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Effect of Technological Orientation on Project Management Process and Infrastructure Performance of RTA in UAE

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Abstract

The importance of Road and Transportation Project Management Cycle contributions internationally and encourages further development initiative to support Middle Eastern region and United Arab Emirates (UAE) roads and transport. UAE's infrastructure project failure rate has been estimated to be as high as 50%. The general objective of this study is to assess the relationship between project management process, technological orientation and Infrastructure performance in United Arab Emirates (UAE). A cross-sectional study was carried out for this purpose. For this study the target population was an employee of RTA. However, population was the officer, managers, and engineer who worked in RTA for this research. The questionnaire was pilot tested for content validity with a sample of 36 employees. To ensure a high rate of response, structured-short and self-administrated questions, and mostly closed questions were prepared. The required sample size for this study was estimated to be 361. Because the current study employed quantitative methodology, statistical analysis was carried out using SPSS 24 and AMOS 21. The results of structural equation modelling showed that there is significant relationship between project management process and technological orientation ($\beta = 0.313, t = 6.686, p \leq .05$), project management process and infrastructure performance ($\beta = 0.331, t = 6.431, p \leq .05$) and technological orientation and infrastructure performance ($\beta = 0.411, t = 7.346, p \leq .05$). The study also found that there is a significant partial mediating effect of technological orientation between project management process and infrastructure performance. This study concluded that firms can improve infrastructure performance through the incorporation of technological tools. It is further concluded that dimensions of project management process are the important determinants that support performance. Therefore, the study encourages firms' management to pursue technology in improving infrastructure performance in today's competitive and digital era.

Keywords: Road and transportation, Project management, Technological orientation, Infrastructure performance, United Arab Emirates

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Introduction

The Road and Transport Authority is the agency in charge of licensing all public and commercial vehicles, as well as regulating and monitoring public transportation. From

conception to completion, road and transportation infrastructure projects can take a very long time (RTA, 2017). Transport and infrastructure are seen as very important in the world economy and contribute significantly to the production, employment rate and performance of gross domestic products (GDP). Transportation is a major source of economic growth in both developed and developing countries. Consequently, transportation is viewed as a key component of the economy. There has been a substantial growth in the number of large infrastructure projects in several developing countries during the past few decades. Project management deals with the potential for project-related uncertainty. The root cause of project delays and decreased organisational performance is uncertainty (Aziz, Qasim, & Wajdi, 2017). The critical contribution of the Road and Transportation Project Management Cycle on a global scale and promotes more development initiatives to assist the the region of the Middle East and the United Arab Emirates (UAE) roads and transport.

Infrastructure has played an essential role in the overall expansion and improvement of UAE, especially in the Emirates of Dubai, since it was established as one of the key authorities within the UAE government, leading it to become one of the smartest cities in the world (Al Nahyan, Sohal, Fildes, & Hawas, 2012). Infrastructure embodied by RTA in UAE has launched a range of projects where innovation has been incorporated into an attractive framework, raising standards and setting new targets for other authorities to counterpart and track, starting with the expansion of smart booths, smart bus shelters, and reaching productive UAE projects. Infrastructure with RTA has brought UAE to a new stage of growth and innovation, for example, The Dubai Metro has a significant impact on a variety of areas, including the economic, social, and political arenas. Additionally, the project's impact goes beyond its immediate surrounds (in this case, the emirate of Dubai), but also throughout the United Arab Emirates as a whole. H.H. Sheikh Mohammed bin Rashid Al Maktoum declared at the Dubai Metro's opening, "The [Metro] project represents Dubai's socioeconomic future." One may even argue that the Dubai Metro has regional significance, having spurred other countries in the region, like Saudi Arabia and Kuwait, to embark on their own metro development efforts. (Johnson & Babu, 2018). Infrastructure has adopted project management processes and practices in project performance to have a positive impact on successful project performance in UAE that they are starting to maintain their customers and practically grow their business (Haque, Saroar, Fattah, & Morshed, 2020).

Road Transport is the backbone of every economy in the world, whether it is developed or developing. Transport is not only economically significant, but also minimizes unemployment, reduces poverty and stimulates creativity (Herman et al, 2018). Improving road and transportation efficiency is therefore of national significance to every country (Dewan, 2018). As with other countries, road numbers in United Arab Emirates (UAE) are booming.

Infrastructure investment is a key driver of a stronger, more productive economy in UAE. The UAE invested more in infrastructure. The UAE Government has made significant progress in improving UAE infrastructure in recent years, establishing infrastructure in transportation and setting up a Nation Building program to develop the country roads (Alnahyan et al., 2012). Equally significant is the ongoing reform efforts by the government to change the way the country was designed to control and administer infrastructure, to implement infrastructure projects effectively, and to tackle hold-ups and economic capacity constraints. Dubai's improved mass transit systems aided in increasing the share of total mobility journeys taken by public transportation from 6% in 2006 to 17.5 percent in 2018. Furthermore, improved road projects, combined with existing awareness programmes,

contributed to a reduction in road accident fatalities from 21.9 cases per 100,000 of the population in 2006 to 2.4 cases per 100,000 of the population in 2018, a drop of up to 89 percent (Suryani et al., 2021).

Weaknesses in technical or contractual agreement and design defects that are not identified at this stage often result in premature suffering that will arise after the stipulated sum in liability defects, making it impossible for the Department of Roads to have sufficient redress from the contractor to tell. The use of a thorough technical audit conducted during the entire construction process helps the department of roads to determine whether or not the parties involved in the deal (including the shopper) owe the customer what they received (Maude & Aubry, 2018). It includes a more detailed evaluation of the conformity of the materials and design with the planning specification than post-construction analysis. Sometimes, the projects suffer project delays, cost overruns and quality non-compliance, leading to poor results and disgruntled parties (Sutrisna & Goulding, 2019). These changes mainly influence delays in project time and costs. The primary expense associated with shift is the cost of rework, which can equal to 10-15% of the contract value (Zamberi Ahmad & Ahmad, 2016). However, these undesirable effects can be minimized by managing those changes more effectively.

While academics lack exact data on road project failure rates in the United Arab Emirates, they have estimated that UAE's infrastructure project failure rate has been estimated to be as high as 50% (Faridi & El Sayegh, 2006; Johnson & Babu, 2018). Due to the high failure rate of infrastructure projects in the country, an extremely competitive claims dispute business has developed (Arcadis 2015, 2018; Ojiako et al. 2018; Mishmish & El-Sayegh 2018; Zaneldin 2018). Previous research revealed that 50% of the construction projects in UAE encounter delays and are not completed on time (Faridi & El- Sayegh, 2016). The top 10 most significant causes of construction delays have also been identified by research. Approval of drawings, inadequate early planning and slowness of the owners' decision-making process are the top causes of delay in the UAE construction industry. According to some survey findings, respondents ranked the preparation and approval of drawings as the primary responsibility of the consultant/designer (Zaneldin 2018). Slowness in the owner's decision-making process is followed by inadequate early project planning., a shortage of manpower, poor supervision, and poor site management, productivity of manpower, skill of manpower, non-availability of materials on time, obtaining permit/approval from the municipality/different government authorities, and contractor financing during construction. It is discovered that five of the top ten most significant causes of delay fall under the category of contractor, implying that contractors can be held liable for project delays caused by those causes (Faridi & El- Sayegh, 2016). A lack of resources has also been identified as a major factor contributing to the delay. Among the ten most significant causes of delays are a lack of manpower, a lack of productivity, and a lack of skill.

Although several of the key reasons of construction sector delays in the UAE follow a pattern similar to that discovered in prior studies, it has been discovered that time and cost overruns have emerged as the major causes of project delays. According to previous research, productivity, skill, and a lack of manpower and proper communication was one of the major causes of delays (Ewedairo et al., 2018; Gharehgozli, de Vries, & Decrauw, 2019; Mahmud, Ogunlana, & Hong, 2021). The road and transportation industries are self-innovating and commercialising (Hua Song et al., 2016). Road and transportation infrastructure are widely regarded as critical determinants of economic growth. (Abdulla Al Marzooqi & Zamberi Ahmad, 2018; Mainga, 2017). Numerous studies have been conducted

over time to get a better idea of what factors contribute to the success of project management and process orientation in organisational performance. (Al Nahyan et al., 2012; Mainga, 2017; Todorov & Akbar, 2018). Previous studies provided some conclusion regarding the effect of project management process on infrastructure performance. For example, some studies (Abdulla Al Marzooqi & Zamberi Ahmad, 2018; Taleb, 2020) and (Zamberi Ahmad & Ahmad, 2016) found a significant positive effect of project management process on infrastructure performance. Others studied the critical factors of project failures in UAE (Hussain, Ruikar, Enoch, Brien, & Gartside, 2017; Mwelu, Davis, Ke, & Watundu, 2020). However, no previous research has been done on the effect of technological orientation on project management process and infrastructure performance. There is a noticeable gap in the study materials accessible on UAE roads and transportation. The mediating effect of technological orientation remained unexplained despite massive and costly technological adoption in RTA.

Small and medium-sized businesses have a big impact on the nation's economy because of the correct implementation of project management processes. However, the firm's project management process has a significant impact on overall performance, as measured by financial and market indicators (Lenahan et al., 2018). Even though a profitable opportunity exists, management gaps occur when a company cannot secure the business or has insufficient capital (Lenahan et al., 2018). Local and international investors in the United Arab Emirates (UAE) entice individuals to invest in construction projects. This pattern has resulted in rapid infrastructure expansion in a relatively short period of time, which has had an impact on GDP (Abu Dhabi Chamber Commerce & Industry, 2009). Clients and investors are expressing dissatisfaction with the late delivery of their projects, which can take many years and has become one of the UAE 's most pressing issues in recent years. According to a survey by Faridi and El-Sayegh (2016), half of all construction projects in the country experience delays. According to Motaleb (2009), the number of construction projects that experienced delays grew by approximately one-fifth between 2005 and 2009. To avoid overruns in both time and money, the reasons of delay have been a concern for construction professionals and a subject of inquiry for researchers but the effect of technological orientation on project management process and performance in the context of UAE has not been studied yet. As a result, there is an obvious need for a study to investigate the impact of RTA's project management process, technology orientation, and infrastructure performance on the UAE ' national economy, as well as the research gap in the identified area of knowledge. In this regard, there is a noticeable gap in the research materials available in the United Arab Emirates about this topic (UAE).

The academic research on road and transportation in UAE are limited, which create some of the major obstacles to infrastructure performance. The focus of this study emphasized the key project management process capable for RTA environment that impact positively on their performance. As Infrastructure is playing a crucial role in UAE transportation need a light version of project management process given their limited resources in order to increase the performance in terms of increased market share and profits from successful projects (Marcel van, 2018). which establishes a connection between project management, technological orientation, and organisational performance in the UAE. Various factors that affected the process were intensively explored, but less focus has been on how the combined impact on the success of the UAE's infrastructure (Mainga, 2017). Through the project management method via technological orientation, this research focuses on the achievement of a vision of the success of road and transport in the UAE.

Literature Review

Infrastructure Performance

Infrastructure performance is the degree to which infrastructure provides the services that the community expects of that infrastructure the "iron triangle" of time, cost, and quality is used to evaluate infrastructure performance (Irfan, Malik, & Kaka Khel, 2020). Thus, it is measured in terms of time delays, cost overruns and quality of outcome.

Because each project is unique, predicting the length of the planning process, particularly the planning approval procedure for transportation infrastructure projects, is extremely challenging. In Germany, for example, the planning clearance process can take up to 1-3 years in the best-case scenario. A researcher (Ismail, 2019) estimates that it can take 3-6 years or possibly longer depending on the size and type of project. The entire planning process might last more than ten years, and in the worst-case scenario, up to twenty-nine years.

Building projects are notorious for running over budget and running late, and the elements that contribute to these problems have been studied extensively across the globe for many years. (Mahmud et al., 2021) research shows that 50 percent of construction projects go over budget by 40 percent to 200 percent. Cost overruns are depicted as a "typical" aspect of transportation infrastructure projects in the studies of (Koul et al., 2021). The researchers studied data from 258 transportation infrastructure projects in 20 countries and discovered that rail projects have the highest cost escalation rate (44.7%), while road projects have a lower cost escalation rate (an average of 20.4%). According to data given by the German Federal Parliament, there are 214 road construction projects from the 2004 required plan with cost variances ranging from 10% to 720 percent (exception) (Liyanage, Dias, Amaratunga, & Haigh, 2017).

Road and Transportation Development Projects in UAE

Abu Dhabi, Dubai, Sharjah, Ajman, Umm al-Quwain, Ras al-Khaimah, and Fujairah are the seven emirates that make up the United Arab Emirates (UAE), which has expanded rapidly in recent years in terms of economic, business, and social activity over the last three decades. Additionally, a great deal of activity has taken place in the construction industry, notably in relation to the creation of necessary transportation infrastructure such as airports, seaports, light rails and highways. Numerous programs have had major setbacks. (Abdulla Al Marzooqi & Zamberi Ahmad, 2018). Delays were caused by a lack of coordination, lethargic decision-making, design faults, utility relocation, abrupt changes in regulatory requirements, substandard quality, incompatibility and a lack of unity among key actors in many UAE building projects, according to locals. Furthermore, no thorough scientific studies of UAE programmes that addressed these challenges could be found, implying that more research is certainly needed to gain a better understanding and intervention (Mangioni, 2018).

Causes of Project Delays from Previous Studies

There have been major delays in the Middle East construction industry because of management, financial, human, and design concerns. Construction projects in Jordan suffer the same difficulties as in other countries, in addition to a labour shortage (Mangioni, 2018). Construction projects in Kuwait have been delayed due to poor project management, design changes, financial issues, and the owner's lack of construction experience (Shebob, Dawood, Shah, & Xu, 2012; Sundaraj & Eaton, 2013). In Iran, the most common and severe causes

of construction delays are financial, managerial, and environmental factors (Alhammadi & Memon, 2020; P. X. W. Zou, Wang, & Fang, 2008). Delays in Lebanon can be attributed to a variety of problems, including financial issues, equipment shortages or breakdowns, managerial issues (such as sluggish decision making, poor coordination among project participants, disagreements between parties on site, etc.), and change orders (Faridi & El-Sayegh, 2006). A lack of funding, a lack of materials, and a late supply on site are all regular and serious reasons for delays in Palestinian's (Gaza Strip) construction projects (Saiful Islam & Trigunarsyah, 2017). All of these factors contribute to construction delays in Saudi Arabia, from financial difficulties to inadequate management skills to resource issues (or unqualified labour and labour shortages). (Saiful Islam & Trigunarsyah, 2017). UAE building delays can be attributed to financial challenges, management issues, and labor-related issues (e.g., a lack of workers or unqualified workers). (Tafesse, 2021). Due to the lack of experience of the contractor, delayed payment by the owner, frequent modification orders, design flaws, and the selection of the lowest bidder, construction projects in Iraq are often not completed on time. (Motaleb & Kishk, 2010). Another major cause of delay in Oman is the lack of experience of the contractor and the owner's modification order. Furthermore, Oman's project delays are exacerbated by the owner's lack of cash and the absence of materials and equipment on site. (Saiful Islam & Trigunarsyah, 2017).

To conduct a fair comparison, it's important to associate delays causes that are similar in different countries like Lebanon, the Kingdom of Saudi Arabia (KSA) and the UAE to apply the comparative study in such a way that each of the significant causes reflects the most representative cause of delay in each of the three countries. This was necessary because each researcher had determined the causes of the delay in accordance with local conditions and issues. A comparable study was done for the construction sector in the Eastern Province of Saudi Arabia (Assaf et al., 1995) and in Lebanon (Mezher & Tawil, 1998). It was necessary to analyse and evaluate the causes of delays in order to identify how the UAE construction sector ranks the causes of delays based on two research described above. (Saiful Islam & Trigunarsyah, 2017).

Contractors and consultants estimate that only three of the top ten causes of delays in the Kingdom of Saudi Arabia are relevant for the UAE building industry. These three KSA reasons include the production and approval of designs, the owner's inability to make timely decisions, and the non-availability of materials. The following top seven causes of building delays in the UAE were ranked significantly lower in the Kingdom of Saudi Arabia. Other delays in the UAE, such as acquiring permits/approvals from municipalities/different government bodies (Rank 7) and workforce productivity (Rank 8), which are deemed critical in the UAE, are virtually irrelevant (Rank 49 and 55, respectively). For contractors in the Kingdom of Saudi Arabia. On the other hand, the process of decision-making by the owner and finance by the contractor during construction were scored higher (Rank 2) by KSA consultants, which is comparable with UAE consultants who evaluated the above two causes similarly. In both nations, consultants are also concerned about owner payment delays for contractor progress (of finished work). Another major contributor to UAE delays, according to analysts, is a lack of labour productivity. (Faridi & El-Sayegh, 2006).

A closer look indicates that only three of the top ten important causes of delay, as perceived by Lebanon's contractors, are also among the top ten causes of building delays in the UAE. The UAE's only three major concerns regarding Lebanon are the owner's delayed decision-making process, the preparation and approval of drawings, and obtaining permit/approval from the municipality/different government authorities. Aside from the

aforementioned causes. The leadership style of Lebanon's consultants, like that of the UAE's, has been deemed unfit for building and project management (Motaleb & Kishk, 2010).

Once again, Lebanon's contractors and consultants have given UAE consultants and contractors a bad rating for productivity and a shortage of labour. This is owing to the fact that Lebanon has an abundance of workers from the region and neighbouring countries. In addition, there is a strong demand for workers because of the volume and scope of existing projects. As far as Lebanon's consultants are concerned, the municipality's/the government's permission is of little importance (Rank 9 for UAE). (Rank 47).

Another study (Jeong, Joo-Seong, & Jung, Eun-Young, 2017) compiles a list of the most frequent delays in developing countries. Financial constraints have been identified as the primary cause of delay. For example, in 20 and 19 of the 28 developing countries, respectively, a contractor's cash flow difficulty during construction, as well as a delay in progress payment and an owner's fund deficit, have been discovered. Additionally, ineffective contractor site management and ineffective planning and scheduling (some studies interpreted this as inaccurate time estimation for project operations) were identified as significant factors in 19 and 18 nations, respectively. Additionally, owner-related issues, such as change orders issued during the building phase, have been recognised as the most frequent and essential cause of delay (i.e. 18 out of 28 countries have this problem). Apart from these, the most prevalent causes of delay in developing countries include poor coordination and communication, procurement and late delivery of materials and equipment on-site, and material and equipment shortages. Other issues, such as the owner's lack of cash, the contractor's lack of expertise, labour shortages, and a paucity of skilled labour, are also significant and commonly encountered delays in certain parts of the developing world.

It is clear that the major factors generating delays in the UAE construction sector are the preparation and approval of designs (Tafesse, 2021), In Ghana, delays in building construction projects occurred as a result of the owner's failure to fulfil payment certificates for the contractor (Tafesse, 2021). According to Saiful Islam and Trigunarsyah (2017), the primary causes of delay in Saudi public construction projects were a focus on financial analysis and awarding the lowest bidder, while common ownership is the primary cause of timetable delays in Vanuatu building construction projects (Sundaraj & Eaton, 2013). According to a study on the critical reasons of delays in construction projects, weather conditions are the leading cause of delay [58], whereas a report from Lagos State, Nigeria reveals that an insufficient supply of equipment is a factor affecting contractors' performance and resulting in delays (Shebob, Dawood, Shah, & Xu, 2012). Inadequate planning, site management, insufficient contractor expertise, financing, and payment of finished work were the leading causes of construction delays in Malaysia (Tafesse, 2021).

According to the results of an empirical study on the impact of delay on construction projects in Ethiopia, corruption, unavailability of utilities on-site, inflation or price increases in materials, a lack of quality materials, late design, and design documents were the primary causes of delay (Faridi & El-Sayegh, 2006). Samiullah, et al., (2013), explored the causes and mitigation of delays in Pakistani highway construction projects. Inadequate site management, insufficient contractor expertise, and ineffective communication among construction partners were the top three ranking reasons based on the questionnaire survey's mean score (Alhammadi & Memon, 2020). The survey results and analysis of the factors that contribute to groundwater project delays in developing countries, particularly in Ghana, indicate that monthly payment difficulties, poor contract management, material procurement inflation, and contractor financial difficulties are the most significant factors (Tafesse, 2021).

As reported by Murat et al. [2019], insufficient contractor experience, ineffective site management and supervision, ineffective project planning and scheduling, design changes made by the owner or his agent during construction, late material delivery, and unreliable subcontractors are all significant factors contributing to delay in Turkey construction projects. According to the findings of a study conducted in Iran gas pipeline projects, the contractor's inability to procure imported material, the client's unrealistic contract durations, the client's slow delivery of material, the client's slow land expropriation due to resistance from occupants, and clients' change orders or large quantities of additional work are critical delay causes (Wa'el et al., 2015). Abdalla & Hussien (2014) investigated the causes of construction delays. Inadequate contractor experience, insufficient financing and payment for finished work, subcontractors, owner intervention, and the contractor's sluggish decision-making were identified as the most critical problems. An analysis on the exploration of causes for delay in construction projects by, According to a study conducted by (Faridi & El-Sayegh, 2006), the most significant factors causing delays in construction projects in Australia, Malaysia, and Ghana are the contractor's improper planning, the contractor's poor site management, the contractor's insufficient experience, the client's insufficient finance and payment for completed work, and problems with subcontractors.

Project Management Process

An optimal project management method is an essential financial decision option at any organization. Although planning gives a wider definition to business planning, a researcher (Walimuni, Samaraweera, & De Silva, 2017) gave a detailed sense. According to their assessment, project preparation will comprise financial management, human resources, marketing and merchandising, product development, and technology. Therefore, their perspective on project planning is the definition chosen for this research in project planning.

Project management is one of the most rapidly developing fields in today's enterprises (Martinsuo, Vuorinen, & Killen, 2019) and it is a critical part of the building process (Manamgoda et al., 2018). The field of project management as a whole is ever-evolving. The demands on project management are continuing to alter as project management is used in new sectors, countries, and application areas (Ogbu & Adindu, 2020). For nearly three decades, project management was seen as a nice-to-have but not absolutely vital for a company's success. In order to provide their staff with rudimentary understanding of planning and scheduling, businesses reluctantly made investments in training sessions. Project management was viewed as a threat to established power structures, and as a result, it was used only in limited circumstances. This haphazard deployment was done solely to appease lower and middle-level employees (Pålsson et al., 2017).

Zamberi Ahmad and Ahmad (2016) acknowledged that project planning and its importance are better known to US entrepreneurs than those in Croatia. . Employees' knowledge of project planning and its importance was cited as a factor in the discrepancy between the United States and Croatia. In the field of professional services, there are enough small and large skilled advisors in the US; Because of this, US entrepreneurs have an advantage over CEEC counterparts (Central Eastern Europe Croatia). Researchers (Walimuni et al., 2017) investigated the causes of project failure in poor nations, particularly in Jordan (see below). Their findings were identical to those of another researcher (Sutrisna & Goulding, 2019), who found the same reasons for firm failure of the main variables in their study, the absence of a project management strategy was seen as a significant cause for project failure.

In one of their published articles, Zhang and Schramm (2020) stated, particularly emphasizing, project failure is a result of a lack of proper project planning. A total of sixteen articles (64 per cent) recognized planning as a critical factor in deciding success or failure in the twenty-five articles that they reviewed. They evaluated fifteen variables and found that all variables were significant factors in the failure of projects. Project preparation is one of the most distinguishing factors of success from failure in Chile, however, among those fifteen variables. It is indisputable that project planning is a primary need of project success.

A lack of a project plan contributes, according to the study, to a greater risk of failure (Volden & Andersen, 2018). This point is proven by (Sendall et al., 2017) suggesting, as found in their research conducted in Chile, that more precise proposals were being made for successful companies. It means planning is a vital aspect of success for companies. Preparing a project plan before beginning the company is a crucial component of success for the project.

Project Management Process and Infrastructure Performance

According to (Ghobakhloo & Fathi, 2020) project management is the application of knowledge, skills, tools, and processes to project operations in order to satisfy or exceed shareholder expectations and expectations. It has evolved from a management concept focused on a few functional areas and viewed as a nice-to-have to a fully-fledged enterprise project management system encompassing all functional units (Babatunde, Ekundayo, Udeaja, & Abubakar, 2020). The project management maturity model, which consists of six crucial phases (design, planning, tendering, scoping scheduling, and implementation, which also includes benchmarking and continuous improvement), emphasized the degree of interaction between strategic management and project planning and implementation success (Gerbov, Singh, & Herva, 2018).

The literature on construction project management is diverse, addressing a variety of topics such as managing stakeholder relationships and expectations (Hietajärvi, Aaltonen, & Haapasalo, 2017), implementation of projects in a methodical and efficient manner (project management) (Khattak & Mustafa, 2019), theory of organizations and contract management (Liu, Xue, Meng, Chen, & Sun, 2020), project success measures (Mahmud et al., 2021) and the management of construction projects (Patil, Thounaojam, & Laishram, 2021). Methods for achieving accurate and effective project scheduling (Vaishnavi & Suresh, 2020), the development of cost estimation tools (Yusuf & Srithongrung, 2017), innovative project planning (Patil et al., 2021), best practises (Khattak & Mustafa, 2019) and the role of IT and technologies in project management are all important aspects to consider (Haji Karimian et al., 2019). The client, the architect, and the contractor have typically been cited in the literature as project stakeholders (the major actors in the construction process) (Ismail, 2018; Jalali Sohi, Bosch-Rekveldt, & Hertogh, 2020; Liu et al., 2020). The interactions and interrelationships between these parties primarily affected a building project's ultimate performance. These participants' performances are also intertwined. As a result, there is a reciprocal obligation to perform successfully, in which each member expects the other participants to do their duties effectively and in sync with one another. Individual participant performance is still significant because total project performance is a result of each participant's performance. Thus, the degree of effective project management among stakeholders has long been recognised as a critical factor in the success of transportation infrastructure projects (Dolla & Laishram, 2018; Mahmud et al., 2021).

Aspects of the project or its management that can be changed to improve the likelihood of the project's success are known as the factors of infrastructure performance. Santoso and Gallage (2020) define pitfalls as management errors that enhance the likelihood of failure. Traditionally, infrastructure performance has been measured using the "iron triangle" of time, money, and quality (Atkinson, 1999). In addition to the iron triangle, few academics have come up with a variety of standards for evaluating performance. Project integration management, project scope management, project time management, project cost management, project quality management, project human resource management, project communications management, project risk management, and project procurement management are the nine knowledge functional areas classified by the Project Management Institute (2016). To assess the project's success, particularly in important areas, a good project governance framework is designed. For the project's overall success to be evaluated, an assessment of the project management process and infrastructure is necessary. (Lehnert et al., 2017). Thus, the study proposes the following hypothesis.

H_1**:** There is significant relationship between project management process and infrastructure performance.

Technological Orientation

Technology orientation is characterized by the degree of commitment to R&D, acquisition of new technologies and applications of the latest (Narayanaswami, 2017) where the strategic orientations are defined as creating firm behaviors that are expected to create competitive advantage in the long run parallel with firm strategy (Duygu Seckin Halac, 2015).

In today's technology-enabled work atmosphere, where technological resources are widely employed for cooperation, networking, and project management activities, technology takes on relevance in project management (Oeij, Van Vuuren, Dhondt, Gaspersz, & De Vroome, 2018). It's become the norm for even co-located project teams to communicate via electronic means. A lack of appreciation for modern technology, research has shown that associating technology use with business success is difficult and that the absence of such a relationship is similarly measured to project performance. Nonetheless, technology must play a critical role in effectively and efficiently assisting project managers in running it. Many studies have discussed the value of project managers and the style of leadership (Sergeeva, 2020).

Project management is enabled by technology as a vital component. Knowledge production, application, distribution, and sharing are the primary goals of information technology. Development of knowledge, codification and transmission are all aided by the management tool that enables technological knowledge. Technology knowledge can be divided into four categories: databases, hardware, and software, as well as smart devices (Mhatre, Thakkar, & Maiti, 2017).

According to numerous studies, the building industry is slow to adopt new technologies and does not rely on as much technology as other sectors. The Civil Engineering Research Foundation conducted a countrywide survey and found that the design and construction industry barely spent 0.5% of its total profits on R&D. (Civil Engineering Research Foundation, 2016). The degrees of technology used on 68 different common project work functions have been analysed on 219 completed projects from across the United States. In addition, the projects were judged on the basis of their overall cost and on-time completion. Results on project technology consumption were presented and analyzed based on the size of the project in particular. In addition, we discussed the results of composite

project performance, which combines project cost and schedule performance. According to the data, medium and small initiatives had stronger technological links to project performance than large projects. The use of project technology was found to be positively associated with the composite performance of medium and small projects (Okudan, Budayan, & Dikmen, 2021).

Back and Bell (1994) wanted to check what impact electronic data exchange had on the handling of bulk materials. A process model was developed as a result of the research. The analysis results from integrated models were compared to those from non-integrated models in order to uncover technology benefits. According to the findings, integration of the bulk materials process resulted in a reduced cycle time. However, unlike software cost estimating tools, the project management tool family is more general in design and does not have specialist software sizing and estimating features. These general project management solutions also don't address quality issues like defect efficiency of the clearance process. Although the software of the project management is helpful, it necessitates additional managerial expertise in order to be used to its best potential. Based on the views of Haji Karimian et al. (2019), today's project manager has a wide range of computer tools to pick from. Computer-aided project management is a tool for identifying the specific tasks performed by various computer software and, more crucially, for the purpose of integrating all project management systems with computer tools. Computerization is intended to accomplish more than project management. However, it's possible that it's the same as manually creating a terrible timetable, cost estimate, or vital piece with software programmes (Mahmud et al., 2021).

Technological Orientation and Infrastructure Performance

Although the rate of technological change within an industry may affect their technological adoption and/or development, technologically-oriented firms devote their resources to acquiring new and advanced technologies and developing new processes, products, and services (Azam, 2015). Technologically-oriented firms devote their resources to acquiring new and advanced technologies and developing new processes, products, and services. Previous research (Caputo, Garcia-Perez, Cillo, & Giacosa, 2019) has revealed a link between technology orientation and infrastructure performance. Although the importance of technology orientation to innovation has long been acknowledged (Chión, Charles, & Morales, 2020), the literature on the relationship between technology orientation and company performance is sparse (Bianchi, Glavas, & Mathews, 2017). When technology evolves quickly, infrastructure with a high technology orientation do better because they can offer new processes, products, and services to meet client needs (Giovannetti, Cardinali, & Sharma, 2021). Firms that combine customer-value innovation with technology innovation have a better chance of achieving long-term profitability and performance (Firdaus, 2021). However, given the rapid technology advancements in the competitive Dubai market, Infrastructure must experiment with new technologies to stay afloat (Giovannetti et al., 2021; Hirvonen, Laukkanen, & Salo, 2016).

Infrastructure authorities have a positive attitude toward technology, which has a substantial impact on their ability to innovate. This result is in line with prior research (Hruby, Watkins-Mathys, & Hanke, 2016). The findings show that Infrastructure companies in Dubai are likely to use technology to support their innovative activities, and that they have realised that their technology policies and adoption of new technology play important roles in improving their internal processes and methods, motivating them to allocate resources for

investments in cutting-edge technologies to support innovation. As a result, Infrastructure industry's use of technology could be called innovative behaviour (Khin & Ho, 2020).

The author believes that technology orientation could be critical in the current era. Voice transmission, texting, and video communications will be important in developing ICTs tools in particular for two-stream meetings or interactions in the course of a project (Nakata & Antalis, 2015; Stezano & Oliver Espinoza, 2019). Infrastructure performance improvement in such an area relies heavily on information technology, notably ICTs play a critical role in infrastructure performance optimization. IT communication, according to experts, is important, and their conclusions are proven across economies through the use of such technology platforms. In the digital age, such thought is helpful in increasing project performance. In addition, the worldwide perspectives have revealed and substantiated the links between various information technology tools and infrastructure performance (Mamun, 2018; Stezano & Oliver Espinoza, 2019; Wang, 2020). Thus, the study proposes the following hypotheses.

H_2: There is significant relationship between project management process and technological orientation.

H_3: There is significant relationship between technological orientation and infrastructure performance.

Technological Orientation, Project Management Process and Infrastructure Performance

An intolerable situation for small infrastructure is premature growth and over expansion. Some companies failed because of premature growth and over expansion. Some infrastructure experienced that due to rapid growth and over expansion they had faced capital shortage and financial distress. Stock follows the same phenomenon. Sufficient financing is very important to invest in sufficient inventories during rapid growth and expansion. The end consequence of rapid growth and overexpansion leads to failure of the company (Norris & Ciesielska, 2019). Cost overruns and benefit overestimation were used by a researcher to evaluate the performance of significant infrastructure projects. Since the early 1900s, they discovered that project cost overruns have been typical on a variety of significant capital projects. Despite the development and availability of advanced cost estimation and control tools and techniques, they concluded that project cost overruns had not decreased in the previous seventy years (Buli, 2017).

Alsadi and Aloulou (2021) stated that project management should flow from top-level management down to project-level personnel. This shows that, in addition to project management, other types of management e.g., information technology (IT) management) are important in project success or failure. IT management is "an inherent aspect of corporate management that is a duty of the board of directors and executive management," according to the IT Management Institute (2018). IT management refers to the leadership, organisational structures, and processes that must be in place to ensure that the organization's IT remains viable and aligned with its strategy and objectives (IT Management Institute, 2018). Through the use of technology, effective IT management aided in the development of organisational success by providing secure and trustworthy information (Bianchi et al., 2017). IT managers and suppliers were also able to build integrated business and IT plans, assign roles and accountabilities, prioritise and coordinate IT activities, and track their performance and outcomes thanks to effective IT management (Filieri, 2015). IT management's key purpose was to guarantee that IT was aligned with business goals while

also supporting ongoing IT operations (Al-Omoush, Al Attar, Saleh, & Alsmadi, 2020). According to Kurniawan, Budiastuti, Hamsal, & Kosasih (2021), empirical studies have repeatedly shown that when IT and project plans are strategically aligned, company performance improves.

According to a previous study, technology use had the greatest mediating effect on the relationship between overall project performance and integration management (r = 0.343; p0.01). The results of partial correlation analysis verified the employment of technology as a mediator in the relationship between the seven project management roles and overall project performance. The results indicate that electronic tools are critical in mediating between project management functions and project performance. According to this report, the business sought to boost the project's performance by providing upgraded electronic equipment, like computers, that would aid in the integration of the project management system. (Nakata & Antalis, 2015). Wang (2020) as well as Nakata and Antalis (2015), discovered that the use of various electronic tools improved construction productivity and project performance. According to the findings, better project outcomes can be achieved when good project management practices are combined with effective technological application (Project Management Institute, 2018). The importance of technology utilisation in construction companies was demonstrated by the findings of this study. Thus, the study proposes the following hypothesis.

> H_i: There is a significant mediating effect of technological orientation in the relationship between project management process and infrastructure performance.

On the basis of the preceding context, this study proposed hypotheses and modelled the following structure (Figure 1).

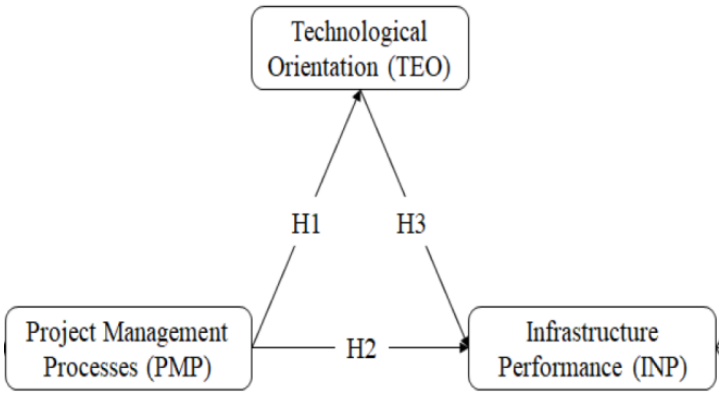

Figure 1 Conceptual Framework

Methods

A standard rating questionnaire was developed and distributed to randomly selected employees. Questions were formulated based on a review of pertinent literature in order to provide valuable insight into the study's objectives. In a pilot test, the questionnaires were used to identify potential measurement errors, identify unclearly phrased items, and, most importantly, to observe nonverbal behaviors. The questionnaires were modified as necessary prior to conducting the research. Validity was determined using both face and content validity. Reliability analysis was used to determine the internal consistency of each construct, ensuring a high degree of generalisation across test items. The research instrument consisted of four sections: a consent letter, a biographical information section, and main questionnaire. Additionally, it was stated that participation was entirely voluntary and that respondents could withdraw at any time.

To explain the nature of the relationship between the study variables, explanatory research was used (Wellman & Kruger 2003). For this study the target population is an employee of RTA. However, population is the officer, managers, and engineer who worked in RTA for this research. For this research, the recognition of the infrastructure population was problematic because of the lack of reliable data, other than the number of companies listed. The nature of this research spells the difficulty of identifying a sample of several firms. It was understood that there are no data bases maintained by authorities for success and/or failed infrastructure in United Arab Emirates (UAE); hence the questionnaire was delivered randomly to organization. This organization were selected as the RTA, and accounting executives who work at respondents' organization. The decision has been taken to distribute the questionnaire to all populations. The required sample size for this study was estimated to be 361. The questionnaire was adapted from Robert N Lussier, a professor of Springfield University, US (2006) and modified to suit the United Arab Emirates (UAE) infrastructure context. Robert N Lussier tested fifteen variables under fifteen (15) questions on infrastructure failure vs. success in many parts of the world. The Lussier model was developed based on 20 studies Pfeifer and Lussier (2006). In addition to Lussier's questions, additional questions were introduced to test some variables which were not tested before. There was a necessity to include some amendments to the Lussier's model in order to make the questionnaire more suitable to the United Arab Emirates (UAE) context; hence his questions were amended as necessary. In particular, the researcher decided to have five question for each dimension for independent variable. This research has forty-five (45) questions related to 3 variables, independent variable 25 questions, mediating variable 5 questions and dependent variable 15 questions. AMOS 21 software was used for this study's covariance-based SEM analysis.

Results and Discussion

Staff responded to 401 of the 460 questionnaires distributed, yielding an 87.1 percent response rate. There were 15 cases of missing data, which were omitted as recommended by Babbie (2005). Majority of the respondents were males, representing around 57% of the total respondents. As per the age classification, a significant proportion of respondents amounting to around 40% are between the ages of 30 to 34 years. The data indicates that about 11% of the respondents held master's degree and around 3% of the respondents had doctoral degrees. Around 29.8% of the respondents were working at the junior level position. A significantly high proportion of 49.6% of the respondents held the senior level position. While there is a representation of 16.3% of the respondents at the manager level, only 4.7% of the respondents are at the position of director. Majority of the respondents are having from six

up to fifteen years of work experience as evident by the total 71% of the respondents having this much work experience.

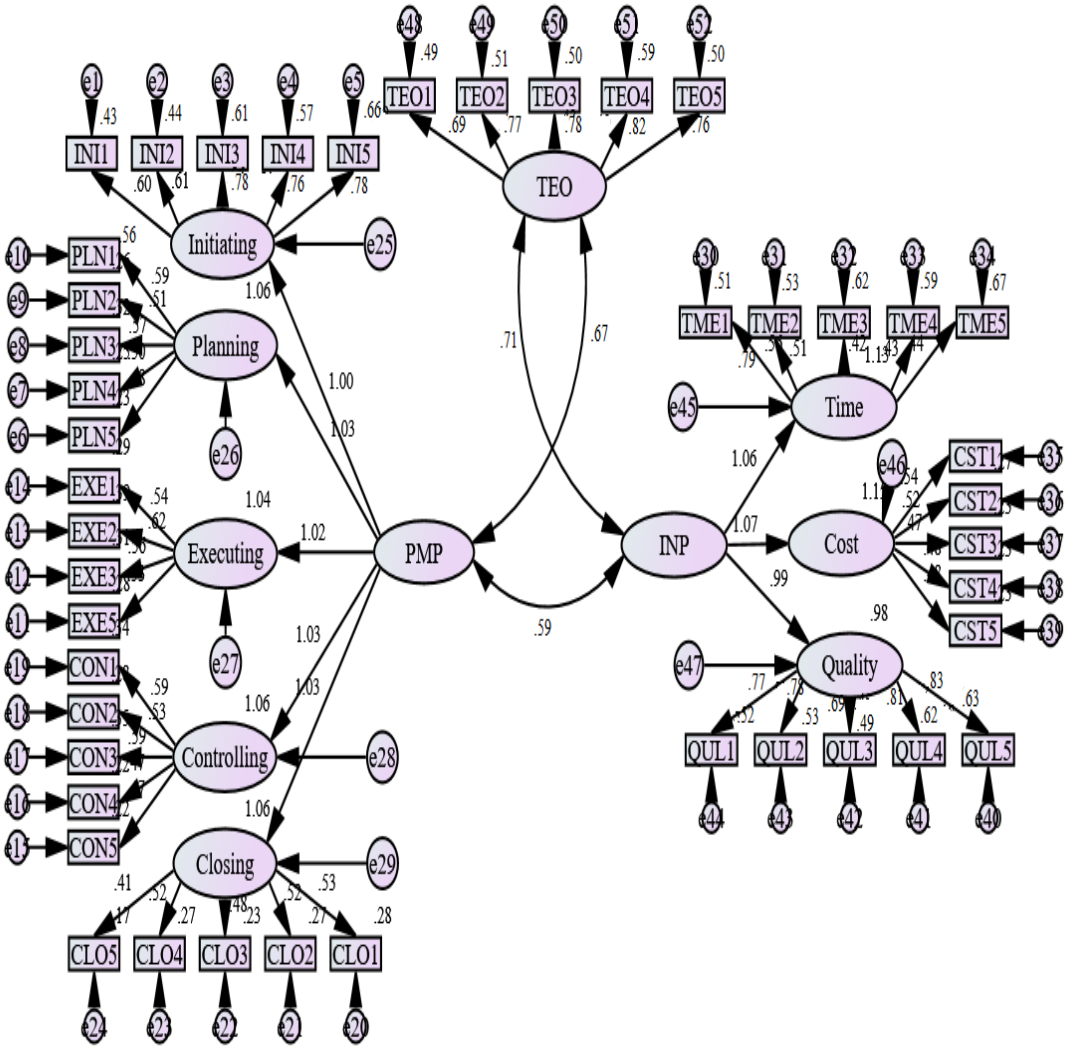

Figure 2 Inter Variable Correlations

Table 1 Correlations

Correlations among Variables			Estimate
Project Management Processes	<-->	Infrastructure Performance	0.59
Project Management Processes	<-->	Technological Orientation	0.67
Infrastructure Performance	<-->	Technological Orientation	0.71

The hypothesized research model exhibited good fit with observed data as mentioned above. The path estimates in the structural model is of great importance for validity. After establishing an acceptable structural model, the statistical significance of the parameter estimates from SEM are evaluated by examining path estimates and critical ratio (C.R) or t-value. The parameter estimate is considered statistically significant, only when the C.R value is greater than ±1.96 at 0.05 level of significance (Hair et al., 2013). Below this level, the

parameter can be considered unimportant to the model. Furthermore, to determine the magnitude and type (positive or negative) of the hypothesized path effect, standardized path coefficients (estimates) or standardized regression weights (β)) are examined. The important study hypotheses are examined using path analysis.

Table 2 Path coefficients for the Final Model for hypothesis Testing

Relationship				Estimate	S.E.	C.R.	P
Project Processes	Management	--->	Technological Orientation	0.313	0.024	6.686	***
Project Processes	Management	--->	Infrastructure Performance	0.331	0.027	6.431	***
Technological Orientation		--->	Infrastructure Performance	0.411	0.040	7.346	***

***Significant at 0.05 level (p = ≤ 0.05)

For the path analysis, the impact of project management processes on technological orientation is examined. The path analysis results indicate that there is a significant positive impact of project management processes on technological orientation. The path estimates (β = 0.313, t = 6.686, p ≤ .05) indicate that increasing the number of project management procedures by one unit increases the predicted value of technical orientation by 0.313. The path estimates (β = 0.331, t = 6.431, p ≤ .05) are indicating that a one-unit increase in project management processes will increase the expected value of infrastructure performance by 0.331. The path analysis results indicate that there is a significant positive impact of infrastructure performance on infrastructure performance. The path estimates (β = 0.411, t = 7.346, p ≤ .05) are indicating that a one-unit increase in infrastructure performance will increase the expected value of infrastructure performance by 0.411. Therefore, the hypotheses H1, H2 and H3 are also accepted.

According to Byrne (2010) and Zainudin (2018), before testing the mediation between the constructs, the researchers first need to check if all the relationships among the constructs are statistically significant (Project Management Processes → Technological Orientation → Infrastructure Performance). If all the relationship is statistically significant, then it can be assumed that there is a partial mediation occurs. However, if any of the relationship is not statistically significant, then it can be assumed that there is a full mediation. Therefore, no further tests are required. Hence, this indicates of having a partial mediation (all the path relationships are statistically significant) in the model. Hence, H4 is accepted.

According to numerous studies, the construction industry is slow to adopt new technologies and uses less technology in comparison to the other sectors. There were barely 0.5 percent of overall earnings spent on R&D in the design and construction business, according to the Civil Engineering Research Foundation's nationwide survey (Civil Engineering Research Foundation, 2016). The degrees of technology used on 68 different common project work functions have been analysed on 219 completed projects from across the United States. Each project's overall cost and schedule performance were also considered while evaluating it. Based on the scale of the project, project technology utilization findings were presented and analysed. In addition, the results were discussed of composite project performance, which combines project cost and schedule performance. According to the data, medium and small initiatives had stronger technological links to project performance than

large projects. The use of project technology was found to be positively associated with the composite performance of medium and small projects (Okudan et al., 2021). According to Haji Karimian et al. (2019), today's project manager has a wide range of computer tools to pick from. Computer-aided project management is a tool for identifying the specific tasks performed by various computer software and, more crucially, incorporating technological tools to assist in the management of all project types. Computerization is intended to accomplish more than project management.

Due to increased challenges in today's technology-enabled work environment, where technology tools are routinely used for collaboration, communication, and deployment of project management practises, technology assumes importance in the context of project management. Despite the fact that project teams that are co-located are increasingly utilizing the electronic medium for these goals. The importance of technology, research has demonstrated that it is difficult to connect its use to company performance, and this lack of connection can be extrapolated to project performance as well. According to Technology Acceptance Model, if the infrastructure personnel adapt to the use of technology, it can play a significant role in assisting project managers in managing projects effectively and efficiently.

There is a strong correlation between the project management process and the performance of the infrastructure. The path estimates ($\beta = 0.331, t = 6.431, p \leq .05$) indicate that increasing project management processes by one-unit results in an increase in the expected value of infrastructure performance of 0.331. According to Bjornfot and Torjussen (2012), many companies are managed informally, resulting in financial problems, recruitment issues, and issues with the development of organisational and economic management systems. Li-An Ho (2008) discovered in her survey that project management process has direct and significant effects on organisational performance. According to Theriou and Chagzoglou (2008), project management play a unique role in developing organisational capability that results in superior performance. This is affirmed by Kuo (2011), who discovered that project management capability improves organisational performance.

The study results highlighted the existence of significant positive impact of project management process on infrastructure performance. These enhanced organisational processes result in immediate benefits such as improved decision-making, organisational behaviour, products, services, and relationships, all of which contribute to increased organisational performance. Lack of organizing skills is identified as a factor for failure of business by Ahmad and Seet (2009). Hence, project management process can be very much beneficial to enhance performance. This process involves managing stakeholder expectations, coordinating with people and resources, as well as performing other activities related to project deliverables. The study's findings indicated that project management execution has a significant positive impact on project management processes (PMP). If Project execution is not done properly, then Project Management Processes (PMP) cannot be made successful.

Methods for achieving accurate and effective project scheduling (Vaishnavi & Suresh, 2020), the development of cost estimation tools (Yusuf & Srithongrung, 2017), innovative project planning (Patil et al., 2021), best practises (Khattak & Mustafa, 2019) and the role of IT and technologies in project management are all important aspects to consider (Haji Karimian et al., 2019). To assess the project's success, particularly in important areas, a good project governance framework is designed. Also, evaluation is required to assess the

project's overall performance in addition to the project management process and infrastructure performance. (Lehnert et al., 2017).

The study results highlighted the existence of significant positive impact of technological orientation on the infrastructure performance. With a one-unit increase in technological orientation, the expected value of infrastructure performance increased by 0.313. Infrastructure performance was observed to be hampered by poor technology by Knotts et al (2003) and also Carter and Auken (2006). Overall technological orientation has to be improved for the success of the project management and infrastructure performance.

Previous research (Caputo et al., 2019) has revealed a link between technology orientation and infrastructure performance. Although the importance of technology orientation to innovation has long been acknowledged (Chión et al., 2020), When technology evolves quickly, infrastructure with a high technology orientation do better because they can offer new processes, products, and services to meet client needs (Giovannetti et al., 2021). Firms that combine customer-value innovation with technology innovation have a better chance of achieving long-term profitability and performance (Firdaus, 2021). However, given the rapid technology advancements in the competitive Dubai market, Infrastructure must experiment with new technologies to stay afloat (Giovannetti et al., 2021; Hirvonen et al., 2016).

According to Technology acceptance mode, if the companies accept and adopt the technology, it will lead to better performance. Studies show that infrastructure authorities have a positive attitude toward technology, which has a substantial impact on their ability to innovate. This result is in line with prior research (Hruby et al., 2016). The findings show that Infrastructure companies in Dubai are likely to use technology to support their innovative activities, and that they have realised that their technology policies and adoption of new technology play important roles in improving their internal processes and methods, motivating them to allocate resources for investments in cutting-edge technologies to support innovation.

The study discovered that technical orientation has a significantly mediates the relationship between the project management process and the performance of the infrastructure. These arguments serve to reinforce Anantatmula's recognition of the critical nature of technology orientation Anantatmula (2008). When confronted with a turbulent digital environment, technology orientation is a reshaping of corporate resources. Furthermore, digital competence can ultimately result in value delivery by improving enterprise organisational performance.

In modern times, as a result of the increasing importance of technology in business, a company's overall performance has improved. Human living standards have also been transformed as a result of the use of information and communication technologies to interact with one another. An organization's success and efficiency are heavily reliant on the use and use of information technology.

According to Technology Acceptance Model, the infrastructure leaders' attitude plays a major part in the process of infrastructure success. A critical factor is the optimistic mindset of the staff and management. A lack of positive attitude can hamper infrastructure success; in this research (Wang, 2020) claimed that among road and transportation beneficiaries. This study showed a partial mediation existing between project management process and infrastructure performance. This is consistent with a prior study that shown a minor mediation effect between integration management and overall project performance ($r = 0.343$; $p<0.01$). The results of partial correlation analysis verified the employment of technology as a partial mediator in the relationship between the seven variables of project

management functions and overall project performance. Electronic tools are shown to be the most effective in mediating the relationship between project management functions and project performance. According to this study, the firm sought to improve the project's performance by providing upgraded electronic equipment, such as computers, to aid in the integration of the project management system report (Nakata & Antalis, 2015). According to (Wang, 2020) and (Nakata & Antalis, 2015), the employment of various electronic tools increased construction productivity and project performance. The findings indicate that effective project management functions and technology use should complement one another to improve project outcomes (Project Management Institute, 2018). The findings of this study highlight the critical nature of technology utilisation in construction firms.

Implications to Authorities and Policy Makers

This study gives crucial insights on the adoption of information technology and project performance for managers. Businesses must establish connections with a variety of stakeholders through the use of emerging and creative information technology tools, such as ICTs. The research demonstrates that integrating technology into company operations can significantly improve enterprises' project performance. Additionally, this study has major theoretical and managerial implications since it emphasises the critical role of technology orientation in project performance while also contributing empirically to the relevant literature in this subject. This study contributes to the literature by demonstrating the critical role of project management processes on infrastructure performance through the mediation effect of technology orientation, thereby validating a previously unrecognised contribution. The above study revalidates the relationship between the project management process, infrastructure performance, and mediator variables, besides the questionnaire analysis, as reviewed in the literature by El-Sayegh (2008), Ren et al. (2008), and Motaleb and Kishk (2010). Research on how various aspects of the project management process might contribute to the improvement of the UAE's RTA sector's performance.

Technological orientation has acted as a bridge between the project management process and the functioning of the infrastructure. Hence, to enhance the performance, managers need to take steps to continuously improve the technological orientation. Frequent updating of technology is needed to further the infrastructure performance. While the infrastructure performance is observed in the project management context, it is showing importance in time, cost, quality and quantity. Managers need to keep a check on these issues in the organization which will contribute to the success of the infrastructure performance.

Managers are urged to appreciate the importance of technical tools in enhancing the capability of various company undertakings. The organization's management is encouraged to place a premium on such evolving technologies in order to enhance the performance of any commercial initiative. Because the current study found a positive relationship between project management and technology orientation and infrastructure performance, there must be user-friendly and useful features in this context to conduct meetings and communications among related personnel. Managers are also urged to consider the consequences of technological innovation for company activities, as recent study has indicated a favourable correlation between such aspects and organisational project performance. Managers should also take into account the impact of technology aspects in the business setting, as this study revealed positive mediation between infrastructure performance and technological factors. Finally, the purpose of this research is to provide an overview of how advanced technology integration can benefit organisational performance, specifically infrastructure performance, in the current digital era, in order to develop best practises and modern techniques for

managing infrastructure projects. It also fits with the policy of boosting cooperation between public entities in the interest of serving the Dubai Government objectives.

Study Limitations

The study has various weaknesses that academic researchers and practitioners should take into account when doing future research. To begin, the study investigated the effect of project management processes on infrastructure performance when time and budget constraints exist. The variables could be examined as mediators or moderators of the relationship between project management and infrastructure performance. The study explored various sampling methods and selected the most appropriate method to suit the requirements. By performing probability sampling, there is always a chance that not all groups in the population will be represented in the sample. Infrastructure personal were selected to cover all the states within United Arab Emirates (UAE) and a selection of RTA employees was based on a set of pre-determined criteria. The sample used in this study aimed to provide empirical evidence from a single gulf country; nevertheless, it does not represent empirical evidence applicable to other countries. This study made no attempt to investigate the moderating effect of any other variables in order to confirm the strength of the link between the studied variables.

Recommendations for Future Work

The following recommendations are for academics and practitioners in the future. To begin, in the future, a longitudinal design with a larger sample size and various dimensions around the globe may be considered. The survey gathered responses exclusively from the United Arab Emirates. The current study concentrated exclusively on direct variables related to project management. Future studies may employ greater sample sizes. Increased sample size improves the interpretability and generalizability of the results. Future research may include responders from additional nations in the Middle East, Asia, or any other region. Second, a study of the remaining bigger geographical regions of the Middle East could be considered in the future to validate the findings. Third, to confirm the association between information technology and project performance, a future study involving moderators such as demographic, political, or environmental aspects may be addressed. Fourth, a future study might be expanded to examine the role of information technology in non-infrastructure-related sectors.

Conclusion

This study emphasises the critical role of project management in determining the performance of infrastructure. Although the author believes that diverse elements improve project management by orienting technology toward improving infrastructure performance, both factors have been identified as significant predictors of performance. How to manage projects and teams effectively is a challenge for businesses seeking to realise firm objectives in a dynamic manner through dynamic collaboration. This study concluded that organisations can increase the performance of their infrastructure by incorporating technological tools. Additionally, it is found that the dimensions of the project management process are critical drivers of performance. As a result, the study recommends business leaders to explore technology-enabled infrastructure performance improvements in today's competitive and digital environment.

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