

Personality and Performance: How Innovative Work Behavior Mediates the Effect of Big Five Traits on IT Project Success in Pakistan?

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Abstract

The primary aim of this research is to catalyze a shift in focus towards the enhancement of personal and organizational factors within the IT industry. By drawing attention to the importance of refining employees' personality traits and fostering a conducive organizational environment, the study advocates for a strategic approach to mitigate the high failure rates of IT projects in Pakistan. Moreover, it posits that innovative work behavior (IWB) plays a crucial role in the equation of project success, despite with the acknowledgment that such behaviors cannot be fully controlled or mandated. The study adopts a quantitative approach within a positivist framework to explore how the Big Five Personality Traits influence project success, mediated by Innovative Work Behavior in Pakistan's dynamic software industry. A convenient sampling method was used to minimize biases, ensuring greater data reliability. The analysis was based on responses to a structured questionnaire. The findings of this quantitative study provide compelling evidence that project success in Pakistan's IT firms is significantly mediated by employees' innovative work behavior, which, in turn, is driven by the Big Five personality traits: Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. Through the application of a comprehensive suite of statistical tests, the study not only establishes the validity and reliability of the proposed model but also underscores the critical role of personality traits and innovative behaviors in influencing project outcomes. The study underlines the importance of leveraging individual differences in personality traits to foster a culture of innovation in IT project management. By identifying and nurturing specific traits conducive to innovation, organizations can improve their project success rates. Recommendations for management practices include targeted recruitment strategies, tailored training programs, and leadership development aimed at enhancing the innovative capacities of IT professionals. This research contributes to the field by providing empirical evidence on how personality traits directly influence project success through innovative work behavior in Pakistan's IT sector. By applying a robust theoretical framework, this study highlights the critical role of individual differences in driving innovation within technology projects.

Keywords: Innovation, Big Five Personality, Innovative Work Behavior, IT Project Success, Trait Activation Theory

Introduction

The role of personality in the workplace, particularly within the context of project performance, presents a fascinating area of study that intersects psychology, management science, and organizational behavior. The focus of this study is the "Big Five" Model of Personality (BFM), a conceptual framework first outlined by D.W. Fiske in 1949. This model categorizes human personality traits into five broad dimensions: Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. These dimensions offer a comprehensive lens through which the impact of personality on project success (PS) can be examined, especially when considering the mediating role of Innovative Work Behavior (IWB).

The BFM has evolved to become a cornerstone in understanding how individual differences affect a variety of workplace outcomes, including job satisfaction, commitment, and, notably, project performance. The research underscores the connection between personality types and creative performance, suggesting that individuals with high levels of purpose, commitment, and perseverance are more likely to excel in project tasks (Cheng, Liang, and Mark, 2014). Such findings align with the broader literature, which consistently points to personality as a significant predictor of job satisfaction and, by extension, project success (Le-Pine, & Wesson, 2009).

The BFM provides a framework for comprehending the intrinsic characteristics that propel individuals towards innovation and success in project-oriented work. Openness to Experience, for instance, is linked with creativity and a willingness to explore new ideas, a trait crucial for tackling complex project challenges. Conscientiousness, characterized by reliability and a strong work ethic, directly influences an individual's ability to meet project deadlines and maintain high standards of work. Extraversion, with its emphasis on sociability and assertiveness, can enhance team communication and dynamics, critical elements in project

management. Agreeableness, indicating cooperativeness and flexibility, and Neuroticism, relating to emotional stability, also play significant roles in shaping how team members interact and respond to project stresses and challenges.

IWB emerges as a key mediating variable in the relationship between personality traits and project success. It represents the capacity of individuals to not only generate new and useful ideas but also to realize them, thus directly impacting project outcomes. The innovative behaviors of team members, fueled by their personality traits, can significantly influence the efficiency, creativity, and overall success of projects. For instance, a team composed of members high in Openness and Conscientiousness may be more adept at navigating the uncertainties of project work and implementing innovative solutions to unforeseen problems.

This study aims to delve deeper into the association between the Big Five personality traits (BFT) of project team members and project success, with a specific focus on the mediating role of IWB. By examining how each personality dimension influences, either positively or negatively, the innovative behaviors that contribute to project achievements, the research seeks to provide valuable insights for project managers and organizational leaders. Hypotheses will be formulated to test the direct effects of each Big Five trait on project success, as well as the extent to which IWB mediates these relationships.

Problem Statement

Researchers (Khurshid et al., 2024) shed light on a critical challenge within Pakistan's IT industry, highlighting a concerning project failure rate of 40%, which starkly contrasts with lower failure rates in countries with developed IT sectors. This significant disparity underscores the pivotal role of project management competencies, employee performance, and various personality factors in ensuring project success. These elements, when inadequately addressed, lead to substantial inefficiencies, including cost overruns, delays, and quality issues, ultimately affecting the competitive

standing and sustainability of IT projects and firms within Pakistan. The primary aim of this research is to catalyze a shift in focus towards the enhancement of personal and organizational factors within the IT industry. By drawing attention to the importance of refining individual employees' personality traits and fostering a conducive organizational environment, the study advocates for a strategic approach to mitigate the high failure rates of IT projects in Pakistan. Moreover, it posits that innovative work behavior (IWB) plays a crucial role in the equation of project success, albeit with the acknowledgment that such behaviors cannot be fully controlled or mandated.

Significance of the Study

By exploring the nuanced ways in which personality traits and innovative work behaviors intersect to influence project success, this study will contribute to the existing body of knowledge in several important ways. It will provide project managers and organizational leaders with a deeper understanding of the human factors that drive project outcomes, enabling more effective team composition and management strategies. Additionally, by highlighting the critical role of innovative work behaviors in mediating the relationship between personality and project success, the research will offer insights into how organizations can foster a culture that supports innovation and creativity. This study represents a significant step forward in understanding the complex dynamics of personality, innovation, and project performance. Through a detailed examination of the Big Five personality traits and their impact on project success, mediated by innovative work behaviors, the research will shed new light on the factors that contribute to effective project management and organizational success.

The association between employees' personalities and their innovative capacities emerges as a fundamental theme in addressing the IT project failure dilemma. The research underscores the notion that successful IT project completion is not merely a matter of employing advanced tools and techniques; rather, it hinges on the ability of project personnel to effectively select, adapt, and implement these resources in a

manner that aligns with project objectives. This adaptability and resourcefulness are directly influenced by individuals' personality traits, such as openness to experience, conscientiousness, and extraversion, which predispose them towards creative problem-solving and innovative thinking.

Therefore, enhancing personal and project dimensions is integral to reducing project failure rates and improving overall performance within Pakistan's IT industry. The study also contextualizes theoretical exploration by the unique challenges and opportunities within Pakistan's IT sector. Cultural, organizational, and economic factors in Pakistan may influence the expression of personality traits and the manifestation of innovative work behaviors, thereby affecting project success rates. Understanding the specific dynamics at play in Pakistan's IT industry provides deeper insights into how personality and innovation interact to drive project performance.

Research Gap

This research sets out to bridge up the gap between the potential for success in IT projects and the current high failure rates observed in Pakistan's IT sector. By advocating for a holistic approach that encompasses the refinement of both personal and project factors of Organization, along with a recognition of the pivotal role of innovative work behavior, the study aims to inspire a renewed focus on developing the human and structural capital within IT firms. Ultimately, this research seeks to contribute to a paradigm shift that not only addresses the immediate challenges of project failure but also lays the groundwork for sustained growth and competitiveness in the global IT landscape.

Literature Review

The connection between personality traits and organizational outcomes has been a focal point of organizational behavior research, highlighting how individual differences impact performance, innovation, creativity, and attitudes within the workplace.

Big Five Traits and Innovative Work Behavior

The Big Five personality traits model, comprising Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience, serves as a foundational framework for understanding these dynamics (Judge et al., 2013). Extraversion, characterized by sociability and assertiveness, is posited as a significant driver of team collaboration and creativity, fostering an environment conducive to innovation (Leary & Hoyle, 2010). In contrast, Agreeableness relates to an individual's propensity for being cooperative, friendly, and compassionate, which as per researchers (Barrick & Mount, 2002) enhances interpersonal relations and collaborative efforts within teams. Conscientiousness denotes a person's tendency towards reliability, organization, and diligence, aspects closely associated with job performance and attention to detail (Costa, 2003). The literature suggests that conscientious individuals contribute positively to project outcomes by ensuring tasks are completed efficiently and effectively. Openness to Experience, reflecting a person's openness to new ideas and experiences, has been linked to creativity and innovation, especially in roles with lower job autonomy (Zhou, 2010; Costa, 2003). This trait's contribution to innovative work behavior underscores the importance of fostering a work environment that encourages creativity and adaptability. Neuroticism, often associated with emotional instability, presents a complex relationship with workplace outcomes. Conversely, research (Mähring et al., 2008) indicates that neuroticism may drive creativity and innovation by prompting individuals to approach tasks with heightened sensitivity and awareness of potential issues.

Innovative Work Behavior and Project Success

The concept of Innovative Work Behavior (IWB) encompasses the generation, promotion, and implementation of ideas within an organizational setting (West, 2002). Recent studies advocate for a multifaceted view of IWB, recognizing its complex nature and the varying antecedents that influence different aspects of

innovative behavior (Mahfooz et al., 2023). IWB involves behaviors that are directed toward the initiation and intentional introduction of new and useful ideas, processes, products, or procedures within a work role, group, or organization. IWB encompasses several stages, including idea generation, idea promotion, and idea realization (Khan et.al, 2020).

Project Success and Big Five Model

The discourse on project success within project management literature has evolved, moving beyond traditional metrics of time, cost, and scope to include factors such as strategic alignment and organizational benefits (Anantatmula & Kanungo, 2008). Critical Success Factors (CSFs) have been identified as essential elements in achieving project objectives, with an increasing recognition of the role of soft skills and personality traits in influencing project outcomes (Qazi et al., 2016). Project success is increasingly seen as multifaceted, encompassing both internal effectiveness and external efficacy.

Based on the above literature we hypothesized that:

H₁: PS is significantly predicted by IWB and BFT.

Mediating Role of IWB between Big Five Traits and Project Success

This broader perspective acknowledges the significant influence of project employees' personality traits and innovative behaviors on achieving successful project outcomes (Ojiako et al., 2008). The literature underscores the critical role of personality traits and IWB in driving project success. By adopting an interactionist approach that considers both personal and contextual variables, organizations can better leverage individual differences to foster innovation and achieve project objectives. This comprehensive understanding of the determinants of project success is instrumental in guiding project management practices and strategies within the dynamic and complex landscape of organizational behavior. Therefore we hypothesized that:

H₂: IWB mediates between BFT and PS

Theoretical Framework and Model

Our theoretical framework is based on theory knitting for integrating various theoretical perspectives to form a cohesive understanding of complex phenomena. In the case of understanding Innovative Work Behavior (IWB) through the lenses of Trait Activation Theory and the Big Five Model, the association between personality and innovative outcomes in the workplace is explored. Let's weave together these theories with the IWB framework to form a comprehensive theoretical tapestry. Trait Activation Theory suggests that the environment plays a crucial role in activating certain personality traits that can lead to IWB. For instance, a workplace that encourages autonomy and creative thinking may activate traits like Openness and Extraversion, fostering idea generation and promotion. Conversely, an environment that is highly structured and emphasizes routine may not activate these traits, potentially stifling innovation. Additionally, each dimension of the Big Five can be linked to different aspects of IWB.

For instance, Openness is closely associated with the ability to generate novel ideas. Conscientiousness, while beneficial for the realization and implementation of ideas, might be negatively correlated with IWB in highly regulated environments, as it may lead to higher conformity. Extraversion can facilitate idea promotion through better social interactions and networking. Research of Big Five traits and their impact on IWB has identified, Openness and Conscientiousness as significant predictors, although findings have been mixed (Baer, 2010). This nuanced relationship between personality traits and innovative outcomes necessitates an interactionist perspective that considers the influence of contextual factors alongside individual differences (Ng & Feldman, 2013; Hulsheger et al., 2009). The literature emphasizes the importance of understanding the conditions under which personality traits can most effectively contribute to innovative outcomes.

This framework can be enriched by considering how different personality traits influence the various stages of IWB. For instance, trait activation can be seen as a mechanism that explains why and how certain personalities contribute to idea generation, promotion, and realization in specific organizational contexts. By knitting together Trait Activation Theory, the Big Five Model, and the IWB framework, a more nuanced understanding of how personality and environmental factors interact to influence innovative behavior in the workplace can be explored. This integrated approach highlights the importance of aligning work environments with individual traits to foster innovation, suggesting that organizations should consider both personality and situational factors when designing roles, teams, and innovation strategies.

Figure 1

Conceptual Framework (Hayes, 2013)

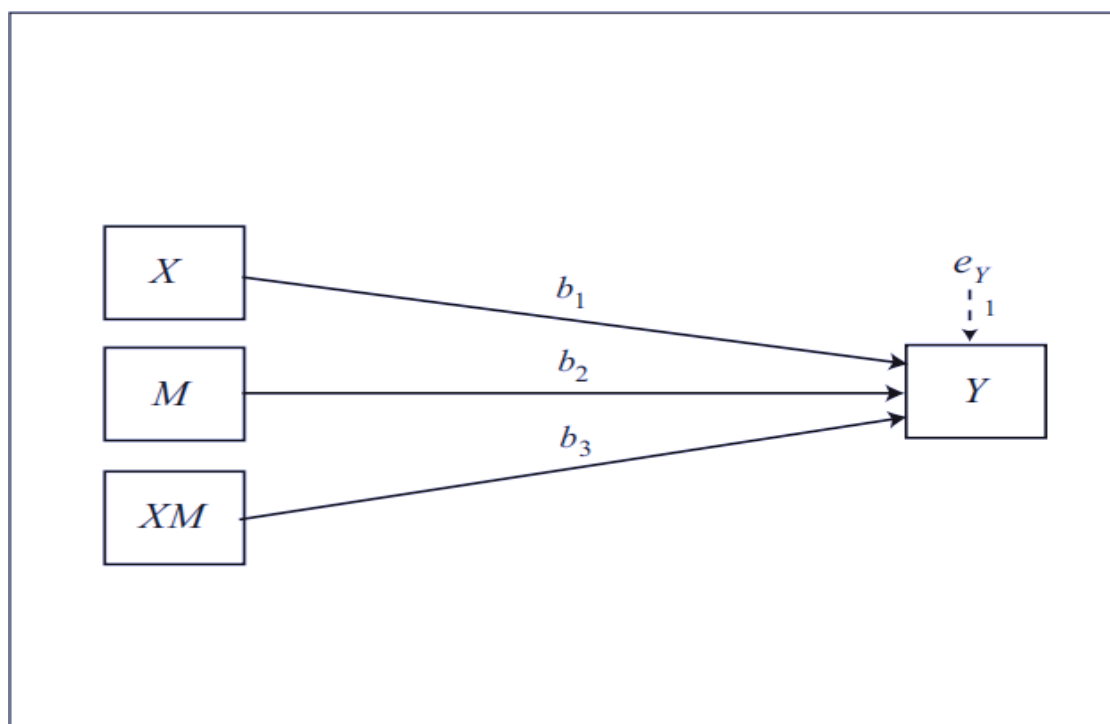
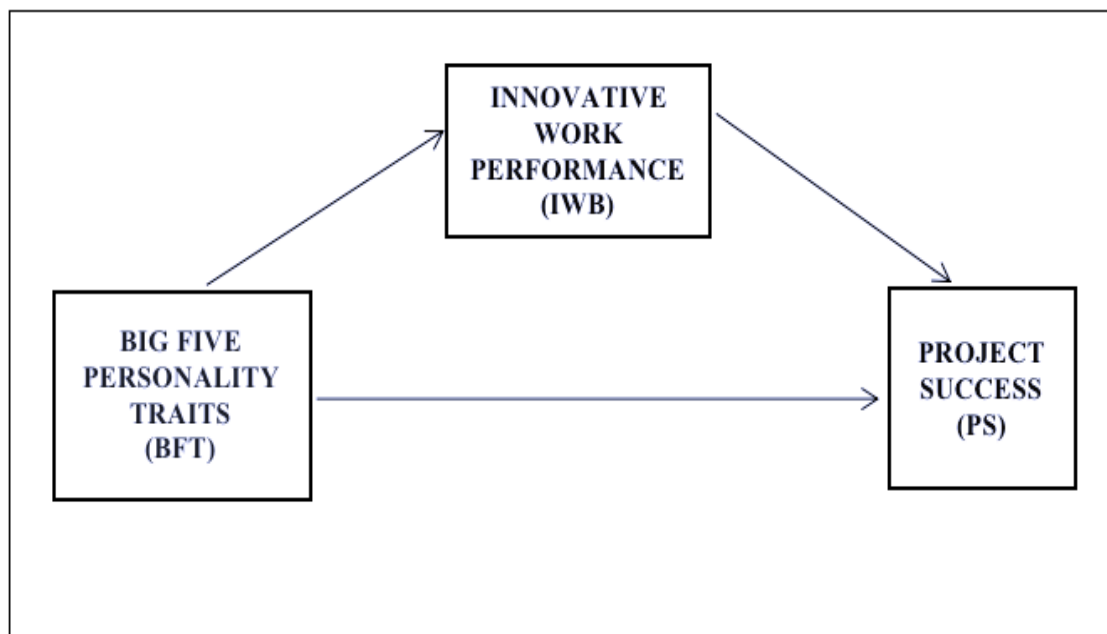


Figure 2

Research Model



Methodology

Research Design

The study adopts a quantitative methodology, leveraging a positivist framework to scrutinize the influence of the Big Five Personality Traits on Project Success, with a specific focus on the mediating effect of Innovative Work Behavior (IWB).

Sample Design

Population and Sample

The research focuses on the impact of team personality traits on project success in Pakistan's software houses. Software houses were chosen for their need for creativity and innovation due to rapidly changing IT trends and technologies. The target population was team members and managers directly involved in projects. The population comprises Pakistan's expanding IT sector, which includes 2000 companies, 13 Software Technology Parks, and a workforce of 300,000 IT professionals, alongside

a robust output of 20,000 IT graduates annually ("Information Technology | Board of Investment", 2020).

Sample Selection

The data collection was done through physical visits to organizations and Online (via Google Forms). As our research population is known (finite), Cochran's Formula (1977) was used for sample calculation according to which the estimated sample size was 380.

Sampling Technique

The convenient Sampling technique, which is a non-probability sampling method, was used for data collection. This sampling technique is preferred because it eliminates the biases from the process of data collection hence increasing data accuracy and reliability.

Instrument selection

Embracing a deductive approach, the research hypotheses were tested through a structured questionnaire survey, meticulously designed to capture the nuanced association between personality traits and project outcomes within IT firms. The designed instrument comprised 68 questions based on four aspects: 1) Demographic profiles of respondents, 2) BFT of personality, 3) Innovative Work Behavior, and 4) Project Success. There were 5 items for the demographic profile of project team members, 10 items for IWB, 44 items (total) for BFT of Personality, and 9 items for PS. The questionnaire was based on a five-point Likert scale (1-5; Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree).

Variables and their measures

The following table briefly depicts the instrument structure and literature reference.

Table 1

Instrument Structure

Variables	Dimensions	Items	Scale Reliability	Reference
Demographic		5	-	-
Profile				
BFT- Big Five	5	44	0.79– 0.84	(John &
Personality Traits	O-Openness to Experience	10		Srivastav
	C- Conscientiousness	9		a,1999).
	E- Extraversion	8		(McCrae &
	A- Acceptance	9		Costa, 1987)
	N- Neuroticism	8		
IWB- Innovative	1	10	0.89	De Jong
Work Behavior		3		and Den
		2		Hartog (2010)
		2		
		3		
PS- Project Success	1	9	0.875	(Muller &
				Turner, 2010)
Total		68		

Data Analysis

The study utilized surveys for data collection, analyzing the results with SPSS and further exploring the variables' structural relationships through Structural Equation Modeling (SEM), specifically using SMART PLS 4.0. This approach, supported by the effectiveness of PLS-SEM for complex models (J. Hair et al., 2017), allowed for an in-depth examination of the interactions between latent and observed variables. PLS-SEM provided a rigorous statistical foundation for validating hypotheses, offering insights into how personality traits impact project success in Pakistan's IT industry, thereby contributing significantly to the understanding of project success determinants.

Results

A statistical analysis of the data collected through the questionnaire was undertaken to evaluate and verify the study model.

Construct reliability and validity

Table 2

Reliability Statistics

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted
BFT	0.800	0.841	0.847	0.529
IWB	0.856	0.901	0.889	0.445
PS	0.844	0.885	0.875	0.431

Table 2 demonstrates that all constructs exhibit strong psychometric properties. The Cronbach's Alpha values, ranging from 0.80 to 0.90, indicate high internal consistency, ensuring that the items within each construct are closely related. Composite reliability values, also above 0.70, further confirm the reliability of these constructs. Additionally, the Average Variance Extracted (AVE) values from 0.40 above, establish good convergent validity, showing that the constructs capture a substantial amount of their intended content. Overall, the constructs are both reliable and valid, providing confidence in the measurement model's ability to accurately capture the theoretical constructs of interest.

Exploratory Factor Analysis (EFA)

EFA is applied to a research problem to find patterns and links in the data or to validate preexisting hypotheses.

Table 3

Total Variance Explained

Component	Initial Eigenvalues	Total Variance	% of Variance	Cumulative %	Extraction Sums of Squared	Rotation Sums of Squared
					Total	Total
1	5.106	18.912	18.912	18.912	5.106	4.585
2	3.171	11.744	30.656	30.656	3.171	2.942

3	2.68	9.928	40.583	2.68	9.928	40.583	2.841
4	2.477	9.175	49.758	2.477	9.175	49.758	2.987
5	2.08	7.703	57.461	2.08	7.703	57.461	2.628
6	1.786	6.613	64.074	1.786	6.613	64.074	2.58
7	1.522	5.637	69.712	1.522	5.637	69.712	1.704
8	1.324	4.902	74.614				
9	1.206	4.465	79.079				
10	1.013	3.753	82.832				
11	0.907	3.36	86.192				
12	0.699	2.589	88.781				
13	0.609	2.254	91.035				
14	0.481	1.783	92.818				
15	0.401	1.485	94.302				
16	0.346	1.283	95.586				
17	0.323	1.197	96.782				
18	0.26	0.962	97.745				
19	0.181	0.672	98.417				
20	0.133	0.493	98.909				
21	0.132	0.49	99.4				
22	0.104	0.385	99.784				

23	0.041	0.152	99.937
24	0.009	0.034	99.97
25	0.004	0.016	99.986
26	0.003	0.011	99.998
27	0.001	0.002	100

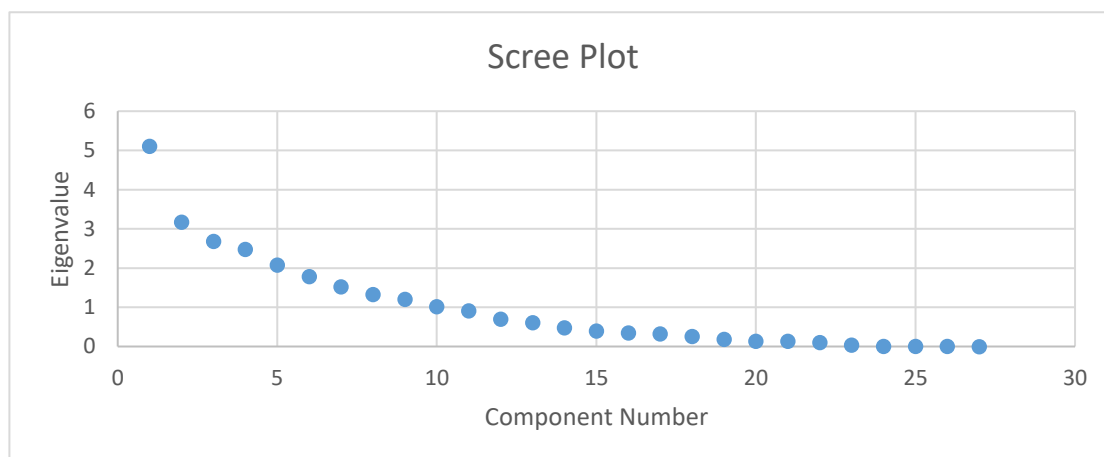
Extraction Method: Principal Component Analysis.

When components are correlated, sums of squared loading cannot be added to obtain a total variance.

Table 3 depicts 3 factors (selected) that have eigenvalue >1 and these 7 factors overall (total) attribute 69.7 % (70% approx) of the total variation.

Figure 3

Scree Plot



The figure depicts the curve starting to deviate downwards to be parallel to the x-axis from 6-7 value on the x-axis hence 7 factors were finalized.

Pattern Matrix

Pattern matrix offer helpful details about the item's factor loading. The number of variables per factor or component determines its strength and repeatability. On the pattern matrix, every item that loads onto to factor should have a score higher than 0.40.

Table 4

Pattern Matrix

	Component						
	1	2	3	4	5	6	7
PS7	0.859						
PS8	0.719						
PS9	0.617						
PS1	0.803						
PS4	0.936						
PS3	0.905						
PS6							
IWB_IC2		0.866					
IWB_III		0.823					
IWB_IE2		0.923					
IWB_IE3		0.754					

BFT_E8	0.835		
BFT_E2	0.791		
BFT_E3	0.651		
BFT_E7	0.472		
BFT_O5		0.885	
BFT_O2		0.767	
BFT_O1		0.609	
BFT_A7			0.55
BFT_A1			0.685
BFT_A6			0.408
BFT_N4			0.838
BFT_N5			0.62
BFT_N8			0.575
BFT_C2			0.822
BFT_C3			0.816
BFT_C7			0.627

Extraction Method: Principal Component Analysis.

Rotation Method: Promax with Kaiser Normalization. a

a Rotation converged in 15 iterations.

In Table 4, the pattern matrix displays the loading of each item onto the seven components, as you can see in the result. The fact that there are seven separate factors,

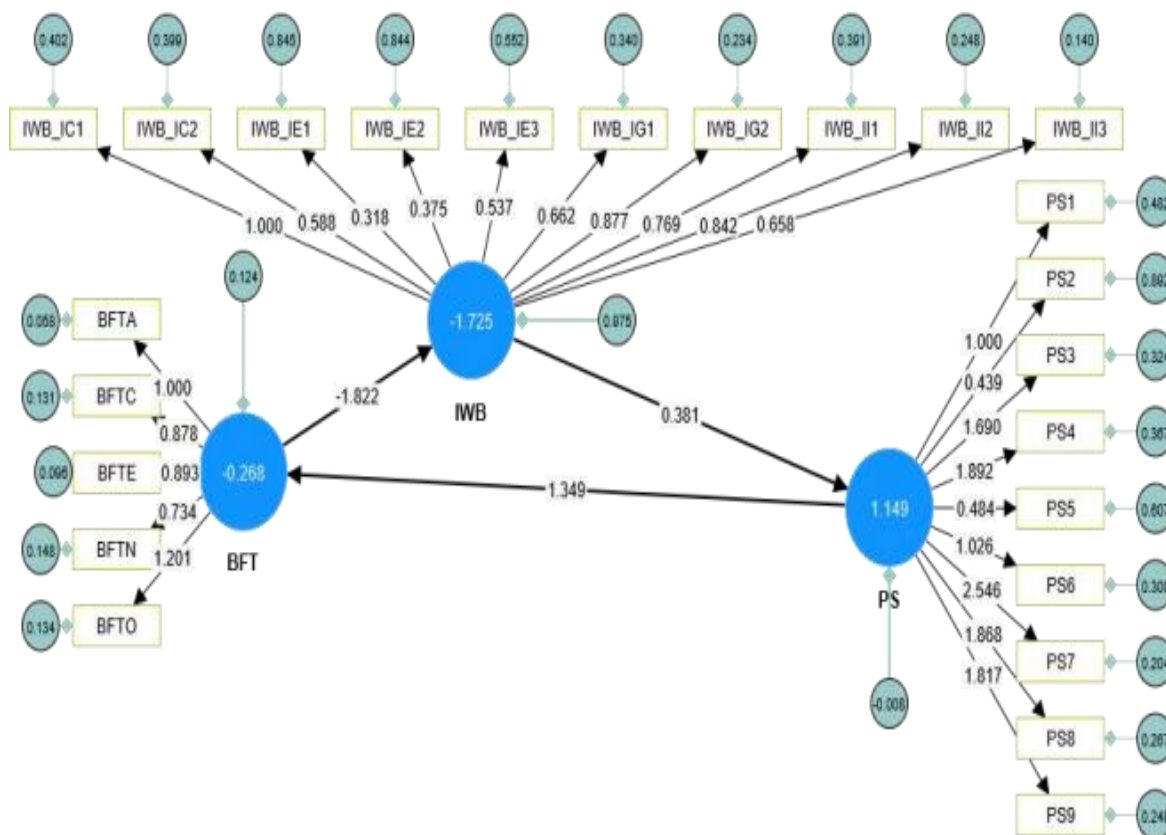
none of which has a bad loading (i.e., <.40) or a cross-loading (having scores greater than 40 on more than one factor) indicates that this is an optimal factor loading. Items that have poor loading or cross-loading would be eliminated for the upcoming EFAs.

Confirmatory Factor Analysis

The goal of CFA is to verify the underlying factor structure of a given collection of observed variables by statistical means.

Figure 4

Measurement Model (Proposed items)

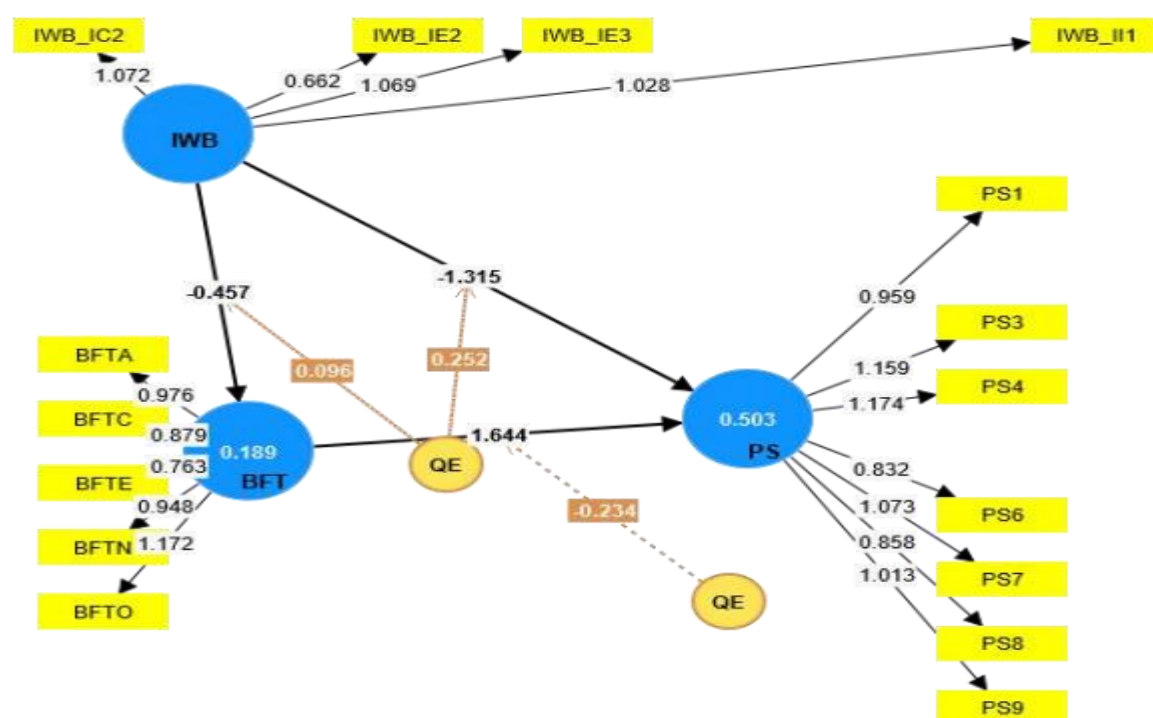


The proposed measurement model consists of seven reflective constructs (i.e., BFT: O, C, E, A, N; IWB & PS). To validate the measurement, model the assessment

criteria relevant to the reflective model were applied. Confirmatory factor analysis is used to determine the model's reliability and validity.

Figure 5

Structural Model (Item Reduction)



The items IW_IC1, IW_IC2, IWB_IE1, IWB_IG1, IWB_IG2, and IWB_II2 of Individual Work Behavior and PS2, PS5 of Project Success had low loading and hence were excluded. Most of the majority of CR values are more than 0.7, as can be observed. As a result, the structure's dependability and internal consistency are confirmed (Finch and Bronk, 2011). This shows that the model's convergence validity is strong (Albright and Park, 2009).

Table 5

Path Coefficients List and Indirect Effects

Path coefficients		Total Effects	Indirect Specific effects	indirect
BFT -> PS	1.644	1.644		
IWB -> BFT	-0.457	-0.457		
IWB -> PS	-1.315	-2.066		
QE (IWB) -> BFT	0.096	0.096		
QE (IWB) -> PS	0.252	0.409		
QE (BFT) -> PS	-0.234	-0.234		
IWB -> BFT -> PS				-0.751
QE (IWB) -> BFT -> PS				0.157

Regression Analysis

H₁: PS is significantly predicted by IWB and BFT.

Table 6

Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics

	R	F	df1	df2	Sig.
.785a	0.616	0.614	0.6216		
	R Square Change	F Change	df1	df2	Sig. Change
	0.616	301.991	2	377	0

a Predictors: (Constant), Zscore: IWB, Zscore: BFT

The R and R² values are shown in Table 6. The "R" Column's R-value, or simple correlation, is 0.785, indicating a high level of correlation. The independent variables, BFT & IWB, can account for a certain amount of the overall variance in the dependent variable, PS, as indicated by the R² value (the "R Square" column). This is a highly significant situation where 61.6% can be explained.

Table 7

Anova

	Sum of Squares	df	Mean Square	F	Sig.
Regression	233.347	2	116.673	301.991	.000b
Residual	145.653	377	0.386		
Total	379	379			

a Dependent Variable: Zscore: PS

b Predictors: (Constant), Zscore: IWB, Zscore: BFT

Table 7 is an Anova Table which demonstrates the regression model's statistical relevance. In this case, $p < 0.0005$, or less than 0.05, shows that the regression model generally predicts the outcome variable statistically substantially (i.e., it fits the data well). When IWB is added with BFT, the $p < 0.05$ so the model is predicting Project Success statistically substantially.

Mediation Analysis

Mediation can generally (and hence in R) be assessed by plotting the simple slopes of the interaction, if it exists, and interacting variables of interest. The following tables depict the mediation effect of IWB.

H₂: IWB mediates between BFT and PS

Table 8

Model Summary

R	R ²	MSE	F	Df1	Df2	P
0.784	0.63	0.072	213.418	3	376	0
Model	Coeff	SE	t	p	LLCI	ULCI
Constant	-3.448	1.513	-2.279	0.023	-6.424	-0.473
BFT	1.202	0.421	2.855	0.005	0.374	2.03
IWB	2.344	0.403	5.809	0	1.55	3.137
Int_1	-0.425	0.111	-0.385	0	-0.644	-0.206

Innovative Work Behavior (IWB) served as a mediator, Project Success (PS) as the dependent, and Big Five Personality Traits (BFT) as the predictor in a mediation test.

Table 8 shows that IWB and PS have a significant main effect [b= 1.202, CI (0.374,2.03), t=2.855, p <.05], while IWB was also found to have a significant main effect [b=2.334, CI (1.55, 3.17), t=5.809, p <.05]. IWB was found to have a significant interaction with BFT and PS [b=-0.425, CI (-0.644, -0.206), t=0.385, p <.05] depicting that IWB mediates between BFT and PS.

Table 9

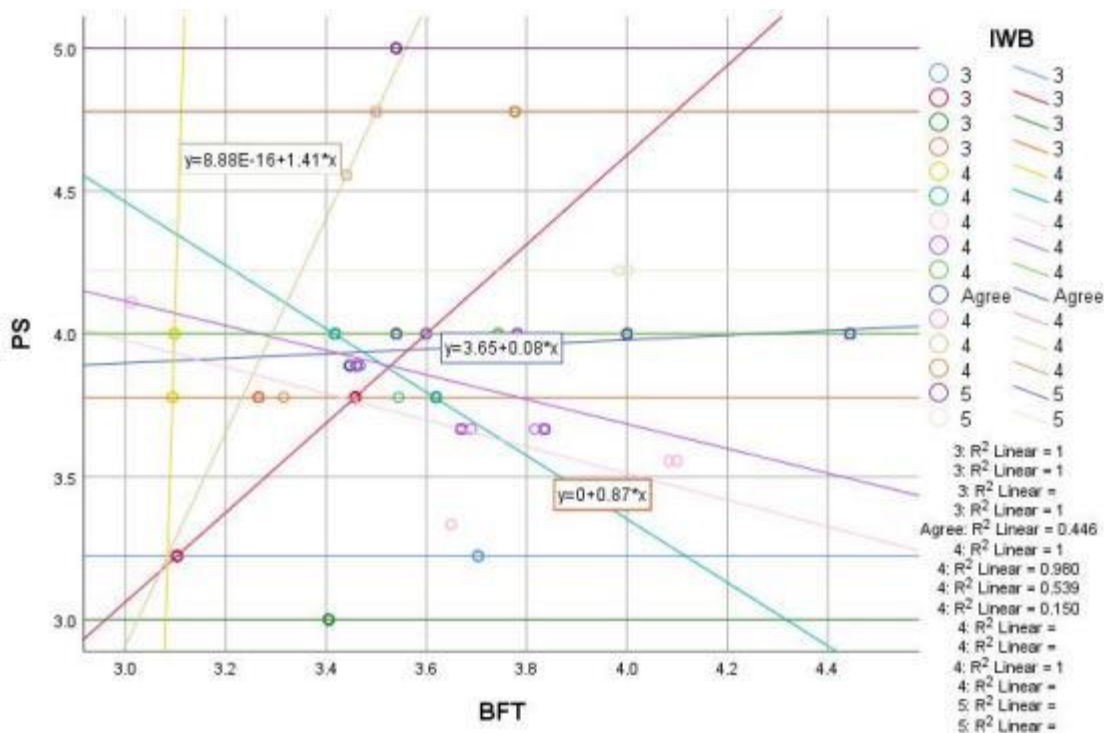
Slope Analysis

	IWB	Effect	SE	t	p	LLCI	ULCI
Average	3.319	-2.09	0.066	-3.188	0.002	-0.339	-0.08
Low (-1SD)	3.777	-404	0.044	-9.18	0	-0.491	-0.318
High (+1SD)	4.235	-0.599	0.069	-8.669	0	-0.735	-0.463

Table 9 shows conditional effects of the focal predictor BFT at values of the mediator IWB, which depicts that when compared to average levels of IWB [b= 3.319, CI (-0.339, -0.08), t=-3.188, p <.05], or lower than average levels [b= 3.777, CI (-0.491, - 0.318), t= -9.18, p <.001], it was found that participants who reported higher than average levels of IWB experienced a greater effect of BFT on PS [b= 4.235, CI (-0.735, -0.463), t=-8.669, p <.05]. From these findings, it can be inferred that IWB fully mediates the relationship between BFT and PS.

Figure 6

Mediation Plot



The figure displays the findings of a basic slope analysis that was to know about the characteristics of the mediating effects of IWB. The impact of BFT on PS is significantly stronger at the Higher level of IWB than it is at the low or average level of IWB, as demonstrated by the more steeper line for the higher level of IWB in Figure. The strength of the link between BFT and PS.

Discussion

The findings of this quantitative study provide compelling evidence that project success in Pakistan's IT firms is significantly mediated by employees' innovative work behavior, which, in turn, is driven by the Big Five personality traits: Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. Through the application of a comprehensive suite of statistical tests—including Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), Reliability Analysis, Correlation and Regression Analysis, Structural Equation Modeling (SEM),

and Mediation Analysis—the study not only establishes the validity and reliability of the proposed model but also underscores the critical role of personality traits and innovative behaviors in influencing project outcomes.

Project success (PS) in Pakistan's IT firms is significantly mediated by employees' innovative work behavior (IWB), which is driven by the Big Five personality traits (BFT). This relationship underscores the critical role that individual personality traits play in fostering behaviors that contribute to organizational goals and project outcomes. Research has shown that IWB is a vital mechanism through which the BFT influences PS, making it imperative to understand these dynamics comprehensively.

Openness to experience, one of the BFTs, is strongly associated with creativity and a proclivity for novel solutions. Employees high in openness are more inclined to engage in IWB, generating new ideas and approaches that are essential for project success. Studies have confirmed that openness facilitates the continuous improvement and adaptation necessary in the fast-paced IT sector (Mumford & Hunter, 2018; McCrae, 2020). The creative initiatives taken by these employees often lead to innovative solutions that enhance project outcomes, demonstrating the direct impact of this trait on PS through IWB.

Conscientiousness, characterized by diligence, reliability, and meticulousness, also plays a pivotal role. Conscientious employees ensure that innovative ideas are not only generated but also systematically implemented. Their organized approach and strong work ethic support the effective execution of innovative solutions, thereby contributing significantly to project success. Research has highlighted the importance of conscientiousness in ensuring that projects meet their deadlines and quality standards, reinforcing its critical role in the mediation process (Barrick, Mount, & Li, 2019; Zhao & Seibert, 2020).

Extraversion influences IWB through enhanced communication and collaboration. Extraverted individuals are effective in sharing their ideas and

persuading others, fostering a collaborative environment that supports innovation. This social dynamic is crucial in IT projects that require teamwork and coordination. Studies have shown that extraverts' ability to build networks and garner support for innovative ideas significantly contributes to project success (Grant, Gino, & Hofmann, 2018; Costa & McCrae, 2019).

Agreeableness, with its emphasis on cooperation and empathy, fosters a positive and collaborative work environment essential for innovation. Agreeable employees contribute to a supportive team dynamic, where members feel comfortable sharing and experimenting with new ideas. This trait enhances the overall team's innovative capacity, thereby positively impacting project outcomes (Graziano & Tobin, 2019; John, Naumann, & Soto, 2020).

Neuroticism, often associated with negative emotional states, generally has a detrimental impact on IWB due to increased anxiety and resistance to change. However, in environments where stress is effectively managed, the negative effects of neuroticism can be mitigated, allowing employees to engage more fully in innovative activities. Research indicates that supportive organizational practices can help neurotic individuals contribute to IWB, ultimately aiding in project success (Judge, Simon, Hurst, & Kelley, 2018; Bipp, 2021).

Practical Implications and Future Directions

The robust analytical approach confirms that the association between individual personality traits and innovative work behavior is a key determinant of project success, highlighting the importance of fostering an organizational culture that supports innovation and leverages diverse personalities within IT teams. The implication for managers and practitioners in the IT sector is clear: by understanding and harnessing the inherent personality characteristics of their employees, and by creating an environment that encourages and rewards innovation, organizations can significantly enhance their project success rates. This study contributes to the growing body of

knowledge on the determinants of project success in the IT industry, offering valuable insights for both researchers and practitioners. By illuminating the mediating role of innovative work behavior in the relationship between personality traits and project success, it provides a foundation for further exploration and application in the quest for optimal performance and competitiveness in Pakistan's burgeoning IT sector.

Conclusion

The mediation of PS by IWB driven by the BFT highlights the importance of fostering an organizational culture that supports these traits. By understanding and leveraging the BFT, organizations can create environments conducive to innovation, leading to improve project outcomes. This integrated approach not only capitalizes on individual strengths but also builds a culture of continuous improvement and innovation, essential for sustaining competitiveness in the dynamic IT industry. The alignment of personality traits with supportive leadership and organizational practices creates a synergistic effect that enhances both IWB and PS, demonstrating the interconnected nature of these factors (McCrae & Sutin, 2018; Funder, 2019).

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