

Zaman, Umer; Nadeem, Raja Danish; Nawaz, Shahid

## Article

Cross-country evidence on project portfolio success in the Asia-Pacific region: Role of CEO transformational leadership, portfolio governance and strategic innovation orientation

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\*Corresponding author: Umer Zaman,  
Endicott College of International  
Studies, Woosong University,  
Daejeon, South Korea  
E-mail: [umerzaman@endicott.ac.kr](mailto:umerzaman@endicott.ac.kr)

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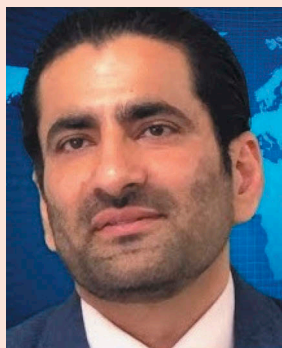
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## MANAGEMENT | RESEARCH ARTICLE

# Cross-country evidence on project portfolio success in the Asia-Pacific region: Role of CEO transformational leadership, portfolio governance and strategic innovation orientation

Umer Zaman<sup>1\*</sup>, Raja Danish Nadeem<sup>2</sup> and Shahid Nawaz<sup>3</sup>

**Abstract:** Project portfolio management ensures a hierarchy of purpose and effective prioritization of projects in achieving organization's strategic objectives. This study argues that the lack of discipline in integrating projects makes project portfolio investments and anticipated benefits unclear, causing internal congestion of indecisive and/or unsuccessful projects. This research empirically scrutinizes project portfolio success in a transnational and cross-cultural perspective in the Asia-Pacific (APAC) region. Based on samples drawn from the information and communications technology (ICT) industry in the Republic of Korea (an advanced economy) and Pakistan (an emerging economy), the hypothesized relationships were empirically tested using partial least squares structural equation modeling (PLS-SEM). The study findings revealed a significant and positive effect of CEO transformational leadership on project portfolio success. The findings also



Umer Zaman

### ABOUT THE AUTHORS

Umer Zaman holds a doctoral degree in Management Sciences (specialization in Leadership and HR). He is currently working as an Assistant Professor at the Endicott College of International Studies, Woosong University, Daejeon, Republic of Korea. His research interests include project management, leadership, human resources management and conflict resolution. Dr. Zaman has recently published in top-tier journals in project management, besides other SSCI publications in the area of leadership and high-performance work systems.

He has extensive experience working in action-based research projects (country peer reviews and mutual assessments) under various international/regional institutions and donor agencies including the UNODC (Vienna) and ADB-OECD.

He has chaired various academic research conferences at national and international level. Dr. Zaman also served as a reviewer for the Journal of Retailing and Consumer Services, as well as the South Asian Journal of Management Sciences.

### PUBLIC INTEREST STATEMENT

Increasing number of organizations worldwide are focusing on project portfolio management to “select and manage” diverse range of projects, in a way that maximizes each project's potential impact. Organizations are also able to achieve their strategic business objectives using the centralized management system for project portfolios. Using a survey-based sample in a cross-country context, this study empirically examined the impact of potential factors such as transformational leadership, portfolio governance and strategic innovation orientation to determine success in ICT project portfolios. Using partial least squares structural equation modeling (PLS-SEM) and multi-group analysis (MGA), the study findings provide supportive evidence for the significantly positive impact of transformational leadership on project portfolio success, under mediating condition of strategic innovation orientation and moderating influence of portfolio governance.

This study offers theoretical, methodological and practical contributions that guides researchers (in future investigations) and practitioners (in decision making) to make project portfolios more successful.

confirmed that strategic innovation orientation significantly mediates the effect of CEO transformational leadership on project portfolio success. In addition, this study provides support for portfolio governance mechanism in a moderating role that significantly enhanced the relationships between CEO transformational leadership and project portfolio success; also, strategic innovation orientation and project portfolio success. This study presents convergent views between Korea (Study-I) and Pakistan (Study-II) in terms of the application of CEO transformational leadership, portfolio governance and strategic innovation in explaining project portfolio success. Implications of findings are drawn based on a new perspective of project portfolio success in a cross-country context.

**Subjects: Business, Management and Accounting; Leadership; Human Resource Management**

**Keywords: Transformational leadership; portfolio governance; strategic innovation orientation and project portfolio success**

## 1. Introduction

Project portfolio management (PPM) is recognized as a breakthrough and biggest leap in the project management discipline since the development of PERT and CPM in the late 1950s (Levine, 2005). Sixty percent of the organizations use portfolio structures to manage their projects with greater visibility, whereas high-performing firms recognize PPM as a competitive strategy to turn their strategic intentions into realities (KPMG, 2017). While the rate of project failures remains daunting for practitioners and researchers, existing studies on project success have expanded in a variety of contexts including industries, geographies, disciplines and evolving critical success factors and success criteria (Zaman, Nawaz, Tariq, & Humayoun, 2019b). However, in order to ensure that individual projects deliver to the fundamental demand of their business impact, parent organizations require PPM systems to effectively achieve strategic alignment of their projects (Hristova & Müller, 2009; Kock & Gemünden, 2019; Kopmann, Kock, Killen, & Gemünden, 2017). Individual projects that have slipped badly in time and missed their window of opportunity need to be terminated, rather putting more efforts and wastage of additional resources in making them successful. Hence PPM facilitates in moving closer to zero project failures in an increasingly competitive and agility driven project organization (Levine, 2005).

Productive organizations lead change through PPM framework that magnifies their competitive advantage with more impactful strategic projects (Kock & Gemünden, 2019; Kopmann et al., 2017). PPM fundamentally goes beyond the simple management of multiple-projects, rather it maximizes the contribution of integrated projects towards organizational welfare and greater success (Levine, 2005). PPM integrates all projects within the organization to achieve its strategic goals and diverts organizational efforts in doing the right projects, rather doing the projects right (Hristova & Müller, 2009; Kopmann et al., 2017). Despite growing recognition, PPM still remains underestimated and oversimplified, as project management research has largely focused on standalone project success (Zaman, 2020), rather project portfolio success (Levine, 2005; Moore, 2012; Petro & Gardiner, 2015). Hence, portfolio thinkers and inquisitive researchers face tremendous challenges to understand emerging developments and trends that shape the future success of project portfolios (Kaiser, El Arbi, & Ahlemann, 2015; Kock, Heising, & Gemünden, 2016; Petro & Gardiner, 2015).

Moving towards PPM requires top-level transformational leadership initiatives and effective governance system while organization deal with project portfolios and their business impact (Levine, 2005). CEO's transformational leadership can push the organization in a new direction, where success requires development and implementation of innovative ideas for PPM (Kopmann et al., 2017; Moore, 2012; Zaman et al., 2019b). CEO's transformational leadership alongside portfolio

governance, bridges the gap between project portfolios and business strategy through effective communication and stronger connectivity (Aga, Noorderhaven, & Vallejo, 2016; Hristova & Müller, 2009). Adjustments to PPM would facilitate prioritization of high-ranking projects to crack the limited economic and human resources while maximizing the project portfolio returns (Costantino, Di Gravio, & Nonino, 2015; Hristova & Müller, 2009). The rapid innovation in project portfolios would also require organizations to harness its innovative talent to serve as a catalyst to project portfolio success (Gemünden, Lehner, & Kock, 2018; Kock et al., 2016). However, lack of innovation and use of traditional metrics across all projects hampers innovative activities while innovation success rate less than 20% for incremental improvements in project portfolios may be viewed as disastrous. Hence, innovative talent can efficiently feed more creative ideas that enable project portfolios to be strategic and more successful (Moore, 2012).

Asia-Pacific (APAC) region is the largest region in the global market for ICT-based projects, accounting for almost 39% of the global market share. APAC also continues as a strong foothold and most dynamic region of the global economy that contributes almost 60% to the world GDP while projecting a growth rate of 5.4% in 2019 (Bizvibe, 2019; IMF, 2018). In the APAC context, Korea currently leads the world ranking as the most innovative economy and recently showed record high figure of US \$220.4 billion of exports in ICT-related projects (MTIE, 2019). In contrast, Pakistan has also deposited significant earnings through ICT based projects by crossing benchmark figure of USD 1 Billion exports in FY 2017–18 (Yasir, 2018). As PPM becomes prevalent across industries and geographies (Costantino et al., 2015; Hristova & Müller, 2009; Kock & Gemünden, 2019; Kopmann et al., 2017), an empirical investigation in a dual-country perspective of Korea (an advanced economy) and Pakistan (an emerging economy) provides explicit evidence in understanding the role of CEO's transformational leadership, portfolio governance and strategic innovation orientation (SIO) in assessing project portfolio success. Hence the objective of this research is to analyze the effects of CEO's transformational leadership on project portfolio success, under mediating conditions of SIO and moderating influence of portfolio governance. This research offers useful insights for project portfolio investment decisions based on expressed similarities and differences in those researched nations.

## 2. Theoretical framework

### 2.1. CEO transformational leadership

Transformational CEOs are characterized as more thoughtful leaders as they take deliberate actions, rather being impulsive or reactive leaders (Zaman et al., 2019b). Transformational leadership theory was developed by Burns (1978) that was further extended to the development of behavioral components of transformational leadership style (Bass, 1985). The multifaceted construct has been categorized as four distinct leadership behaviors i.e. idealized influence, inspirational motivation, intellectual stimulation and individualized consideration (Bass, 1985; Bass & Avolio, 1993). *Idealized influence* refers to leader's attribute of being visionary and charismatic that makes him a role model for his followers (Burns, 1978). Idealized influence also enhances team confidence and develops positive working environment. *Inspirational motivation* refers to follower's motivation to go above and beyond his work expectations by sharing a compelling vision towards future plans and goals (Bass & Avolio, 1993). *Intellectual stimulation* concept revolves around looking at problems with unique perspectives, challenge status-quo and risk taking with an intention to stimulate creativity and innovation among followers. Whereas *individualized consideration* perspective is about developing followers with personal consideration and support, guiding them towards success through effective coaching and mentorship (Zaman et al., 2019b).

CEO attributes can have positive or negative impact on firm's overall performance, whereas CEOs with transformational leadership attributes make better strategic choices (Fisher & Chen, 2018). In accordance with transformational leadership theory (Bass, 1985), transformational leaders build organizational culture (Bass & Avolio, 1993) by emphasizing on shared vision and getting complete buy-in from their followers (Dunne, Aaron, McDowell, Urban, & Geho, 2016). CEOs who are genuinely concerned about their employees tend to inspire them that result in

creating psychological attachment and mutual commitment (Zhang et al., 2015). Avolio, Zhu, Koh, and Bhatia (2004) claim that reaction of followers is deeply rooted and attained from their transformational leaders. Chen, Sharma, Zhan, and Liu (2019) recommend employees to follow such transformational leaders to enhance their creativity. Recent studies demonstrate that CEOs with transformational leadership qualities foster a culture of experimentation that tests new ideas (Trung, Nghi, Soldier, Hoi, & Kim, 2014), develop trust climate to enhance firm's performance (Lin, Dang, & Liu, 2016), drive organization learning to promote creativity and innovation (Khalili, 2016; Sattayaraksa & Boon-itt, 2018) that eventually leads to better firm performance (Chen et al., 2019). CEOs especially with transformational leadership abilities play a key role towards organizational success by motivating employees and fostering a culture of operational excellence (Zhu, Chew, & Spangler, 2005). Similarly, Moriano, Molero, Topa, and Mangin (2014) reported that such leaders are risk takers and focus on innovativeness as these are considered as key elements of innovation orientation.

CEOs are responsible for planning and executing their company's overall long-term strategies, including innovation strategy that directly affects organizational innovation (Zuraik & Kelly, 2019). CEO's foster firm's innovation orientation that sets the overall strategic direction besides determination of project portfolio and resources allocation for such innovation projects (Talke, Salomo, & Kock, 2011). CEO's transformational leadership is strongly associated with organizational outcomes and hence strives to create a competitive advantage (Zhu et al., 2005). Transformational CEOs make strategic choices with a focus on firm's innovation and performance that help to achieve competitive edge (Nguyen, Mia, Winata, & Chong, 2017). They also make positive impact on followers (Newman, Tse, Schwarz, & Nielsen, 2018; Nguyen et al., 2017) by adapting to changing environments and adjusting to uncertain situations (Chen et al., 2019).

CEO's leadership behavior plays a key role towards organizational innovation, especially CEO transformational leadership that inspires motivation and rewards besides an innovation drive towards strategizing short- and long-term goals (Prasad and Junni, 2016). Transformational leaders set aggressive goals for themselves as part of their innovation strategy to stay ahead in the market. CEOs are responsible to ensure that their innovation strategy compliments the overall business strategy while maintaining strategic alignment. Maqbool, Sudong, Manzoor, and Rashid (2017) suggested that leadership with high emotional quotient and transformational behavior can make success in projects multifold and even at different organization levels. Transformational leadership is applicable in project-based assignments that directly influence project performance by transforming project teams in a meaningful way, and achieving successful project outcomes (Pinto, Thoms, Trailer, Palmer, & Govekar, 1998; Zaman et al., 2019b).

## **2.2. Strategic innovation orientation**

SIO visualizes what an ambidextrous organization can achieve through prioritization of innovative projects and programs. It refers to firm's strategy to manage changing environments and culture to enhance firm's performance and competitive edge (Hambrick, 1983). Hambrick (1983) elaborated strategic orientation as a tool for organizational alignment with required environments, processes, policies and procedures for effective decision making. Manu and Sriram (1996) consider it as a favorable alignment to organization's strategic goals. It is a combination of organizational principles that drive and stimulate operational activities (Hakala, 2011). Importance of SIO has been considered as a catalyst for innovation strategies that aim to achieve sustainability and competitive edge (Talke et al., 2011; Yang, Wang, Zhu, & Wu, 2012). It is evident from literature that firms follow market-oriented strategy (*i.e. product adoption as per customer needs*) or innovation-oriented strategy (*i.e. new product solutions*) (Berthon, Hulbert, & Pitt, 1999). Considering the research scope, this study emphasizes on innovation-oriented strategy. Innovation concept refers to building a new process, design, structure or a new product or service. Freeman (1982) relates innovation concept with new method, product or tech oriented design being marketed very first time. Benner and Tushman (2003) defined innovation activity as new means-end platform that creates innovative solutions by combining technologies.



Innovation orientation guides the strategic direction of an organization while transformational beliefs define and direct organizational innovative strategies (Faghih, Dastourian, Sajadi, Henten, & Foroudi, 2018; Gatignon & Xuereb, 1997; Mashahadi, Ahmad, & Mohamad, 2016). In a highly competitive environment, the utilization of strategic innovation would change the ground realities and help create sustainable competitive advantage. Without an innovation strategy, organizations are unable to control critical changes for the future while still remaining competitive (Faghih et al., 2018). Pisano (2015) revealed major considerations to define firm's innovation strategy, including strategic focus on creating value for potential customers; capturing the market share through innovation; and requirement of innovation type to create and capture value. Pisano (2015) emphasized on specifying different type of innovations that integrates with business competitive strategy and efficient utilization of resources. While defining company's competitive strategy, it is essential to put innovation orientation as the foremost strategic tool to create sustained competitive advantage (Mashahadi et al., 2016).

Technology orientation conceptualized in innovation context is a forward-looking strategic approach that creates business value by applying latest technologies (Talke et al., 2011; Zhou, Yim, & Tse, 2005). Strategic orientation assist managers make effective decisions related to projects portfolios that drive strategy implementation (Unger & Berlin, 2015), which is critical component of portfolio success (Jonas, Kock, & Gemünden, 2013). It is evident from literature that firms that exhibit innovation orientation mostly focus on development of new products and services (Berthon et al., 1999; Clauss & Spieth, 2016). Hence, SIO is closely associated to enhance firm's innovation. Technology oriented firms generate strategic focus on creativity and innovative behavior that increase business potential in providing novel solutions (Zhou et al., 2005).

### **2.3. Portfolio governance**

Portfolio governance aims to catalyze the business impact of project portfolios that present a unique cocktail of multiple-project challenges, risks, opportunities and countless implementations (Turner & Keegan, 2001; Urhahn & Spieth, 2014). Governance of project portfolio requires special attention on managing and governing multiple projects, at the same time ensuring effectiveness and value additions towards business (Müller, Martinsuo, & Blomquist, 2008). It maintains compliance as well as keeping a balance between risks and opportunities (Alqubaisi, 2018). Corporate level activities and processes define how an organization tends to manage their projects and keep them aligned with the business vision, strategy and objectives (Müller, Zhai, & Wang, 2017). Portfolio governance is closely aligned with firms' strategic objectives, thereby governance model play a key role to enhance decision making, align team responsibilities and improve firms' performance (Alqubaisi, 2018; Peterson, 2004). According to Association of Project Management (APM), the effective governance mechanism ensure complete alignment of project portfolio with corporate objectives and is delivered efficiently and sustainable manner (APM, 2004). Considering APM's definition, Klakegg, Williams, Magnussen, and Glasspool (2008) have introduced governance concept and distinguished between program management and portfolio governance. Program management refer to managing projects in hierarchical order (Levine, 2005), whereas portfolio governance concentrates on executing right projects in an organization while having positive impact on organization's strategic goals (Martinsuo & Lehtonen, 2007). Portfolio governance defines and establishes the governing bodies' roles and responsibilities, relationship among stakeholders, policies and guidelines, decision making processes along with specific governing elements at portfolio level (Turner & Keegan, 2001; Urhahn & Spieth, 2014).

Portfolio governance framework provides the structure of governing committees and review board for effective decision making, policies and procedures, as well as authority level of these boards (Biesenthal & Wilden, 2014; Mosavi, 2014; Müller & Martinsuo, 2015). Mosavi (2014) emphasized on the importance of portfolio steering committees to better govern project portfolios. Board being a strategic organizational entity is responsible for portfolio governance and acts as a critical link between corporate strategy and execution of projects. Portfolio committee is a decision making body that consists of members from executive leadership, departmental heads and

portfolio managers (Mosavi, 2014). This committee meets on periodic basis, usually every quarter (Kendall & Rollins, 2003). Portfolio committee is responsible for projects screening (Cooper, Edgett, & Kleinschmidt, 2002), prioritization, selection or termination (Levine, 2005), effective communication, negotiation and decision making (Mosavi, 2014) to achieve the strategic business objectives.

### 2.3.1. *Best practices for portfolio governance*

Dominant theories explain the application of governance in the field of project management in the context of stakeholders (Biesenthal & Wilden, 2014; Müller, 2009). These theories share important perspectives that influence governance mechanism in project management. *Agency theory* defines the association between principle and the agent in context of project management, i.e. project owner and project manager, respectively (Turner, Huemann, Anbari, & Bredillet, 2010). Müller (2009) further describes the importance of this theory because of shareholders concept that helps to manage any potential conflicts between shareholders and project leadership. *Transaction cost economy (TCE)* refers to the control and management of relationships and associated costs between two parties. In project management context, Müller (2009) suggest that TCE theory aligns the contactors with projects portfolio. *Stewardship theory* is classical governing mechanism in project management, where project managers act as stewards to ensure the success of project portfolio to improve firm's performance and play a key role to achieve strategic objectives (Müller et al., 2013; Müller, Turner, Andersen, Shao, & Kvalnes, 2014). *Resource dependence theory* takes care of important component in governing project portfolio in an organization by allocating and prioritizing resources. It provides convincing justification to rely on multiple perspectives for project governance (Ul Musawir, Serra, Zwikael, & Ali, 2017). Among these theories, scholars emphasized more on stewardship, TCE and agency theories in project governance perspective. Despite seismic shifts in governance perspectives in projects, there have been extremely limited efforts to fully understand the phenomenal impact that portfolio governance can make in delivering successful project portfolios (Hristova & Müller, 2009; Urhahn & Spieth, 2014).

### 2.4. *Project portfolio success*

PPM is a strategic formation process of managing a diversified mix of strategic, tactical, cost-driven, growth-driven, customer-focused and employee-focused projects (Hristova & Müller, 2009; Kaiser et al., 2015; Kopmann et al., 2017). Project portfolio includes set of projects and programs that are operationally managed and sponsored by firm's management (Pennypacker and Dye, 2002). This includes development and commercialization of new projects to enable sustainable growth aligned with corporate strategy (Jonas et al., 2013). Empirical research has emphasized on multi-dimensional nature of project portfolio success that signals strategic business outcomes (Jonas et al., 2013; Meskendahl, 2010; Voss, 2012). Cooper, Edgett, and Kleinschmidt (2001) consider portfolio success if it is balanced, aligned with strategic business objectives and maximize value proposition. Project portfolio success (PPS) has been conceptualized through its core dimensions as established by Cooper et al. (2002), which includes (i) average project success, (ii) portfolio balance, (iii) use of synergies and (iv) strategic fit (Jonas et al., 2013; Teller, Kock & Gemünden, 2014; Kock & Gemünden, 2019; Kock et al., 2016; Petro & Gardiner, 2015; Teller, 2013; Teller & Kock, 2013; Voss & Kock, 2013). Each dimension contains a measurement criterion for project portfolio success (Cooper et al., 2002).

*Average project success* refers to adherence to quality, budget, schedule, product specifications, fulfillment of market and customer needs across all projects in the portfolio (Martinsuo & Lehtonen, 2007; Meskendahl, 2010; Shenhar, Dvir, Levy, & Maltz, 2001). Project delivery within specific budgets and quality, meeting product specifications and adherence to timelines are best criteria to measure average project success in a portfolio (Lechler & Dvir, 2010) including customers satisfaction with project outcomes (Martinsuo & Lehtonen, 2007; Pinto & Slevin, 1988). Apart from these core criteria, average project success also encompasses the commercial effect of a portfolio, e.g. return on investment, market success and profit across all projects (Teller & Kock, 2013). *Portfolio balancing* is essential for firms to be successful. Objective of balanced portfolio is to pursue and strategize set of projects which are strategically effective for organization (Cooper et al., 2002; Meskendahl, 2010). It implies to the identification of risks and gains in projects portfolio,



and ensure whether portfolio is balanced considering short and long-term strategic plans (Teller et al., 2013). Project specification, calculation of risk level and resource allocation (Killen, Hunt, & Kleinschmidt, 2008) are additional key factors to determine portfolio balance. Chao et al. (2009) define a criterion to portfolio balance as keeping a harmony between new product development and incremental improvements of existing products to reap short and long-term benefits.

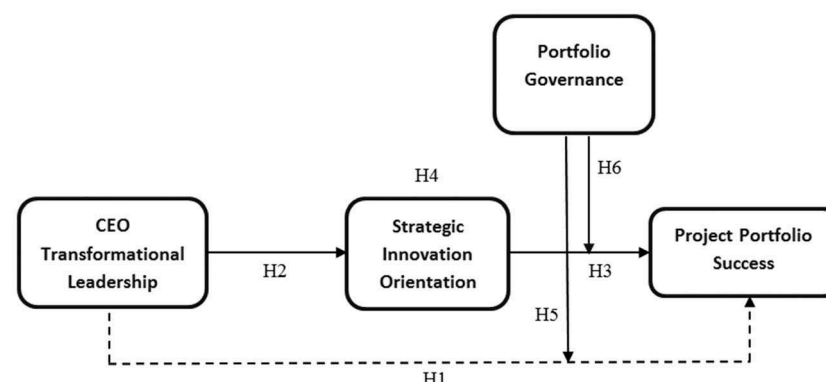
*Strategic fit* dimension is defined as projects portfolios reflection of corporate strategy and successful implementation of projects (Unger, Kock, Gemünden, & Jonas, 2012). This includes allocation of resources to drive projects portfolio in line with corporate strategy (Meskendahl, 2010). Essentially, effective resource alignment, contribution towards strategy, project's compliance and strategic relevance are important components to be measured for strategic fitness (Dietrich & Lehtonen, 2005; Meskendahl, 2010). This is considered to be most important factor that needs to be carefully managed. Failing to achieve strategic fitness may lead to overall misalignment of portfolio with corporate strategy and hence adversely affect realization of business objectives. *Use of synergies* as a dimension of project portfolio success is critical for effective utilization of resources and managing financials (Killen et al., 2008). Balanced portfolio approach minimizes build collaboration among project stakeholders within portfolio, managing interdependencies and use of shared expertise that realizes efficiency gains to support business strategy. Knowledge management in a portfolio leads to greater synergies across projects. Hence this is considered as one of the important criteria to share knowledge and effectively utilize synergy gains (Meskendahl, 2010).

Meskendahl (2010) further extended the measurement criteria for project portfolio success and proposed economic success and preparing for future as key dimensions for project portfolio success (Petro & Gardiner, 2015). *Future orientation* is forward looking approach of managing the implications associated with risk management after the projects have been completed (Shenhar et al., 2001). Leader's ability to manage risk improves the project success (Fernando, Walters, Ismail, Seo, & Kaimasu, 2018). Whereas dimension of *economic success* refers to managing short term economic effects associated with business unit level commercial gains or overall market success (Meskendahl, 2010; Shenhar et al., 2001). Further it is eluded that successful projects portfolio leads to business success. Killen et al. (2008) identified positive correlation between projects portfolio success and new product success which resonate with business success. Shenhar et al. (2001) believe project portfolio has significant contribution towards overall success of a firm.

### 3. Research model and hypotheses

Conceptual framework and hypothesis of study are presented in this section that describes the relationship between the study variables. Conceptual framework is provided in Figure 1. This study argues that CEO transformational leadership plays a key role in project portfolio success in an organization, whereas SIO mediates this relationship and project governance mechanism further moderate the success of project portfolio.

**Figure 1. Conceptual framework of project portfolio success.**



### **3.1. CEO transformational leadership and project portfolio success**

Empirical studies indicate a significant effect of transformational leadership on business outcomes including project success (Yang, Huang, & Wu, 2011; Zaman et al., 2019b). Studies indicate that transformational leaders possess strong inspiration for their employees that drive their organizational commitment and result in successful projects outcomes (Zaman et al., 2019b). Within an organizational hierarchy, transformational leadership manages to have a positive influence on different levels that directly stimulates project outcomes (Yang et al., 2011). Transformational leadership theory emphasize on bringing a positive change among followers, their approach, values and expectations in an organization (Chen et al., 2019). Müller et al. (2014) stated that role of leader is substantial in achieving the project success. The project lead should be forward thinking, able to understand risks, and drive people to achieve portfolio objectives. This requires effective leadership skills to lead their team and achieve business objectives. Transformational leadership is considered to be highly effective leadership style to pursue such objectives (Gardner & Stough, 2002).

Recent research studies have highlighted a wider application of CEO's transformational leadership in various industries such as information technology, finance and manufacturing (Chen et al., 2019). Ding, Li, Zhang, Sheng, and Wang (2017) explored CEO's transformational leadership influence in infrastructure industry in Chinese context. Other studies also revealed such influence in perspective of construction industry (Maqbool et al., 2017), community development (Aga et al., 2016), infrastructure services (Kissi, Dainty, & Tuuli, 2013) and temporary organizations (Zaman et al., 2019b). Jung, Chow, and Wu (2003) found a positive relationship between organization culture of supporting innovation and transformational leadership, similarly Kissi et al. (2013) witnessed that this leadership behavior is essential and play a key role in successful delivery of projects at portfolio level. This leadership behavior influences the quality of innovations by employees that have a long-lasting impact. Transformational leaders create an environment that is conducive to employees' creativity at workplace (Kissi et al., 2013). CEO's transformational leadership can contribute towards project portfolio success, considering this as an enabler to achieve firm's strategic objectives (Kopmann et al., 2017). Hence, the first hypothesis of this study is stated as:

*H1: CEO transformational leadership has significant and positive relationship with project portfolio success.*

### **3.2. CEO transformational leadership and strategic innovation orientation**

Without an innovation strategy, organizations are unable to manage future dynamics in a continuous changing environment and to create a competitive edge (Faghih et al., 2018). Innovation orientation is an essential strategic tool as part of company's competitive strategy (Mashahadi et al., 2016). Scientific evidence from previous studies indicates that senior leaders at strategic positions drive innovation culture in organizations (Sarros, Cooper, & Santora, 2008). Transformational leadership theory by Bass (1985) resonate this persona of transformational leaders' focus towards strategic innovation. Transformational leaders focus on innovation, influence employees, intellectually discuss the vision and create an environment that helps to facilitate innovation (Zuraik & Kelly, 2019). Khalili (2016) argues that transformational leaders drive creativity and innovation. Innovation phenomenon is applicable across the board and is not limited to a single industry. Research indicate that firms actively pursue SIO in areas of construction industry (Brunet & Forgues, 2019), ICT firms (Faghih et al., 2018), complex projects portfolio in IT sector (Georg, Lehner, & Kock, 2017), multi-national cross industry with portfolio of 20 and above projects (Unger & Berlin, 2015) and healthcare (Law, 2013). This is evident that innovation strategies are being prioritized to support firm strategy. In today's era, it is crucial to have SIO to stay ahead in the game and win the market share.

CEOs being at top strategic position, play a key role to develop and drive strategy that includes innovation strategy (Zuraik & Kelly, 2019), aligned with company's vision and strategic objectives. It is evident from empirical research that CEO's transformational leadership can achieve breakthrough performance by exploring new concepts and emphasizing on innovation orientation (Giesen, Riddleberger, Christner, & Bell, 2010). Considering the same persona, Talke et al. (2011)

suggest top leadership team in an organization should drive SIO to have stronger business impact. Such transformational behaviors support organizational strategy and result in achieving higher innovation at organizational level. CEO's transformational leadership has a positive influence and relationship with SIO culture as reported by earlier studies (Jung et al., 2003; Jung, Wu, & Chow, 2008). Based on these findings, the second hypothesis for this study is stated as:

*H2: CEO transformational leadership has significant and positive relationship with strategic innovation orientation.*

### **3.3. Strategic innovation orientation and project portfolio success**

SIO sets the strategic direction of an organization that targets innovation as a strategy to sustain market and achieve competitive edge (Gatignon & Xuereb, 1997; Zhou et al., 2005). For a successful project portfolio, it is utmost important to have a solid strategy in place that drive the business projects portfolio. Prior studies have highlighted that success of project portfolio is dependent on the scrutiny of project proposals, prioritization and allocation of resources (Martinsuo & Lehtonen, 2007) that reflect company's strategic position. Studies reveal that firms practicing innovation orientation as part of strategy are more successful (Dodgson, Gann, MacAulay, & Davies, 2015; Meskendahl, 2010). A conceptual model developed by Meskendahl (2010) fully supports the argument that strategic orientation plays a significant role towards success of firms' project portfolio. This impacts positively on portfolio decisions such as projects selection and prioritization within portfolio, its evaluation and strategic alignment (Meskendahl, 2010). Firms' major project portfolios get high significance because of strategic innovations (Dodgson et al., 2015) backed by specific innovation strategy.

In project management, it is broadly accepted that project portfolios embrace complexity and risks (Zaman, Jabbar, Nawaz, & Abbas, 2019a), as the project size grows. Kock and Darmstadt (2014) argue that risk management is an important component for project portfolio success. To understand and mitigate the risk factors, it is essential to have stakeholders' involvement from different functions (Kock et al., 2016). The authors further emphasized on allocation of governing resources from strategic level to successfully manage the projects portfolio. It is important to critically define and evaluate the success factors with optimal organizational modes for such endeavor (Flyvbjerg, 2017). Hence, strategic orientation sets the base line to achieve the success measures. Kock et al. (2016) explain that firm's focus more on innovations tend to get more profit, return on investment and stakeholders' attention in comparison with firms with narrow focus. For project portfolio success, single project may not be enough but a continuous process of getting more innovative projects in pipeline (Martinsuo & Lehtonen, 2007) can be attained by defining and implementing strong innovation orientation and building meaningful processes as part of innovation strategy (Gemünden et al., 2018). SIO of a firm significantly improves the outcome of projects (Dodgson et al., 2015). Considering the alignment of these two important constructs and its value proposition towards organizations, businesses and project portfolios, the third hypothesis is stated as:

*H3: Strategic innovation orientation has significant and positive relationship with project portfolio success.*

#### **3.3.1. Mediating effect of strategic innovation orientation**

This study concentrates on exploring the effects of CEO's transformational leadership on project portfolio success through a mediating lens of SIO. The mediation role of SIO has not been explored before within this framework. Transformational leadership promotes two-way communication that influences project portfolio teams, eventually leading to portfolio success. Moreover, Yang et al. (2011) described that transformational leadership augment innovative behaviors at workplace that leads to project success and positively affect firm performance (Fisher & Chen, 2018). In addition, Eisenbeiss, van Knippenberg, and Boerner (2008) relate project portfolio success as team alignment with strategic innovation objectives and adherence to firm's pre-defined processes.

According to Dietrich and Lehtonen (2005), the alignment of strategic and project goals warrant the success of firm's project portfolio. Strategic orientation of top leadership assists in effective decisions to drive strategy implementation (Unger & Berlin, 2015), hence making portfolio success possible (Jonas et al., 2013). Pisano (2015) indicates that corporate strategy should specify the innovation streams and hence CEOs need to play key role in the strategic alignment of objectives. CEO being a senior strategic leader defines innovation strategy (Zuraik & Kelly, 2019), prioritizes project portfolio and aligns resources (Talke et al., 2011), engages team through personal identification (Hartog et al., 1997), and enables project portfolio success (Kopmann et al., 2017). CEOs with transformational leadership abilities have clear vision as they actively play role in promoting strategic innovation and creating opportunities for project portfolio success. Hence, fourth hypothesis is stated as:

*H4: Strategic innovation orientation significantly mediates the relationship between CEO transformational leadership and project portfolio success.*

### **3.4. Moderating effects of portfolio governance**

Portfolio governance mechanism involves steering, managing, directing and supervising the portfolio management process including stakeholders' engagement (Lynn, 2011). Portfolio governance being strategic in nature follows the basic corporate governance principles that highly focus on project executions within an organization. According to the Project Management Institute (PMI), "portfolio governance is an oversight function that is aligned with the organization's governance model and that encompasses the project lifecycle, (and provides) a consistent method of controlling the projects in portfolio and ensuring its success by defining and documenting and communicating reliable, repeatable project practices" (Rose, 2013). Considering the diverse governance approaches (Müller et al., 2014), portfolio governance help practitioners to manage and optimize projects portfolio (Too & Weaver, 2014), trust and ethical factors (Müller et al., 2013), risk and uncertainty in major projects (Sanderson, 2012) specially in ICT sector (Weill & Ross, 2004). Recent studies highlight the moderating role of portfolio governance in influencing success in multi-stakeholder joint projects (Müller & Martinsuo, 2015). Joslin and Müller (2015) referred this as quasi-moderator that embraces unique role in project success.

Defining governance mechanism is the core responsibility of senior management, hence CEO along with executive stakeholders are responsible for providing portfolio governance mechanism. It is corporate level activity managed by CEO of the firm who sets the strategic innovation objectives aligned with corporate vision (Zuraik & Kelly, 2019) and define the rules how an organization tend to manage their projects portfolio (Müller et al., 2017). Strategic nature of portfolio governance has made it essential for CEOs to oversee these groups to achieve strategic corporate objectives. Young et al. (2019) highlighted the significant association between project governance and project success including different life-cycle stages of projects. In addition, governance in projects exhibit successful project outcomes in different perspectives, e.g. agency theory, stewardship theory, benefits management and project management methodologies (Joslin, 2019; Joslin & Müller, 2016; Ul Musawir et al., 2017). However, limited quantitative studies on this construct are available in literature that empirically examines the impact of portfolio governance on project portfolio success, especially in a moderating role. Considering the importance of governance in projects and its effect on project success (Joslin, 2019; Joslin & Müller, 2016; Ul Musawir et al., 2017; Young et al., 2019), the fifth and sixth hypothesis are stated as:

*H5: Portfolio Governance significantly moderates the relationship between CEO Transformational Leadership and Project Portfolio Success.*

*H6: Portfolio Governance significantly moderates the relationship between Strategic Innovation Orientation and Project Portfolio Success.*

#### 4. Methods

This study relied on a deductive and quantitative approach for examining the proposed causal linkages of project portfolio success in the APAC region. The sampling frame for this study comprised of project-individuals working in the ICT sector in two APAC countries, i.e. Republic of Korea (an advanced economy, representing Study-I) and Pakistan (a developing economy, representing Study-II), respectively. These project-individuals served as the sampling units and provided survey data on the ICT sector project portfolios. The survey data was collected through direct email communications, on-site face to face interactions and by sharing Google-form survey links using social networking service (SNS), e.g. LinkedIn, Facebook and WhatsApp. Based on sample size recommendations for structural equation modeling (SEM) (Chumney, 2013; Hoyle, 1995; Kline, 2015), the required sample size was achieved in Republic of Korea (i.e. Study-I comprising 148 project-individuals) and Pakistan (i.e. Study-II comprising 151 project-individuals), respectively. Survey data was gathered from multiple sources in different organizations in the ICT sector, especially the cross-country perspective of this study (i.e. multi-group analysis via Study-I and Study-II) overcomes the issue of common method variance (Chang, Van Witteloostuijn, & Eden, 2010; Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). In addition, ensuring respondents lack of knowledge about the conceptual model, while expressively maintaining respondents confidentially, anonymity, and non-existence of right or wrong answers, prevented issue of common method variance (Lengler, Sousa, Perin, Sampaio, & Martinez-Lopez, 2016).

##### 4.1. Measures

###### 4.1.1. CEO transformational leadership

CEO transformational leadership measure was adapted from the recent study by Chen et al. (2019). The measure specifically assesses transformational leadership at the CEO level, instead of middle and lower levels of the organization. The adapted scale comprised of four major characteristics and dimensions (i.e. individual consideration, charismatic leadership, intellectual stimulus and inspirational motivation) that truly resonates with CEO's transformational leadership qualities. Each of these dimension contain three items. The scale has been validated by Chen et al. (2019). All 12 items of the adapted scale were measured using Likert scale ranging from 1 = strongly disagree to 5 = strongly agree.

###### 4.1.2. Strategic innovation orientation

The measurement scale for SIO comprised of 10 items adapted from studies conducted by Milwood (2015) and Talke et al. (2011). The measure included questions related to innovation design, proactive market innovation and proactive technology innovation. The SIO scale assesses the firms "openness" to innovate as well as its "capacity" to innovate. The measure included questions regarding firm's propensity to innovate, recognition of innovative values, adaptation to new technologies and innovation-enabling processes and competencies. All 10 items of the adapted scale were measured using Likert scale ranging from 1 = strongly disagree to 5 = strongly agree.

###### 4.1.3. Portfolio governance

After extensive review, adapted scale from prominent studies on portfolio governance was considered for this study (Lerch & Spieth, 2012; Urhahn & Spieth, 2014). The portfolio governance scale comprised of four dimensions i.e. formality and openness, portfolio review frequency, transparency in decision-making and information about project portfolio. Urhahn and Spieth (2014) have validated this scale in their study that focused on the impact of portfolio management governance, portfolio and product innovation on performance of German companies. The adapted scale of portfolio governance consisted of 14 items. All items were measured using Likert scale ranging from 1 = strongly disagree to 5 = strongly agree.

###### 4.1.4. Project portfolio success

The scale comprising of six items for measuring project portfolio success was adapted from the work of Beringer, Jonas, and Kock (2013) that investigated the impact of the multi-level



managerial behavior intensity on project portfolio success. The project portfolio success scale captures the portfolio's strategic fitness as well as the average project success (Beringer et al., 2013). The measurement for project portfolio success established significant reliability and validity (Beringer et al., 2013). All six items of the adapted scale were measured using Likert scale ranging from 1 = strongly disagree to 5 = strongly agree.

#### 4.2. Data analysis

This study used partial least squares structural equation modeling (PLS-SEM) for empirically testing the measurement and structural model. The robustness of PLS-SEM approach has been widely established across disciplines, including numerous publications in high-ranked mainstream journals (Zaman et al., 2019b) and most importantly the recent call for papers in the *Journal of Business Research* entitled "Advanced Partial Least Squares Structural Equation Modeling (PLS-SEM) Applications in Business Research" (JBR, 2019). Researchers have continued to extensively employ PLS-SEM approach in testing highly-complex and causal-predictive path models. PLS-SEM technique has effectively generated recognition and methodological advancements to a much wider audience (Zaman et al., 2019b). The latest version of PLS-SEM v.3.2.8 provided empirical testing of research hypotheses presented in a moderated-mediation model of project portfolio success in the APAC region.

### 5. Results

#### 5.1. Measurement model

PLS-SEM is considered significantly relevant for understanding individual constructs besides determining the cause-effect relationship when the survey has a predictive goal in a comparatively complicated model (Chin, 1998; Hair, Sarstedt, Pieper, & Ringle, 2012; Sarstedt, Ringle, Henseler, & Hair, 2014). The PLS measurement model assessments revealed that all latent constructs fulfil the need for composite reliability (CR) and Cronbach alpha i.e. greater than 0.70 (Nunnally, 1978; Zaman, 2020), representing Study-I (Korea) and Study-II (Pakistan), respectively. Acceptable convergent validity was ensured using the factor loadings for each latent construct, whereas the discriminant validity was ensured using the Heterotrait-Monotrait Ratio (HTMT) as the recommended criterion (Hair et al., 2012; Henseler, Ringle, & Sarstedt, 2015; Zaman et al., 2019b). The average variance extracted (AVE) for all latent constructs revealed greater values than 0.50, hence confirming the convergent validity. In addition, the HTMT criterion values being less than 1 established the discriminant validity (Henseler et al., 2015; Zaman et al., 2019b). The PLS confirmations of convergent and discriminant validity ensured the consistency and precision of the measurement instruments while performing the Multi-Group Analysis (MGA) using the country-wise survey data representing Study-I (Korea) and Study-II (Pakistan), respectively. Tables 1 and 2 highlight the established criterion referring to AVE, CR and HTMT, respectively.

#### 5.2. Structural equation model

PLS-SEM bootstrapping technique was used to determine the structural model path coefficients and the country-wise relationships (Study-I and Study-II) amongst the latent constructs (Hair, Ringle, & Sarstedt, 2011). The PLS-SEM assessment for the significant predictors of project portfolio success is reflected in Table 3, showing the path relationships (represented by beta and *t*-values) and hypothetical testing decisions. The results revealed a significant positive relationship between CEO transformational leadership and project portfolio success in Study-I (Korea) ( $\beta = 0.173$ ,  $t = 1.968$ ,  $p = 0.050$ ) and Study-II (Pakistan) ( $\beta = 0.134$ ,  $t = 2.124$ ,  $p = 0.034$ ), respectively, hence supporting first hypothesis. The second hypothesis stated that CEO transformational leadership has significant and positive relationship with SIO. The PLS-SEM results in Study-I (Korea) ( $\beta = 0.638$ ,  $t = 16.838$ ,  $p = 0.000$ ) and Study-II (Pakistan) ( $\beta = 0.256$ ,  $t = 3.567$ ,  $p = 0.000$ ), respectively, provide support for the second hypothesis.

Similarly, the relationship between SIO and project portfolio success was also found to be positive and significant in Study-I (Korea) ( $\beta = 0.177$ ,  $t = 2.272$ ,  $p = 0.024$ ) and Study-II (Pakistan) ( $\beta = 0.400$ ,



**Table 1. Construct reliability and validity (Study-I and Study-II)**

Countries	Construct	Cronbach's Alpha	CR	AVE
Korea	CEO Transformational Leadership (CTL)	0.911	0.926	0.585
	Portfolio Governance (PG)	0.839	0.892	0.675
	Project Portfolio Success (PPS)	0.851	0.909	0.769
	Strategic Innovation Orientation (SIO)	0.770	0.854	0.597
Pakistan	CEO Transformational Leadership (CTL)	0.893	0.909	0.526
	Portfolio Governance (PG)	0.815	0.854	0.609
	Project Portfolio Success (PPS)	0.842	0.904	0.759
	Strategic Innovation Orientation (SIO)	0.735	0.828	0.553

**Table 2. Discriminant validity (HTMT criterion) (Study-I and Study-II)**

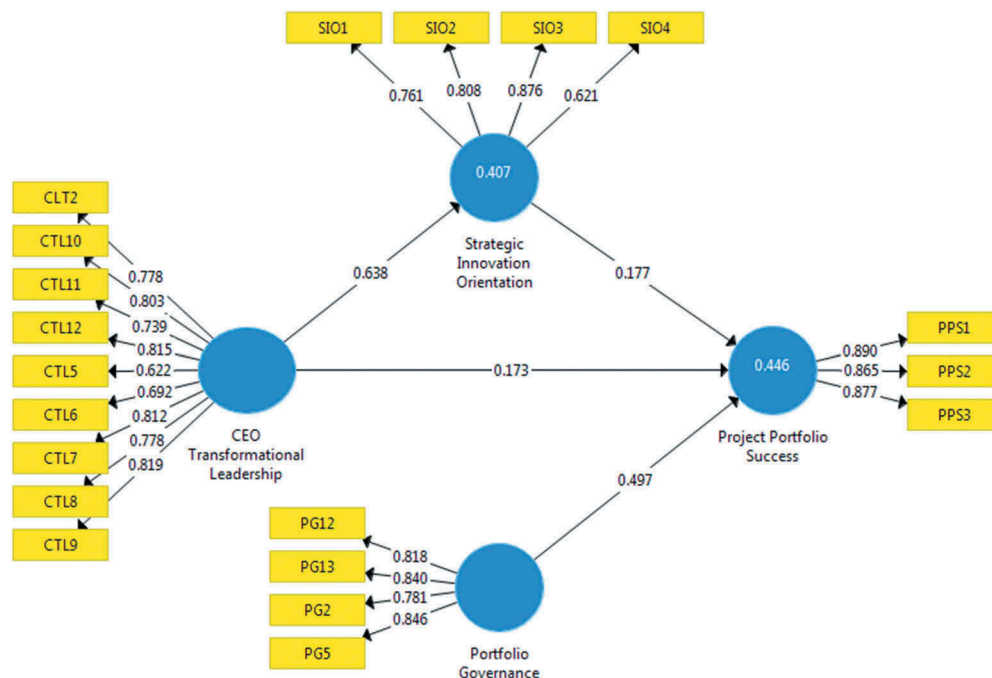
Country	Construct	CTL	PG	PPS	SIO
Korea	CTL				
	PG	0.310			
	PPS	0.469	0.701		
	SIO	0.736	0.338	0.506	
Pakistan	CTL				
	PG	0.179			
	PPS	0.263	0.204		
	SIO	0.279	0.173	0.515	

**Table 3. SEM path coefficients of direct hypothesis (Study-I and Study-II)**

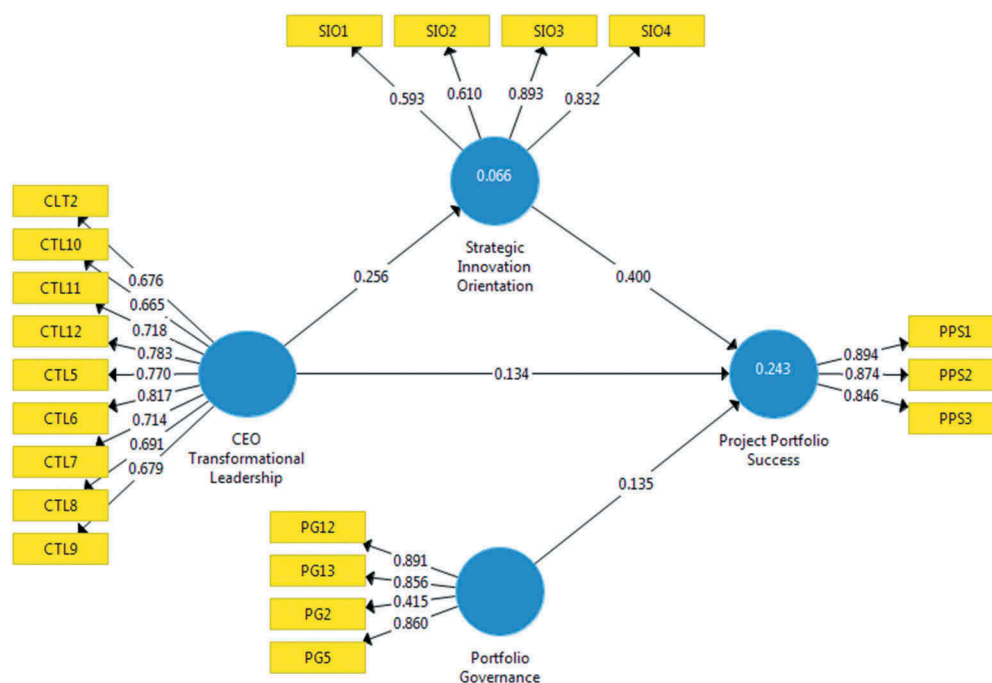
Country	Path Relation	$\beta$ value	S.D.	t value	p value	Decision
Korea	CTL -> PPS	0.173	0.088	1.968	0.050	Supported
	CTL -> SIO	0.638	0.038	16.838	0.000	Supported
	SIO -> PPS	0.177	0.078	2.272	0.024	Supported
Pakistan	CTL -> PPS	0.134	0.063	2.124	0.034	Supported
	CTL -> SIO	0.256	0.072	3.567	0.000	Supported
	SIO -> PPS	0.400	0.071	5.800	0.000	Supported

$t = 5.800$ ,  $p = 0.000$ ), respectively, hence supporting third hypothesis. Moreover, the coefficient determinant for variance (i.e.  $R$ -square) in project portfolio success revealed a stronger explanation of the dependent variable in Study-I (Korea)  $R^2 = 0.466$ , as compared to Study-II (Pakistan) with  $R^2 = 0.243$  as shown in Figures 2 and 3, respectively. This implies that 46.6% of variance in project portfolio success in Korea (Study-I) is explained by its predictors i.e. CEO transformational leadership, SIO and portfolio governance. In contrast, the predictor variables (i.e. CEO transformational leadership, SIO and portfolio governance) were able to explain 24.3% of the variance in project portfolio success in Pakistan (Study-II).

**Figure 2. Model assessments of project portfolio success (Study-I, Korea).**



**Figure 3. Model assessments of project portfolio success (Study II, Pakistan).**



#### 5.2.1. Mediating effect of strategic innovation orientation

In research model (Figure 1), H4 shows the mediation hypothesis that assumes how and in what manner independent variable, i.e. CEO transformational leadership (CTL) impacts dependent variable, i.e. PPS through the mediating variable, i.e. SIO. Using PLS-SEM bootstrapping procedure, the direct and indirect influence was analyzed to find the mediating role of SIO in CEO transformational leadership-project portfolio success relationship. Direct impact of CEO

transformational leadership and projected portfolio success was found significant. After inserting the mediating variable (i.e. SIO), the relationship between CEO transformational leadership and project portfolio success remained significant. Hence, SIO partially mediated the relationship between CEO transformational leadership and project portfolio success ( $\beta = 0.113$ ,  $t = 2.201$ ,  $p = 0.028$ ,  $VAF = 65\%$ ) in Korea (Study-I) as well as in Pakistan (Study-II) ( $\beta = 0.103$ ,  $t = 2.773$ ,  $p = 0.006$ ,  $VAF = 77\%$ ). The mediation results provide support for acceptance of fourth hypothesis, as depicted in Table 4.

#### 5.2.2. Moderating effect of portfolio governance

The moderating effect of project governance mechanism was tested by PLS-SEM bootstrapping technique and reflected in Figures 4–7. Table 5 presents results on H5 indicating that portfolio governance mechanism significantly and positively moderates the relationship between CEO transformational leadership and project portfolio success ( $\beta = 0.265$ ,  $t = 2.873$ ,  $p = 0.004$ ) in Korea (Study-I). Likewise, results on H6 revealed that portfolio governance significantly and positively moderates the relationship between CEO SIO and project portfolio success ( $\beta = 0.217$ ,  $t = 2.636$ ,  $p = 0.009$ ) in Korea (Study-I). Hence, PLS-SEM results confirmed the acceptance of fourth and fifth hypothesis as well. In contrast, the moderating role of portfolio governance on the relationships between CEO transformational leadership and project portfolio success ( $\beta = -0.159$ ,  $t = 0.834$ ,  $p = 0.405$ ), as well as SIO and project portfolio success ( $\beta = -0.212$ ,  $t = 1.112$ ,  $p = 0.262$ ) did not confirm to be significant in Pakistan (Study-I).

#### 5.2.3. PLS-SEM multi group analysis (MGA)

PLS-SEM MGA was employed to assess the statistically significant differences between Korea (Study-I) and Pakistan (Study-II) while testing the hypothesized relationships in a framework of project portfolio success (Ramírez-Correa, Grandón, Alfaro-Pérez, & Painén-Aravena, 2019; Sarstedt, Henseler, & Ringle, 2011). Welch-Satterthwait  $t$ -test was used to analyze the statistical differences of path coefficients (Hair, Sarstedt, Ringle, & Gudergan, 2017; Henseler, Ringle, & Sinkovics, 2009; Sarstedt et al., 2011; Ting, Run, & De, Thurasamy, 2015) in Korea (Study-I) and Pakistan (Study-II), respectively. Table 6 presents that only three out of the five hypothesized relationships in the study model had statistically significant differences (Ramírez-Correa et al., 2019; Ting et al., 2015) between Korea (Study-I) and Pakistan (Study-II), respectively. This implies that the impact of CEO's transformational leadership on SIO in Korea (Study-I) had significant difference with Pakistan (Study-II). Moreover, the impact of SIO on project portfolio success in Korea (Study-I) significantly differs with Pakistan (Study-II). MGA results also showed that the moderating effect of portfolio governance on the relationship between SIO and project portfolio success also significantly differs in Korea (Study-I) and Pakistan (Study-II) (Ting et al., 2015).

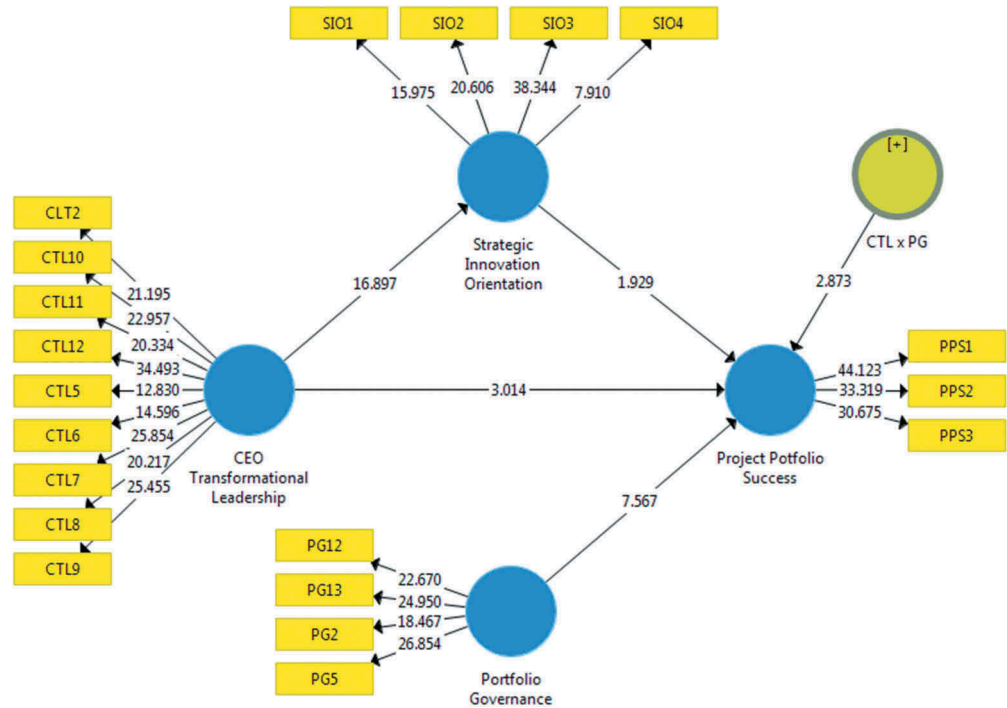
### 6. Discussion

This study proposes that CEO transformational leadership, portfolio governance and SIO can provide significant cues in explaining project portfolio success. This research provides empirical support that the impact of CEO transformational leadership on project portfolio success is mediated by SIO and moderated by portfolio governance, respectively. Further, this study addressed multiple calls for research to examine project portfolio success framework that involve potential factors such as CEO's transformational leadership, portfolio governance and SIO in a cross-country perspective (Hristova & Müller, 2009; Kock & Gemünden, 2019; Kock et al., 2016; Sattayaraksa & Boon-itt, 2018; Urhahn & Spieth, 2014; Zaman et al., 2019b). The results of the direct effects showed that transformational leadership has a significantly positive impact on project portfolio success. Hence this study goes beyond the general inspection of success in standalone projects, as the cross-country analysis provide a broader perspective of CEO's transformational leadership as an antecedent to project portfolio success. This finding offers similar views as expressed in some of the recent studies (Zaman et al., 2019b). In addition, the results on the indirect effect showed that SIO significantly mediates the relationship between CEO's transformational leadership and project portfolio success. This study interprets this finding with prior

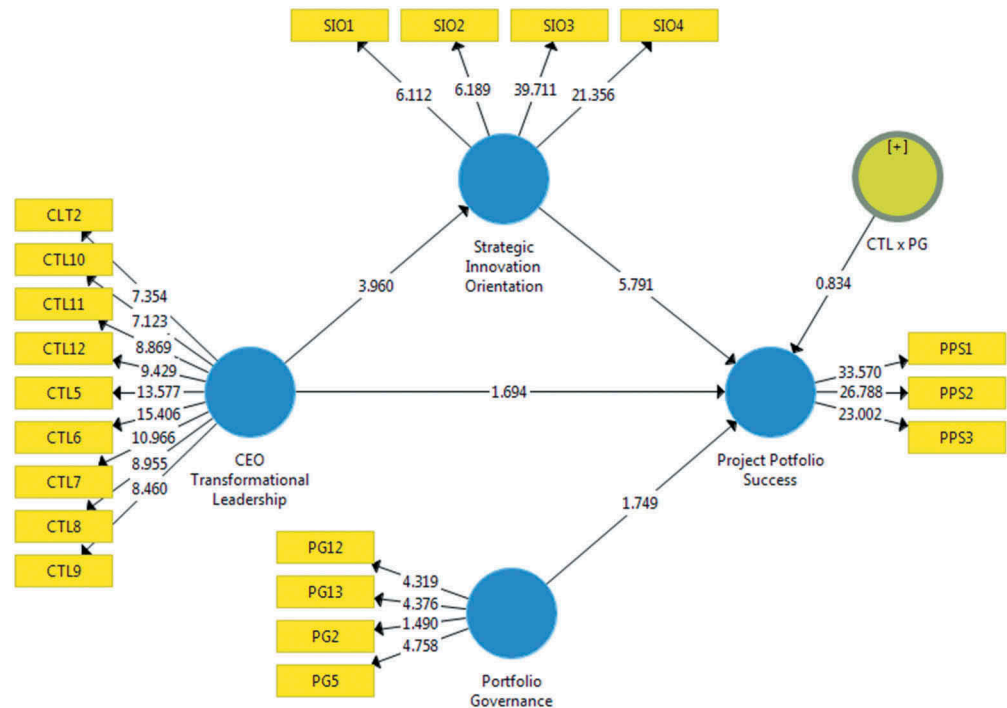
**Table 4. Mediation assessments of SIO (Study-I and Study-II)**

Country	Path Relation	$\beta$ value	S.D.	t value	p value	VAF	Mediation Type	Decision
Korea	CTL $\rightarrow$ SIO $\rightarrow$ PPS	0.113	0.051	2.201	0.028	65%	Partial	Supported
Pakistan	TL $\rightarrow$ SIO $\rightarrow$ PPS	0.103	0.037	2.773	0.006	77%	Partial	Supported

**Figure 4. Moderator between CTL and PPS (Study-I Korea).**

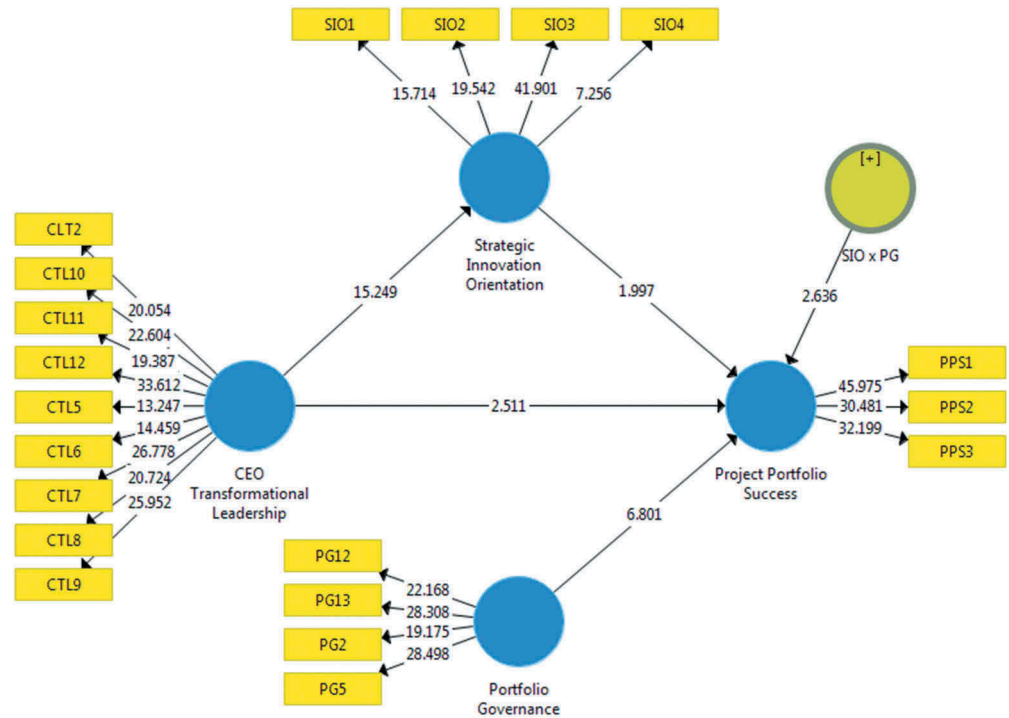


**Figure 5. Moderator between CTL and PPS (Study-II Pakistan).**

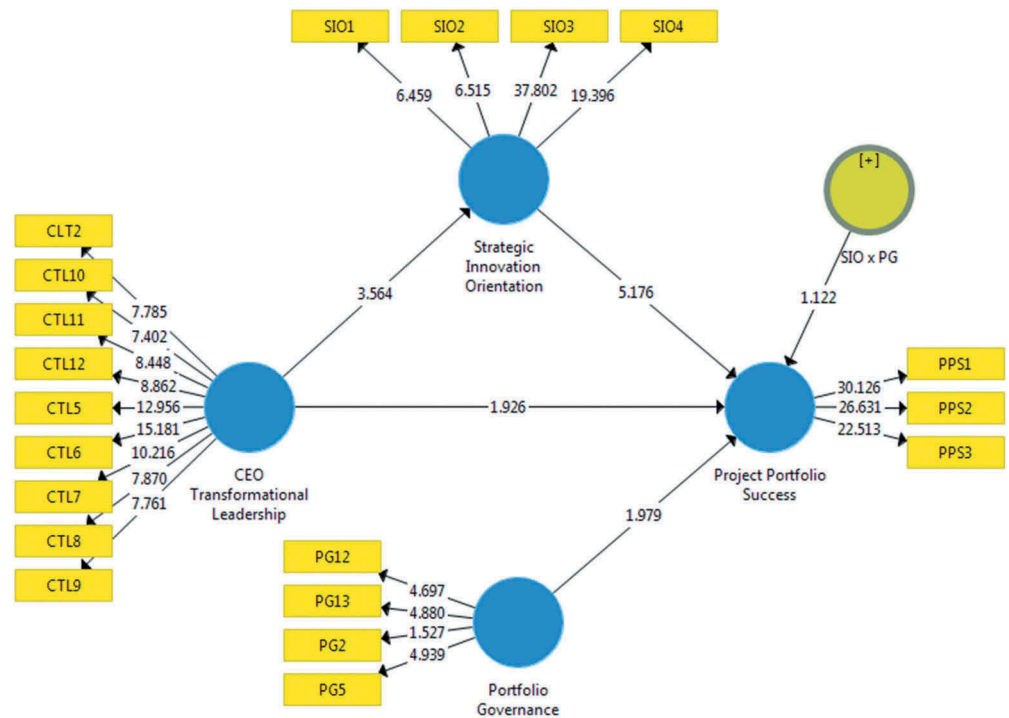


research, which highlights that transformational leadership behavior has a positive impact on SIO, and innovation orientation can then strategically lead to successful project portfolios (Eisenbeiss et al., 2008; Khalili, 2016; Meskendahl, 2010; Yang et al., 2011). Lastly, the results on the moderating influence of portfolio governance were significantly supportive in Study-I (Korea); however, it could not be confirmed in Study-II (Pakistan). This implies that countries and industries that have

**Figure 6. Moderator between SIO and PPS (Study-I Korea).**



**Figure 7. Moderator between SIO and PPS (Study-II Pakistan).**



effective governance mechanism especially in project portfolios can attract higher success relative to those with weaker governance systems (Joslin, 2019; Joslin & Müller, 2016; Ul Musawir et al., 2017; Young et al., 2019).



**Table 5. Moderation assessments of portfolio governance (Study-I and Study-II)**

Country	Path Relation	$\beta$ value	S.D.	t value	p value	Decision
Korea	CTL $\times$ PG $\rightarrow$ PPS	0.265	0.092	2.873	0.004	Supported
	SIO $\times$ PG $\rightarrow$ PPS	0.217	0.082	2.636	0.009	Supported
Pakistan	CTL $\times$ PG $\rightarrow$ PPS	-0.159	0.191	0.834	0.405	Not Supported
	SIO $\times$ PG $\rightarrow$ PPS	-0.212	0.189	1.122	0.262	Not Supported

**Table 6. Welch-Satterthwait t-test scores on multi group analysis (Study-I and Study-II)**

Relationships	Path Coefficients-diff (Korea vs. Pakistan)	t-value (Korea vs. Pakistan)	p-value (Korea vs. Pakistan)	Significance
CTL $\rightarrow$ PPS	0.040	0.361	0.718	No
CTL $\rightarrow$ SIO	0.382	4.773	0.000	Yes
SIO $\rightarrow$ PPS	0.223	2.095	0.038	Yes
SIO $\times$ PG $\rightarrow$ PPS	0.428	2.050	0.042	Yes
CTL $\times$ PG $\rightarrow$ PPS	0.424	1.955	0.052	No

### 6.1. Theoretical contributions

This study makes several theoretical contributions. Firstly, in contrast to prior research that primarily relies on project success, this study provides more holistic approach in assessing the success of project portfolio rather individual projects. This study offers empirical evidence for portfolio governance and SIO in a contextual mechanism through which CEO transformational leadership fosters project portfolio success. In line with prior research on PPM, this study highlighted the importance of project portfolio success, which has been often ignored in project management research (Costantino et al., 2015; Kaiser et al., 2015). To assume that individual project success reflects a queue of successful projects in organizations is a grave-mistake, as several other projects that may fail in a portfolio may jeopardize an effective PPM. This study's second major contribution is in providing empirical evidence in support of CEO transformational leadership in predicting project portfolio success through a mechanism of SIO and portfolio governance. By focusing on SIO as a potential mediator and portfolio governance as an impactful moderator, this study extends prior research on PPM based on the impact of transformational leaders in achieving successful outcomes.

This study findings suggest that transformational leadership of CEOs can leverage strong environment of strategic innovation and the relationship between CEO transformational leadership and project portfolio success can be further nurtured by an effective portfolio governance system, especially within project-based organizations. Hence, this research provides more theoretical precision in both level and content to examine successful project portfolios. This study's third major contribution is in extending the generalizability of research on CEO's transformational leadership, strategic innovation, portfolio governance and project portfolio success in a non-Western context i.e. APAC cross-country context involving Republic of Korea (Study-I—an advanced economy perspective) and Pakistan (Study-II—an emerging economy perspective). In the APAC context, transformational CEO's build strong environments for strategic innovation that accentuates successful project portfolios, whereas portfolio governance builds strong relational model between CEO transformational leadership and project portfolio success. This research has more applicable extensions in other countries in the APAC region that share similar cultural makeup. Undoubtedly, project management research has to focus on project portfolios while developing theories and constructs that can accurately capture success factors in project portfolios

in the APAC region. This study's findings show that CEO's transformational leadership, portfolio governance and strategic innovation does have currency in the APAC region.

## 6.2. Practical contributions

Effective leadership can be developed through training. Hence, the foremost managerial implication of this study is to design systematic leadership development programs for organizational members who are elevated and/or assume role of a CEO in project-based environments. Due to the rising globalization, highly-competitive and multi-cultural workplace, it has become increasingly important for transformational leaders to sponsor strategic innovation in organizations (Faghih et al., 2018; Jung et al., 2008). Earlier empirical research on transformational leadership in project-based environment has relied on a specific and/or single country context (Zaman et al., 2019b). However, this study assists CEOs and project portfolio managers in better understanding the variations in transformational leadership, strategic innovation and portfolio governance in impacting project portfolio success in a cross-country context in the APAC region i.e. Republic of Korea (Study-I) and Pakistan (Study-II), respectively.

This study findings also have significant implications for improving the success of project portfolios, as a majority of projects and management initiatives fail within organizations (Kaiser et al., 2015; Zaman et al., 2019b). The strongest direct relationship was found between transformational leadership and project portfolio success, whereas CEO's transformational leadership also revealed an in-direct effect on project portfolio success through SIO. Moreover, portfolio governance had further strengthened these relationships as evident in Study-I (Korea). Besides taking advantages of an effective portfolio governance system, the CEOs in project-based organizations should also focus on developing transformational leadership capabilities that promote strategic innovation and eventually nurture successful project portfolios. Lastly, based on the study findings in two APAC countries (i.e. Korea and Pakistan), the global project management practitioners can have a bird's eye-view on the potential impact of CEO's transformational leadership, SIO and portfolio governance on project portfolio success. Hence, this study findings facilitate global project managers to strategically focus on the high-level dynamics in project portfolio success especially in their own institutional and unique project portfolio environments.

## 7. Limitations and future research

Besides a number of strengths in relation to the selected samples, methods and theoretical framework, this study also has some limitations worth mentioning. Firstly, this study achieved usable survey samples generated from individuals working in projects in the information and communications technology (ICT) industry in two APAC countries i.e. Republic of Korea and Pakistan. The study samples involved project portfolio-based survey data from diverse telecom, software and communication-related companies that constitute the ICT industry. Despite suitable sample sizes from Republic of Korea ( $N = 148$ ) and Pakistan ( $N = 151$ ) for SEM analysis, a slightly larger sample size is recommended for future investigations. Moreover, due to operational difficulties in collecting survey data from the two APAC countries, this study relied on the cross-sectional survey which has been consistently used in prominent studies in project management (Henker, Sonnentag, & Unger, 2015; Zaman et al., 2019b). However, this study also recommends that experimental research design and/or longitudinal approach can yield more accurate findings in future investigations.

Further, the study participants had reported on the transformational leadership abilities of their CEOs, SIO, portfolio governance and project portfolio success in their organizations. This study recommends a multi-level unit of analysis to understand any variations among different group-levels in perceiving the study constructs. This study had focused on transformational leadership of CEOs and have excluded other wide-array of leadership styles that can also potentially impact project portfolio success (Turner & Müller, 2005). Thus, future studies may also take into account the variability of leadership styles that may impact project portfolio success differently. Some contextual factors such as portfolio complexity and flexibility (Zaman et al., 2019a) may also emerge as influential variants impacting CEO's transformational leadership and project portfolio

success relationship. Hence, such contextual factors should also be investigated in further studies. Lastly, follower's empowerment has been highlighted as a potential factor in enhancing innovative behaviors (Faghih et al., 2018). Hence, future investigations may also consider the role of follower's empowerment in promoting strategic innovation in accomplishing project portfolio success.

## 8. Conclusions

This research examined a novel framework of project portfolio success in two APAC countries using Study-I (in Korea; an advanced economy) and Study-II (in Pakistan; a developing economy), respectively. This cross-country perspective provides an extensive understanding of how CEO's transformational leadership can influence project portfolio success under mediating conditions of SIO and moderating role of portfolio governance. A large stream of project management research has examined success through a limited lens i.e. success in individual projects (Zaman et al., 2019b). However, the broader lens of success in project portfolios still remains under-researched (Kock & Gemünden, 2019). Hence, this study provides a platform for making future investigative efforts in examining potential factors that determine successful project portfolios. This cross-country study suggests that transformational CEOs can provide strategic direction and foster innovative orientation in firms that guides management of project portfolios (including portfolio composition and resource allocations) to make them more successful. In addition, transformational CEOs can instill portfolio governance mechanism that regulates the management of concurrent and longitudinal interdependencies in project portfolios for a greater success. This study empirically established the importance of CEO transformational leadership, SIO and portfolio governance in delivering successful project portfolio, from a dual-country perspective. Lastly, the finding of this cross-country analysis places greater emphasis on the strategic contribution of successful project portfolios which goes far beyond the impact of individual projects in achieving the desired business impact.

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## Author details

Umer Zaman<sup>1</sup>

E-mail: [umerzaman@endicott.ac.kr](mailto:umerzaman@endicott.ac.kr)

Raja Danish Nadeem<sup>2</sup>

E-mail: [raja.danish01@gmail.com](mailto:raja.danish01@gmail.com)

Shahid Nawaz<sup>3</sup>

E-mail: [shahidnawaz702@gmail.com](mailto:shahidnawaz702@gmail.com)

<sup>1</sup> Endicott College of International Studies, Woosong University, Daejeon, Republic of Korea.

<sup>2</sup> Department of Management Sciences, Shaheed Zulfiqar Ali Bhutto Institute of Science and Technology (SZABIST), Islamabad, Pakistan.

<sup>3</sup> Department of Management Sciences, Islamia University Bahawalpur (IUB), Pakistan.

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