indirect effects of IVs on DV), whether they are supported or not. The results of H4 show that there is an insignificant indirect impact of Technological Competency on Innovative Performance (β=0.008; t=0.473; p=0.637), which indicates that R&D insignificantly mediates the

relation between Technological Competency plus Innovative Performance. Hence, H4 is not supported. The results of H5 show here a significant indirect impact of OMC on IP (β=0.063; t=2.027; p=0.043), which indicates that R&D significantly mediates the relations between OMC and IP. Hence, H5 is supported. While moving towards H6, the outcomes show the significant positive indirect effect of CC on IP (β=0.075; t=2.138; p=0.033). It depicts this R&D significantly mediates the relation between CC on IP. Hence, this hypothesis (H6) is accepted in this study.

Table 5
Results of indirect relationships

Hypothesis	Beta	Mean	S. D	T statistics	P Values
H4: Technological competency -> R&D -> Innovative performance	0.01	0.009	0.02	0.473	0.637
H5: Organizational management competency -> R&D -> Innovative performance	0.06	0.059	0.03	2.027	0.043
H6: Customer competency -> R&D -> Innovative performance	0.08	0.072	0.04	2.138	0.033

4.4   Model Fitness

R square, Standardized root means square residual (SRMR), and Normed Fit Index (NFI) are the important measures for Model Fitness in regression analysis. R square depicts to which extent the independent variables are predicting the response variable. Zero R square value indicates that predicting variables are not explaining the response variable. While R square value greater than 0 or closer to 1 depicts that predicting variable(s) are explaining the response variable to a considerable extent. In this case, the R square values for the response variable Innovative performance and R&D are 0.762 and 0.743 respectively.

Table 6
R square

Constructs	R square	R square adjusted
Innovative performance	0.762	0.759
R&D	0.743	0.74

This indicates that predicting variables are considerably explaining the response variables. SRMR is another important measure of the goodness of the regression model. According to (Sarstedt et al., 2014), a value less than 0.10 or 0.08 is considered good. In this case, the SRMR value is 0.059, which is far away from 0.08. Hence, the alternative hypothesis of model fitness is supported. NFI is another significant measure for the model fitness in Ordinary Least Square regression, (Lohmöller, 1989) stated that the NFI value greater than zero is considerable. The closer the NFI to 1, the better to fit. In this case, the NFI value is 0.804. Hence, the model is fit.

Table 7
Model Fitness

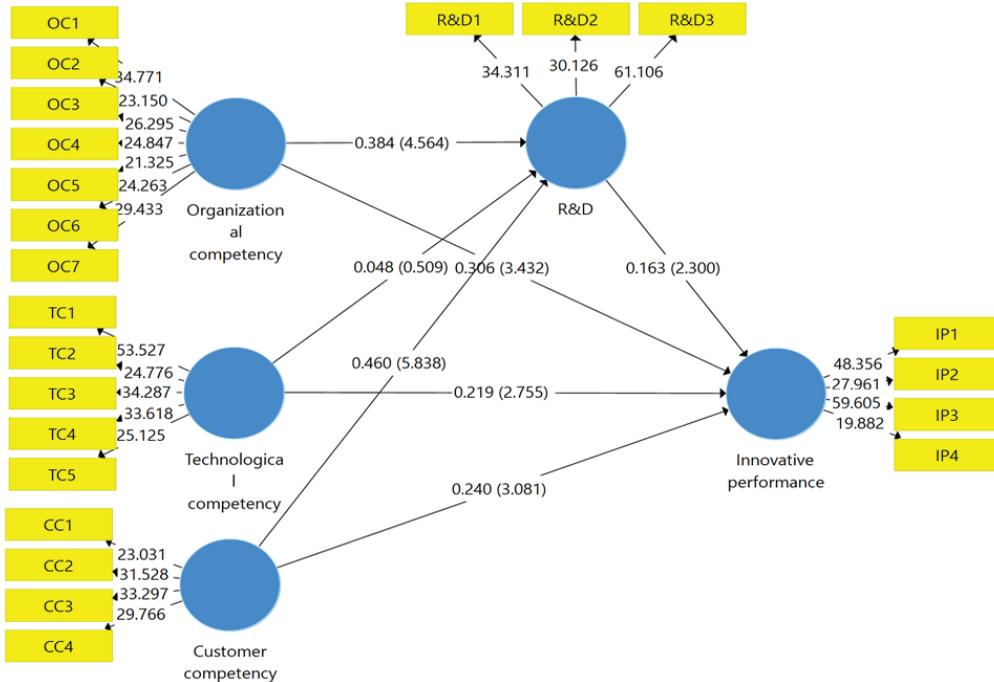| Criteria	Saturated model	Estimated Model
SRMR	0.059	0.059
d_ULS	0.964	0.964
d_G	0.645	0.645
Chi-Square	1,238.55	1,238.55
NFI	0.804	0.804

Figure 2: Framework model

5.   Discussions and Conclusion

The first objective of the current study is to analyze the impact of technological competency on the innovative performance of the IT industry. The statistical analysis from the present research showed a positive significant influence on the technological competency of the innovative performance. The results of the present study are supporting prior studies e.g. (McEvily et al., 2004). Furthermore, the study concluded that TC is also connected to the creative and innovative achievement in all three disciplines: Technology has a direct and beneficial impact on IP growth because no sector will flourish without research and experimentation in technology (Hafeez et al., 2002).

The second objective of the present research was to observe the impact of organizational management competency on the innovative performance of the IT industry. The empirical evidence from the present study showed a significant positive influence of organizational management competency on the innovative performance. The present findings are agreed with Tian et al. (2020) and Heusinkveld et al. (2009), who argued that organizational management competency signifies the innovative performance with resources and capabilities and has a direct relation with it. Subsequently, the 3rd objective of the present study was to analyze the impact of customer competency happening the innovative performance of the IT industry.

The statistical findings from the present study showed a positive significant influence of customer competency on innovative performance, some of the prior studies by (Jayachandran et al., 2004) concluded the same. The findings imply that an understanding of customers and their needs will allow a company to flourish, regardless of the industry in which it operates. While the fourth and final objective of the present study was to explore the mediating effect of R&D on the relationship between business competencies and innovative performance in the IT Industry. The analyses explained that R&D significantly mediates the relationship between Organizational management competency and Customer Competency with Innovative Performance. The present findings are agreed with Tian et al. (2020) and Acosta-Prado et al. (2021). On the other hand, these findings are against the results from (Helmi, 2020).

5.1   Implications of the study

The study contributed significantly to the literature on innovation performance. Limited studies have investigated the combined effect of technical, management, and customer competencies on innovation performance with mediating role of R&D in software houses. Moreover, the findings of this study can help the higher management of software houses regarding the improvement of innovation in their firms. Furthermore, the managers of software houses can utilize their resources effectively such as technological, managerial, and customer to derive innovative performance. However, this study stressing that how managers can covert intangible resources to create value through higher innovative performance.

5.2   *Limitations and future recommendations of the study*

The current study has only taken one industry of Pakistan, the future study can take the responses from other industries such as textile, sports, etc. Besides, this study conducting a cross-sectional study, the future study can conduct a longitudinal study approach. Moreover, future studies can also involve other organizational competencies in the current study research framework such as entrepreneurial competency and resilience.

Conflict of interest: The authors do not have any conflict of interest.

References:

Acosta-Prado, J. C., Severiche, A. K. R., & Tafur-Mendoza, A. A. (2021). Conditions of knowledge management, innovation capability and firm performance in Colombian NTBFs. *VINE Journal of Information and Knowledge Management Systems, 51*(2), 218-235

Berchicci, L. (2013). Towards an open R&D system: Internal R&D investment, external knowledge acquisition and innovative performance. *Research Policy, 42(*1), 117-127.

Boadi, D. A., Kwakyewaa, D. J., Olivier, A. J., & Antoinette, A. A. (2020). The Impact of Research and Development and Professional New Hiring on Organizational Innovation. *Human Resource Research, 4*(1), 46-66.

Bolívar-Ramos, M. T., Garcia-Morales, V. J., & García-Sánchez, E. (2012). Technological distinctive competencies and organizational learning: Effects on organizational innovation to improve firm performance. *Journal of Engineering and Technology Management, 29*(3), 331-357.

Bright, R. A., Medina, M.-j., Xu, X., Perez-Oronoz, G., Wallis, T. R., Davis, X. M., . . . Klimov, A. I. (2005). Incidence of adamantane resistance among influenza A (H3N2) viruses isolated worldwide from 1994 to 2005: a cause for concern. *The Lancet, 366*(9492), 1175-1181.

Burke, J., & Ornstein, R. E. (1995). The axemaker's gift: A double-edged history of human culture: Putnam Adult.

Carine Peeters & Bruno Van Pottelsberghe, 2003. Organizational competencies and innovation performances: the case of large firms in Belgium, Working Papers CEB 04-006.RS, ULB -- Universite Libre de Bruxelles.

Cefis, E., & Marsili, O. (2006). Survivor: The role of innovation in firms' survival. *Research Policy, 35*(5), 626-641.

Chin, W. W., Marcolin, B. L., & Newsted, P. R. (2003). A partial least squares latent variable modeling approach for measuring interaction effects: Results from a Monte Carlo simulation study and an electronic-mail emotion/adoption study. *Information Systems Research, 14*(2), 127-219.

Dahms, S., Cabrilo, S., & Kingkaew, S. (2020). The role of networks, competencies, and IT advancement in innovation performance of foreign-owned subsidiaries. *Industrial Marketing Management, 89*, 402-421.

Day, G. S. (1994). The capabilities of market-driven organizations. *Journal of Marketing, 58*(4), 37-52.

Dogbe, C.S.K., Tian, H., Pomegbe, W.W.K., Sarsah, S.A., & Otoo, C.O.A. (2020). Effect of network embeddedness on innovation performance of small and medium-sized enterprises: The moderating role of innovation openness, *Journal of Strategy and Management, 13*(2),181-197.

Dougherty, D., & Hardy, C. (1996). Sustained product innovation in large, mature organizations: Overcoming innovation-to-organization problems. *Academy of Management Journal, 39*(5), 1120-1153.

Dutta, S., Lanvin, B., & Wunsch-Vincent, S. (Eds.). (2015). The global innovation index 2015: *Effective innovation policies for development*. WIPO.

Ernst, H., Hoyer, W. D., Krafft, M., & Krieger, K. (2011). Customer relationship management and company performance—the mediating role of new product performance. *Journal of the Academy of Marketing Science, 39*(2), 290-306.

Fiaz, M., Naiding, Y., & Rizwan, M. (2011). An Insight into R&D Collaborations. Paper presented at the *First International Technology Management Conference*. 274-278

Finne, T. (2003). R&D collaboration: the process, risks and checkpoints. *Information Systems Control Journal, 2*, 18-22.

Hafeez, K., Zhang, Y., & Malak, N. (2002). Core competence for sustainable competitive advantage: a structured methodology for identifying core competence. *IEEE transactions on engineering management, 49*(1), 28-35.

Hameed, I., & Haq, M. A. (2021). Book review: Research, innovation and entrepreneurship in Saudi Arabia: Vision 2030. *International Small Business Journal, 39*(2), 184-184.

Hameed, I., & Irfan, Z. (2019). Entrepreneurship education: a review of challenges, characteristics and opportunities. *Entrepreneurship Education, 2*, 135–148.

Harrison, J. S., Hitt, M. A., Hoskisson, R. E., & Ireland, R. D. (2001). Resource complementarity in business combinations: Extending the logic to organizational alliances. *Journal of Management, 27*(6), 679-690.

Hassan, M., & Hashmi, M. A. (2020). Innovative branding strategies, consumer perception and purchase intentions in the insurance sector of Pakistan. *Pakistan Business Review, 21*(4), 808-824.

Helmi, R. L. (2020). Knowledge Management Enabler (KME) to Promote Innovation Capabilities in Public R&D Centers in Indonesia. *The Asian Journal of Technology Management, 13*(2), 98-112.

Hemani, K. R., & Rashidi, Z. (2016). Effect of organizational skills and competencies on perceived job performance with mediation of multitasking. *Journal of Business Studies,12*(1),121-138

Heusinkveld, S., Benders, J., & van den Berg, R.-J. (2009). From market sensing to new concept development in consultancies: The role of information processing and organizational capabilities. *Technovation, 29*(8), 509-516.

Hornsey, M. J., Harris, E. A., & Fielding, K. S. (2018). The psychological roots of anti-vaccination attitudes: A 24-nation investigation. *Health Psychology, 37*(4), 307-315

Jalil, F., Shafiq, M., & ul Rehman, W. (2019). Effect of QMS on innovation and financial performance a developing country perspective. *Pakistan Business Review, 21*(3), 595-611.

Jantunen, A. (2005). Knowledge-processing capabilities and innovative performance: an empirical study. *European Journal of Innovation Management, 8*(3), 336-349.

Jayachandran, S., Hewett, K., & Kaufman, P. (2004). Customer response capability in a sense-and-respond era: the role of customer knowledge process. *Journal of the Academy of Marketing Science, 32*(3), 219-233.

Kosasih, K., Wibowo, W., & Saparuddin, S. (2020). The influence of ambidextrous organization and authentic followership on innovative performance: The mediating role of change readiness. *Management Science Letters, 10*(7), 1513-1520.

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and psychological measurement, 30*(3), 607-610.

Liu, M., Liu, R., & Chen, W. (2013). Graphene wrapped Cu2O nanocubes: non-enzymatic electrochemical sensors for the detection of glucose and hydrogen peroxide with enhanced stability. *Biosensors and Bioelectronics, 4*5, 206-212.

Lohmöller, J.-B. (1989). Predictive vs. structural modeling: Pls vs. ml Latent variable path modeling with partial least squares (pp. 199-226): Springer.

Lokshin, B., Van Gils, A., & Bauer, E. (2009). Crafting firm competencies to improve innovative performance. *European Management Journal, 27*(3), 187-196.

McEvily, S. K., Eisenhardt, K. M., & Prescott, J. E. (2004). The global acquisition, leverage, and protection of technological competencies. *Strategic management journal, 25*(8-9), 713-722.

Nunnally, J. C. (1994). Psychometric Theory 3E. New York: Tata McGraw-Hill Education

Pérez-López, S., & Alegre, J. (2012). Information technology competency, knowledge processes and firm performance. *Industrial Management & Data Systems, 112*(4),644-662

Que R, & Cantwell, R. Q. J. (2016). *The international geography of general purpose technologies (GPTs) and internationalisation of corporate technological innovation,25*(1),1-24.

Ringim, K. J., Razalli, M. R., & Hasnan, N. (2012). A framework of business process re-engineering factors and organizational performance of Nigerian banks. *Asian Social Science, 8*(4), 203.

Roberts, P. W., & Amit, R. (2003). The dynamics of innovative activity and competitive advantage: The case of Australian retail banking, 1981 to 1995. *Organization Science, 14*(2), 107-225.

Sajid, A., & Nauman, S. (2019). The impact of HR practices on perceived employee performance: mediating role of HRM outcomes in educational institutes of Pakistan. *Pakistan Business Review, 20*(4), 914-925.

Sarstedt, M., Ringle, C. M., Henseler, J., & Hair, J. F. (2014). On the emancipation of PLS-SEM: A commentary on Rigdon (2012). *Long-range planning, 47*(3), 154-160.

Sekaran, U., & Bougie, R. (2016). Research methods for business: A skill-building approach: John Wiley & Sons.

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). Experimental and quasi-experimental designs for generalized causal inference/William R. Shedish, Thomas D. Cook, Donald T. Campbell: Boston: Houghton Mifflin.

Shahzad, F., Xiu, G., & Shahbaz, M. (2017). Organizational culture and innovation performance in Pakistan's software industry. *Technology in Society, 51*, 66-73.

Shalley, C. E., & Gilson, L. L. (2004). What leaders need to know: A review of social and contextual factors that can foster or hinder creativity. *The leadership quarterly, 15*(1), 33-53.

Stanko, M. A., & Bonner, J. M. (2013). Projective customer competence: Projecting future customer needs that drive innovation performance. *Industrial Marketing Management, 42*(8), 1255-1265.

Swink, M. (2000). Technological innovativeness as a moderator of new product design integration and top management support. Journal of Product Innovation Management: *An International Publication of the Product Development & Management Association, 17*(3), 208-220.

Swink, M., & Song, M. (2007). Effects of marketing-manufacturing integration on new product development time and competitive advantage. *Journal of operations management, 25*(1), 203-217.

Ullah, I., Hameed, R. M., & Kashif, A. R. (2017). Ethical leadership impacts intellectual capital facets paving way to foster innovative performance: a Pakistani software houses perspective. *Journal of Managerial Sciences, 11*(3), 231-262.

Vendrell-Herrero, F., Bustinza, O. F., & Opazo-Basaez, M. (2021). Information technologies and product-service innovation: The moderating role of service R&D team structure. *Journal of Business Research, 128*, 673-687.

Waheed, A., Miao, X., Waheed, S., Ahmad, N., & Majeed, A. (2019). How new HRM practices, organizational innovation, and innovative climate affect the innovation performance in the IT industry: A moderated-mediation analysis. *Sustainability, 11*(3), 621.

Wang, Z., Bovik, A. C., Sheikh, H. R., & Simoncelli, E. P. (2004). Image quality assessment: from error visibility to structural similarity. *IEEE transactions on image processing, 13*(4), 600-612.

Weissman, L., Morrissey, D., Bollen, G., Davies, D., Kwan, E., Lofy, P., . . . Sun, T. (2005). Conversion of 92MeV/u 38Ca/37K projectile fragments into thermalized ion beams. Nuclear Instruments and Methods in Physics Research Section A: Accelerators, Spectrometers, *Detectors and Associated Equipment, 540*(2-3), 245-258.

White Jr, L. (1962). Medieval Technology and Social Change. Oxford University Press. London, UK.

Wind, J., & Mahajan, V. (1997). Issues and opportunities in new product development: An introduction to the special issue. SAGE Publications Sage CA: Los Angeles, CA.

Zajac, E. J., Kraatz, M. S., & Bresser, R. K. (2000). Modeling the dynamics of strategic fit: A normative approach to strategic change. *Strategic management journal, 21*(4), 429-453.

Zirger, B. J., & Maidique, M. A. (1990). A model of new product development: An empirical test. *Management Science, 36*(7), 867-883.

FinTech Past and Future: Ecosystem, Business Model, and its Proximate Challenges

Umair Baig* Saba Zehra** Sarah Anjum*** Mudassir Hussain****

Abstract

FinTech "financial" and "technology" is redefining financial services in the 21st century. It is an advancing intersection of financial services with a technological solution to enhance automated financial services and processes. FinTech is a groundbreaking innovation that has the capability of restructuring the traditional market. It establishes a standard in which information technology drives financial industry innovation. These approaches are advancing expeditiously, embedded by enhancing the economy, policies, and IT sector. It offers facilities including e-trading, funding payment (electronic wallets), e-insurance, e-aggregators, and cryptocurrency via Bitcoin. The main intention of this research is to discover a historical perspective of FinTech to highlight the existing gaps in the literature, and also describe the significance of the Ecosystem toward fintech. The novelty of this area of study is to explore multiple dimensions of FinTech business models, which must be helpful for future business consultants and advisors. Similarly, after evaluating previous research to understand the ground realities and comprehend future directions, technical and management problems of FinTech companies along with future challenges.

Keywords: FinTech; ecosystem; business model; Fintech challenges.

JEL Classification: O31, O32, M13

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*Assistant Professor, Department of Commerce, Benazir Bhutto Shaheed University, Karachi, Pakistan. Email: umaiirbaig@gmail.com

**Assistant Professor, Federal Urdu University of Arts, Sciences & Technology, Karachi, Pakistan. Email: saba.zehra@fuuast.edu.pk

***Assistant Professor, Karachi University Business School, University of Karachi, Karachi, Pakistan. Email: anjum.sar@uok.edu.pk

****Assistant Professor, Department of Commerce, Benazir Bhutto Shaheed University, Karachi, Pakistan. Email: muddassir.hussain@bbsul.edu.pk

1.   Introduction

FinTech is considered one of the most all-embracing inventions of the financial industry. FinTech is likely-looking to revamp the industry by enhancing the quality and cutting costs of financial services. In recent years, FinTech is considered the backbone of the financial industry that implements technologies to improve financial activities (Schueffel, 2016). Financial technology is the composition of technology and financial services to contribute and strengthen financial affairs in the contemporary world. Revolutionary and newly invented financial products are the desired outcomes of finTech. Hence, it is undoubtedly considered an emerging field that is influencing the conventional corporate structure and forcing them to transform themselves quickly as possible (Smith, 2015).

Similalry, Gimpel et al. (2018) stated that FinTech companies have a substantial influence on the financial industry. Innovative corporates are interested to develop capabilities to utilize and/or invest in FinTech to stay over-competitive, even recently internal projects of traditional financial institutions are transformed into technology-driven to boast Fintech innovation and obtain competitive advantages. Moreover, the authors of this study also highlighted that FinTech is now the backbone of the modern financial world. Furthermore, Smith (2015) also highlighted that innovation in the financial sector in the context of proving products and services is only possible due to Fintech.

Lee and Shin (2018) stated that two types of start-ups are relevant in the modern world, e-commerce and financial technology (FinTech). Gozman et al. (2018) emphasized that the established fintech market offered innovative, valuable solutions to the stakeholders of this sector. Likewise, the financial sector has achieved confidence to provide the best services to its customers. Moreover, Davis et al. (2017) emphasized that fintech is a reality now, therefore, contemporary financial institutions, for instance, banks are keen to build their fintech models to face upcoming challenges. There are two major gaps highlighted by (Gozman et al., 2018; Leong et al., 2017; Bahrami & Evans, 1995) first, there is a lack of research in the field of the emergence of Fintech specifically, in developing countries. Secondly, studies in the context of ecosystems and other related issues have not been appropriately addressed in underdeveloped countries.

Consequently, the main purpose of this study is to explore a historical perspective of FinTech to highlight the existing gaps in the literature, and also describe the significance of the Ecosystem toward fintech. The novelty of this study is to explore the dimensions of FinTech business models, which must be helpful for future business consultants and advisors. Similarly, technical and managerial challenges for both FinTech startups and traditional financial institutions were also described after reviewing the past research to understand the ground realities and comprehend the future directions.

Primarily, the structure of the study has based on six sections. One, the Background of the study is discussed. Second, the emergence of Fintech was described for the readers and future researchers to comprehend FinTech. Third, the fintech ecosystem was discussed, the purpose of highlighting the fintech ecosystem was essential to describe because chances of growth are much higher for several sectors, for instance; mobile banking, software, payments, platforms, data analytics algorithmic asset management systems, and peer-to-peer lending and trading, etc. Fourth, FinTech Business Model was discussed to provide a systematic purpose for using the Fintech in Business Model.

Moreover, this section has consisted of six dimensions that hopefully enlightened future researchers in the context of the business model. FinTech business models are; insurance services, crowdfunding, payment, lending, wealth management, and capital markets. Fifth, FinTech Investment challenges were also discussed to provide direction that how to deal with upcoming challenges for traditional industries along with new startups. Sixth, the study concluded for future scholars to motivate for further exploration of the same domain which would be the backbone of future industries.

2.   Emergence of Fintech

Over the last few years, fintech has become an emerging subject in the corporate world. However, the notion of FinTech is inherited and not a mystic concept. In 1958, and possibly predated to July 1866, the earliest interaction by the use of the Trans-Atlantic transmission line become apparent. The transmission not only reduced communication time between Europe and North America by one-half but 10 days to 17 hours (when a message was delivered by ship), but it also aided the creation of the global telex and subsequent financial services, which is also known as FinTech 1.0 (Nicoletti et al., 2017).

According to Arner et al. (2015), there are significant eras have been established, in which the application of financial tools has some sort of interconnection with technology. These eras informed us that both fields of study grew simultaneously. Primarily, the initial phase of development was analog context to the formation of digitalization. Predominately, fintech has been developed from 2008 onward in developing and particularly in the developed world. In the last decade, fintech development was not associated with the product and services. However, it was identified with the supplier side who is applying Fintech. for instance, wholesalers and retailers of the product and services. Moreover, recently, the era of fintech was identified by start-ups.

The origins of technological innovation in the financial sector can be seen or discovered from the invention of payment through checks in 1945. Following that in 1958 Bank of America issued the first credit card. In 1967 ATMs were introduced to aid in the processing of financial transactions followed by the issuing of a debit card as a transaction instrument.

Internet banking was introduced in the 1990s aided by the advent of the Internet. Fintech innovations such as mobile payments and crowdsourcing were introduced in the 2000s. This demonstrates that fintech is a rapidly evolving business, necessitating a reassessment of earlier research to capture the progress of financial services (Ashta & Biot-Paquerot, 2018).

In short, the advancement of FinTech is associated with the expansion of enabling technologies. In the course of FinTech 1.0, the key is empowering technologies containing Transatlantic transmission cable and mainframe computers, etc. In the course of FinTech 2.0, the concerned technologies consist of Internet things, however, for the duration of FinTech 3.0, gradually data technologies will be established. Presently, we are in the evolution moment between FinTech 2.0 to FinTech 3.0.
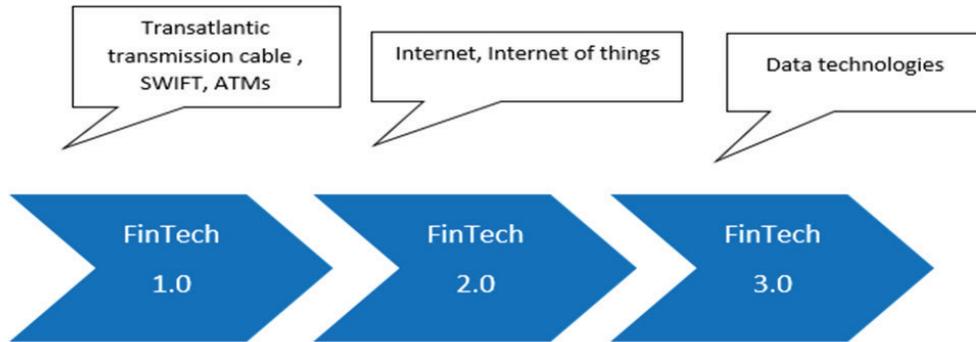

Figure 1: The evolution period between FinTech 1.0 to FinTech 3.0.

Financial Technology (FinTech) is a broad-based subject that incorporates Finance, Information Technology Management, and Innovation Management. Hence, Figure 2 depicts the finTech scope that which is a multidisciplinary area of learning.
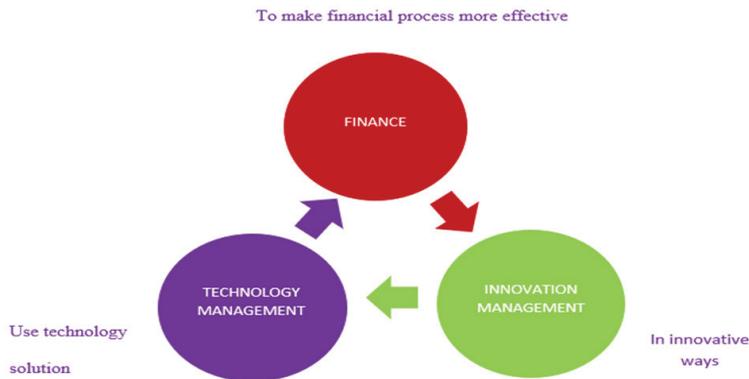

Figure 2: FinTech is a multidisciplinary area of the learning.

The fundamental intention of applying the technology is to provide innovative products and services in the existing financial system. FinTech is an emerging sector that is impacting conventional business models and financial structures by amalgamating modern technology and finance (Smith, 2015). The emergence of FinTech is basically supporting the way traditional firms are operated as it is the most critical invention (Gozman et al., 2018). In the past, financial industry innovation has primarily concentrated on technology difficulties, leaving an unresolved research topic about a deeper understanding of new technologies impact on services, Value formation, business concepts, and strategies for customers (Lee & Shin, 2018).

Furthermore, traditional business models, including proprietary distribution channels have been modified to current services by existing and established actors; thus far, product-based offerings have maintained their place in competition against new competitors. The development in the market of FinTech is providing an innovative solution to the clients by improving experiences and efficient financial services (Gozman et al., 2018). The restructuring of financial information flows has made internet banking more accessible. while other financial technologies, such as networks, standards, and messaging protocols, have generated new avenues for financial information flows. Application programming interfaces (APIs), for example, offer the ability to provide customized customer-centric experiences and make things easier (Gomber et al., 2017).

Innovations in "banking as a platform" with their mobile-centric solutions, challenger banks have become a global Fintech phenomenon, attracting millions of consumers. For example, Brazil's NuBank is the world's largest challenger bank, with 15 million customer accounts (Zachariadis & Ozcan, 2016). As the fintech sector develops, banking and financial regulatory regimes are continuously changing. To better meet the benefits and challenges provided by growing technology, financial authorities are currently evaluating existing rules and considering new legislation.

Financial regulators in the US, Europe, and the UK, in particular, have recently implemented or are enacting a number of regulations and recommendations directed specifically at fintech innovation (Fintechnews Singapore, 2020). Fintech innovation has enhanced banking and financial services, emphasizing the necessity for these new norms and rules to be rigorous. Institutionalized models are being undermined by the Fintech revolution, resulting in the restructuring of financial information flows. This is accomplished by new financial technical advancements that allow for reintermediation, or the launch of innovative financial institutions (Nielsen, 2002; Sathye, 1999).

Intermediaries are these Fintech companies that process payments using cryptocurrency rather than traditional compensation arrangements, and banking networks. Digi.me is another example of a platform that encourages clients and executive banks to collaborate

(Sen & King, 2003). To make efficient use of personal information regulatory monitoring and regulation are thus key aspects of the fintech ecosystem's evolution, and they may have a considerable impact on the scope and speed of future advances.

3. Fintech Ecosystem

The word ecosystem is broadly familiar to explain the reliances as well as prospects for ingenious value conception. In other words, the business ecosystem is the same way as "companies co-evolve capabilities around an innovation: they work cooperatively and competitively to support new products, satisfy customer needs, and eventually incorporate the next round of innovations"
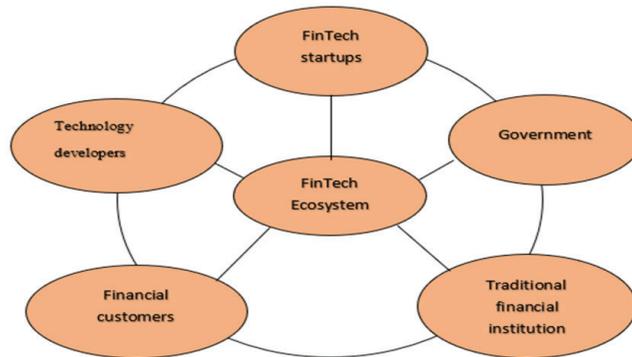
Figure 3: Five elements of FinTech
Source: (Lee & Shin, 2018)

(Moore, 1998). Modern production and economic governance systems are becoming fragmented, diffused, and spread along with network nodes, owing to global forces of non-linear innovation (Russell & Smorodinskaya, 2018). A wide variety of ecosystems have been recognized and explored based on innovation links, such as Business ecosystems, software ecosystems, and other types of ecosystems (Moore, 1998). Suominen et al. (2018) mentioned that the Innovation Ecosystems do not occur naturally; instead, they are created. Likewise, Oh et al. (2016), Järvi and Kortelainen (2017) emphasized that even though modernization ecosystems are frequently described as distinct bodies, researchers are focused on their structures.

Technical modularity has a lot of significance as it replenishes the 'theory of ecosystem' since it permits multiple producers to construct interdependent components of a system with no coordination required. As a result, modularity (but not essentially open receptiveness) is important to set the stage for the birth of a new ecosystem. In order to comprehend the reasonable and interactive dynamics of Fintech innovation, the FinTech Ecosystem needs to be studied. FinTech Ecosystem is described through a diverse, non-linear dynamics, and

complex network of representatives that cooperate to provide a broad range of financial services and products for end-users (Jacobides et al., 2018). The FinTech Ecosystem consists of five elements that act all together to encourage the economy to augment customers' understanding and support social attachment 1) Fintech startups 2) Government 3) Technology developers 4) Financial customers 5) Traditional financial institutions (Lee & Shin, 2018).

- FinTech startups deal with payments platforms, wealth management, crowdfunding, lending, capital market, and also insurance companies.
- The Government sector deals with the legislature and financial regulators.
- The Technological developers are deals with cloud computing, cryptocurrency, big data analytics, etc
- Individuals and organizations are Finacial customers
- The traditional financial institutes deal with insurance companies, venture capitalists, and venture capitalists.

These above-mentioned elements combine to encourage development, boost the economy, encourage financial sector collaboration, and competitiveness, and ultimately benefit financial industry consumers. FinTech startups are all featured in the one core. For instance, Payment, wealth management, lending, crowdfunding, capital markets, and Fininsure. Moreover, Fintech services are innovating financial services at a regular pace, which has become extremely disruptive to banks (Walchek, 2015).

Technology developers provide an environment that encourages FinTech entrepreneurs to establish innovative ventures. Likewise, provide platforms for social media, artificial intelligence, big data analytics, smartphones, cloud computing, and mobile services are developed by technology developers. Hence, big data analytics provides unique services to customers. FinTech uses big data to establish a digital trial of a customer's financial behavior, spot possible problems, and give consistent assistance. It also uses forecasts and data to propose the correct services/products depending on their client-specific spending habits. For FinTech Industry mobile network operators are providing less costly infrastructure such as mobile banking. Since the 2008 financial crisis, the Government has been providing a favorable regulatory environment for FinTech (FinTech, 2015). As a result, the future demographics of FinTech enterprises are quietly positive, as it represents the majority of the population and generates a tsunami of FinTech service growth.

Traditional financial institutions are primarily influenced by the FinTech ecosystem. It has a competitive advantage on an economical scale over the FinTech startups. Furthermore, scholars have criticized the value of the innovation of the ecosystem or the value of the ecosystem concept. For instance, Oh et al. (2016) comprehensively covered a recent bibliographic analysis that focuses on the blurred boundaries and overlaps to address this conceptual ambiguity between knowledge ecosystems and innovation ecosystems platforms,

business ecosystems, and ecosystems. Suominen et al. (2018), discussed the relations in the middle of micro and macro behaviors, along with the reasonable and collaborative behaviors of people, which are shown as fundamental defenses for the ecosystem paradigm. Ritala and Almpanopoulou (2017) also mentioned that the connections between them are emphasized.

In business ecosystems, modernization serves as an incorporating structure concerning the discovery of new knowledge (the knowledge ecosystem) and the development and capture of value. The view of the economy as a compound interplanetary made up of systems, as well as the view of innovation ecosystems as a sophisticated environment, resources, and connections produced through combined activities among systems and consequentially, functionally devoted organizational varieties of such networks, supports (Russell & Smorodinskaya, 2018).

4.   Fintech Buisness Model

A business model illustrates the incorporation of the firm and explains how to deliver, and capture value from social, economic, and cultural perspectives. The procedure of constructing a business model or converting traditional business into digitalized form is also called business model innovation. The word "business model" is usually used in literature to define metaphors for essential features of an association or corporation. For instance, determination, business procedure, and development, board perspectives of customers, contributions, approaches, substructure, administrative structures, locating, trading activities, operative progressions, and guidelines, moreover, cultural perspectives.

FinTech indicates to firms that incorporate financial services along with pioneering expertise in the context of technology to promote financial services. Innovative competitors to the industry normally deliver highly innovated and advanced solutions through applications. Respective clients are fascinated by FinTech for the reason that their services are intelligible and along with unique products, efficient, transparent, as well as automated. Traditional banks haven't even scratched the surface of potential advances in this area (Dorfleitner, 2017; Mackenzie, 2015).

FinTech is widely considered to be amongst the most significant breakthroughs in the financial services and industry, as it happens fast-growing being a result of contributions to the modern financial system, favorable regulation, and the technology sector. FinTech has got the capability to disrupt and alter the financial system by reducing costs and increasing efficiency, improving the quality of financial products and their respective services, and expanding and steadying the economic system. FinTech promotes scientific invention in services related to financial perspectives that would be the reason for unique applications, corporate models, procedures, or else products with a significant influence on various financial markets, and the establishment of modern financial services (Financial Stability Board, 2019).

FinTech has a more scalable business model than traditional banks, as they combine e-finance, AI (artificial intelligence), IT (internet technology), SN (social networking), big data analytics, and blockchains. These characteristics have an impact on the growth potential and current trends with the United Nations' Sustainable Development Goals. Likewise, Moro et al. (2020), fintech is considered a valuable solution to obtain sustainability in the context of finance along with various dimensions of business in the contemporary world. The authors of this study also highlighted multiple dimensions of finTech, that would be worthwhile for future researchers to explore developing new FinTech infrastructure and providing solutions for the industry.
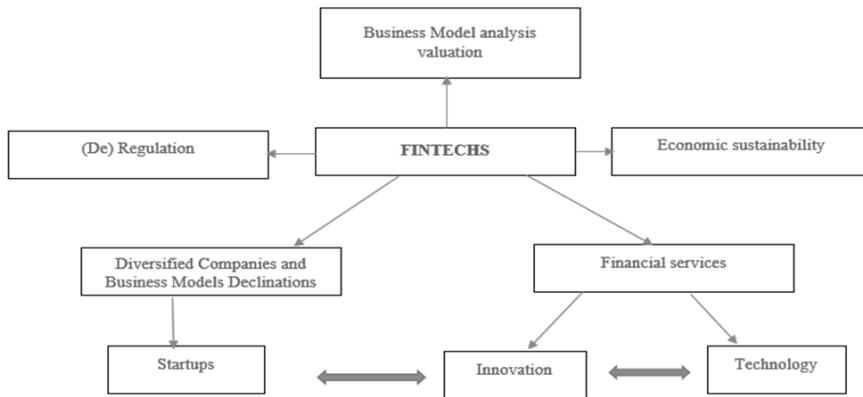
Figure 4: Main dimensions of the FinTech
Source: (Moro-Visconti et al., 2020)

FinTech has formally begun to close the financial presence disparity by means of delivering services. The triple-bottom-line study contemplates financial, community, and ecological factors, and environmental sustainability is a relatively recent field of study (Varga, 2018). Fintech businesses propose personal and enterprise bank accounts based on a comprehensive digital infrastructure. Even though this suggested model is approximately similar to a traditional banking system, fintech companies facilitate strategic management to avoid huge expenditure on maintaining physical divisions. The study's playing field is FinTech corporate models and their various levels of survivability, which provide corresponding interests to banks in order to remove traditional financial sector restrictions and promote financial inclusion. This line of inquiry has only recently become well-developed (Gai et al., 2018).

According to Lee and Shin (2018), FinTech is fast gaining traction in the financial and banking industries, where they are establishing itself as a revolutionary, disruptive modernization equipped to upend conventional financial markets. However, Fintech isn't a brand-new concept or technology; it's been there interminably. Moreover, it has merely progressed at an accelerating rate. Technology has one of the significant aspects of the financial sector,

whether it was the introduction of credit cards or ATMs, electronic trading floors, or high-frequency trading.

Likewise, some corporations are even cautious to accept and make use of FinTech since it is creative but inherently unpredictable, limiting its growth. Because FinTech is more innovative than traditional e-banking, uncertainty is more important. Transactions are becoming increasingly complex and unpredictable (Ryu & Ko, 2020).

4.1   P2P Lending

P2P lending (peer-to-peer lending) is a method or practice of lending money to individuals or businesses (Fang et al., 2014). At present days P2P lending programs (for instance, funding groups) take this to a new level by attracting debtors to prospective creditors to safeguard contracts. Peer-to-peer lending Prosper and Lending Club have become fast-growing American investment marketplaces, with year-over-year growth exceeding 100% (Tech Crunch, 2019). P2P lending is a Fintech sector that is quickly increasing in several Asian nations, including Korea, China, and Indonesia (Lee, 2017; Stern et al., 2017).

Financial technology has expanded its reach and is now considered one of the most prolific developers in the field of finance (Lee & Shin, 2018). However, it has, on the other hand, contributed to a trust deficit amongst financial services providers, which nevertheless, has kept the market appetite unsatiated, thriving them to look out for alternative financing solutions (Leong et al., 2017). Meanwhile, the available and affordable infrastructure i.e. Internet, Cellular Services and Sensors, etc., enhanced sophistication in tech apps such as Big Data analysis and platforms, etc., and business operations like sharing economy, etc, are the impetus behind the robust growth of Fintech (Leong et al., 2017; Puschmann, 2017).

4.2   Payment Business Model

Modern research has explained that conventional industries have been influenced by the fintech model. Mainly, in the payment model. Currently, businesses are relying on "Electronic wallets, electronic money, and payment gateways" which are just a few of the innovations that have evolved (Dahlberg et al., 2015; Niu et al., 2020). This is due to the significant degree of variability across payment schemes in terms of payment processing and transaction settlement techniques, as well as e-commerce developers who use a variety of payment methods (Bello & Perez, 2019; Moon & Kim, 2016).

Advanced payment methods are relatively comfortable in comparison to other financial products and services, Smaller loan amounts are rarely offered by banks and big lenders to their borrowers. The fundamental issue is low profitability, which is exacerbated by expensive processing and recovery expenses. Several fintech organizations, on the other hand, are

lowering the barriers to entry for small borrowers, hastening the fintech industry's evolution. The present system of mobile payment competes in or dirt to develop and distribute the values to clients through the multidimensional network with the same shared infrastructure (Iman, 2018).

According to Todorof (2019), financial regulators of the world specifically in developing countries are not aligned with the fintech development. Moreover, they are still in surprise to observe the uses of currency exchange through the internet. Therefore, regulators are concluding that modern fintech would destabilize the existing financial system. The payment process is made extremely simple with this fintech payment strategy. Because the loans are granted at a cheap interest rate, anything may be purchased with one click and paid for anything. Most crucially, the company that facilitates these transactions gains access to sensitive user information (of course as and when permitted).

FinTech has the following two payment markets that are (1) Wholesale and corporate payment and (2) Consumer and retail payment. The use of payments in retail financial services on a day-to-day basis, as well as one of the least regulated financial services, is increasing. According to BNY Mellon (2015), consumer and retail payment of fintech include the following: mobile wallets, (P2P) mobile payments, foreign exchange, real-time payments, and digital currency solutions. All these services improve the customer experience in terms of speed and multi-channel accessibility.

4.3   *Insurance Service Business Model*

Financial technologies or FinTech revolutions are reforming the requirement of financial products and services. Particularly, in the case of insurance, the fintech business model works by applying sophisticated technologies. For instance, blockchain, smart contracts, artificial intelligence, and autonomous operating technologies. Likewise, innovative cyber security procedures safeguard customer identity and reporting of different risks. It is constantly attached and always inaccessible with providing a customized analysis engagement through IoT, data analysis, and mobile revolution. Through data analytics, it calculates and matches risks, and customers are offered to fulfill all their required needs (e.g car, house, etc) Blockchain technology provides a new approach to developing secure distributed networks. Originally, created as a system service for identifying double-spending in bitcoin systems, blockchain is now widely used in a variety of business applications that require distributed parties to trust one another.

A blockchain, at its most basic level, is a distributed ledger service that is implemented by numerous participants, each of whom keeps a local copy of the ledger. Certain consensus processes involving all participants ensure the ledger's consistency. Depending on the trust model, blockchain systems can choose from a variety of consensus protocols.

The ledger's immutability is achieved by a combination of cryptographic primitives and open distribution (Vukolic´ & Marko, 2017). Existing insurance systems have automated processes to a certain extent. However, performance constraints persist due to the lack of a single trusted source of state information for many transactions. The generic insurance systems necessitate manual interactions across many transaction processes, resulting in delayed processing and a long payment settlement period (Nath, 2016).

4.4 *Wealth Management Business Model*

Wealth management is investing counseling assistance that merges further business services to focus on the requirements of potential investors. Get through the process of a consultation, the financial experts gather relevant facts and data regarding the investors' wishes and particulars in the context of a situation, then customize a strategy for them and decide the variety of available financial products and services. In the contemporary world, the use of Robo-advisors (RAs) has endangered the traditional fund managers and the wealth management industry. RAs' assets under management (AUM) have grown through affordability due to their cost, better-expected returns and transparency in the services linked to the application of quantitative finance and technology with less subjective human involvement (Phoon & Koh, 2017). Likewise, a survey conducted in April 2016 by CFA Institute found that the majority of people were most concerned about the potential for fintech businesses to disrupt the wealth management industry (Sanicola, 2016).

4.5 *Crowdfunding Business Model*

Crowdfunding is primarily a way of raising money to finance projects and businesses. It is the procedure to arrange finance for the project through several individuals via the internet. Brian Camelio, a musician, founded the first crowdfunding platform in 2003 to support music endeavors while offering prizes in return. Thousands of similar websites have sprung up as a result of its success. Crowdfunding, on the other hand, is not without risk of abuse: According to the reports of the FBI, more than 2,400 malicious web platforms thieved multimillion dollars from sponsors who invested in the aftermath of Hurricane Katrina in 2005 (Stern, 2013). In 2015, over US$34 billion was raised worldwide through crowdfunding. Crowdfunding entrusts networks of the people to control the creation of new products, media, ideas & fundraising for charity or venture capital (Administration, 2016).

On the plus side, the New York-based Kickstarter platform has taken crowdfunding to a new peak: Since 2009, it has elevated over $2.2 billion in pledges from 10 million donors to fund 100,000 creative projects and start-ups in industries as diverse as technology, sports, filmmaking, music, and the arts. Lending-based models are still the most active participants in the crowdfunding industry, with $64 billion raised in 2015 (Wills & Jablonska, 2015).

Crowdfunding entails three parties: the entrepreneur in need of funds, the contributor who is interested in the idea, and a moderating organization that enables the interaction between the contributor and the initiator. If interest is to be paid on the amount of reward-based crowdfunding, the borrower chooses an interest rate that is comfortable for them and pays it back within the desired time frame (Mollick, 2014).

4.6   *Capital Market Business Model*

The foremost intention of the capital market is to facilitate investors to use services, technology, and other methods for mobilizing and channeling cash into capital assets (Akingbohungbe,1996). Indeed, a country's pace of economic growth is intrinsically related to the sophistication of its financial system, particularly the efficiency of its capital market. Financial markets that are growing enable countries around the world to acquire the financial resources and abilities they need to thrive and grow. Until the mid-1980s, equity markets in developing nations were afflicted by the fundamental problems of bank-dominated emerging markets: a lack of equity capital, a lack of liquidity, a lack of international investors, and a lack of investor confidence in the stock market (Adebiyi, 2005).

The capital market is an integral component of financial markets that bring buyers and sellers together to trade stocks, bonds, currencies, and other financial assets. The capital market facilitates in buying and selling of stock and bonds. Fintech business concepts are growing all over the capital market, therefore, the horizon and spectrum of capital markets are transforming quickly in the domain of fintech. For instance, foreign exchange, trading and investing, risk management of securities and portfolio management, and financial research. The fintech model of capital market support communication of stakeholders in the capital market, the purpose of communication is to update themselves on the recent events. Therefore, investor capability of investment approach and level of confidence has been improved due to technological advancement. Moreover, in the developed and developing economies exchange of foreign currency is another significant aspect of the capital market which is quite possible and strengthened due to fintech (Baig et al., 2021).

Wang and Huang (2017) emphasized that China has become the top country in the world to transform its traditional business into a fintech Business. Likewise, the capital market of China is also successfully growing through FinTech. Artificial intelligence, blockchain, cloud technology and even robotic process have been implemented effectively in China's stock market. Therefore, the researchers of this study concluded that China is currently leading in the world due to a lot of achievements in the field of FinTech and transformation in China's Capital Market.

The capital market's relevance stems from its ability to provide bank lending between the deficit and surplus sectors of the economy. The lack of such capacity prevents the

economy from investing and producing goods and services that are necessary for societal growth. As a result, funds could sit inert on one end while being sought on the other in the desire for socioeconomic development and advancement (Akingbohungbe, 1996). Primarily, the capital market is the backbone of any economy. Therefore, it is always required to fulfill the requirements of well-defined legislation and all compulsory requirements that are rigorously regulated and adhered to by various institutions or investment firms (Adebiyi, 2005).

5.   Challenges for Fintech Sector

FinTech is currently undergoing an extraordinary transformation. Innovative fintech solutions are posing a threat to a wide variety of traditional banking products from payments to financial advice. Many traditional banking services are being revolutionized by blockchain technology, which provides improved transaction security and faster money transfers at cheaper prices both nationally and abroad. Fintech has the potential to transform the financial landscape completely in the upcoming years. Any of the disruptive innovations of FinTech will definite themselves as the market evolves. In this current study, after a comprehensive review of past literature, three significant challenges were mentioned for the policymakers, business consultants, decision-makers, future researchers and others, to make an appropriate decision after knowing the relevant challenges or explore new dimensions of research in the context of finTech. Interestingly, past literature highlighted that FinTech startups and traditional financial institutions are facing disruptive innovation issues which are as follows: FinTech investment and customer management challenges, security and privacy challenges, risk management challenges.

5.1   Fintech Investment and Customer Management Challenge

FinTech investment is to assess the value of the projects in an increasingly competitive business environment. It is extremely challenging to select FinTech projects. Still, it is early to predict the best FinTech portfolio for the project that will give profitable and competitive outcomes. The financial institutions choose to invest in the internal FinTech rather than the FinTech startups. Financial institutions use collaboration investment with FinTech startups. FinTech startups get benefits from the financial institutions' expertise in modeling and analysis.

There are several FinTech investment challenges highlighted by past researchers. For instance, A higher level of participation of individual investors in the funding of new ventures may create trouble due to ignorance (Barbi & Mattioli, 2019). Likewise, Basole and Patel (2018) explained market consolidation trends and challenges through acquisitions and mergers between investors, start-ups, and financial shareholders. Buchak et al. (2018) emphasized to rise of shadow banks due to FinTech, which would be a greater challenge for regulatory authorities. Faloon and Scherer (2017) also highlighted that Robo-advisors provide risky portfolios to individual investors based on an investment algorithm.

Moreover, there are similarities between investor motivation inequity and crowdfunding rewards (Ferreira & Pereira, 2018). However, it would be a challenge for authorities to focus on integrating services across various fintech categories (Basole & Patel, 2018). Primarily, the challenge is to focus on improving the consumer experience and fulfilling the expectations of the investment perspective (Basole & Patel, 2018).

Likewise, the customer management challenge is also a big challenge for FinTech, as many customers were used several FinTech services from multiple FinTech firms for their various needs e.g., Customers are using the Paypal platform for paying for their businesses online. However, a number of customers are using the stripe platform, etc. In such a way FinTech has to manage all the customer needs and manage them by providing the best possible services.

5.2   Security and Privacy Challenge

FinTech has come to be a well-known term that explains innovative knowledge in the context of technologies that are implemented by financial institutions. This word FinTech also incorporates various characteristics of privacy and certain securities issues, for instance; threats, malevolent behavior, etc. (Gai et al., 2018). For secure FinTech, some of the best practices have now become Table talks. Advanced encryption standards (AES), triple data encryption (3DES) are the most powerful encryption algorithms that every FinTech platform is worth.

A well-designed architecture is needed for reliability, scalability as well as security. APIs must also be secured using methodologies such as authentication, authorization, encryption and more to prevent attacks. Multi-factor authentication methods such as One-Time Password (OTP), transaction PINs, and IVR PINs rely on the knowledge, possession, or inherence of additional information to authenticate users, lowering the danger of passwords or PINs being stolen (Anugerah & Indriani, 2017). There are significant emerging practices that deal with security concerns artificial intelligence and machine learning are automating the process. Blockchain is another emerging technology and fastly becoming useful in FinTech. It is becoming famous for cryptocurrency and the execution of transactions. The application of artificial intelligence, machine learning, and Big Data in the field of fintech would not be separated from modern technology trends (Brownsword, 2019).

Moreover, security not only covers technology. However, it also deals with data related to Buyers/users being required to be protected by fintech. For instance, leakage of important data, personal data protection as well as data access limits. Consequently, strong laws for the security of personal data are required (Abubakar & Handayani, 2018). Likewise, the fintech startups would be able to get benefits from modern technology through quality software. FinTech's updated software definitely would be helpful to integrate and restrain fraud (Wang et al., 2018).

5.3   *Risk Management Challenge*

Financial modernization is a concept in which the stress on technical developments and their pace have increased dramatically. Fintech services that applied big data analytics, artificial intelligence, along with blockchain are being introduced at an extraordinary level. These latest technologies are renovating the financial structure, opening up a lot of new opportunities for individuals to gain the benefit of financial services. Solutions of FinTech notwithstanding their benefits, expose consumers to a variety of dangers that could be consumerism and profitability.

Any digital currency that is protected by cryptography is referred to be a cryptocurrency. For instance, "Bitcoin, Ethereum, Litecoin, Ripple, Dash, Peercoin, and Dogecoin" have been examples of popular cryptocurrencies (Todorof, 2019). "Secure by encryption" denotes the usage of encryption technology on the blockchain. Furthermore, because the blockchain is centralized among its users, it is not restricted by the government (Milian et al., 2019). However, blockchain includes flaws and openings that can be exploited, such as functioning outside of regulatory guidelines (Bello & Perez, 2019). Moreover, Blockchain possesses foursome benefits for instance, (1) Blockchain is spontaneously retrieved through operators who decide to seam the database; (2) Blockchain structure gives noticeable informs to each user (3) Blockchain must be restructured for each ledger on time through multipart procedures. Moreover, (4) it employs updated technology (Dimbean-Creta, 2017).

6.   Conclusion

All over the world, it is necessary to enhance the effectiveness of the fintech sector, establishing a framework regarding risk management. Which would be helpful to supervise innovations in the context of FinTech. However, it must be important to know the economical potential and never curbed for any reason. However, a framework should assist fintech and supervisors at the same time. Furthermore, technologies, for instance, big data analytics, AI, and Blockchain ledger may focus on risk management and the concerned budgets more competently. In particular, these technologies can enhance fraud revelation capability in peer-to-peer lending, evaluate and examine risk in peer-to-peer lending, assess and monitor market risk and instability in financial markets, improve user/investor risk profile coordinated in Robo-advisory, detect prohibited activities in crypto markets, as well as money laundering, moreover, distinguish and highlight cyber risks and IT administrative risks.

Depending on the fintech expertise, the financial risk fluctuates. FinTech is a recent development, there are many challenges for FinTech and a lot of development is required in the social, technological, and managerial aspects of FinTech. This article is primarily written to explore the reality of FinTech and what is the current FinTech status along with its emergence. In this study, FinTech Ecosystem was also discussed along with six different business

models. Moreover, three modern challenges in this sector had been discussed to highlight the gaps for future researchers.

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References

Abubakar, L., & Handayani, T. (2018). Financial technology: Legal challenges for Indonesia financial sector. *In IOP Conference Series: Earth and Environmental Science 175*(1), 1-5.

Adebiyi, M.A. (2005) Savings-Growth Relationship in Nigeria. An Empirical Evidence. *African Review of Money, Finance and Banking, 29*, 159-178.

Akingbohungbe, S. S. (1996). The Role of the Financial System in the Development of the Nigerian Economy. *Paper Presented at a Workshop Organized by Centre for Africa Law and Development Studies*.

Anugerah, D.P., & Indriani, M. (2017). Data Protection in financial technology services: Indonesian legal perspective. In Proceedings of the IOP Conference Series: *Earth and Environmental Science, Makassar, Indonesia, 2*(1), 82–92 October.

Arner, D. W., Barberis, J., & Buckley, R. P. (2015). The evolution of Fintech: A new post-crisis paradigm. *Georgetown Journal of International Law, 47*, 1271.

Ashta, A., & Biot-Paquerot, G. (2018). FinTech evolution: Strategic value management issues in a fast-changing industry. *Strategic Change, 27*(4), 301–311.

Bahrami, H., & Evans, S. (1995). Flexible re-cycling and high-technology entrepreneurship. *California Management Review, 37*(3), 62-89.

Baig, A. S., Butt, H. A., Haroon, O., & Rizvi, S. A. R. (2021). Deaths, panic, lockdowns and US equity markets: The case of COVID-19 pandemic. *Finance research letters, 38*, 101701.

Barbi, M., & Mattioli, S. (2019). Human capital, investor trust, and equity crowdfunding. *Research International Business and Finance, 49*, 1–12.

Basole, R.C., & Patel, S.S. (2018). Transformation through unbundling: Visualizing the global FinTech ecosystem. *Service Science, 10*(4), 379–396.

Bello, G., & Perez, A.J (2019). Adapting financial technology standards to blockchain platforms. In Proceedings of the 2019 ACM Southeast Conference, Columbus State University, Kennesaw, GA, USA, 109-116.

Brownsword, R. (2019). Regulatory fitness: Fintech, funny money, and smart contracts. *European Business Organization Law Review, 20*(1), 5-27.

Buchak, G., Matvos, G., Piskorski, T., Seru, A. (2018). Fintech, regulatory arbitrage, and the rise of shadow banks.*Journal Finance. Economics, 130*(3),453- 483.

Dahlberg, T., Guo, J., & Ondrus, J. (2015). A critical review of mobile payment research. *Electronic Commerce Research and Applications, 14*(5), 265-284.

Davis, K., Maddock, R., & Foo, M. (2017). Catching up with Indonesia's fintech industry. *Law and Financial Markets Review, 11*(1), 33-40.

Dimbean-Creta, D. O. (2017). Fintech–already new fashion in finance, but what about the future? *Calitatea, 18*(S3), 25.

Dorfleitner, G., Hornuf, L., Schmitt, M., & Weber, M. (2017). The fintech market in Germany. *In FinTech in Germany*, 13-46 Springer, Cham.

Faloon, M., & Scherer, B. (2017). Individualization of robo-advice. *The Journal of Wealth Management, 20*(1), 30-36.

Fang, Z., Zhang, J., & Zhiyuan, F. (2014). Study on P2P E-finance platform system: a case in China. *In 2014 IEEE 11th International Conference on e-Business Engineering* (pp. 331-337). IEEE.

Ferreira, F. & Pereira, L. (2018). Success factors in a reward and equity based crowdfunding campaign. *In Proceedings of the 2018 IEEE International Conference on Engineering, Technology and Innovation, Stuttgart, Germany*; pp. 1–8.

Financial Stability Board, FinTech and Market Structure in Financial Services: Market Developments and Potential Financial Stability Implications (2019). Financial Stability Board. Available online: https://www.fsb.org/work-ofthe-fsb/policy-development/additional-policy-areas/monitoring-of-FinTech / (accessed on 4 December 2020).

FinTech H., (2015). The future of finance: The socialization of finance. Available at http://hollandFinTech. com/the-future-of-finance-the-socialization-of-finance/.

Gai, K., Qiu, M., & Sun, X. (2018). A survey on FinTech. *Journal of Network and Computer Applications, 103*, 262-273.

Gimpel, H., Rau, D., & Röglinger, M. (2018). Understanding FinTech start-ups–a taxonomy of consumer-oriented service offerings. *Electronic Markets, 28*(3), 245-264.

Gomber, P., Koch, J.-A., & Siering, M. (2017). Digital Finance and FinTech: current research and future research directions. *Journal of Business Economics, 87*(5), 537-580.

Gozman, D., Liebenau, J., & Mangan, J. (2018). The innovation mechanisms of fintech start-ups: insights from SWIFT's innotribe competition. *Journal of Management Information Systems, 35*(1), 145-179.

Iman, N. (2018). Is mobile payment still relevant in the fintech era?. *Electronic Commerce Research and Applications, 30*, 72-82.

Jacobides, M. G., Cennamo, C., & Gawer, A. (2018). Towards a theory of ecosystems. *Strategic management journal, 39*(8), 2255-2276.

Järvi, K., & Kortelainen, S. (2017). Taking stock of empirical research on business ecosystems: a literature review. *International journal of business and systems research, 11*(3), 215-228.

Lee, I., & Shin, Y. J. (2018). Fintech: Ecosystem, business models, investment decisions, and challenges. *Business Horizons, 61*(1), 35-46.

Lee, S. (2017). Evaluation of mobile application in user's perspective: case of P2P lending Apps in FinTech industry. *KSII Transactions on Internet and Information Systems, 11*(2), 1105-1117.

Leong, C., Tan, B., Xiao, X., Tan, F. T. C., & Sun, Y. (2017). Nurturing a FinTech ecosystem: The case of a youth microloan startup in China. *International Journal of Information Management, 37*(2), 92-97.

Mackenzie, A. (2015). The FinTech revolution. *London Business School Review, 26*(3), 50–53.

Mellon, B. N. Y. (2015). Innovation in payments: The future is FinTech. The Bank of Newyork.

Milian, E. Z., Spinola, M. D. M., & de Carvalho, M. M. (2019). Fintechs: A literature review and research agenda. *Electronic Commerce Research and Applications, 34*, 100833.

Mollick, E. (2014). The dynamics of crowdfunding: An exploratory study. *Journal of Business Venturing, 29*(1), 1-16.

Moon, W.Y. & Kim, S.D. (2016) A payment mediation platform for heterogeneous fintech schemes. *In Proceedings of the 2016 IEEE Advanced Information Management, Communicates, Electronic and Automation Control Conference*, Xi'an, China, 3–5 October 2016; pp. 511–516.

Moore, J. F. (1998). The rise of a new corporate form. *Washington quarterly, 21*(1), 167-181.

Moro-Visconti, R., Cruz Rambaud, S., & López Pascual, J. (2020). Sustainability in fintech: An explanation through business model scalability and market valuation. *Sustainability*, 1-24.

Nath, I. (2016). Data exchange platform to fight insurance fraud on blockchain. *In 2016 IEEE 16th International Conference on Data Mining Workshops (ICDMW)* (pp. 821-825). IEEE Computer Society.

Nicoletti, B., Nicoletti, W., & Weis. (2017). Future of FinTech. Basingstoke, UK: Palgrave Macmillan.

Nielsen, J. F. (2002). Internet technology and customer linking in Nordic banking. *Internal Journal of Service Banking, 13*(2), 475-496.

Niu, B. Ren, J. Zhao, A. Li, X. (2020). Lender trust on the P2P lending: Analysis based on sentiment analysis of comment text. *Sustainability, 12*(8),3293.

Oh, D. S., Phillips, F., Park, S., & Lee, E. (2016). Innovation ecosystems: A critical examination. *Technovation, 54*, 1-6.

Phoon, K., & Koh, F. (2017). Robo-advisors and wealth management. *The Journal of Alternative Investments, 20*(3), 79-94.

Puschmann, T. (2017). Fintech. Business & Information Systems Engineering, *59*(1), 69-76.

Ritala, P., & Almpanopoulou, A. (2017). In defense of 'eco'in innovation ecosystem. *Technovation*, *60*, 39-42.

Russell,M.G.& Smorodinskaya, N.V. (2018). Leveraging complexity for ecosystemic innovation, Technological Forecasting & Social Change, *136*,114-131.

Ryu, H.-S. & Ko, K.S. (2020) Sustainable Development of FinTech: Focused on Uncertainty and Perceived Quality Issues. *Sustainability, 12*(18),1-12.

Sanicola, L. (2016). Will FinTech help or hurt traditional advisors? CNBC. Available at http://www.cnbc.com/2016/ 05/25/will-FinTech-help-or-hurt-traditional-advisors.html.

Sen, R., & King, R. C. (2003). Revisit the Debate on Intermediation, Disintermediation and Reintermediation due to E-commerce. *Electronic Markets, 13*(2), 153-162.

Stern, N. (2013). The structure of economic modeling of the potential impacts of climate change: grafting gross underestimation of risk onto already narrow science models. *Journal of Economic Literature, 51*(3), 838-59.

Stern, M., Andreas, J., & Klein, D. (2017). A minimal span-based neural constituency parser. *In 55th Annual Meeting of the Association for Computational Linguistics*, pages 818–827, Vancouver, Canada.

Sathye, M. (1999). Adoption of internet banking by Australian consumers: An empirical investigation *International Journal of Bank Marketing, 17*, 324-334.

Schueffel, P. (2016) Taming the beast: A scientific definition of fintech. *Journal of Innovation Management., 4*(4) 32–54.

Smith, S. (2015). What is Fintech? A Simple Explanation," in Ashburnham Insurance. Accessed from: https://www.ashburnham-insurance.co.uk/blog/2015/11/what-is-fintech-a-simple-explanation/#:~:text=Fintech%20is%20a%20new%20market, financial%20structures%20and%20business%20models.

Stern, C., Makinen, M., & Qian, Z. (2017). FinTechs in China–with a special focus on peer to peer lending. *Journal of Chinese Economic and Foreign Trade Studies, 10*(3), 215-228.

Suominen, A., Seppänen, M., & Dedehayir, O. (2016). Innovation systems and ecosystems: a review and synthesis. In ISPIM innovation symposium (p. 1). The International Society for Professional Innovation Management (ISPIM).

TechCrunch. (2019). Peer to Peer Lending Crosses $1 Billion In Loans Issued. Available from: www.techcrunch.com. pp. 28–29.

Todorof, M. (2019, July). FinTech on the dark web: The rise of cryptos. *In Era Forum 20* (1), 1-20 Springer Berlin Heidelberg.

Varga, D. (2018). Triple-bottom-line impact analysis framework of FinTech companies. Vezetéstudomány-*Budapest Management Review, 49*(11), 24-34.

Vukolic´ & Marko (2017) Rethinking permissioned blockchains," in Pro- ceedings of the ACM Workshop on Blockchain, Cryptocurrencies and Contracts, ser. BCC '17. New York, NY, USA: ACM

Walchek, S. (2015). The unbundling of finance. Tech- Crunch. Available at https:// techcrunch.com/2015/05/29/ the-unbundling-of-finance/

Wang, H., Wang, Z., Zhang, B., Zhou, J. (2018) Information collection for fraud detection in P2P financial market. In Proceedings of the MATEC Web of Conferences 189, Beijing, China; p. 06006.

Wills, D.& Jablonska, K. (2015). Les leaders du crowdfunding aux USA et en Europe. Retrieved from: https://www.comparelend.com/news/fr/2015/12/06/les-leaders-du-crowdlending-aux-etats-unis-et-en-europe/.

Zachariadis, M., & Ozcan, P. (2016). The API Economy and Digital Transformation in Financial Services: The Case of Open Banking. The SWIFT Institute. Avenue Adele, 1310 La Hulpe, Belgium.

Impact of Firms' Greenwashing Practices on Customer Green Trust and Green Brand Attachment: Pakistan`s Home Appliances Consumers' Perspective

Adnan Butt* Meer Suroor Naeem** Palwasha Ishrat Ali*** Salman Hameed****

Abstract

The usage of green products has increased dramatically in the recent decade. The compelling reason behind this behavioral change is the consumer understanding of climate change and its negative impact on the planet. However, firms' engagement in greenwashing is causing a detrimental impact on this green cause, and it is leading customers to disbelieve the environmental claims of the firms. This study investigates the impact of firms' greenwashing practices on consumer green trust and green brand attachment. Moreover, it examines the intermediation factors of green perceived risk, green perceived value, green confusion, and green brand image. This study follows a quantitative research design and deductive approach. Data was collected from the home appliances consumers through an online and in-person survey questionnaire. Respondents were contacted by using the non-probability sampling technique and a sample of 330 valid responses was used to analyze the data. Confirmatory Factor Analysis was used to test the reliability of the variables and Structural Equation Modeling to test the nine hypotheses that were proposed in this study. The findings suggest that Greenwashing negatively affects Green Perceived Value (GPV) and GPV positively affects Green Trust (GT). GT showed a positive impact on Green Brand Attachment (GBA). Hence, it is proved that greenwashing may reduce the trust and Brand Attachment of the consumers with the green product. Greenwashing has a positive impact on Green Confusion and a negative impact on Green Brand Image. These findings augment the existing knowledge on the relationship between greenwashing and green brand attachment. It is suggested that if organizations want to increase consumers` green trust and green brand attachment, they must refrain from greenwashing. Green brand trust is a significant driver of the relationship-building process and organizations should strive to build it by furnishing real green values to the consumers, thus it will result in increasing the market share of the companies.

* Sr. Assistant Professor, Bahria University Karachi Campus, Karachi, Pakistan. Email: adnanbutt.bukc@bahria.edu.pk
** M. Phil. Scholar, Institute of Professional Psychology, Bahria University Karachi Campus, Karachi, Pakistan. Email: suroormeer@gmail.com
*** M. Phil. Scholar, Institute of Professional Psychology, Bahria University Karachi Campus, Karachi, Pakistan. Email: Palwasha.alee@outlook.com
**** Sr. Lecturer, Bahria University Karachi Campus, Karachi, Pakistan. Email:salmanhameed.bukc@bahria.edu.pk

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1.   Introduction

Nowadays industrial activities have amplified to the point that their negative effect on the natural environment is evident, causing society to pay higher attention to environmental issues and sustainability (Mahmood et al., 2020; Hameed et al., 2022). Carbon dioxide emission in the atmosphere is one of the major causes of global warming and by minimizing energy consumption the risk of global warming can be reduced (Tan et al., 2017). In view of this increasing pressure of environmental pollution and global warming, the global think-tank emphasizes consumers reduce energy consumption and has also provided business enterprises an opportunity to adopt a "green" strategy (Uyar et al., 2020).

A rapid hike has been observed in energy consumption in the past few decades and residential consumers are one of the substantial contributors (Waris & Hameed, 2020). In Pakistan, almost 85% of total energy consumption is consumed by households (Ali et al., 2019). It is believed that consumers' current energy consumption patterns need to be revisited and sensible use of energy is required, whether by adopting collaborative consumption (Butt et al., 2021) or by using energy-efficient home appliances. Air conditioners, washing machines, bulbs, iron, microwave oven, refrigerator, televisions, and other home appliances contribute hugely to greenhouse gas emissions (Hua & Wang, 2019). The exponential increase in energy consumption is due to the heavy purchase of appliances by the growing middle-class (State bank of Pakistan, 2018). The use of energy-efficient appliances may help to reduce the energy consumption of energy and carbon emissions in the environment (Waris & Hameed, 2021).

This scenario encourages the organizations to manufacture sustainable products to help the environment but some organizations deceive consumers by providing misleading claims about their environmental practices (Butt et al., 2021). Hence, the organizations that do not have enough competencies to undertake green marketing strategies, end up making false claims about their products to gain prospective benefits, without bearing any expenses. Thus, many organizations exhibit themselves as green firms in spite of not being green (Siano et al., 2017), by involving them in greenwashing practices. According to Halverson (2018), greenwashing is an approach where firms promote the green features of their products and mislead consumers by making false claims to attract them (Hameed et al., 2021).

Nowadays greenwashing is becoming a common practice, which is increasing skepticism in consumers towards organizations that take benefit from the green trend (Nguyen et al., 2019). This skepticism questions the reliability of firms' green marketing claims, which gives rise to confusion among the consumers, as they are uncertain about the claim's authenticity. This uncertainty leads to a negative interpretation of the product by the consumers (Wood, 2015). The lack of trust in environmental claims generates a higher risk in buying decisions which result in more uncertainty (Lin & Niu, 2018). Greenwashing does not impact consumers' confusion and uncertainty only but may also trigger a sense of danger among consumers, precipitating green perceived risk which has a negative impact on organizational credibility (Tarabieh, 2021).

This suggests that green perceived risk influences consumers' evaluation process toward green products or services (Wang, 2017), when the product falls short of meeting the required standard, consumers appraise it negatively resulting decline in product perceived value (Syarifuddin & Alamsyah, 2017). It has been observed that when consumers perceived a brand as being involved in greenwashing practices, the consumer's doubt about the firm's products is increased which ultimately hurts the green image of the firm (Butt et al., 2021; Chen et al., 2020), resulting decrease in consumers green brand trust (More, 2019).

It has been reported that consumers show a positive attitude towards trusted brands, showing higher commitment to that brand (Yang & Zhao, 2019). Green Brand Attachment is defined as an emotional bond as reflected in the consumers' feelings of passion, affection, and connection with the eco-friendly attributes of the brand (Hussain & Waheed, 2016). Consumer brand attachment has been found positively related to an individual's purchase intention of the product (Kamiya et al., 2018). However, when consumers are unable to establish a long-term relationship with firms due to greenwashing activities of the firms, it leads to a decrease in consumers' brand attachment. Consequently, all environmental efforts made by the firms would not be trusted by consumers, and the dream of moving towards sustainability would be collapsed (Chen et al., 2020).

A lot of studies have been conducted to study the household consumer's energy consumption pattern in developed economies such as China (Li et al., 2019), Malaysia (Tan et al., 2017), Germany (Mills & Schleich, 2013), the UK (Pothitou et al., 2016). Whereas in developing countries, research on household energy-saving behavior is limited. It is expected that electricity demand would rise by 30% by 2040 (International Energy Agency, 2017). In Pakistan, to the best of our knowledge, no quantitative research work has been done which examines the relationship between greenwashing, green trust, and green brand attachment incorporating the roles of green perceived values, green confusion, green perceived risk, and green brand image. Nearly the majority of the past research has been conducted in western countries and therefore this study is an effort to partly fill this gap.

The objective of this study is to understand how greenwashing practices are detonating the green cause and this study would help the marketers, firms, consumers, and policymakers to understand this. It is expected that this study would facilitate people understanding that greenwashing has a higher societal cost than other deceptive marketing practices. Greenwashing not only affects consumers/firms but also harms the overall environment and eventually threatens the progress towards a greener marketplace.

The next section of the paper presents the literature review and conceptual framework proposed in this study. The third section presents the methodology adopted followed by statistical analysis. The paper then progresses through the discussion of the findings, implications, limitations, and conclusion.

2.   Literature Review

2.1   *Green Marketing and Greenwashing*

Currently, firms are paying more attention to environmental sustainability on the global landscape. Therefore, the promotion of brand green features has become a common element in advertising messages (Chang, 2011). Green marketing is defined as the efforts of a firm to allotting, endorsing, and designing products that will not harm the environment by any means (Butt, 2017; Sarkar, 2012). Green messages should be precise, exact, and clear. However, many advertising claims to mention brand green features are vague and deceiving, leading toward greenwashing. Greenwashing is an approach where firms try to develop a positive public image by making false environmental claims (Butt et al., 2021; Urbański, 2020). This indicates that the products or services of an organization may be perceived as green and sustainable products, although they are actually not. Greenwashing can also be defined as making misleading claims about the environmentally friendly characteristic of the products/ services to hide their damaging material to the environment (Topal et al., 2021). Recent literature on greenwashing suggests that it does not only affect the economic performance negatively and distort the repute of organizations but also negatively impacts consumers and society at large (Szabo & Webster, 2021). Since most organizations are unable to clarify how their products/services serve environmental sustainability, they are likely to be looked upon with mistrust and suspicion (Nguyen et al., 2019). According to Cone Communications (2012), nearly 44% of consumers do not trust green claims made by the organizations, and 77% are even willing to boycott the organizations that make green claims. Additionally, consumers' perceptions of greenwashing have a negative impact on green purchase intentions and WOM (Zhang et al., 2018) and therefore, the consequences of greenwashing are precarious. Hence, greenwashing is eroding the customers' trust in green marketing and possibly would damage the overall green cause (Nyilasy et al., 2014).

2.2   *Greenwashing and Green Trust*

Greenwashing is an obstacle to green marketing strategies because it has the capacity to make people doubtful about green products (Chen & Chang, 2013). Furthermore, suspicion and uncertainty often arise from a firm's greenwashing practices (Self et al., 2010). The marketers' and manufacturers' efforts toward sustainability will get hampered due to the distrust of the consumers (Gillespie, 2008). According to Chen (2010) Green Trust (GT) is a consumer's willingness to depend on a product, service, or brand based on the belief or expectation resulting from its reliability, and capability regarding its environmental performance. Trust is a belief that can be damaged when a consumer notices that all advertising messages are similar or that they have purchased deceitful products mistakenly (Marquis et al., 2016). If the brand fulfills the expectation and is committed to protecting the environment, trust can be secure from their consumers, as it will make them more inclined towards buying that brand (Sharma & Paudel, 2018; Amin & Tarun, 2020). Studies have shown that increased green trust of consumers leads to higher customer loyalty and green purchase intention (Martínez, 2015; Badar et al., 2021). Hence, consumer trust is an essential determinant of long-term consumer behavior (Alshura & Zabadi, 2016).

2.3   *Green Perceived Value*

Green Perceived Value (GPV) is the consumers' appraisal of the benefits of a product/service concerning what is received and what is given based on the consumer's ecological desires, sustainable expectations, and green needs (Chen & Chang, 2012). Consumers evaluate a firm's ethical commitment to environmental, social, and ethical issues when developing a perception of a firm and its products (Lin & Niu, 2018). When relevant and accurate information is provided to the consumers, this perceived green transparency increases the brand's green perceived value. In a study, Chen (2013) revealed that GPV is directly correlated with positive WOM and loyalty. Greenwashing dampens consumers' confidence in green brands and lowers the brand's green perceived value (Caruana et al., 2016; Lin & Niu, 2018). Therefore, it is argued that greenwashing negatively influences the brand green perceived value and proposes the following hypothesis:

H1: Greenwashing has a negative impact on brand Green Perceived Value.

Perceived value has a strong influence on customer trust (Kim et al., 2008) and in a study, Chen and Chang (2012) reported that green perceived value facilitates consumer's green trust in the product. A positive relationship has been found between green perceived value and green trust, as the higher perceived value would lead to higher consumer confidence in the product (Eid, 2011). Thus, this study argues that green perceived value would positively affect green trust and proposes the following hypothesis:

H2: Green perceived value has a positive impact on green trust.

2.4   *Green Confusion*

Turnbull et al. (2000) defined Green Consumer Confusion (GCC) as "consumer fail-ure to develop a correct understanding of environmental features of a product or service during the information processing system". In a study, consumers showed their concern that sometimes they are deceived by firms by not fulfilling their green claims (Chen et al., 2020). The more consumers try to process information, the greater the chance that they are over-loaded with information creating confusion in consumers' minds about green claims (Lyon & Maxwell, 2011). Green confusion has been found to have a positive correlation with dissatis-faction (Moon et al., 2018). Consumers are overloaded with misleading information through greenwashing, making it more difficult for consumers to evaluate products (Chen & Chang, 2013). This study proposes that greenwash would positively affect consumer green confusion and the following hypothesis is proposed.

H3: Greenwashing has a positive impact on Green Confusion

Green trust favorably affects the green claims (Hameed et al., 2018). The consumers' failure to develop an accurate understanding of the product's ecological features creates con-fusion. When consumers feel confused about a product, they delay their purchasing decisions and do not really trust the firm (Tarabieh, 2021). Confused consumers are more cautious about the industries that display ambiguous and inconsistent details about the green product (Kac et al., 2016). In a study, Chen and Chang (2013) stated that greenwashing promotes consumer confusion, which results in lower consumer green trust regarding a firm's environ-mental claims. Similarly, another study found that green confusion has a positive correlation with distrust (Moon et al., 2018). This study, therefore, provides the following hypothesis:

H4: Green Confusion has a negative impact on green trust

2.5   *Green Perceived Risk*

According to Chen and Chang (2013) Green, Perceived Risk (GPR) is defined as the expectation of negative environmental consequences associated with purchase behavior. Consumers perceive products as riskier when they have better knowledge of uncertainty or undesirable consequences associated with the brand, which results in lower purchase inten-tion (Mwencha et al., 2014). When consumers have no trust in a firm's green claims, they perceive a higher risk in its environmental performance (Szabo & Webster, 2021). Green perceived risk has been classified as a major barrier to buying green electronics products (Chen & Chang, 2013). Earlier research indicated a positive relationship between greenwash and green perceived risk (Chang & Chen, 2008; Dhewi et al., 2018). When the reliability of

green claims is not ascertained by consumers, greenwashing would create a higher consumer perceived risk for environmental claims (Gillespie, 2008). Thus, this study argues that greenwash would positively affect green perceived risk and proposes the following hypothesis:

H5: Greenwashing has a positive impact on green perceived risk

Green Perceived Risk (GPR) is influenced by ambiguity and undesirable consequences of a product. It has been identified that consumers' trust level in a product can be influenced by green perceived risk (Rahardjo, 2015). Green Trust (GT) of the consumer in connection to the environment means the reliability, trustworthiness and standard performance of the product (Hameed & Waris, 2018). Consumers would not trust the product or brand if they feel that there is a risk involved in using it. In a study, it was stated that an increase in consumer trust is usually followed by a decrease in perceived risk (Zulfanizy & Wahyono, 2019). As consumer perception of greenwashing increases, it creates uncertainty in consumer's minds, which leads to an increase in green perceived risk, thus decreasing green trust (Kinnuenen, 2020). Hence, this study argues that green perceived risk would negatively affect green trust and proposes the following hypothesis:

H6: Green Perceived Risk has a negative impact on Green Trust

2.6   *Green Brand Image*

According to Deniz and Onder (2017), Green Brand Image (GBI) involves symbolic meanings related to specific features of the brand and is defined as a picture of a brand in the consumer's mind that is linked to an offering. A strong brand image creates a healthier brand message and a product with a greater brand image is likely related to better quality and higher values (Chen et al., 2017). The green brand image of a product facilitates consumers to express their self-identities and further influences one's brand attitude (Jeong et al., 2014), purchasing frequency, and brand loyalty (Lin & Niu, 2018). Consumers tend to perceive the higher quality and a positive green brand image of a firm when it claims to offer eco-friendly products (Nagar, 2015). The green brand image becomes increasingly important, especially in an environment where consumers develop skeptical attitudes towards green products or services due to greenwash problems and the resultant negative green image (Huang et al., 2014). A study conducted by Chen et al. (2020) indicates that greenwashing is negatively related to the green image. Moreover, greenwashing was also found to negatively impact on green brand image of electronic products (Chen et al., 2016). Thus, this study argues that greenwash would negatively affect green brand image and proposes the following hypothesis:

H7: Greenwashing has a negative impact on green brand image

Green Brand Image (GBI) has a direct relationship with consumers' purchase intention. Consumers who showed higher purchase intention were found to have a positive brand image, resulting in higher brand trust (More, 2019). In addition, green brand image has a positive effect on consumer trust because it can diminish the risk perceived by consumers and simultaneously increase the likelihood of purchasing the product (Deniz & Onder, 2017). According to the argument above, as the green brand image increases, the credibility of the product regarding its environmental performance also increases (Bashir et al., 2020). A study conducted by Chen (2010) found that green brand image and green trust are positively related and therefore investing resources to increase green brand image is helpful to enhance green trust. Similar findings were also reported by Ha (2020) and Wu and Liu (2022).

H8: Green brand image has a positive impact on green trust.

2.7   *Green Brand Attachment*

According to Malar et al. (2011) Green Brand Attachment (GBA) is defined as an emotional bond reflected in the consumers feeling of passion, affection, and connection with the environmentally friendly functions and attributes of the brand. The more a consumer is concerned about the sustainability of the environment, the stronger will be the feelings. Strong feelings of connection persuade a consumer to maintain proximity with the brand and make the attachment stronger (Hussain & Waheed, 2016). GBA is directly related to green trust; as the consumers develop strong attachments to the brand when they believe it can be relied upon to constantly provide its services (Yang & Zhao, 2019). Trust entails that consumers are highly likely to assess the item favorably. A study conducted by Kang et al. (2017) indicated that trust has been found to be a determinant of strong brand attachment in the hospitality industry. Hence, this study argues that green trust would positively affect green brand attachment and proposes the following hypothesis:

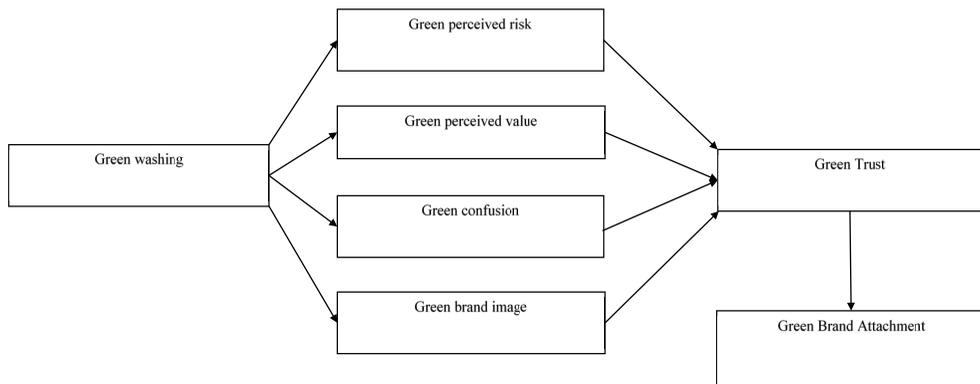*H9*: Green Trust has a positive impact on Green Brand Attachment

Figure 1: Hypothesized Model

3.   Methodology

3.1   *Sample design & Participants*

This study is quantitative in nature following a deductive approach with an objective to examine the factors having an impact on consumers' green brand attachment. The research concentrated on Pakistani consumers who have a purchasing history or prospective buyers of green home appliances. Since there was no available access to a sampling framework or records to select individuals randomly, therefore the data was collected by using a non-probability-based convenient sampling technique. The respondents of the study were urban consumers as because of their exposure and education these consumers can respond easily to the survey (Prakash & Pathak, 2017; Taufique & Vaithianathan, 2018).

The data was collected through structured questionnaires and the respondents were approached through different online platforms, i.e, SMS, WhatsApp, social interactive groups, and websites. A total of 600 surveys were circulated and after multiple reminders, 365 responses were received, showing approx. 61% response rate. After screening the data set, 330 valid responses were used for further analysis.

The questionnaire was divided into two parts. The first part considered demographic variables including gender, age, educational level, income level, and marital status while the second part consisted of questions about the constructs in the proposed model.

Table 1
Demographic details of the participants

		Frequency (f)	Percentage (%)
Gender	Male	176	53.3
	Female	154	46.7
Age group (years)	18-25	110	33.3
	25-35	138	41.8
	35-45	62	18.8
	45-60	18	5.5
	60 above	2	.6
Educational level	Undergraduate	31	9.4
	Graduate	168	50.9
	Postgraduate	121	36.7
	PhD	10	3.0
Marital status	Single	213	64.5
	Married	117	35.5
Income group	<35K	19	5.7
(in thousands)	35K-50K	34	10.3
	50K-75K	111	33.6
	75K-100K	122	36.9
	100K-150K	31	9.3
	>150K	13	3.9

Source: Data Analysis of this Study

In data, 53.3% of respondents were male, while 46.7% were female. Almost 75% of respondents were aged between 18 to 35 years. Individuals holding bachelor's or master's degrees participated with the highest frequency. Almost half of the respondents were earning between Rs. 50K/month to 100K/month as mentioned in Table 1.

3.2   Measures

An instrument was developed by adopting items from previous measurement scales. The items of all seven constructs were assessed by a Likert scale of seven points ranging from 'strongly disagree' to 'strongly agree'. GW was measured using Chen and Chang (2013) scale, having 5 items. GPR and GPV were measured through Chen and Chang (2012) scale having 5 items for both constructs. Chen and Chang (2010) five items scales were used to measure GT and GBI, while GC was measured by five items were adapted from Aji and Sutikno (2015). Four items from Park et al. (2010) and Thomson et al. (2005) were used to measure green brand attachment.

3.3   Method of Analysis

A dual-step procedure was carried out to analyze the data (Anderson & Gerbing, 1988). Confirmatory Factor Analysis (CFA) was applied in the preliminary phase to test the reliability of the hypothesized variables. The second step involved the application of Structural Equation Modeling (SEM) to test the hypotheses using Amos 21.

4.   Results

4.1   Measurement model

The data was run on AMOS - 23 to employee structural equation modeling technique (SEM). Initially, the data was used to develop a CFA model to report the factor loading of all the constructs used in the study and check the model fitness. The model fitness was checked by using different indices; the values are χ^2; CMIN/df=2.868; p< .000; CFI=.909; TLI=.901; RMSEA=.075. According to Hu and Bentler (1999) criteria, all the values showed that the model fit is good and well above the accepted values. Items showing factor loading < 0.5 were removed to ensure the internal reliability of the indicators as indicated by Bagozzi and Yi (1991).

Table 2

Internal reliability and Convergent validity

Construct	Indicator	M	SD	Factor loading >0.5	CR >0.7	α>0.7	*AVE >0.5*
GWS	GWS 1	3.65	1.71	.799	0.916	.905	0.688
	GWS 2	3.86	1.49	.829			
	GWS 3	3.86	1.64	.901			
	GWS 4	4.05	1.81	.836			
GPVL	GPVL 1	4.35	1.65	.786	0.903	.877	0.652
	GPVL 2	4.69	1.54	.835			
	GPVL 3	4.56	1.60	.742			
	GPVL 4	4.53	1.59	.833			
GCF	GCF 1	4.03	1.82	.807	0.878	.816	0.592
	GCF 2	4.29	1.53	.728			
	GCF 3	4.22	1.89	.689			
	GCF5	4.32	1.69	.688			
GPRK	GPRK 3	3.71	1.76	.753	0.878	.832	0.591
	GPRK 4	3.54	1.75	.807			
	GPRK 5	3.52	1.78	.813			
GBIM	GBIM 1	4.65	1.72	.809	0.914	.882	0.680
	GBIM 2	4.71	1.59	.779			
	GBIM 3	4.69	1.58	.713			
	GBIM 4	4.80	1.59	.763			
	GBIM 5	4.78	1.70	.751			
GTR	GTR 1	4.27	1.57	.681	0.914	.881	0.679
	GTR 2	4.47	1.50	.765			
	GTR 3	4.45	1.48	.775			
	GTR 4	4.64	1.61	.780			
	GTR 5	4.60	1.56	.821			
GBAT	GBAT 1	4.39	1.70	.843	0.942	.919	0.804
	GBAT 2	4.75	1.71	.880			
	GBAT 3	4.51	1.73	.843			
	GBAT 4	4.77	1.74	.908			

Note: GWS=green washing, GPVL=green perceived value, GCF=green confusion, GPRK=green perceived risk, GBIM=green brand image, GTR=green trust, GBAT=green brand attachment

The validity of the constructs was checked by composite reliability (CR) and average variance extract (AVE) values. All CR coefficients were from 0.87 to 0.94 greater than 0.7, as recommended by Hair et al. (2010). To evaluate the convergent validity of all latent constructs AVE values were calculated and all the values were found greater than the suggested cutoff value of 0.5 (Hair et al., 2010). Moreover, the overall reliability of the construct was confirmed through Cronbach's Alpha (α), where all the constructs exhibited coefficient values greater than 0.7, showing an excellent level of reliability (Nunnally, 1978). All the results for CR, α, and AVE are shown in Table 2.

Table 3
Discriminant validity (Fornell & Larcker,1981)

	GBIM	GBAT	GTR	GCF	GPRK	GPVL	GWS
GBIM	0.824						
GBAT	0.716	0.897					
GTR	0.705	0.759	0.824				
GCF	-0.111	-0.131	-0.029	0.77			
GPRK	-0.148	-0.219	-0.162	0.596	0.769		
GPVL	0.703	0.658	0.806	-0.032	-0.143	0.808	
GWS	-0.116	-0.192	-0.246	0.533	0.421	-0.212	0.83

Note: GWS=green washing, GPVL=green perceived value, GCF=green confusion, GPRK=green perceived risk, GBIM=green brand image, GTR=green trust, GBAT=green brand attachment

After ascertaining internal consistency/reliability and convergent validity, the next step was to measure discriminant validity. The discriminant validity was measured using Fornell and Larcker (1981) criterion. Correlation among the construct was less than the square root of Construct AVE value as shown in Table 3, displaying high discriminant validity.

4.2   *Structural Model: Hypothesis testing*

Later, hypotheses were checked by running the structural model with 2000 bootstrap (Hair et al., 2012). The results of all nine hypotheses are summarized in Table 4. The findings suggest that all the hypotheses were accepted, except H7. The first hypothesis, greenwashing has a negative impact on green perceived value has been accepted (β= -.296; P<.05) and is consistent with previous research (Syarifuddin & Alamsyah, 2017; Caruana et al., 2016). This suggests that the use of deceptive marketing techniques will substantially decrease the green perceived value by the consumers resulting in lower purchase probability. Therefore, when a consumer doubts a firm is involved in greenwashing, he starts not believing the environmental claims of a brand resulting low perceived value of that brand.

It was found that the second hypothesis of the study stating that greenwashing has a positive impact on green perceived risk has been accepted (β= .387; P<.05) and concurs with the findings of Chen and Chang (2013) and Kinnunen (2020). This implies that whenever consumers perceive any firm involved in greenwashing practices, they become doubtful about the product's green attributes and experience higher green perceived risk. The next hypothesis that greenwashing has a positive impact on green confusion has been accepted (β= .646; P<.05). Literature also provides support for this finding (Kinnunen, 2020; Polonsky et al., 2010). This suggests that if a firm greenwashes about any green attribute, it creates confusion in consumers' minds about all the green claims of the firm. This makes it difficult

for the consumers to evaluate the actual greenness of the product. The fourth hypothesis that greenwashing has a negative impact on the green brand image has been accepted (β= -.141; P<.05), validating the findings of Chen et al. (2020) and More (2019). This infers that firm involvement in greenwashing practices damages the firm's green brand image and creates doubt about the firm's green marketing activities.

The fifth hypothesis that green perceived risk has a negative impact on green trust has been accepted (β= -.099; P<.05), supporting the previous findings (Chen & Chang, 2012; Gilliespie, 2008). This advocates that as consumers perceived higher green risk about a brand, they believe that the product offered to them might not have the expected environmental benefits. Therefore, consumers are unwilling to rely on the firm, showing lower trust in firm's product. The sixth hypothesis that green perceived value has a positive impact on green trust has been accepted (β= .540; P<.05) and concurs with the findings of previous studies (Chen, 2013; Lam et al., 2016). This concludes that when the consumer perceives a specific product with a higher green value, they will tend to trust the product's environmental attributes. The seventh hypothesis that green confusion has a negative impact on green trust has been rejected (β= .047; P>.05) and the relationship was found insignificant. It can be concluded that the green confusion of the consumer has no significant impact on green trust. The findings of the research are contrary to previous research findings of Avcilar and Demirgunes (2017), acknowledging the impact of consumers' green confusion on green trust. It gives an insight that in Pakistan's context even if the consumer is confused about the green attributes of the product, other factors would not let the consumer have a trust deficit in the brand.

Table 4
SEM estimations & test of hypotheses

Hypothesis	Path	Estimate	S. E	C.R	P-value	Result
H1	GWS ⟶ GPVL	-.269	.058	-4.639	0.000	Supported
H2	GWS ⟶ GPRK	.387	.055	7.063	0.000	Supported
H3	GWS ⟶ GCF	.646	.067	9.593	0.000	Supported
H4	GWS ⟶ GBIM	-.141	.061	-2.307	0.021	Supported
H5	GPRK ⟶ GTR	-.099	.039	-2.549	0.011	Supported
H6	GPVL ⟶ GTR	.540	.051	10.562	0.000	Supported
H7	GCF ⟶ GTR	.047	.028	1.684	0.092	Not supported
H8	GBIM ⟶ GTR	.302	.036	8.497	0.000	Supported
H9	GTR ⟶ GBAT	1.061	.101	10.501	0.000	Supported

Note: GWS=green washing, GPVL=green perceived value, GCF=green confusion, GPRK=green perceived risk, GBIM=green brand image, GTR=green trust, GBAT=green brand attachment

The eight hypotheses that green brand image has a positive impact on green trust have been accepted (β= .302; P<.05) confirming the findings of Shah et al. (2012) and Wu et al. (2011). This suggests that the brand having a higher green image would be trusted easily, resulting in higher sales for a brand.

`The ninth hypothesis that green trust has a positive impact on green brand attachment has been accepted (β= 1.061; P<.05). Prior literature supports this finding (Yang & Zhao, 2019; Alex & Joseph, 2012). It proposes that when a brand is trusted by consumers, a positive attitude is exhibited towards that brand, showing higher attachment to the brand.
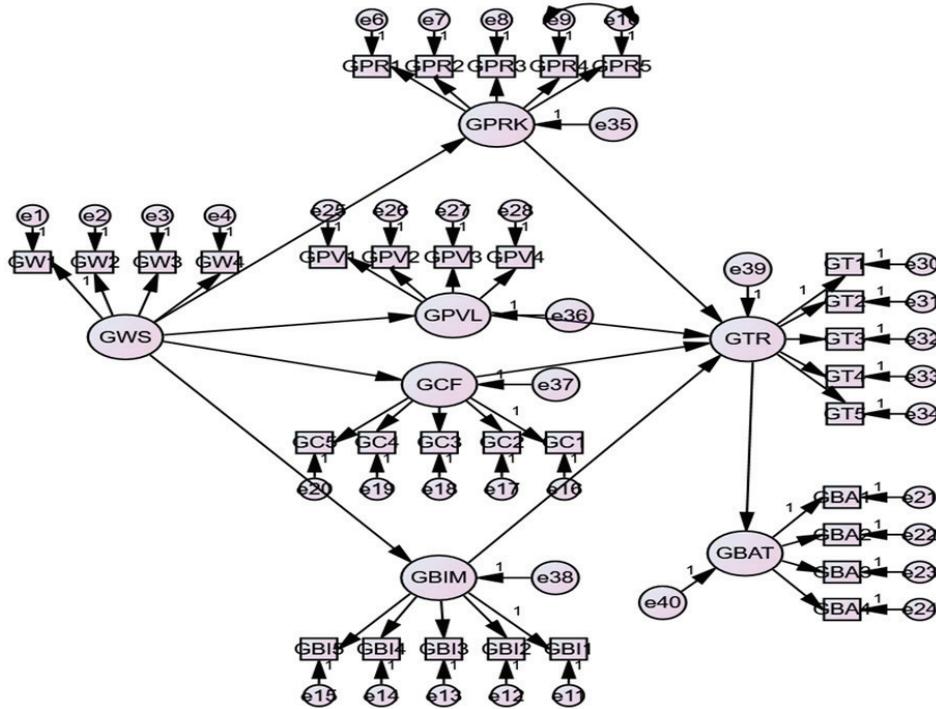

Figure 2: AMOS output

5.   Discussions & Conclusion

Environmental degradation has been extensively debated by academics and practitioners; including their solutions in the form of green products. It is a very hot issue of this era and it can only be addressed by reducing energy consumption and producing recyclable products. In this regard, the aim of this study was to examine the consequences of greenwashing on green brand attachment. Previous research has reported that greenwashing has a negative impact on consumer green trust (Sharma & Paudel, 2018; Amin & Tarun, 2020) and green brand attachment (Hussain & Waheed, 2016) validating the findings of this research.

In today's world, where consumers are showing higher environmental concerns, they are also concerned about the green products' reliability, durability, and performance. In a competitive market, firms are trying to win higher market share and they are sometimes taking the help of greenwashing activities. The firm's indulgence in greenwashing activities is eliminating the consumer's green trust through higher green perceived risk and green confusion. It also diminishes the brand's green perceived value and green image.

It is derived from the study that in relationship building with customers, green brand trust is a most substantial driver. This indicates that green brand trust positively influences consumer-brand relationships and accentuates the need of adopting green marketing practices. It has been found that lower green perceived risk helps to create consumers' trust in environmentally friendly brands (Rahardjo, 2015; Zulfanizy & Wahyono, 2019). Similarly, higher green brand value and green brand image increase consumers' trust (Wu & Liu, 2022; More, 2019) and that leads to green brand attachment (Yang & Zhao, 2019; Kang et al., 2017) consistent with the findings of this research.

This emphasizes the organizations to put their efforts to produce environmentally friendly brands to establish strong and long-term relations with consumers. Additionally, the present research has also found that consumers consider green brands as a necessary part of their lives. It helps them feel important by owning eco-friendly brands in this era of environmentalism. This highlights the environmental consciousness of consumers and urges the governments and environmental protection agencies to persuade manufacturers toward green marketing practices. The green brand image helps to retain loyal consumers as the findings suggest that green brand image is significantly associated with green brand trust and ultimately green brand attachment. This indicates that a considerable level of green brand image and its proper positioning is necessary for the organizations to establish stronger and long-term relationships with consumers.

5.1   Implications

The findings of the present research work would help the marketing professionals/organizations to improve green brand value and green brand image and build long-lasting relationships with environmentally conscious consumers. All the relationship-building processes discussed above may produce consumption patterns that can benefit the ecology of our planet and may lead toward environmental sustainability. It can be resolved by lowering green perceived risk and increasing the perceived value and image of the product; this will increase the use of green brands and it can play a substantial role to establish green brand attachment. Developed countries have framed different regulations to control the veils of greenwashing. Now it is essential for developing economies to make laws to stop firms from greenwashing. It is suggested that firms providing misleading pro-environmental claims must be punished.

Sometimes green color is used in logos to deceive the customers to create an environmental-friendly image, and it must be discouraged.It is needed to differentiate products according to their environmental performance. Brand environmental performance can be judged by green audits. The regulatory authorities, NGOs, and environmental activists should step forward to encounter the threat of greenwashing, otherwise, it would cause huge damage to the green cause. Due to firms' lack of commitment, several companies have been exposed to the general public, making false claims about product environmental features. It has made the consumers cynical about the overall green cause generally and that particular firm's commitment particularly. So it is highly recommended to firms that they should opt for greenwashing as their promotional strategy as it would definitely hurt them in the long run.

5.2   *Limitations & Future Research*

This research comes with some limitations, firstly it focused only on green electronic products/brands, and so future researchers may consider other types of products. Secondly, the data was collected from Pakistani consumers only and in the future scholars can involve participants from other geographical regions. Thirdly, it was a cross-sectional study and could not observe the dynamic changes through longitudinal data.

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References

Aji, H. M., & Sutikno, B. (2015). The extended consequence of greenwashing: Perceived consumer skepticism. *International Journal of Business and Information, 10*(4), 433-468.

Alex, N. J., & Joseph, A. (2012). Hedonic Versus Utilitarian Values: The Relative Importance of Real and Ideal Self to Brand Personality and Its Influence on Emotional Brand Attachment. Vilakshan: *The XIMB Journal of Management, 9*(2), 77-90.

Ali, S., Ullah, H., Akbar, M., Akhtar, W., & Zahid, H. (2019). Determinants of consumer intentions to purchase energy-saving household products in Pakistan. *Sustainability, 11*(5), 1462 or 1-20.

Alshura, M. S., & Zabadi, A. M. (2016). Impact of green brand trust, green brand awareness, green brand image, and green perceived value on consumer's intension to use green products: an empirical study of Jordanian consumers. *International Journal of Advanced Research, 4*(2), 1423-1433.

Amin, S., & Tarun, M.T. (2020). Effect of consumption values on customers' green purchase intention: a mediating role of green trust. *Social Responsibility Journal, 17* (8), 1320-1336.

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin, 103*(3), 411-423.

Avcilar, M. Y., & Demirgünes, B. K. (2017). Developing perceived greenwash index and its effect on green brand equity: A research on gas station companies in Turkey. *International Business Research, 10*(1), 222-239.

Bagozzi, R. P., & Yi, Y. (1991). Multitrait-multimethod matrices in consumer research. *Journal of Consumer Research, 17*(4), 426-439.

Bashir, M. F., Jiang, B., Komal, B., Bashir, M. A., Farooq, T. H., Iqbal, N., & Bashir, M. (2020). Correlation between environmental pollution indicators and COVID-19 pandemic: a brief study in Californian context. *Environmental research, 187*, 109652.

Butt, A. (2017). Determinants of the consumers green purchase intention in developing countries. *Journal Management Science, 4*, 217-236.

Butt, A., Khan, S. N., Zakir, M. M., Rana, W., & Laila, A. (2021). Firms greenwashing practices and consumers' perception: Role of marketing and non-marketing external stake holders in firms greenwashing practices. *Indian Journal of Economics and Business, 20*(3), 689-706.

Caruana, R., Carrington, M. J., & Chatzidakis, A. (2016). "Beyond the attitude-behaviour gap: Novel perspectives in consumer ethics": Introduction to the thematic symposium. *Journal of Business Ethics, 136*, 215-218.

Chang, C. (2011). Feeling Ambivalent About Going Green. *Journal of Advertising, 40*(4), 19-32.

Chang, H, H,. & Chen, W. S. (2008). The impact of online store environment cues on purchase intention: Trust and perceived risk as a mediator. *Online Information Review, 32*(6), 818-841.

Chen, C. F., Chen, Y. X., Mu, P. J., & Yu, Y. H. (2020). Beyond adoption of shared bike: A case study on antecedents and consequences of brand attachment in Taiwan. *Research in Transportation Business & Management, 40*,100574.

Chen, S. L., Yu, H., Luo, H. M., Wu, Q., Li, C. F., & Steinmetz, A. (2016). Conservation and sustainable use of medicinal plants: problems, progress, and prospects. *Chinese medicine, 11*(1), 1-10.

Chen, Y. S. (2010). The drivers of green brand equity: green brand image, green satisfaction, and green trust. *Journal of Business ethics, 93*(2), 307-319.

Chen, Y. S. (2013). Towards green loyalty: driving from green perceived value, green satisfaction, and green trust. *Sustainable Development, 21*(5), 294-308.

Chen, Y. S., & Chang, C. H. (2013). Greenwash and green trust: The mediation effects of green consumer confusion and green perceived risk. *Journal of business ethics, 114*(3), 489-500.

Chen, Y. S., Huang, A. F., Wang, T. Y., & Chen, Y. R. (2020). Greenwash and green purchase behavior: the mediation of green brand image and green brand loyalty. *Total Quality Management & Business Excellence, 31*(1-2), 194-209.

Chen, Y., & Chang, C. (2012). Enhance green purchase intentions: The roles of green perceived value, green perceived risk, and green trust. *Management Decision, 50*(3), 502-520.

Deniz, A., & Onder, L. (2017). Determinants of Brand Equity in Green Products: The Relationships among Green Brand Image, Green Trust and Green Satisfaction. *International Journal of Arts Humanities and Social Science studies, 2*, 1-8.

Dewi, D. S. H. (2018). Hukum Perikatan Islam di Indonesia. Prenada Media.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39-50.

Gillespie, E. (2008). Stemming the tide of greenwash': How an ostensibly greener' market could pose challenges for environmentally sustainable consumerism. *Consumer Policy Review, 18*(3), 79.

Ha, M.T. (2020). Investigating green brand equity and its driving forces. *Management Science Letters, 10*, 2385-2394.

Hair, J. F., Black, W. C., Babin, B. J. & Anderson, R. E. (2010). Multivariate Data Analysis, 7th ed. Prentice Hall, Englewood Cliffs, NJ.

Hair, J. F., Sarstedt, M., Ringle, C. M., & Mena, J. A. (2012). An assessment of the use of partial least squares structural equation modeling in marketing research. *Journal of the academy of marketing science, 40*(3), 414-433.

Halverson, R. (2018). Consumer Perceptions of Greenwashing: Understanding Awareness, Trust, and Effectiveness. University at Colorado Boulder, United States.

Hameed, I., & Waris, I. (2018). Eco Labels and Eco-Conscious Consumer Behavior: The Mediating Effect of Green Trust and Environmental Concern. *Journal of Management Sciences, 5*(2), 86-105.

Hameed, I., Hyder, Z., Imran, M., & Shafiq, K. (2021). Greenwash and green purchase behavior: an environmentally sustainable perspective. Environment, *Development and Sustainability, 23*, 13113–13134.

Hameed, I., Khan, K., Waris, I., & Zainab, B. (2022). Factors influencing the sustainable consumer behavior concerning the recycling of plastic waste. Environmental Quality Management.

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), 1-55.

Hua, L., & Wang, S. (2019). Antecedents of consumers' intention to purchase energy-efficient appliances: An empirical study based on the technology acceptance model and theory of planned behavior. *Sustainability,11*(10), 1-17.

Huang, R. J., Zhang, Y., Bozzetti, C., Ho, K. F., Cao, J. J., Han, Y., ... & Prévôt, A. S. (2014). High secondary aerosol contribution to particulate pollution during haze events in China. *Nature, 514*(7521), 218-222.

Hussain, K., & Waheed, A. (2016). Building green brand relations: the role of green brand image as significant driver. International Journal of Environment, *Workplace and Employment, 4*(2), 116-138.

International Energy Agency. World Energy Outlook 2017; International Energy Agency: Paris, France, p.13.

Jeong, E., Jang, S. S., Day, J., & Ha, S. (2014). The impact of eco-friendly practices on green image and customer attitudes: An investigation in a café setting. *International Journal of Hospitality Management, 41*, 10-20.

Kac, S. M., Gorenak, I., & Potocan, V. (2016). The influence of trust on collaborative relationships in supply chains. *E+ M Ekonomie a Management, 19*(2), 120-131.

Kamiya, A. S. M., Hernandez, J. M. D. C., Xavier, A. K. S., & Ramos, D. B. (2018). The importance of brand attachment for adherence to causes of corporate social responsibility. *Revista de Administração de Empresas, 58*(6), 564-575.

Kang, Y., Krishnaswamy, K., Peelaers, H., & Van de Walle, C. G. (2017). Fundamental limits on the electron mobility of β-Ga2O3. Journal of Physics: *Condensed Matter, 29*(23), 234001.

Kim, D. Y., Park, J., & Morrison, A. M. (2008). A model of traveller acceptance of mobile technology. *International Journal of Tourism Research, 10*(5), 393-407.

Kinnunen, A. (2020). The Effects of Greenwashing on Consumer Behavior. Bachelor's Program in International Business, Aalto University, Finland.

Lam, A. Y., Lau, M. M., & Cheung, R. (2016). Modelling the relationship among green perceived value, green trust, satisfaction, and repurchase intention of green products. *Contemporary Management Research,12*(1),47-60.

Li, G., Li, W., Jin, Z., & Wang, Z. (2019). Influence of environmental concern and knowledge on households' willingness to purchase energy-efficient appliances: A case study in Shanxi, China. *Sustainability, 11*(4), 1073.

Lin, S. T., & Niu, H. J. (2018). Green consumption: Environmental knowledge, environmental consciousness, social norms, and purchasing behavior. *Business Strategy and the Environment, 27*(8), 1679-1688.

Lyon, T. P., & Maxwell, J. W. (2011). Greenwash: Corporate environmental disclosure under threat of audit. *Journal of economics & management strategy, 20*(1), 3-41.

Mahmood, N., Wang, Z., & Zhang, B. (2020). The role of nuclear energy in the correction of environmental pollution: Evidence from Pakistan. *Nuclear Engineering and Technology, 52*(6), 1327-1333.

Malär, L., Krohmer, H., Hoyer, W. D., & Nyffenegger, B. (2011). Emotional brand attachment and brand personality: The relative importance of the actual and the ideal self. *Journal of marketing, 75*(4), 35-52.

Marquis, C., Toffel, M. W., & Zhou, Y. (2016). Scrutiny, norms, and selective disclosure: A global study of greenwashing. *Organization Science, 27*(2), 483-504.

Martínez, P. (2015). Customer loyalty: exploring its antecedents from a green marketing perspective. *International Journal of Contemporary Hospitality Management, 27* (5), 896-917.

Mills, B., & Schleich, J. (2013). Analysis of existing data: determinants for the adoption of energy-efficient household appliances in Germany. In Sustainable Energy Consumption in Residential Buildings (pp. 39-67). Physica, Heidelberg.

Moon, M.A., Javaid, B., Kiran, M., Awan, H.M., & Farooq, A. (2018). Consumer perceptions of counterfeit clothing and apparel products attributes. *Marketing Intelligence & Planning, 36*(7), 794-808.

More, P. V. (2019). The impact of greenwashing on green brand trust from an Indian perspective. *Asian Journal of Innovation and Policy, 8*(1),162-179.

Mwencha, P. M., Muathe, S. M., & Thuo, J. K. (2014). Effects of perceived attributes, perceived risk and perceived value on usage of online retailing services. *Journal of Management Research, 6*(2), 140-161.

Nagar, K. (2015). Modeling the effects of green advertising on brand image: investigating the moderating effects of product involvement using structural equation. *Journal of global marketing, 28*(3-5), 152-171.

Nguyen, T. T. H., Yang, Z., Nguyen, N., Johnson, L. W., & Cao, T. K. (2019). Greenwash and green purchase intention: The mediating role of green skepticism. *Sustainability, 11*(9), 2653.

Nunnally, J. C. (1978). Psychometric theory (2nd ed.). New York: McGraw-Hill.

Nyilasy, G., Gangadharbatla, H., & Paladino, A. (2014). Perceived greenwashing: The interactive effects of green advertising and corporate environmental performance on consumer reactions. *Journal of Business Ethics, 125*(4), 693-707.

Park, C. W., MacInnis, D. J., Priester, J., Eisingerich, A. B., & Iacobucci, D (2010). Brand attachment and brand attitude strength: Conceptual and empirical differentiation of two critical brand equity drivers. *Journal of Marketing, 74*(6), 1–17.

Polonsky, M. J., Grau, S. L., & Garma, R. (2010). The new greenwash? Potential marketing problems with carbon offsets. International Journal of Business Studies: A Publication of the Faculty of Business Administration, *Edith Cowan University, 18*(1), 49-54.

Pothitou, M., Hanna, R. F., & Chalvatzis, K. J. (2016). Environmental knowledge, pro-environmental behaviour and energy savings in households: An empirical study. *Applied Energy, 184*, 1217-1229.

Prakash, G., & Pathak, P. (2017). Intention to buy eco-friendly packaged products among young consumers of India: A study on developing nation. *Journal of cleaner production, 141*, 385-393.

Rahardjo, F. A. (2015). The roles of green perceived value, green perceived risk, and green trust towards green purchase intention of inverter air conditioner in Surabaya. *iBuss Management, 3*(2),252-260.

Sarkar, A. N. (2012). Green branding and eco-innovations for evolving a sustainable green marketing strategy. *Asia-Pacific Journal of Management Research and Innovation, 8*(1), 39-58.

Shah, S. S. H., Aziz, J., Jaffari, A. R., Waris, S., Ejaz, W., Fatima, M., & Sherazi, S. K. (2012). The impact of brands on consumer purchase intentions. *Asian Journal of Business Management, 4*(2), 105-110.

Sharma, A., & Paudel, P. K. (2018). Determinants of green brand trust and the mediating role of green brand satisfaction. *International Research Journal of Management Science, 3*, 1-24.

Siano, A., Vollero, A., Conte, F., & Amabile, S. (2017). "More than words": Expanding the taxonomy of greenwashing after the Volkswagen scandal. *Journal of Business Research, 71*, 27-37.

Syarifuddin, D., & Alamsyah, D. P. (2017). Green perceived value for environmentally friendly products: Green awareness improvement. Jurnal Ekonomi Pembangunan: *Kajian Masalah Ekonomi dan Pembangunan, 18*(2), 245-255.

Szabo, S., & Webster, J. (2021). Perceived greenwashing: the effects of green marketing on environmental and product perceptions. *Journal of Business Ethics, 171*(4),719-739.

Tan, C. S., Ooi, H. Y., & Goh, Y. N. (2017). A moral extension of the theory of planned behavior to predict consumers' purchase intention for energy-efficient household appliances in Malaysia. *Energy Policy, 107*, 459-471.

Tarabieh, S. M. Z. A. (2021). The impact of greenwash practices over green purchase intention: The mediating effects of green confusion, Green perceived risk, and green trust. *Management Science Letters, 11*(2), 451-464.

Taufique, K. M. R., & Vaithianathan, S. (2018). A fresh look at understanding Green consumer behavior among young urban Indian consumers through the lens of Theory of Planned Behavior. *Journal of cleaner production, 183*, 46-55.

Thomson, M., MacInnis, D. J., & Whan Park, C. (2005). The ties that bind: Measuring the strength of consumers' emotional attachments to brands. *Journal of consumer psychology, 15*(1), 77-91.

Topal, M., Arslan Topal, E. I., & Öbek, E. (2021). A green algae Cladophora fracta for accumulation of toxic/harmful pollutants causing environmental pollution in mine gallery waters. *International Journal of Environmental Science and Technology*, 1-10

Turnbull, L. A., Crawley, M. J., & Rees, M. (2000). Are plant populations seed-limited? A review of seed sowing experiments. *Oikos, 88*(2), 225-238.

Urbański, M., & Ul Haque, A. (2020). Are you environmentally conscious enough to differentiate between greenwashed and sustainable items? A global consumers perspective. *Sustainability, 12*(5), 1786

Uyar, A., Karaman, A. S., & Kilic, M. (2020). Is corporate social responsibility reporting a tool of signaling or greenwashing? Evidence from the worldwide logistics sector. *Journal of Cleaner Production, 253*, 119997.

Waris, I., & Hameed, I. (2020). An empirical study of purchase intention of energy-efficient home appliances: the influence of knowledge of eco-labels and psychographic variables. *International Journal of Energy Sector Management, 14*(6), 1297-1314.

Waris, I., & Hameed, I. (2021). An empirical study of consumers intention to purchase energy efficient appliances. *Social Responsibility Journal, 17*(4),489-507.

Wood, M. E. (2015). Exploring consumers' experiences with corporate greenwashing. Walden University Washington United states.

Wu, L., & Liu, Z. (2022). The Influence of Green Marketing on Brand Trust: The Mediation Role of Brand Image and the Moderation Effect of Greenwash. *Discrete Dynamics in Nature and Society, 2022*.

Wu, P. C., Yeh, G. Y. Y., & Hsiao, C. R. (2011). The effect of store image and service quality on brand image and purchase intention for private label brands. *Australasian Marketing Journal, 19*(1), 30-39.

Yadav, R., & Pathak, G. S. (2017). Determinants of consumers' green purchase behavior in a developing nation: Applying and extending the theory of planned behavior. *Ecological economics, 134*, 114-122.

Yang, Y. C., & Zhao, X. (2019). Exploring the relationship of green packaging design with consumers' green trust, and green brand attachment. Social Behavior and Personality: an *international journal, 47*(8), 1-10.

Zhang, B., Du, Z., & Wang, Z. (2018). Carbon reduction from sustainable consumption of waste resources: An optimal model for collaboration in an industrial symbiotic network. *Journal of Cleaner Production, 196*, 821-828.

Zulfanizy, K., & Wahyono, W. (2019). The influence of green perceived value, risk and quality toward green purchase intention through green trust. *Management Analysis Journal, 8*(1), 79-89.

Predictors and Outcomes of Brand Love: An Evaluation of Customers' Love For Neo-Luxury Brands

Asif Iqbal* Idrees Waris** Raheel Farooqui***

Abstract

Brand love is the ultimate commitment level of customers for a brand. The love for a brand developed through concerted efforts by the marketers. Attaining customer brand love increases market share and ensures business sustainability. This study assesses the antecedents and consequences of brand love in developing markets. Neo-luxury brands are highly purchased brands in Pakistan. Therefore, the study evaluated customers' behavioral loyalties toward Neo-luxury brands. A total of 315 valid questionnaires on neo-luxury brands were collected from a representative sample of Millennials. . The data were analyzed through structural equation modeling (SEM) using SmartPLS software. The study results revealed that brand love could regulate the relationship of neo-luxury brands between the dimensions of brand image, purchase intention, word-of-mouth, brand loyalty, and brand commitment. The study also found that Mystery, Sensuality, and Intimacy impact brand love. The study contributes to neo luxury brands in relationship with brand love. This research results give valuable information for brand managers to consider when building brand love strategies and applying them in marketing activities. It provides marketers insights into building brand love and increasing market share.

Keywords: Purchase intention; brand loyalty, word of mouth; brand commitment; brand love; mystery; sensuality; intimacy; generation Y.

JEL Classification: M31, M00

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*Lecturer, College of Management Sciences, Karachi Institute of Economics and Technology, Karachi, Pakistan. Email: asif.cams@gmail.com

**Assistant Professor, Management Sciences Department, University of Turbat, Turbat, Pakistan. Email: idress1988@gmail.com

***Senior Lecturer, Bahria Business School, Bahria University Karachi Campus, Pakistan. Email: raheelf82@gmail.com

1.   Introduction

The acquisition of new customers may not be more profitable than retaining existing customers (Chiu et al., 2012). This shows that it is imperative to obtain very loyal customers. The love for brands helps to attain the existing customers. In this regard, scholars have posited that the emotional relationship between brand and consumer is of great significance (Carroll & Ahuvia, 2006; Keller, 2008). Ahuvia (1993) conceptualized customer love for a brand and found that customers developed love for the brands. Extant literature reveals that brand love for luxury brands is a more common phenomenon (Kapferer & Laurent, 2016; Mundel et al., 2017). The studies found the connection between conventional luxury goods and conspicuous consumption and argued that the higher class could portray their well-being, standard, and esteem (Fionda & Moore, 2009; Kumar & Paul, 2018). Giovannini et al. (2015) found that millennials are usually full of enthusiasm and gospel for their favorite brands. Moreover, they pay more attention to emotional value than budget-conscious baby boomers because most baby boomers make money (Kumar & Lim, 2008). In this way, millennials may also be affected by a different image of luxury brands from baby boomers, especially when looking for luxury brands when researching or buying new luxury brands.

Love is a concept we hear about often in our lives. Recently, the word "love" has been used to describe profound connections individuals have with products and brands, as well as feelings they have. Brand love is a deep emotional connection between the customer and the product consumed, similar to interpersonal love in human relationships (Nawaz et al., 2020). Brand love is derived from consumer behavior's emotional and affection theories. It revolves around the impact of customer emotions on Consumer brand relationships. Brand love is an intense emotional connection characterized by a strong positive brand impact, increased brand stimulation, and a brand's inclination to dominate customers' cognition (Hameed et al., 2021; Cho & Hwang, 2020; Patwardhan & Balasubramanian, 2011).

Millennials, or Generation Y, are one of the most discussed generations in business today. Millennials are one of the fastest increasing demographics of luxury consumers Nonetheless, this demographic is forward-thinking and eager to acquire fashionable products (Bucuta, 2015). Studying factors associated with smartphone and clothing brands in terms of loyalty in the Generation Y sector seems empirically essential. Millennials have higher spending power in luxury consumption than baby boomers and are more demanding because they have sufficient technical talent. In addition, they are a well-educated and well-cultured generation, enduring and broad-minded to the non-identical way of life (Noble, 2009). They are also growing up economically and socially insecure, leaving them feeling deluded, righteous, and suspicious (Hennigs et al., 2012).

Generation Y is more enthusiastic about the brands they prefer and emphasizes financial value since they mainly demand value for their money (Rodrigues & Rodrigues, 2019). When it comes to neo-luxury brands, various generations seek distinct meanings in luxury when they buy or search for them. It is necessary to analyze the brand image and its influence on consumers' brand connections and how these relationships are developed and maintained. Integrating existing generational theories regarding neo-luxury notions may help create a better picture of what is happening (Rodrigues & Rodrigues, 2019).

Therefore, understanding millennial perception regarding the luxury category's brand sensorial and emotional factors is essential to attract new customers and retain loyal customers. Many studies indicated that brand love leads to brand loyalty. Recently, Song et al. (2019) study suggests that brand love positively relates to brand loyalty. Further, some studies indicated that brand love leads to purchase intention, word-of-mouth, brand loyalty, and customer engagement (Rodrigues & Rodrigues, 2019; Bairrada et al., 2018; Albert & Merunka, 2013). Previous studies also highlighted that customers' brand loyalty translates into behavioral loyalty such as purchase intention, words of mouth, and commitment (Coelho et al., 2019; Karjaluoto et al., 2016; Maisam & Mahsa, 2016; Manzoor & Shaikh, 2016; Ismail & Melewar, 2015). This study enriches the brand literature by studying the vital role of consumer love for new luxury brands in Pakistan. To the authors' best knowledge, prior studies have not comprehensively analyzed brand image dimensions concerning behavioral loyalty. The currents study has the following broad objectives:

1. To determine the influence of dimensions of luxury brand image, mystery, sensuality and intimacy on luxury brand love.
2. To examine the impact of brand love on luxury purchase intention.
3. To examine the impact of brand love on positive word of mouth.
4. To examine the impact of brand love on brand loyalty.
5. To examine the impact of brand love on brand commitment.

Therefore, this research investigates the importance of different brand image dimensions such as Intimacy, Sensuality, and Mystery and their impact on brand love. Researchers also highlighted that the customer-brand love relationship strengthens if they repeatedly purchase the same brand (Singh et al., 2021). Therefore, understanding the effects of brand love on behavioral dimensions of brand loyalty and brand commitment in luxury brands would provide new insights to marketers. In this way, marketers would be better positioned to make strategies that retain the existing customers and increase the market share through expansion.

2.   Literature Review

2.1   *Consumer-Brand Relationship Theory*

Building a solid customer base is essential to excel and achieve the targets (Fournier, 1998; Sreejesh & Roy, 2015). Fournier's (1998) theory defines that customers create an imaginary human relationship with the brand. Researchers argued that consistent relationships with the brand help build and maintain customer-brand solid relationships (Chaudhuri & Holbrook, 2001). Others indicated that the functional and emotional value of the brand retains a durable connection between consumers and the brand that eventually translates into brand loyalty (Chaudhuri & Holbrook, 2001). To maintain a competitive edge in the markets, brands create long-term and expressive relationships with consumers (Fournier, 1998; Waris et al., 2021). Past research has shown that shoppers' personal brand with social features due to direct and indirect contact (Sung & Kim, 2010).

The notion of brand love relates to a consumer's emotional attachment to a brand and is based on interpersonal relationships theory (Sternberg, 1986). Recent studies in fashion luxury brands indicated the importance of the consumer-brand relationship (Rodrigues et al., 2018; Cho & Fiore, 2015). To determine the customer-brand relationship in the context of neo luxury brands in Pakistan, this study evaluates the impact of brand image on brand love and the behavioral loyalty of customers. The brand image consists of three dimensions: Mystery, Sensuality, and Intimacy. The behavioral dimensions of belief are purchase intention, words of mouth, loyalty, and commitment. Prior studies have not studied the antecedents and outcomes of brand love in the context of developing markets. This study would comprehensively understand the customers' brand love relationship.

2.2   *Brand Image Dimensions*

Brand image is a perception of the brand held by consumers in their minds (Keller, 1993). Similarly, Aaker (1997) stated that "a brand image consists of a series of relations usually prepared in a meaningful way." Other researchers insisted on consumers' perception of the results of communication with the brands (Dobni & Zinkhan, 1990). The factors that contribute to the advancement of "brand image" include: "product-attributes", "Finnish-language", "marketing-mix", "personal-perception" of a brand, "personal-values", "experience", forms of "brand-users" and "environmental-variables". Cho and Fiore (2015) broaden the concept of brand image in the context of fashion-related products and develop an overall brand measurement, which includes emotional "intimacy, "cognitive "mystery," and sensory "sensuality" emotional associations, which are important for creating obsessive connections between consumers' Intangible components and brands. This new scale captures the sensory dimensions of the brand for the first time and highlights the part of sensory prompts in shaping the feeling and thinking of fashion-related products and services. Ismail and Spinelli

(2012) highlighted the importance of positive brand image in fashion-related product categories. The literature depicts that brand image components have a vital role in customers' love for the brand. Therefore, we infer that the components of the brand image positively influence brand love. Thus, we hypothesize the following hypotheses:

H1: Mystery will positively influence brand love.
H2: Sensuality will positively influence brand love.
H3: Intimacy will positively influence brand love.

2.3   Brand Love

Brand love is "the degree of passionate, emotional attachment a satisfied consumer has for a particular trade name" (Carroll & Ahuvia, 2006). BL refers to the extreme passion of customers towards the brand that leads to purchase intention. As Ajzen and Fishbein (1975) defined, purchase intention is the immediate antecedent of behavior. Several studies indicated that satisfied customers have strong emotions for the brands that lead to the willingness to purchase of brand (Eagly & Chaiken, 1993; Grewal et al., 1998). Researchers posited that brand functions and social concepts affect the overall idea of luxury brands, which will generate purchase intentions (Hennigs et al., 2012). A previous study indicated that customers' love for the brand affects the purchase intention of new luxury brands (Rodrigues & Rodrigues, 2019). Shin et al. (2017) revealed in a recent study that Generation Y at the college level are heavily motivated by social concerns and may utilize luxury brands to indicate their social influence provided the brands meet both their internally and externally driven needs (Truong et al., 2009).

Further, to express their social influence, customers intend to purchase luxury brands that meet their internal and external needs (Truong et al., 2009). Similarly, other scholars indicated that customers buy luxury goods that suit the consumer's lifestyle and thus satisfy their inner impulses (Amatulli & Guido, 2011). More specifically, the study of Rodrigues and Rodrigues (2019) highlighted that brand love positively influences the customer purchase intention of luxury brands. There, we hypothesize that:

H4: Brand love will positively influence purchase intention.

Word of mouth (WOM) can be a positive or negative statement given by current or future customers about any brand or organization, and these comments can be offline or online available (Hennig-Thurau et al., 2004). Word of Mouth is customers' informational communication with other people that build a strong brand image (Godes & Mayzlin, 2004). Word of mouth usually is a process of interaction where customers exchange opinions on the product or company (Allsop et al., 2007).

WOM is more likely to be created from self-relevant and hedonic items than utilitarian products (Chung & Darke, 2006). Since WOM about self-relevant products acts as a form of self-presentation and delivers social advantages. Furthermore, Kudeshia et al. (2016) demonstrate that brand love and WOM have a significant positive association. As a result, brand love is seen to be a direct predictor of good WOM (Bairrada et al.,2018; Karjaluoto et al., 2016; Batra et al., 2012; Ismail & Spinelli, 2012; Fetscherin, 2014; Carroll & Ahuvia, 2006).

The research found that customers' informal communication leads to the establishment of brand image and increases the likelihood of purchasing luxury products (Reichheld & Sasser, 1990; Martin & Lueg, 2013). Positive Word of mouth refers to the level to which consumers make positive suggestions about the brand to their contacts (Albert & Merunka , 2013). Words of mouth are more influential than advertisements because people trust referral products (Fridman et al., 2007). Researchers found that people recommend their favorite luxury brands to peers and colleagues (Shin et al., 2017). Similarly, scholars argued that the significance of a specific brand increases if it is recommended by peers and groups (Kim & Ko, 2012). Therefore, we hypothesize that:

H5: Brand love will positively influence words of mouth.

Brand loyalty is referred to consumers' frequent purchase behaviors of a brand based on emotions, judgments, or positive evaluations of alternate products. It also refers to the repeat purchase of the brand (Oliver, 1999). Being loyal to the brand seems to imply an obligation to constantly purchase or endorse products that are beneficial to certain products or services in the future (Sasmita & Suki, 2015). Brand loyalty is the consumer's confidence regarding purchasing a preferred brand (Deighton et al., 1994). In this regard, Carroll and Ahuvia (2006) demonstrated the positive impact of "brand love" on "brand loyalty" and pointed out that a similar result will apply to luxury fashion. Thus, we hypothesize that:

H6: Brand love will positively influence brand loyalty.

Brand commitment is an emotional state that shows consumers' positive attitudes toward product names and willingness to mark association with products or services (Albert & Merunka, 2013). Consumers usually think that brand commitment has a stronger emotional connection than brand loyalty (Traylor, 1981). Brand commitment is also closely related to brand loyalty, but it is different. Brand loyalty mentions the viewpoint of behavior, mainly reflected infrequent purchases of specific brands. Brand commitment is customers' emotional connection (Assael, 1998). Emotional connection with the brand results from customers' higher participation and involvement (Ellis, 2000). Ziaullah et al. (2015) posited that emotional commitment is based on a sentimental bond with the brand that persistently provides value to the customers. Thus, we hypothesize that:

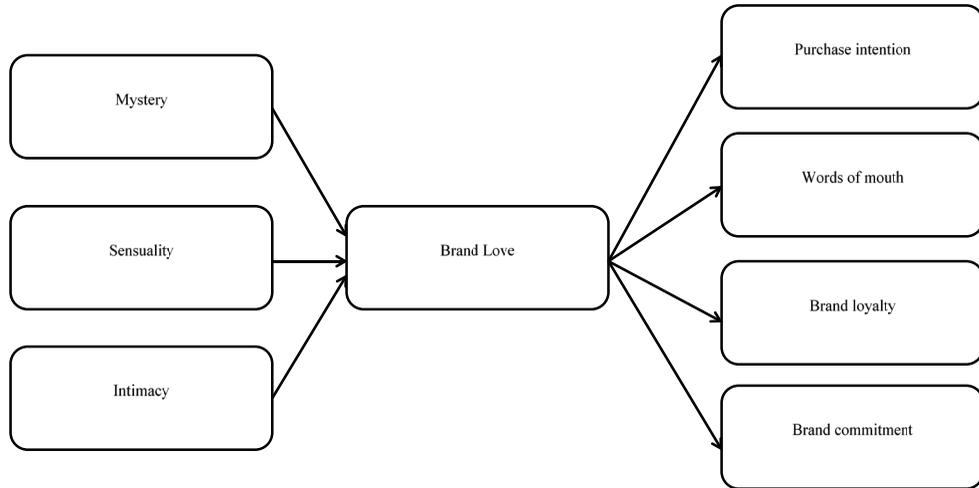*H7*: Brand love will positively influence brand Commitment.

Figure 1: Conceptual framework

3.　　　　Methodology

3.1　　　*Data Collection and Sampling*

This study is quantitative, and the use of closed-ended questionnaires has collected data. The study is cross-sectional, and data has been collected from April 2022 to May 2022. The respondents' data were collected through an online survey sent to the five main cities of Pakistan. The selected cities represent most of the population in Pakistan. The consent of the respondents was received before giving the questionnaires. Most of the respondents were reluctant to fill out the questionnaire during questionnaire distribution as it was lengthy, and they did not have much time to fill it. After several requests, many respondents agreed to fill out the questionnaire. A total of 462 questionnaires were distributed to the respondents of the study. After performing several screening tests, we performed analysis on 315 complete usable data with a response rate of 68.18%.

3.2　　　*Measurements*

This study has adapted the scales from the previous studies. All the items of measurement scales were validated through experts' suggestions. The questionnaire was presented to the four experts from the field of marketing. They evaluated the contents and layout of the questionnaire. Further, they suggested grammatical corrections and limited the constructs of the questionnaire to meet the purpose of the questionnaire. After the experts' approval, the questionnaires were tested through a pilot study containing 65 respondents. The result of the pilot test was satisfactory, leading to the final data collection.

Table 1
Respondents' Profile

	Frequency	Percentage
Gender		
Male	186	59%
Female	129	41%
Age group		
26 to 31 years	57	18.1%
32 to 36 years	130	41.3%
37 to 41 years	128	40.6%
Income in PKR		
1000 to 25000	125	39.7%
25001 to 50000	54	17.1%
50001 to 75000	28	8.9%
75001 to 100,000	36	11.4%
100,001 to 125000	27	8.6%
125001 or More	45	14.3%
Qualifications		
Matric	1	0.3%
Intermediate	39	12.4%
Bacholars	137	43.5%
Masters	127	40.3%
M.Phil	11	3.5%

3.3   *Respondents' Profile*

A total of 315 respondents took part in the online survey using Google Forms. Participants are men and women of different ages, incomes, and cities. Table 3.1 shows the demographic information of these participants. From a gender perspective, the data shows that most respondents (59%) are males, and the age range is mainly between 32 and 36 years old, with 130 respondents (41.3%), the majority of the people's income was under 25000PKR, representing 39.7% of the respondents. The majority of the respondents hold a bachelor's degree representing 43.5% of the respondents in the study.

4.   Results

The present study used smartPLS software for data analysis. This section contains two parts of the study's results. The first section reports on factor loading, construct reliability, and validity (measurement model), while the second part reports on path analysis and hypothesis testing (structural model). The data were first analyzed and purified in SPSS software. Descriptive statistics are used to check the mean, median, mode, and range values. Then skewness and kurtosis values were identified to assess the abnormalities in the data. After performing the multivariate outliers test, we finally tested the data in SmartPLS.
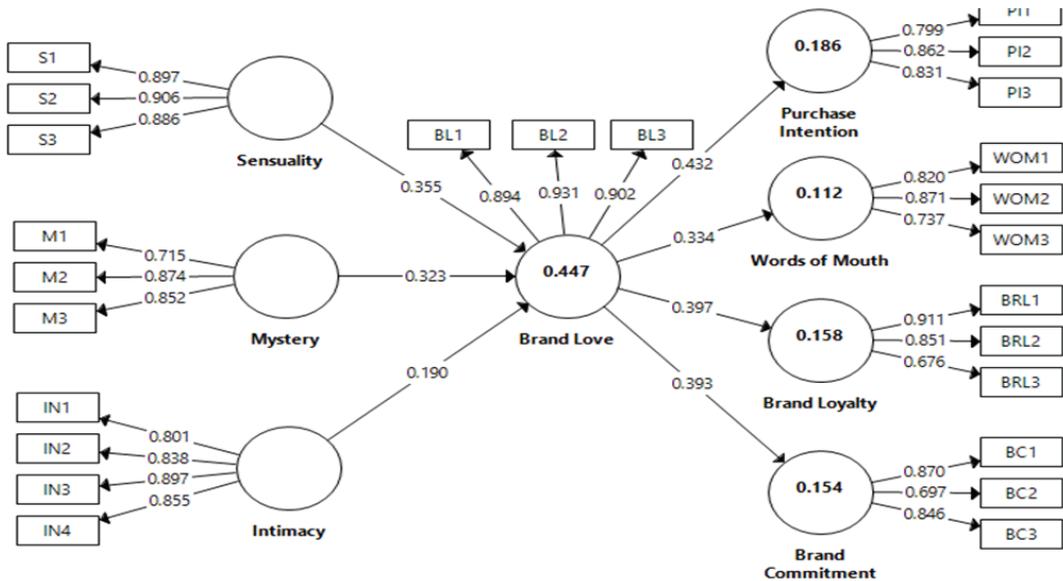

Figure 2: Measurement model

4.1   *Validity and Reliability Analysis*

The validity and reliability values were assessed in this study. The threshold value of factor loading is 0.7 or higher is considered acceptable (Henseler et al., 2009; Waris et al., 2021). On the other hand, according to Chin (1998) threshold value of factor loading is 0.5, considered acceptable, and less than 0.5 were dropped. In this study, the factor loading values fell in the suggested ranges. The threshold value of Cronbach's Alpha is 0.7 or 0.6 is considered acceptable (Griethuijsen et al., 2014; Hameed et al., 2019), while this study reported that Cronbach Alpha's lowest value 0.754 is acceptable. The composite reliability threshold is 0.70. In this study, the composite reliability values are higher than 0.70, which is considered higher than the threshold values. In this study, the composite reliability lowest value is 0.848, regarded as very good, and the average variance extracted (AVE) lowest value is 0.653, which meets the minimum threshold (Hair et al., 2010).

Table 2
Measurement Model

Constructs	Items	Loading	Cronbach's alpha	CR	AVE
Sensuality	S1	0.897	0.878	0.925	0.804
	S2	0.906			
	S3	0.886			
Mystery	M1	0.715	0.754	0.856	0.667
	M2	0.874			
	M3	0.852			
Intimacy	IN1	0.801	0.870	0.911	0.720
	IN2	0.838			
	IN3	0.897			
	IN4	0.855			
Brand Love	BL1	0.894	0.895	0.934	0.826
	BL2	0.931			
	BL3	0.902			
Purchase Intention	PI1	0.799	0.776	0.870	0.691
	PI2	0.862			
	PI3	0.831			
Words of Mouth	WOM1	0.820	0.737	0.852	0.658
	WOM2	0.871			
	WOM3	0.737			
Brand Loyalty	BRL1	0.911	0.895	0.857	0.670
	BRL2	0.851			
	BRL3	0.676			
Brand Commitment	BC1	0.870	0.732	0.848	0.653
	BC2	0.697			
	BC3	0.846			

Note: CR = Composite Reliability; AVE = Average Variance Extracted

4.2   Analysis of discriminant validity

The discriminant validity analysis was performed through two methods recommended by the researchers (Hair et al., 2011). First, we used Fornell and Larcker criteria criterion to assess the discriminant validity. In this method, the diagonal values of the constructs must be greater than the correlations among the constructs. The study confirms the presence of discriminant validity in this method as all the diagonal values were more significant than the correlations among the constructs.

Table 3
Discriminant Validity

Latent variables	1	2	3	4	5	6	7	8
Brand Commitment	**0.808**							
Brand Love	0.393	**0.909**						
Brand Loyalty	0.504	0.397	**0.819**					
Intimacy	0.295	0.533	0.265	**0.849**				
Mystery	0.156	0.475	0.235	0.395	**0.817**			
Purchase Intention	0.354	0.432	0.329	0.335	0.155	**0.831**		
Sensuality	0.286	0.540	0.284	0.606	0.218	0.433	**0.896**	
Words of Mouth	0.302	0.334	0.398	0.341	0.476	0.192	0.173	**0.811**

Second, we used Heterotrait-Monotrait Ratio (HTMT) method. In this method, the importance of the constructs must be less than 0.90 or 0.85 (Henseler et al., 2015; Soomro et al., 2022). Table 4 depicts that all values of HTMT are below 0.85, confirming discriminant validity among the constructs.

Table 4
Heterotrait-Monotrait Ratio (HTMT)

Latent variables	1	2	3	4	5	6	7	8
Brand Commitment								
Brand Love	0.479							
Brand Loyalty	0.676	0.436						
Intimacy	0.361	0.600	0.294					
Mystery	0.221	0.561	0.280	0.474				
Purchase Intention	0.473	0.512	0.407	0.409	0.191			
Sensuality	0.363	0.608	0.314	0.688	0.249	0.527		
Words of Mouth	0.399	0.410	0.507	0.428	0.634	0.254	0.216	

4.3   *Predictive accuracy and relevance of the model*

The predictive accuracy and relevance of the existing model were determined through the values of R2 and Q2, respectively. In this study, the importance of R2 for the endogenous constructs were 11.2%, 15.4%, 15.8%, 18.6%, and 44.7% for Word of mouth, brand commitment, brand loyalty, purchase intention, and brand love, respectively. The values of Q2 represent model predictive relevance. The value above/higher than 0 indicates the predictive significance in the model. In this study, the Q2 for the endogenous constructs are 7%, 9.1%, 9.1%, 11.7%, and 35.6% for words of mouth, brand commitment, brand loyalty, purchase intention, and brand love, respectively.

4.4   *Hypotheses testing*

This study contains seven hypotheses that test the brand-customer relationship model. The results revealed that all hypotheses are accepted. Regarding hypothesis 1, it was revealed that the dimension of brand image, i.e., mystery, has a positive effect on brand love in Pakistan is accepted (β=0.323, p=0.000). Hypotheses 2 stated that Sensuality has a positive impact on brand love is accepted (β=0.355, p=0.000).
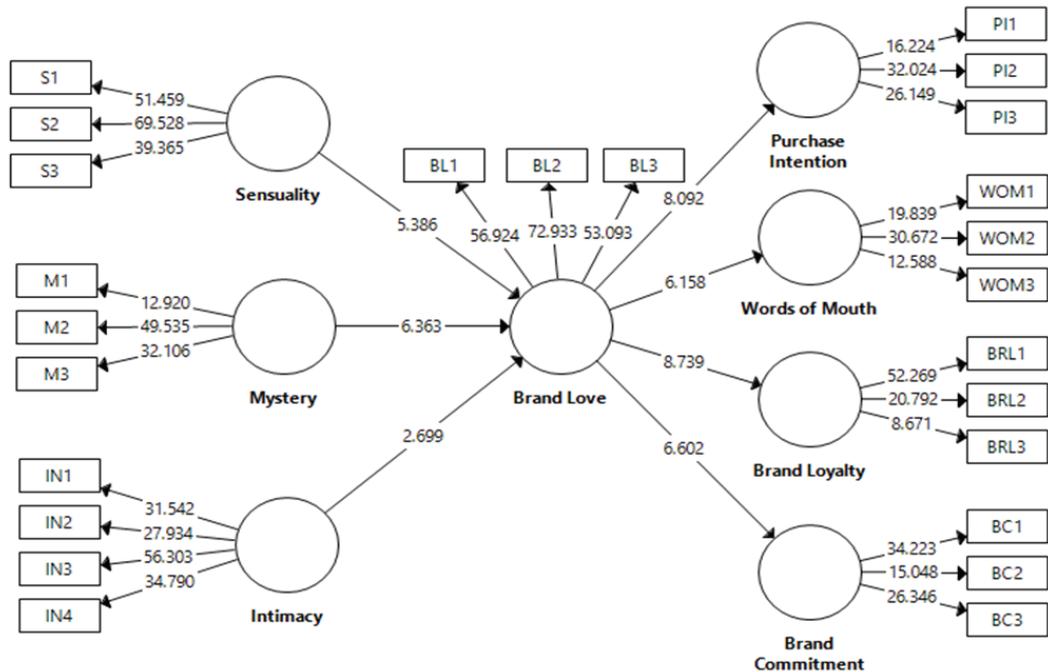

Figure 3: Structural model

Hypothesis 3 revealed that the dimension of the brand image, i.e., Intimacy has a positive influence on brand love, is also accepted ($\beta=0.190$, $p=0.006$). Hypothesis 4 revealed that brand love leads to the purchase intention being accepted ($\beta=0.432$, $p=0.000$). Hypothesis 5 stated that brand love of customers leads to the words of mouth for the luxury brands being accepted ($\beta=0.334$, $p=0.000$). Hypothesis 6 revealed that brand loves significantly affects brand loyalty is accepted ($\beta=0.397$, $p=0.000$). Hypothesis 7 stated that brand love positively affects brand commitment is accepted ($\beta=0.393$, $p=0.000$).

Table 5
Hypotheses Assessment Summary

Hypotheses	Beta	P-values	t-values	Decision
H1: M → BL	0.323	0.000	6.273	Accepted
H2: S → BL	0.355	0.000	5.227	Accepted
H3: IN → BL	0.190	0.006	2.730	Accepted
H4: BL → PI	0.432	0.000	8.054	Accepted
H5: BL → WOM	0.334	0.000	6.090	Accepted
H6: BL → BRL	0.397	0.000	8.967	Accepted
H7: BL → BC	0.393	0.000	6.469	Accepted

5.   Discussions and Conclusion

Recent branding studies have addressed brand love as an emotional concept in consumer-brand relationships (Albert & Merunka, 2013; Carroll & Ahuvia, 2006; Batra et al., 2012). Nonetheless, most research studies on the causes and consequences of brand love overlook neo-luxury brands. Furthermore, little is known about the cognitive, sensory, and emotional effects of brand image dimensions on brand love (Rodrigues & Rodrigues,2019; Albert & Merunka, 2013; Batra et al., 2012; Ismail & Spinelli, 2012).

Our findings show a complicated set of correlations and indicate that all of the studied dimensions of the brand image have a positive relationship with brand love. The findings, in particular, extend current research on neo-luxury branding in a number of ways. Following earlier empirical research that identified the brand image as a crucial predictor of passionate feelings about brands, one of the most important contributions is the empirical verification of the relationship between luxury brand image and luxury brand love (Rodrigues & Rodrigues, 2019; Islam & Rahman, 2016 ; Albert & Merunka, 2013; Batra et al., 2012; Ismail & Spinelli, 2012).

In addition, our results show that the concept of the brand image composed of Intimacy, Mystery, and Sensuality influences the brand's love for the neo luxury brand. In particular, these results strengthen the core role of Intimacy, which is considered to be the cognitive dimension of the brand (Cho & Fiore, 2015). This is particularly relevant because it suggests how to use Intimacy directly through the host's user experience to build brand associations. Second, our findings demonstrate that Mystery is seen as a sensory feature of a brand's image (Cho & Fiore, 2015). It has a positive impact on the brand's love. Mystery shows enthusiasm for brands that consistently use their senses across multiple dates.

However, when the brand cannot provide sensory pleasure, millennials directly interact with the product or retail environment, and the relationship between consumers and the brand will be adversely affected. Thus the results show that Gen- Y wants neo-luxury brands to show their Mystery on various occasions in order to realize their pursuit of personal well-being and pleasure (Truong et al., 2009). These findings reflect that millennials are more inclined toward neo-luxury brands that can provide excitement, pleasure, and joy to their everyday lives (Noble, 2009).

Further, the study's findings revealed that brand love has a significant effect on words of mouth, purchase intention, brand loyalty, and brand commitment. This shows that the customer's love for the brand leads to behavioral loyalties. Our findings are consistent with the existing research in this regard (Rodrigues & Rodrigues, 2019; Albert & Merunka, 2013; Batra et al., 2012). The customer's purchase intention is highly relevant in the field of marketing, particularly in the purchase of luxury products because these products are considered a symbol of status. Customer purchase intention depicts that the brand achieved the status and is loved by the prospective customers. It was revealed that love for the brand leads to words of mouth. Customers are willing to promote the luxury brands which they use. This shows the satisfaction level of the customers with the luxury brands in the developing markets contexts.

Further, the results revealed that customers' brand love leads to brand loyalty, an essential component of brand equity. Brand loyalty is a symbol of repeat purchase and preference over the other products in the same category, as this study related to consumption of high luxury products; therefore, brand loyalty has high significance in this product category. Lastly, the results revealed that brand loves significantly contributes to commitment toward luxury brands. This shows that customers have developed a deep emotional attachment with the luxury brands that depict their commitment to the luxury products class brands.

The current study was conducted in developing markets to assess customer-brand relationships. This study is highly relevant because the luxury products market in developing markets proliferates and opens opportunities for marketers. Especially in the neo-luxury products category has seen tremendous developments. Neo-Luxury brands are highly famous

among millennials in developing markets. Therefore, this study was conducted to assess the impact of luxury products on customer-brand relationships and their impact on the behavioral loyalties of the customers.

5.1   *Implications*

This research results give valuable information for brand managers to consider when building brand love strategies and applying them in marketing activities. It provides marketers insights into building brand love and increasing market share. Marketers will probably need to guarantee that their service–products are of adequate high quality to result in customer happiness, resulting in the brand image as the first phase of brand love development.

The theoretical implication outlines statistical significance and model adequacy in developing markets. This study extensively assessed and confirmed the impact of brand love antecedents in the luxury brand context. Further, it shows that brand love leads to behavioral loyalty intentions that the previous researchers have ignored. To enrich the brand customer-brand relationship in the luxury brand context, this study included customers' commitment as a consequence of brand love, a novel contribution to brand management literature. The current model of this study has comprehensively covered the different aspects of the customer-brand relationship and confirmed the significance of novel constructs in the perspective of luxury brands.

In particular, neo-luxury brands create a sense of psychological Intimacy and successfully establish a solid emotional bond with consumers. In other words, brand marketers need to realize that millennials want brands to build relationships that value people's open contributions with different ideas and opinions. As a brand image cognitive dimension, Intimacy also plays a crucial role in arousing people's enthusiasm for the brand. Luxury brands are essential for rethinking offers new thinking about the needs of millennials. Therefore, it suggested that marketers find ways to make luxury brands relevant to millennials by communicating real meaning and value to them, rather than relying solely on the luxury millennial. In this case, the interaction between millennials and the neo luxury brand must establish and maintain a consistent brand image based on Mystery and Intimacy.

The customer-brand relationship model in this study is of massive importance as it outlines a different aspect of customers' psychological constructs and focuses on brand love and its consequences. For managers of luxury brands in developing markets, it provides valuable directions regarding the establishment of brand and customer relationships. Moreover, help managers to understand the customers' inclination toward the brand. Through the outcomes of this study, managers would be able to define strategies that focus on customer retention through brand intimacy and Sensuality to increase the market share of luxury brands.

5.2   *Limitations and future research*

Although this study has tested a comprehensive model of customer-brand relations, there are some limitations to this study. First, the focus of the current study is limited to neo-luxury brands only, future researchers may take some other luxury brands. The generalizability of this study is limited to the present sample frame. Further, they can evaluate the differences among different brand categories. Secondly, three dimensions of brand image as the predictors of brand love; future studies should focus on the other antecedents of brand love identified in the literature such as brand association, sense of community, and prestige of the brand.

In addition, we only examined the influence of purchase intention, positive Word-of-Mouth, brand loyalty, and brand commitment as dependent variables. Future research should use longitudinal studies to understand the concept of brand love better. Moreover, future research could observe the moderating role of brand experience, culture, and gender on the relationship between brand love and the behavioral loyalties of the customers. Finally, in the field of neo-luxury branding, comparative research of Generation Y and Generation Z might help clarify the differences between mediation and moderation effects.

Conflict of interest: The authors do not have any conflict of interest.

References

Aaker, J. L. (1997). Dimensions of brand personality. *Journal of marketing research, 34(*3), 347-356.

Ahuvia, A. C. (1993). Market metaphors for meeting mates. *Research in Consumer Behavior, 6*, 55-83.

Ajzen, I., & Fishbein, M. (1975). A Bayesian analysis of attribution processes. *Psychological bulletin, 82*(2), 261-277.

Albert, N., & Merunka, D. (2013). The role of brand love in consumer-brand relationships. *Journal of consumer marketing, 30*(3), 258-266.

Allsop, D. T., Bassett, B. R., & Hoskins, J. A. (2007). Word-of-mouth research: principles and applications. *Journal of advertising research, 47*(4), 398-411.

Amatulli, C., & Guido, G. (2011). Determinants of purchasing intention for fashion luxury goods in the Italian market: A laddering approach. *Journal of Fashion Marketing and Management, 15*(1), 123-136.

Assael, L. A. (1998). Manual of Internal Fixation in the Cranio-Facial Skeleton.: Techniques as recommended by the AO/ASIF-Maxillofacial Group. Springer Science & Business Media.

Bairrada, C.M., Coelho, F., & Coelho, A. (2018). Antecedents and outcomes of brand love: utilitarian and symbolic brand qualities. *European Journal of Marketing, 5*(3/4), 656-682.

Batra, R., Ahuvia, A., & Bagozzi, R. P. (2012). Brand love. *Journal of Marketing, 76*(2), 1-16.

Bucuta, A. (2015). A review of the specific characteristics of the generation Y consumer. In The Proceedings of the International Conference" Marketing-from Information to Decision" (p. 38).

Carroll, B. A., & Ahuvia, A. C. (2006). Some antecedents and outcomes of brand love. *Marketing letters, 17*(2), 79-89

Chaudhuri, A., & Holbrook, M. B. (2001). The chain of effects from brand trust and brand affect to brand performance: the role of brand loyalty. *Journal of Marketing, 65*(2), 81-93.

Chin, W. W. 1998. Issues and Opinion on Structural Equation Modeling. *MIS Quarterly, 22*(1), 7-16.

Chiu, C. M., Hsu, M. H., Lai, H., & Chang, C. M. (2012). Re-examining the influence of trust on online repeat purchase intention: The moderating role of habit and its antecedents. *Decision Support Systems, 53*(4), 835-845.

Cho, E., & Fiore, A. M. (2015). Conceptualization of a holistic brand image measure for fashion-related brands. *Journal of Consumer Marketing, 32*(4), 255-265.

Cho, E., & Hwang, J. (2020). Drivers of consumer-based brand equity: a two-country analysis of perceived brand origin and identity expressiveness. *International Marketing Review, 37*(2), 241-259.

Chung, C. M., & Darke, P. R. (2006). The consumer as advocate: Self-relevance, culture, and word-of-mouth. *Marketing Letters, 17*(4), 269-279.

Coelho, A., Bairrada, C., & Peres, F. (2019). Brand communities' relational outcomes, through brand love. *Journal of Product & Brand Management, 28*(2), 154-165.

Deighton, J., Henderson, C. M., & Neslin, S. A. (1994). The effects of advertising on brand switching and repeat purchasing. *Journal of marketing research, 31*(1), 28-43.

Dobni, D., & Zinkhan, G. M. (1990). In search of brand image: A foundation analysis. *Association for Consumer Research, 17*, 110-119.

Eagly, A. H., & Chaiken, S. (1993). The psychology of attitudes. Harcourt brace Jovanovich college publishers.

Ellis, F. (2000). Rural livelihoods and diversity in developing countries. Oxford university press.

Fetscherin, M. (2014). What type of relationship do we have with loved brands? *Journal of Consumer Marketing, 31*(6/7), 430-440.

Fionda, A. M., & Moore, C. M. (2009). The anatomy of the luxury fashion brand. *Journal of Brand Management, 16*(5), 347-363.

Fournier, S. (1998). Consumers and their brands: Developing relationship theory in consumer research. *Journal of consumer research, 24*(4), 343-373.

Fridman, G., Shereshevsky, A., Jost, M. M., Brooks, A. D., Fridman, A., Gutsol, A., ... & Friedman, G. (2007). Floating electrode dielectric barrier discharge plasma in air promoting apoptotic behavior in melanoma skin cancer cell lines. *Plasma Chemistry and Plasma Processing, 27*(2), 163-176.

Giovannini, S., Xu, Y., & Thomas, J. (2015). Luxury fashion consumption and Generation Y consumers: Self, brand consciousness, and consumption motivations. *Journal of Fashion Marketing and Management, 19*(1), 22-40.

Godes, D., & Mayzlin, D. (2004). Using online conversations to study word-of-mouth communication. *Marketing Science, 23*(4), 545-560.

Grewal, D., Krishnan, R., Baker, J., & Borin, N. (1998). The effect of store name, brand name and price discounts on consumers' evaluations and purchase intentions. *Journal of retailing, 74*(3), 331-352.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice, 19*, 139-152.

Hair, J.F., Black, W.C., Babin, B.J. and Anderson, R.E. (2010) *Multivariate Data Analysis*. 7th Edition. Pearson, New York.

Hameed, I., Hyder, Z., Imran, M., & Shafiq, K. (2021). Greenwash and green purchase behavior: an environmentally sustainable perspective. *Environment, Development and Sustainability, 23*, 13113–13134

Hameed, I., Waris, I., & Amin ul Haq, M. (2019). Predicting eco-conscious consumer behavior using theory of planned behavior in Pakistan. *Environmental Science and Pollution Research, 26*(15), 15535-15547.

Hennigs, N., Wiedmann, K. P., Klarmann, C., Strehlau, S., Godey, B., Pederzoli, D., ... & Oh, H. (2012). What is the value of luxury? A cross-cultural consumer perspective. *Psychology & Marketing, 29*(12), 1018-1034.

Hennig-Thurau, T., Gwinner, K. P., Walsh, G., & Gremler, D. D. (2004). Electronic word-of-mouth via consumer-opinion platforms: what motivates consumers to articulate themselves on the internet? *Journal of interactive marketing, 18*(1), 38-52.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the academy of marketing science, 43*(1), 115-135.

Henseler, J., Ringle, C.M., & Sinkovics, R.R. (2009). The use of partial least squares path modeling in international marketing. Sinkovics, R.R. and Ghauri, P.N. (Ed.) New Challenges to International Marketing *(Advances in International Marketing, Vol. 20)*, Emerald Group Publishing Limited, Bingley, pp. 277-319.

Islam, J. U., & Rahman, Z. (2016). Examining the effects of brand love and brand image on customer engagement: An empirical study of fashion apparel brands. *Journal of global fashion marketing, 7*(1), 45-59.

Ismail, A. R., & Melewar, T. C. (2015). Binational study of the impact of brand image, brand personality and brand love on Word of mouth: The case of fashion brands in UK and Switzerland. In Marketing Dynamism & Sustainability: *Things Change, Things Stay the Same...* (pp. 462-471). Springer, Cham.

Ismail, A. R., & Spinelli, G. (2012). Effects of brand love, personality and image on Word of mouth: The case of fashion brands among young consumers. Journal of Fashion Marketing and Management: *An International Journal, 16*(4), 386-398.

Kapferer, J. N., & Laurent, G. (2016). Where do consumers think luxury begins? A study of perceived minimum price for 21 luxury goods in 7 countries. *Journal of Business Research, 69*(1), 332-340.

Karjaluoto, H., Munnukka, J., & Kiuru, K. (2016). Brand love and positive Word of mouth: the moderating effects of experience and price. *Journal of Product & Brand Management, 25*(6), 527-537.

Keller, J. M. (2008). First principles of motivation to learn and e3-learning. *Distance education, 29*(2), 175-185.

Keller, K. L. (1993). Conceptualizing, measuring, and managing customer-based brand equity. *Journal of Marketing, 57*(1), 1-22.

Kim, A. J., & Ko, E. (2012). Do social media marketing activities enhance customer equity? An empirical study of luxury fashion brand. *Journal of Business Research, 65*(10), 1480-1486.

Kudeshia, C., Sikdar, P., & Mittal, A. (2016). Spreading love through fan page liking: A perspective on small scale entrepreneurs. *Computers in Human Behavior, 54*, 257-270.

Kumar, A., & Lim, H. (2008). Age differences in mobile service perceptions: comparison of Generation Y and baby boomers. *Journal of services marketing, 22*(7), 568-577.

Maisam, S., & Mahsa, R. D. (2016). Positive Word of mouth marketing: Explaining the roles of value congruity and brand love. *Journal of Competitiveness, 8*(1), 19-37.

Manzoor, A., & Shaikh, K. A. (2016). Brand equity and purchase intention: the Indian automobile industry. *Pakistan Business Review, 18*(3), 635-654.

Martin, W. C., & Lueg, J. E. (2013). Modeling word-of-mouth usage. *Journal of Business Research, 66*(7), 801-808.

Mundel, J., Huddleston, P., & Vodermeier, M. (2017). An exploratory study of consumers' perceptions: what are affordable luxuries? *Journal of Retailing and Consumer Services, 35*, 68-75.

Nawaz, S., Jiang, Y., Alam, F., & Nawaz, M. Z. (2020). Role of brand love and consumers' demographics in building consumer–brand relationship. *SAGE Open, 10*(4), 1-19.

Noble, W. S. (2009). How does multiple testing correction work?. *Nature biotechnology, 27*, 1135-1137.

Oliver, R. L. (1999). Whence consumer loyalty?. *Journal of Marketing, 63*,33-44.

Patwardhan, H., & Balasubramanian, S.K. (2011). Brand romance: a complementary approach to explain emotional attachment toward brands. *Journal of Product & Brand Management, 20*(4), 297-308

Reichheld, F.F., & Sasser, E. (1990) Zero Defections: Quality Comes to Services. *Harvard Business Review, 68*, 105-111.

Rodrigues, C., & Rodrigues, P. (2019). Brand love matters to Millennials: the relevance of Mystery, Sensuality and Intimacy to neo-luxury brands. *Journal of Product & Brand Management, 28*(7), 830-848.

Sasmita, J., & Suki, N. M. (2015). Young consumers' insights on brand equity: Effects of brand association, brand loyalty, brand awareness, and brand image. *International journal of retail & distribution management, 43*(3), 276-292.

Shin, H., Eastman, J. K., & Mothersbaugh, D. (2017). The effect of a limited-edition offer following brand dilution on consumer attitudes toward a luxury brand. *Journal of Retailing and Consumer Services, 38*, 59-70.

Singh, D., Bajpai, N., & Kulshreshtha, K. (2021). Brand experience-brand love relationship for Indian hypermarket brands: The moderating role of customer personality traits. *Journal of Relationship Marketing, 20*(1), 20-41.

Song, H., Bae, S. Y., & Han, H. (2019). Emotional comprehension of a name-brand coffee shop: focus on love marks theory. *International Journal of Contemporary Hospitality Management, 31*(3), 1046-1065.

Soomro, Y. A., Hameed, I., Bhutto, M. Y., Waris, I., Baeshen, Y., & Al Batati, B. (2022). What Influences Consumers to Recycle Solid Waste? An Application of the Extended Theory of Planned Behavior in the Kingdom of Saudi Arabia. *Sustainability, 14*(2), 998.

Sreejesh, S., & Roy, S. (2015). A new consumer brand relationships framework. In Consumer brand relationships (pp. 165-197). Palgrave Macmillan, London.

Sternberg, R. J. (1986). A triangular theory of love. *Psychological Review, 93*(2), 119-135.

Sung, Y., & Kim, J. (2010). Effects of brand personality on brand trust and brand affect. *Psychology & Marketing, 27*(7), 639-661.

Traylor, M. B. (1981). Product involvement and brand commitment. *Journal of Advertising Research, 21*(6), 51–56.

Truong, Y., McColl, R., & Kitchen, P. J. (2009). New luxury brand positioning and the emergence of masstige brands. *Journal of Brand Management, 16*(5), 375-382.

Waris, I., Dad, M., & Hameed, I. (2021). Promoting environmental sustainability: The influence of knowledge of eco-labels and altruism in the purchase of energy-efficient appliances. *Management of Environmental Quality: An International Journal, 32*(5), 989-1006.

Waris, I., Farooq, M., Hameed, I., & Shahab, A. (2021). Promoting sustainable ventures among university students in Pakistan: an empirical study based on the theory of planned behavior. *On the Horizon, 29*(1), 1-16.

Ziaullah, M., Feng, Y., Shumaila, N. S., & Saleem, A. (2015). An investigation of justice in supply chain trust and relationship commitment-An empirical study of Pakistan. *Journal of Competitiveness, 7*(1), 71-87.

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