

THE MODERATING IMPACT OF “EXTRAVERSION” ON THE RELATIONSHIP BETWEEN PROJECT MANAGERS’ COMPETENCIES AND THE EFFECTIVE SUPPLY OF INNOVATION IN PROJECT- BASED HEALTHCARE PROVIDERS IN THE UAE

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ABSTRACT: Purpose: The current research investigated the moderating effect of extraversion, a key personality trait, on the relationship between project managers’ competencies and the generation of successful innovation within project-based organizations (PBOs) operating in the healthcare sector of the United Arab Emirates (UAE). Methodology: A theoretical framework is suggested to explain how extraversion influences the connection between project manager skills and the promotion of innovation in project-based organisations (PBOs). A grand total of 347 valid questionnaires were gathered from more than 23 organisations within the healthcare sector in the UAE. Analysing the direction and strength of relationships using structural equation modelling offered a thorough understanding of the factors impacting the successful implementation of innovation. Findings: The findings imply that most UAE projects exhibit successful innovation outcomes and exhibit a desirable level of project manager competencies. Additionally, project managers’ extraversion personality trait and creativity competency are closely related to the successful application of innovation. On the other hand, extroversion and the leadership skills of project managers have a notable negative effect on the successful delivery of innovation. In the same way, extraversion and project managers’ communication skills have a notable negative impact on innovation delivery. Implications: The results offer strong evidence that highlights the crucial impact of project managers’ extraversion personality trait and necessary skills in promoting successful innovation in project management. As a result, Human Resources specialists can benefit from valuable insights from this study for recruitment and ongoing professional development purposes. It is expected that the interaction of extraversion as a personality trait among project managers and their competency levels in project management could result in different levels of successful innovation in various organisational settings. Originality/ value: This study delves into how extraversion influences the relationship between project manager competencies and fostering innovation in project-based organisations in the healthcare industry. The proposed framework presents a new multi-dimensional model outlining project manager personality traits and competencies, showcasing their interconnected dimensions and the influencing factors impacting organisational innovation success.

Keywords: Extraversion, Project Manager’s Personality Traits (PMPT), Project Manager’s Innovation Competencies (PMIC), Innovation, PBOs.

1. Introduction

Emphasising innovation has become crucial for firms looking to outperform their competitors. The existing literature highlights the numerous benefits linked to innovation, such as economic growth, increased employee engagement, improved customer satisfaction, cost savings, enhanced quality, and overall project success (Hassan, 2018). However, based on theories of innovation diffusion and the requirements of high-performance managerial skills, achieving significant innovation within projects can be quite challenging, often influenced by various contextual factors (Tedstone & McWilliams, 2008). These factors may be related to Project Manager Innovation Competencies (PMIC) and their ability to deliver significant innovation within

projects (Davies, Dodgson, & Gann, 2016; Rothmann & Coetzer, 2003; Stock, von Hippel, & Gillert, 2016). Moreover, the supply of innovation may be impacted by various environmental factors that hinder successful implementation, such as inadequate selection of project personnel or ineffective organisational cultures (Samson & Gloet, 2014). Moreover, meeting client expectations for cost reduction, improved quality, efficient processes, and enhanced efficiency can present further obstacles impacting ESI in Project-Based Organisations (PBOs) (Gann & Salter, 2000). Even with continuous research, agreement within the project management field on the key skills needed to handle projects and promote ESI in PBOs is still uncertain, due to the differences in PMIC levels among different sectors. Therefore, it is crucial

to fully grasp the effects of PMIC on ESI in PBOs (Oh & Choi, 2020).

The current literature has only scratched the surface when it comes to delving into Project Management Innovation Capability (PMIC). Lahi & Elenurm's research (2015) highlighted various environmental factors like atmospheric conditions, resource scarcity, managerial dissatisfaction with creativity, and the difficulties in dealing with IT-related complexities, and how these factors could impact Enterprise Strategic Innovation (ESI) (Chaubey & Sahoo, 2022). According to a study conducted by Dul and Ceylan (2014), creating an innovative atmosphere can boost employee creativity, enhance project management and innovation capabilities, and establish a culture of long-term project success. In a study by Hassan (2018), a conceptual framework was suggested to explain how PMIC, Project Management Process Traits (PMPT), and managerial environment influence ESI within Project-Based Organisations (PBOs). The study had a sample size of 50 respondents, which affected the strength of the empirical evidence.

In a recent study, Kunduru (2023) highlighted the numerous obstacles that healthcare organisations encounter when managing extensive projects with different stakeholders and systems. These obstacles include unclear goals, lack of proper training, impractical timelines, limited clinical staff participation, and inadequate system testing. This paper seeks to reassess Hassan's model (2018) by utilising statistically robust data and investigating the impact of extraversion on PMPT in relation to leadership, communication, creativity (as sub factors of PMIC), and ESI within PBOs. Leadership, communication, and creativity are considered essential competencies that impact ESI according to various studies (Ahmed et al., 2019; Dziekoński, 2017; Takey & de Carvalho, 2015; Vila, Pérez, & Coll-Serrano, 2014). The study emphasises the importance of Project Managers (PMs) in healthcare organisations in the UAE, highlighting the role of PMPT in driving innovation. It also suggests a new model for HR managers in healthcare to use when hiring PMs.

The Motivation for the Research

Aside from PMPT, several other elements impact Enterprise Strategic Innovation (ESI), such as Project Management Innovation Capability (PMIC) (Rothmann & Coetzer, 2003; Stock et al., 2016). Despite its significant significance, there is a lack of comprehensive knowledge about the influence of PMIC on ESI. The existing research is deficient in studies that investigate both PMIC

and PMPT together, especially in relation to the aspect of "extraversion" and its effects on ESI results like time, cost, and quality. This study delves into the relationship between PMIC and the promotion of innovation within the healthcare sector's Project-Based Organisations (PBOs) in the UAE, considering the impact of PMPT "extraversion," a factor that has not been extensively studied in current literature (Hassan, 2018). This study seeks to fill a gap by thoroughly examining PMIC, PMPT, and dimensions of ESI, while considering the impact of PMPT "extraversion" on the connection between PMIC and ESI in healthcare PBOs in the UAE.

Theoretical Underpinning

In today's fast-paced and highly competitive business environment, a lack of innovation can hinder the growth and advancement of organisations (Ahmed et al., 2018; Chandra & Neelankavil, 2008). Moreover, in today's business landscape, customers have raised their standards, increasing the demands on companies to cut costs, improve quality, and optimise operational procedures (Gann & Salter, 2000). The demands significantly affect Project-Based Organisations (PBOs), leading to various obstacles in their efforts to deliver innovation successfully (Samson & Gloet, 2014). Successfully implementing innovation in PBOs relies heavily on creating favourable environments, carefully choosing project team members, and fostering an effective project culture (Samson & Gloet, 2014) (Cannavacciuolo, Capaldo, & Ponsiglione, 2023). Project Managers (PMs) understand the importance of innovation and are crucial in promoting Enterprise Strategic Innovation (ESI) through their daily project management tasks (Dulaimi, Nepal, & Park, 2005), as well as their strategic planning for the future (Powl & Skitmore, 2005). Therefore, it is crucial to understand the elements that make up Project Management Innovation Capability (PMIC) and how they impact innovation delivery within PBOs (Vila et al., 2014). Furthermore, there is a lack of agreement in academic discussions regarding the essential elements of PMIC that are vital for driving successful innovation within PBOs. The study was conducted by Lee et al. (2019).

In a study conducted by Hassan (2018), concrete proof was presented showcasing how PMIC can have a beneficial effect on promoting successful innovation, within the context of the big five personality traits framework. It is crucial to explore how these competencies intersect with Project Management Process Traits (PMPT) to gain a thorough understanding of PMIC (Gehring, 2007). Several research papers (Rothmann & Coetzer, 2003;

Stock et al., 2016) have highlighted the importance of PMPT in shaping Enterprise Strategic Innovation (ESI). This study aims to explore if PMPT, specifically "extraversion," influences the connection between PMIC and ESI in Project-Based Organisations (PBOs). This research study presents a contrast to Hassan's (2018) investigation, which mainly concentrated on the mediating function of PMPT (comprising extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience) in the relationship between PMIC and ESI in PBOs. Our research focuses on investigating the moderating role of extraversion as the primary character trait, rather than delving into all the big five personality traits.

In addition, this research does not aim to cover all facets of Project Management Innovation Capability (PMIC), but focuses on key skills like leadership, communication, and creativity, while leaving out other areas explored by Hassan (2018) such as teamwork and commitment. Moreover, specific research studies, like the one by Chaubey and Sahoo (2022) and Lahi and Elenurm (2015), have raised issues about environmental influences on Enterprise Strategic Innovation (ESI) in Project-Based Organisations (PBOs). Highlighting the significant influence of environmental factors on

supporting or impeding successful innovation delivery, Lahi and Elenurm (2015) and Hassan (2018) delved into the mediation of this relationship in PBOs. Nevertheless, the current study fails to incorporate environmental factors into its research framework. To address the current gaps in comprehending the connections between these components. This study delves into how a project manager's personality traits, particularly "extraversion," impact the connection between Project Managerial Innovation Competence (PMIC) and Effective Service Innovation (ESI) in Project-Based Organisations (PBOs).

Given the analysis, this study contributes to the literature on ESI in PBOs by examining the following research hypotheses:

- H1: PMPT "extraversion" moderates the association between Project Manager's leadership competencies and the ESI in the healthcare sector.
- H2: PMPT "extraversion" moderates the association between Project Manager's communication competencies and the ESI in the healthcare sector.
- H3 PMPT "extraversion" moderate the association between Project Manager's creativity competencies and the ESI in the healthcare sector.

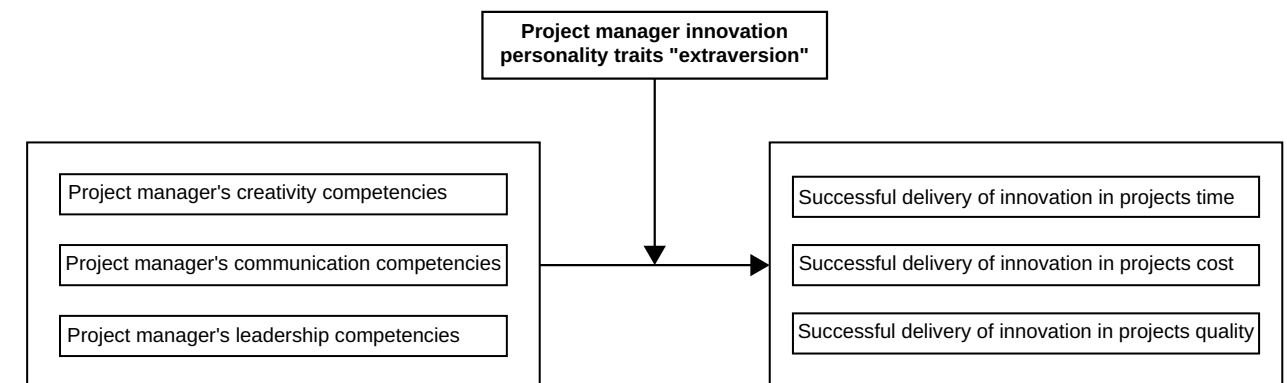


Figure1: The Proposed Framework.

2. Data and Analysis

Sampling and Instrumentation

The primary research method used for data collection was an online questionnaire that included closed-ended questions and a seven-point Likert scale. Using a random sampling method, 1000 surveys were distributed to individuals selected as Project Managers within Project-Based Organisations (PBOs) in the United Arab Emirates (UAE), making up the specific research group. The response rate was 34.7%, resulting in 347 completed questionnaires collected from 23 PBOs located within the healthcare sector in the UAE.

Variable Measurements

PMIC: Competencies in leadership, communication, teamwork, creativity, and commitment are often highlighted in project management literature as factors that impact the ESI in PBOs. This study is centred on examining three competencies: leadership, communication, and teamwork, as they are the most significant factors in the association. Having strong leadership skills is essential for project managers as it enables them to be efficient and know how to effectively oversee different responsibilities. These skills require breaking down hierarchies and enabling individuals to make decisions

on their own (Rojas, 2013). Communication skills are often broken down in academic literature into listening, speaking, writing, presentation skills, computer skills, communication tone, communicating systematically, and demonstrating awareness. Skills related to generating original and innovative ideas are crucial, regardless of practical constraints or size (Racela, 2014). One aspect of creativity involves merging ideas, improving current concepts, investigating different methods, drawing inspiration from various fields, innovating in unique ways, recognising fresh relationships, and embracing new problem-solving strategies.

PMPT: In the realm of project management literature, the five core personality traits (Extraversion, Agreeableness, Conscientiousness, Neuroticism, Openness) are frequently referenced for their impact on Effective Service Innovation (ESI) in Project-Based Organisations (PBOs). This study specifically focuses on extraversion, which is considered the most important Project Managerial Personality Trait (PMPT) by Pinto and Patanakul (2015) and other researchers. Personality traits such as sociability, assertiveness, energy, adventurousness, enthusiasm, and extroversion are defined by various detailed dimensions found in previous studies.

ESI in PBO

It is commonly acknowledged in research that time, quality, and cost play crucial roles in impacting Effective Service Innovation (ESI) in projects (Piening & Salge, 2015). When it comes to management in societal dynamics, the importance of time is crucial as innovation is seen as a key strategic factor for businesses aiming to stay ahead in global competition (Halbesleben et al., 2003). It can be quite challenging for businesses to determine when to introduce innovations and how many opportunities to pursue simultaneously (Shea, 2021). When considering expenses, it's crucial to determine if the new idea will bring economic benefits or simply improve environmental performance (Ozorhon, 2013). Effective tools can support innovation processes, either through indirect or direct means (Bossink, 2002). In general, the scales were taken from various sources such as Hassan (2018), Dulaimi et al. (2005), and Liikamaa (2015).

Data Analysis

The primary data of the study is analysed using SPSS and AMOS software, utilising both descriptive and inferential statistics. Several statistical tests, such as descriptive statistics, reliability tests, and correlation

tests, are used to analyse the data and evaluate the hypotheses. In addition, regression analysis is conducted using Structural Equation Modelling (SEM) analysis through AMOS software. Moreover, factor analysis, involving both Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA), was utilised to assess the multidimensionality of the variables.

Demographic factors that are presented in Table 1 show no correlation with ESI.

Table 1: Demographic Backgrounds of the Respondents.

Demographic Variables	Frequency	Percent
Gender	n	%
Female	81	23.4
Male	266	76.6
Age	n	%
Above 50	89	25.7
40-50	104	29.9
30-40	93	26.8
20-30	61	17.6
Job type	n	%
Medical	69	19.9
Service	126	36.3
Administrative	152	43.8
Experience	n	%
5 years or less	39	11.2
6 to 10	48	13.8
11-15	81	23.4
16-20	99	28.5
21 and above	76	21.9
Total	148	100

Conducting a Cronbach's coefficient alpha test was necessary to assess the internal reliability of the variables. Variables with alpha values between 0.7 and 0.9 are considered to show satisfactory internal reliability (Hair et al., 2006). The study found that all alpha values were above 0.8, showing strong internal consistency among the variables. This suggests that they together represent PMIC extraversion.

Moreover, when evaluating the multidimensionality of the variables, we considered the Eigenvalues and the explained total variance for the extracted factors. None of the identified factors had Eigenvalues greater than 1. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test both yielded significant results ($p < 0.001$). The KMO value was 0.931, indicating that the data were appropriate for factor analysis. In the analysis, seven factors had eigenvalues above 1, and all items showed acceptable loadings above the threshold of 0.45, with no cross-loading exceeding 0.491, following the guidelines of

Cua et al. (2001). No hidden variables were found, and only one item did not meet the required loading, so it was considered an outlier.

The results from the Confirmatory Factor Analysis (CFA) show that the model fit is at an acceptable level: CMIN ($p < 0.001$) = 23268.794; CMIN/DF = 4.029; TLI = 0.898; CFI=0.917; and RMSEA=0.051. These results indicate that the main framework fits well with the data. In addition, the Exploratory Factor Analysis (EFA) successfully identified the dimensions without needing additional categorization. Considering the positive outcomes of the CFA, the model can be seen as a reliable tool for assessing Effective Service Innovation (ESI) in Project-Based Organisations (PBOs).

3. Results

Many scholars have suggested that personality traits have a significant influence on how individuals behave and act (Felfe & Schyns, 2006). This study explores how extraversion moderates the association, revealing different perceptions towards PMIC and ESI in PBOs.

Analysed the role of extraversion in relation to Project Managerial Innovation Competence (PMIC) and specific competencies (Leadership - LD, Communication - CM, and Creativity - CRV), impacting innovation

provision (SD) in Project-Based Organisations (PBOs) in the healthcare industry using a structural equation model. At first, strong positive connections were found between LD, CM, CRV, EXTR, and the innovation supply ($\beta = .921, p < 0.05$; $\beta = 1.866, p < 0.05$; $\beta = 1.110, p < 0.05$; $\beta = 2.346, p < 0.05$), respectively.

Subsequently, the interaction between SD and LEADEXTRA (the product of Leadership and Extraversion) was examined to explore the moderating influence of extraversion. The findings revealed a significant relationship, yet it altered the direction of correlation for Leadership ($\beta = -.768, p < 0.05$). Similarly, the interaction between SD and COMMEXTRA (the product of Communication and Extraversion) exhibited a significant relationship, inverting the correlation direction for Communication ($\beta = -.524, p < 0.05$). Conversely, the interaction between SD and CREATEXTRA (the product of Creativity and Extraversion) demonstrated a significant positive correlation for Creativity ($\beta = .887, p < 0.05$).

As a result, extraversion plays a significant role in moderating the connection between PMIC and the successful implementation of innovation in PBOs in the healthcare industry. Consult Figure 2 for additional guidance and insight.

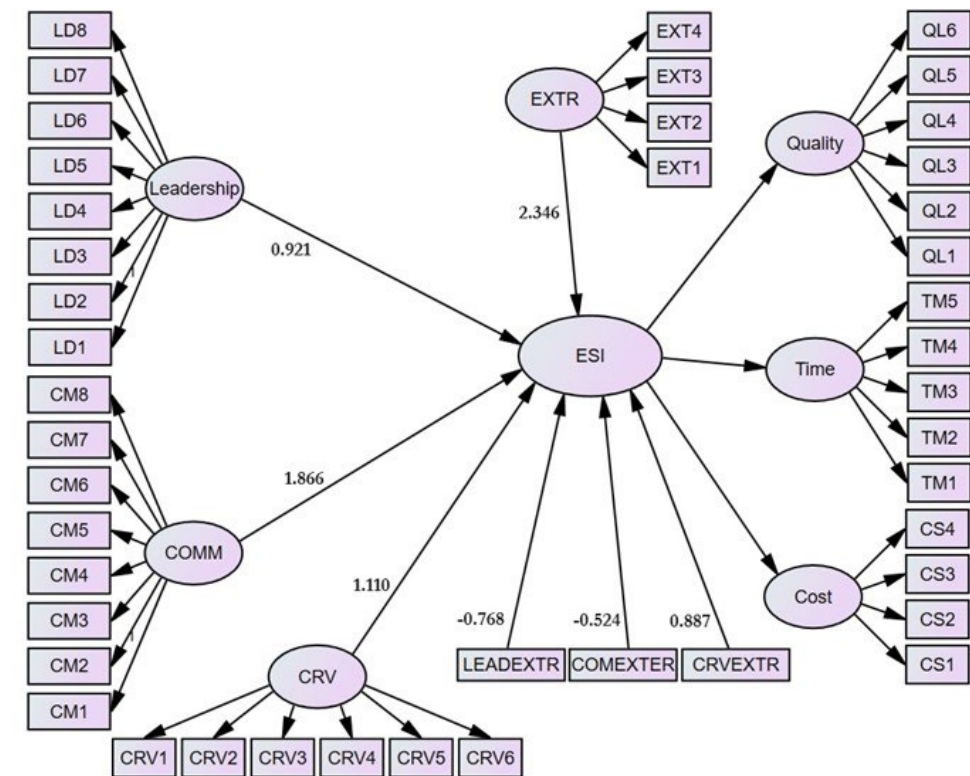


Figure 2: Tested Structural Equation Modelling.

4. Discussion

This research aims to investigate how extraversion affects the relationship between Project Managerial Innovation Competence (PMIC) and Effective Service Innovation (ESI) in Project-Based Organisations (PBOs) in the healthcare sector. Based on the literature review, the PMIC is identified as a crucial factor influencing the ESI in PBOs within the healthcare sector (Racela, 2014). The results are consistent with Tai Tsou's (2012) emphasis on the connection between innovation and competencies. Understanding the importance of acquiring knowledge and utilising skills for development, as Tsou suggests, can lead project managers to achieve successful innovation results.

The present research arrived at the following conclusions. There is indeed a moderating influence of extraversion on the relationship between creativity and ESI in PBOs within the healthcare sector. It has been noted by researchers that this association could be established (Afsar, Badir, & Khan, 2015). Moreover, extraversion, as a Project Managerial Personality Trait (PMPT), influences the connection between communication, leadership, and Effective Service Innovation (ESI) in Project-Based Organisations (PBOs) in the healthcare sector. The positive and significant association between "communication and leadership" and ESI is evident. After moderation, the association becomes significant yet negative. Researchers suggest that the characteristics of the project manager may influence the connection between Project Managerial Innovation Competence (PMIC) and ESI (Stock et al., 2016). This research enhances the understanding of how PBOs in the UAE can improve ESI by recognising the importance of PMIC and PMPT. Furthermore, this study aims to address the shortage by using a quantitative methodology to conduct a detailed and empirical investigation to determine the key factors that influence ESI in PBOs in the healthcare sector. This method involves examining the innovative skills of a wider range of individuals working in the healthcare industry. The goal is to provide a thorough and accurate depiction of the relationships being studied.

This study's findings offer professionals valuable insights to enhance firms' ability to achieve economic benefits through innovation, ultimately strengthening Project Managerial Innovation Competence (PMIC) (Goswami & Mathew, 2011). Moreover, the study's findings could be advantageous for Human Resources professionals managing workforce and staffing

concerns. The study demonstrates that project managers in the UAE exhibit innovative skills, which enhance organisational effectiveness in healthcare organisations.

5. Conclusion and Recommendations for Future Research

The field of knowledge indicated that several factors have driven organisations to incorporate digital innovations into healthcare systems. However, there is limited research on the personality traits of project managers involved in healthcare projects, especially in the MENA region, which requires more investigation. This research study provides valuable insights into the effects of PMPT, focusing on "extraversion," along with PMIC and ESI in healthcare organisations. This study explores the impact of PMPT on the relationship between extraversion and the connection between PMIC and ESI.

The research framework presents a new multi-dimensional model of PMPT and PMIC with their interconnected dimensions, analysing factors affecting ESI. The results show that extraversion plays a role in moderating the relationship between creativity and ESI in healthcare organisations, as well as in moderating the link between communication, leadership, and ESI in the same setting.

With the multitude of factors impacting ESI in PBOs within the healthcare sector as detailed in the literature, this study effectively pinpoints the essential elements vital to ESI in this context. According to the research, a project manager with extroverted and creative traits could potentially improve ESI in PBOs in the healthcare industry, pending further empirical studies to validate this theory. This research sets the foundation for future studies to delve into the complex connections among all the factors identified in the literature.

Despite these valuable insights, the study has certain limitations that future researchers should consider. It's crucial to acknowledge that various other elements could impact the connections between the variables under investigation. It can be difficult to generalise the findings, so it is suggested that future research efforts focus on exploring and defining these extra factors. Future research should focus on exploring how different elements influence the effective integration of innovation in PBOs operating in the healthcare industry. This method will provide insights into the best mix of elements that are likely to result in higher ESI in PBOs in the healthcare industry.

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Appendices

	Estimate	S.E.	C.R.	P
ESI <--- Leadership	0.921	0.316	2.422	0.010
ESI <--- Communication	1.866	0.587	3.396	0.001
ESI <--- Creativity	1.110	0.585	3.383	0.001
ESI <--- Extrovert	2.346	0.644	3.568	***
ESI <--- LEADEXTR	-0.768	0.237	-3.077	0.001
ESI <--- COMEXTR	-0.524	0.187	-2.675	0.005
ESI <--- CRVEXTER	0.887	0.273	3.521	***