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**The Impact of Agile Project Management Practices
in The Line Project Delivery; Smart City in Saudi
Arabia**

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Always remember.

“It all starts with an idea. One moment of inspiration can spark a revolution”

-Anonymous-

Chapter 1

Introduction

Introduction

Over the years, project management environment has been changing subtly or drastically depending on the degree of change which has been changing for decades due to evolving challenges of large projects. To support the implementation of smart city initiatives that involve the use of advanced technology and environmental preservation in the improvement of living standards, effective project management frameworks are required. APM is one of the most used approaches in software development due to its flexibility, extending processes and other factors that make it effective.

As contrasted with the conventional phased and formal project management approach, APM is implemented in a fluid and dynamic environment that encourages learning and innovations with involvement of stakeholders. This methodology is well applicable for projects entailing a higher degree of complexity and interdependence, for instance, smart city initiatives require flexible responses to new information and innovative environments.

Smart city: The Line Project – a futuristic urbanization project in Saudi Arabia refers to a novel and challenging experiment in designing an advanced environmentally friendly sustainable city. The adoption of best practices of APM can help The Line realize better project outcomes, optimized performance, risk management, and stakeholder satisfaction. The effectiveness of Agile Project Management in The Line project is discussed in this research paper with a comparison of the results gotten with the conventional project management approach (Neom, n.d.).

The objective of this research is to assess the role that APM may possibly play in enabling the success of The Line project based on the contextual nature of smart city concepts. Besides, the paper has the potential to offer some theoretical lessons into the ways in which APM could contribute towards the improvement of sustainable urban development.

Research Problem

For this study, we should concentrate on examining the impact of Agile management practices compared to traditional methods within the context of The Line project. This approach will allow us to assess the effectiveness and efficiency of Agile methods in real-world applications and determine how they stand up against conventional project management practices. We will evaluate key performance indicators such as project timeline, budget adherence, and stakeholder satisfaction. It is pertinent here to note that although knowledge of the stages of Agile management is vital, the area of interest should be the impact of such practices in relation to conventional approaches. The intention behind the following comparative analysis is to reveal possible advantages and barriers associated with the implementation of Agile paradigms in The Line-like complex and extensive projects.

Research Importance

The rationale for understanding the changes brought about by Agile Project Management for The Line project is as follows: First, it makes a notion on how APM needs to be employed toward large-scale infrastructures projects where projects is depicted as complex and risky. It would be useful for any project managers or decision makers involved in similar kinds of activities to make correct decisions in choosing the right methodologies for other kinds of projects. Secondly, the project Line served as the reference point for carrying out other smart city projects across the globe. Therefore, the role of APM in this regard provides a guide that

is helpful in enhancing sustainability and efficacy of projects targeting improvement of urban development across the world. Finally, this research adds value to the existing body of knowledge within the literature and provides both theoretical and practical benefits for future project management and Smart City research. Through the lens of positive change, it is positioned to shape the future endeavors and prescribe agile methodologies in line with the rising pressures of urbanization and technological advancement. This research can contribute to the continued evolution of project management in smart city initiatives by providing specific real-world information to guide project work and positive urban transformations toward creating more robust and sustainable cities.

Research Objectives

1. Comparison of Agile and Traditional Management: Assess and compare key performance indicators such as project timeline efficiency, budget control, quality of deliverables, and stakeholder engagement between Agile and traditional management methods within The Line project.
2. Evaluation of Agile Stages: Analyze the specific stages of Agile management, including iteration cycles, sprints, and feedback loops, and their applicability to The Line project. Evaluate how these stages impact overall project performance.
3. Impact on Smart Cities: Investigate how Agile management practices contribute to the development and management of smart cities. Examine how Agile methodologies can enhance adaptability, innovation, and responsiveness in smart city projects. Assess effects such as improved integration of technology, better resource management, and increased citizen engagement.
4. Effectiveness Metrics: Identify and measure the effects reinforced by Agile management, such as enhanced flexibility in project execution, accelerated problem resolution, and more effective stakeholder collaboration. Highlight improvements in project delivery times, cost efficiencies, and the ability to quickly adapt to changing requirements.

Research Questions

1. How does the Agile Project Management approach enable project success compared to the traditional approach?
2. What are the indicators that measure the progress of release benefits throughout the process rather than at the end only?
3. What are the necessary implications to enhance smart sustainable city initiatives in Saudi Arabia, and how are they linked to agile project management practices?

Research Hypothesis

1. Agile Project Management practices significantly improve project success rates in The Line project compared to traditional project management methods.
2. Continuous progress indicators provide a more accurate measure of project benefits compared to end-of-project assessments.
3. Implementing Agile Project Management practices can significantly enhance smart sustainable city initiatives in Saudi Arabia.

Chapter 2

Literature Review

Previous Studies

Agile Project Management (APM) has garnered considerable attention across various sectors due to its potential to enhance project outcomes through its iterative, flexible, and collaborative approach. APM, which has been used originally for software development project management, has shown high potential in the effective control of intricate and changing projects. According to the recent research, APM has been identified to have played a significant and positive role to the software development where new features included better project delivery time and quality, and customer needs (Beck et al., 2001; Highsmith, 2004).

In construction projects, APM has been used more frequently to deal with the problems related to complex and mass construction projects. According to Johansen and Wilson (2006), implementing of APM methodologies, including Scrum and Kanban, means that teams get the potential to improve their performance by implementing changes much quicker, assessing risks well and keeping stakeholders engaged. Secondly it provides a feedback mechanism and results in incremental progress, which is helpful in construction projects since commonly they can be bogged down by emergent issues.

The application of APM concepts has also helped infrastructure construction and urban planning. Research by Conboy and Fitzgerald (2004) found that the use of agile principles in urban planning projects had improved stakeholder cooperation, enhanced flexibility, and maximized resource use. APM's iterative methodology makes it easier to make continuous improvements and modifications, which keeps projects in line with changing urban goals and demands.

As seen in prior studies, APM has been shown to yield positive results across numerous industries; however, its adaptation in large-scale smart city projects has not attracted similar attention, especially in the Middle Eastern setting. The concept of smart cities is not just about adopting technologies but is a blend of technologies or technology enabled systems that form infrastructures within cities and hence requires a project management plan to support the changes and capture the interests of the many stakeholders involved. The Line project in KSA that aims to develop a new city with promising long-term goals, focusing on the technological and ecological aspects of sustainable city development, can serve as an essential case to understand the utility of APM in this line of work.

The literature review of smart city projects has shown that whilst prior research has addressed various technologies and infrastructures related to smart city initiatives, limited attention has been paid to the subject of effective project management methodologies. For example, a review conducted by Anthopoulos (2015) presents current and future frameworks for smart cities and notes the need to apply new technologies, such as IoT, AI, and big data, to the context of urban living. Yet, it fails to go into much detail about how APM can enable the successful deployment and integration of these technologies into the city.

Even though the implementation of APM in the large-scale infrastructure projects in the context of the Middle East has not been quite widespread up to the present moment. A recent work by Alami (2016) on project management practices in the GCC countries highlight a relatively high level of adoption of agile methodologies with some significant barriers such as cultural resistance to change, preference for hierarchical structures and low level of awareness of agile PM. It also clearly demonstrates that the practical application and benefits of APM in the region need to be investigated in future empirical research.

Other current investigations have been made to examine the effects of APM in evidently big scale projects in sectors other than software as well as constructions. For instance, according to Serrador and Pinto (2015), it is possible to increase the percentage of successful projects after implementing APM and continuous business flexibility, satisfaction of the involved stakeholders, and improvements in a team. Moreover, Dikert, Paasivaara, and Lassenius (2016) presented a qualitative study on large-scale agile transformations and found possible threats and enablers of success; therefore, call for more research in various project contexts.

One more recent study by Janssen & van der Voort (2016) was devoted to the potential of APM in public sector projects and conducted with the focus on smart city projects. The authors discovered that APM's iterative structure and the IDT and ET activities helped to adapt to the context and overcome the project volatility and intricacy characteristic of smart city initiatives. However, they also pinpointed at the fact that there is a need to develop specific forms of the agile mode that would fit the specifics of the public sector implementation.

The Line project is the first project of this kind in the world and as the first global smart city prototype, it can be used to fill this gap. Thus, if the theories and principles of APM are applied to such a vast endeavor as this reestablishment of the Ekaterinburg city's main area, it will be possible to assess the efficiency of these management approaches in terms of large-scale urban redevelopment projects in the Middle East. This research may help any future smart city development projects in the region and other parts of the world, to know how APM can pay positive dividends in the management and delivery of smart city projects by improving flexibility rating; and by embracing more engagement with other stakeholders in the iterative optimization of the projects.

Moreover, by investigating the case of The Line project, and given the richness of the literature on the sustainable development of cities, it is possible to understand how the APM principles are put into practice. APM does not focus only on constant improvement which is quite similar to the goals of constant assessment and reflection that are required for environmental, social, and economic sustainability. In implementing APM, The Line project can provide lessons on how sustainability can be incorporated into the urban development model.

Currently, there is a lack of the comprehensive analysis of different aspects of smart cities, especially for the first prototype of the Line project that is to become a global example. Thus, in this vast task, if APM practices are implemented, it will be easier to determine whether these methodologies are effective enough in executing immense urban redevelopment schemes in the ME environment. This research could then inform similar future smart city initiatives across the area and other parts of the world to evidence how APM could potentially positively impact on project performance when it comes to flexibility, engagement, and optimizing iteration.

In addition, considering the extensive literature on sustainable urban development, studying how this theoretical concept plays out in The Line project can be informative as well. The specificity of the approach embraced by APM in terms of cycling constant evolutions also responds to the permanent assessment and reflection on the environmental, social and economic sustainability processes. Through APM, The Line project can act as an example of how sustainability can be integrated into the very practices of urban development.

Even though previous research has established the benefits of APM in several industries, additional effort is warranted to explore its application in large-scale smart city

projects, particularly in the Middle East. There is an opportunity to address this gap and progress sustainable urban development and project management in the developing areas of Saudi Arabia's Line project.

Theoretical Foundations of the Research

This theory is the cornerstone of this research that is made up of three main areas of concept, namely, models of smart city development, project success theories, and principles of Agile Project Management (APM). In combination, these pillars represent one comprehensive professional perspective that can be applied to assess the efficacy of APM in reference to The Line project and the impact it will have on smart city endeavors.

Agile Project Management Principles

APM is iterative and has significant participation from the stakeholders, making it a more fluid approach, suitable for dynamic projects. Iterative development, collaboration with the customer, flexibility, and adaptability are the primary values of APM, so it is suitable for smart city projects that involve many complexities and frequent changes.

Iterative Development

Sprint is a core concept of APM since projects are segmented into more manageable phases or cycles called iterations. Sprints are geared towards providing a functional part of the project with each increment offering an opportunity for feedback. This approach is different to other project management techniques that are based on a waterfall model of working. One of the advantages of breaking project delivery into work packages is that it simplifies project management since one is only managing small components of a larger whole that has been subdivided into achievable and manageable units of work. Another advantage of iterative development is the ability to notice problems arising in the early stages and apply a fix in a much shorter time than would otherwise be the case, which improves the overall flexibility of the project. The concept of iterative development helps understand that the project can be developed, upgraded, and modified depending on changes in technology and the development of cities, to increase the effectiveness and sustainability of such projects as The Line.

Customer Collaboration

Customer involvement is another of the APM principles which focus on the engagement and participation of stakeholders during the project life cycle. This principle makes sure that the project objectives correspond to the users' requirements and expectations. It also assists in identifying the changed requirements and helps the project team in correction when there is a compromise of communicative interconnections between the project team and the stakeholders. In implementing smart city initiatives that have multi-stakeholder engagements that embrace government, private developers, and citizens; therefore, proper coordination is essential. It encourages the stakeholders to embrace change and be more receptive and committed towards such change hence boosting the chances of acceptance and success of the project. For instance, in the case of the Line project, it is only feasible that the social interaction with the stakeholders, will make them more certain that the development will facilitate the needs of the people in the area, and the general aims of development of sustainable cities will be met.

Flexibility and Adaptability

Communication plays a vital role in APM which also stresses flexibility and adaptation so that the project teams can respond to new information/information change. In contrast, in the context of APM, there is tolerance in terms of responding to the uncertainties that could come up because other traditional types of project management do not allow changes to the planning strategies. This flexibility is particularly useful where the end-users may not understand what they want at design time or where business conditions are likely to change over the lifespan of the solution. Since technological, environmental and social aspects that make up smart cities are dynamism in nature, flexibility is critical in Smart city projects. APM's approach provides much flexibility for project teams, since it can be adjusted according to the circumstances of the predominant business environment so that the project remains relevant and capable to achieve its objectives.

Encouraging Innovation

APM also ensures quality is maintained and that teams foster innovation by improving their functional approaches. This principle correlates with APM as an iterative process in which each sprint incorporates the lessons learned from prior endeavors. Another perspective is that promotion of innovation is important, especially in the case of smart city applications, as new approaches, technologies and solutions are to be created and implemented to support life in cities. The process of feedback inherent in APM is iterative in nature which helps in the development of better outcomes, in turn making the innovations more effective and sustainable.

From this analysis, then, the APM iterative and participative flexible model characteristics have been revealed: Sprint is the formal term used to refer to manageable phases or cycles of the project needed in iterative development to gain feedback and make necessary modifications (APM, n.d.). This approach increases the probability of making a shift to different needs and emergencies that may occur as smart city projects are being rolled out in increasingly dynamic environments. Customer participation involves the input of the consumer throughout the project development and implementation process where consumer needs are satisfactorily being addressed. Maintenance of the application of APM decreases the inflexibility in the team approaches promotes the development of strength for adaptation and innovation to the new facts.

In conclusion, the overall framework of Agile Project Management, including iterative development, customer collaboration, flexibility, and adaptability, can be regarded as a suitable approach to managing both complicated and volatile projects such as smart city initiatives. By applying such principles, it allows project teams build efficient mechanisms for improving their situational awareness, manage stakeholders, and encourage learning and innovation among the members. It is ideal for smart city projects that need to be developed in accordance with various challenges and opportunities to bring positive changes to society and remain relevant in the future.

Project Success Theories

The concept of project success has been defined differently across different fields, and it is one of the most explored concepts. It is crucial to comprehend what is meant by

project success and the components that influence it to assess and enhance project management practices when it comes to sophisticated projects in smart city framework. Al-badi (2008) highlighted several theoretical frameworks and empirical studies to produce an understanding of critical success factors and efficiency methodologies in improving project outcomes (McLeod, Doolin and MacDonell, 2012).

Critical Success Factors

Another source is one of the pioneering papers in the field of project success, which was written by Ika, who examined many publications and concluded that there are several key factors critical for project success (Ika, 2009). However, Ika has pointed out some of the following factors; the promotion of learning and this can be by participation, setting of objectives, and communication.

Clear Objectives

Proper setting of goals and objectives is one key factor that should not be overlooked when it comes to managing projects. SMART objectives help give direction, and a reference point from which to which to assess success and effectiveness. In smart city projects, the definition of goals is crucial as it creates the basis for various stakeholders to cooperate and make sure all their actions are aimed at achieving specific objectives. They also help in the evaluation of the results against the predetermined objectives (Team, 2023).

Stakeholder Engagement

Another area that is of great importance in any kind of project is the aspect of stakeholder management. Stakeholder management refers to the practice of identifying and assessing the needs of the stakeholders and ensuring that these are met. Technological approaches are often applied in smart city projects where there are multiple stakeholders involved including governments, private companies, and individuals. Engagement of the stakeholders increases collaboration and decreases resistance to change as well as enhances the chances of successful implementation and sustainability of the change process (Alamoudi, Abidoeye and Lam, 2022).

Effective Communication

The exchange of information and knowledge between individuals is an important aspect of project management. Communication can thus be defined as fostering the exchange of knowledge between all the stakeholders, members in a team, and project managers. They assist in controlling expectations, conflict resolution, and assist in solving problems and making decisions. It is crucial to identify efficient communication processes in the case of smart city projects since they are usually large in scale and may have a high level of complexity, which makes it challenging to organize activities and ensure transparency (Włodarczyk, 2023).

All these critical success factors are grounded on the Balanced Scorecard (BSC) approach, a strategic management instrument made famous by Kaplan and Norton (1992). The BSC provides a framework for translating a project's vision and strategy into specific,

measurable objectives across four perspectives: financial, customer, internal business processes, and innovation and improvement of organizational learning. Accompanying these CSFs, the application of the BSC approach allows for better connection of the project activities with strategic objectives, which in its turn will increase the overall probability of success.

Adaptive Project Management Practices

The unpredictability of projects is characteristic to many contemporary projects, especially those related to technologies or producing urban development, which means that project management must be highly flexible and adaptable. A meta-synthesis of project success by Joslin & Müller (2015) indicates that the success of a project through adaptive project management, which is characteristic of APM, is significantly enhanced. Their research explains how flexibility, iterative approaches and steady improvements in processes can help in managing challenges that come with large projects.

Flexibility

Flexible approaches to managing change are also highlighted in adaptive project management practices. Adaptive methodologies differ from conventional project management frameworks that progress in a sequential manner where adjustments are not permissible after researching for information and conditions. It is particularly useful in smart city initiatives such that it has been established that the nature and complexity of these projects demands constant changes keyed to prognosis of stakeholders' requirements and emergence of new technologies (Szreder, Walentynowicz and Sycz, 2019).

Iterative Processes

APM approaches, for instance, Scrum and Kanban, incorporates iterative processes to produce project deliverables in phases that can be easily managed. This feed forward and feedback loops make it easy for teams to work on their evaluations, get feedback and correct any discrepancies along the lifecycle of the project. Thus, iterative process allows projects to evolve incrementally and progressively in an aim to achieve the long-term set goals and other expectations by smart city stakeholders (Ebirim et al., 2024).

Continuous Improvement

APM boosts the improvement culture through constant evaluation and wards off the disadvantages of using the system. It stresses learning and adaptability as key factors that can help mitigate the risks and challenges inherent to smart city initiatives. This indicates that project teams can constantly improve the efficiency of processes and practices to minimize risks and achieve improved outcomes.

Therefore, Managing Director Erin Joslin and Müller (2015)'s work agrees with developing and implementing APM principles for addressing complicated projects such as The Line smart city project in KSA. The Line project seeks to establish a smart sustainable city based on advanced technology, and managing its challenges will benefit from the use of APM to realize the objectives of this project.

Empirical Evidence and Practical Implications

The findings from this study support other similar studies by re-affirming the Critical Success Factors and the concept of flexible project management methodologies in the realization of project success. For instance, Cooke-Davies (2002) enumerated secondary criteria of success and failure that categorize projects as success or failure; effective risk management, clear project scope statement, and proactive participation in supply of solutions to recognized stakeholder needs. These findings support the critical success factors as espoused by (Oostuizen, Grobbelaar and Bam, 2018) and highlight the future work implications of future work implementing these facets into project management frameworks.

In practical terms, the combination of critical success factors and adaptive project approaches can bring meaningful benefits to smart city programs. Through deploying the project objectives, identifying and involving the stakeholders, and the communication management, the project managers can build the right framework to achieve the project goals. As well, there has been more flexibility, responsiveness, and progressive improvement made possible by using adaptive approaches including that of APM on smart city projects, which face numerous challenges.

These theories provide a theoretical context when evaluating the success of projects, other than time, cost, and scope. Modern concepts of project success identify numerous success measures, including stakeholder satisfaction, project adaptability or efficiency, potential benefits realized, and so on. This broader perspective is much closer to the goals that are set within the framework of smart city initiatives that are not only time-bound and must be delivered connected with their completion on schedule and within the set funds but also cover the aspects of sustainability, habitability, and technological readiness. By adopting these success criteria, the research will be in a better place to ascertain APM's effect to The Line project.

Smart City Development Models

Smart city development models provide a conceptual structure to understand the integration of technology and urban development. Therefore, the primary focus of these models is aimed at improving the well-being of citizens and, at the same time, improving the effectiveness of managing municipal processes and providing municipal services. These models are used as reference points in analyzing the diverse aspects of smart city initiatives as a way of promoting the incorporation of scientific and technological breakthrough to support the fundamental goals of sustainable, integrated and intelligent city development.

The Smart Cities Wheel

Another widely used framework in smart city planning is the Smart Cities Wheel proposed by Cohen in the year 2012. This model identifies six key components: Smart Economy, Smart Mobility, Smart Environment, Smart People, Smart Living, and Smart Governance. Each element comprises features like innovation, digitization, environment, society, and participation structures. The application of the categorization of attributes

developed by Cohen helps in identifying and analyzing the diverse characteristics of smart city projects (Petrova-Antonova and Ilieva, 2019).

Smart Economy

This dimension is dedicated to innovation, entrepreneurship, and industrial productivity. It affirms continuing efforts to create a vibrant entrepreneurial environment for growth through digital support and technologies. Other attributes under this component include entrepreneurship culture, economic competitive advantage and the availability of digital marketplace (Khuan, Andriani and Rukmana, 2023).

Smart Mobility

Smart Mobility, here, refers to the utilization of well-developed transportation systems to support connectivity while minimizing the adverse effects on the environment around them. These include moving to electric cars, effectively organizing traffic and transport, efficient public transport, and accessible to everyone. Some of the key attributes include the provision of innovative and integrated mobility management and Infrastructures, advanced and secure transportation systems, and minimizing traffic congestion (Elassy et al., 2024).

Smart Environment

This concerns education components which focuses on environmental questions as the major criteria in urban development. It covers hinting green technologies, encouraging the usage of renewable energy sources, and adopting effective waste management systems. They include monitoring of air quality, green building measures, and efficient energy use in the layout of the extended urban structure (Hui et al., 2023).

Smart People

The Smart People dimension is mainly related to human resource development and social organization. It emphasizes one aspect of human assets, undergoing education and gaining the necessary skills to fit in the changing technology environment. Some attributes include the provision of education throughout the lifecycle and for lifelong learning, access to digital technology to needy people with an intention to minimize the digital dividends (Shin, Kim and Chun, 2021).

Smart Living

This component addresses the quality of life and well-being of citizens. It includes access to high-quality healthcare, education, and housing, as well as cultural and recreational amenities. Attributes involve e-health services, affordable housing projects, and the availability of digital public services (Mulligan and Carruthers, 2011).

Smart Governance

Smart Governance emphasizes the role of participatory governance and the use of digital tools to enhance public administration. It promotes transparency, accountability, and citizen engagement in decision-making processes. Attributes include e-government services, open data initiatives, and participatory platforms for civic engagement (Pereira et al., 2018).

Cohen's Smart Cities Wheel provides a comprehensive framework for evaluating smart city projects by integrating these six dimensions, ensuring a balanced and holistic approach to urban development.

The European Smart Cities Model

The European Smart Cities Model, developed by Giffinger et al. (2007), is another influential framework that outlines six dimensions of smart cities like Cohen's model: economy, people, governance, mobility, environment, and living. This model emphasizes the importance of connectivity and the use of technology to improve urban living conditions. It also highlights the role of human capital and participatory governance in achieving smart city objectives (Giffinger et al., 2007).

Smart Economy

This dimension focuses on innovation, economic growth, and job creation. It stresses the importance of fostering a knowledge-based economy through research and development, as well as promoting entrepreneurship and business innovation (Braunerhjelm, 2008).

Smart People

Smart People focus on education, skills acquisition, and social integration. It establishes the requirement of having an educated and skilled population who would be able to benefit from the innovations brought about by technology. This dimension also embraces provision of cultural and social rights to integrate people (Chaudhary, 2024).

Smart Governance

Smart Governance is aimed at a proper role of the government in smart cities' development. It fosters the adoption of ICTs as tools for improving the delivery of public services, increasing the extent of government accountability and increasing participation of the citizens. This dimension also provides focus on the participatory governance and stakeholder engagement in the overall governance processes (Pereira, Eibl and Parycek, 2018).

Smart Mobility

This dimension deals with the concerns of transportation systems and infrastructure that are economic, ecological, and sustainable. It involves smart transport systems like intelligent traffic control, public transport systems and encouragement of cycling and walking (Ashraf and Idrisi, 2024).

Smart Environment

Smart Environment is all about environmental protection and the ability of the environment to bounce back to its normal state after the disruption. This entails the use of various techniques such as incorporation of technologies that will help to conserve the environment and other resources plus measures in addressing climate change. This dimension also embraces green space and biodiversity of public or inhabited regions (Bibri et al., 2024).

Smart Living

Smart Living refers to the improvement of the quality of living and health standards of the populace. They encompass recognition and accord equal treatment in matters concerning resources in enhanced healthcare services, education, and housing; availability of cultural and recreational facilities. This dimension also underscores the concepts of safety and security in cities, which are key features of a sustainable built environment (Bibri, 2021).

The European Smart Cities Model is a guiding framework that can be used in the assessment of smart initiatives falls into six categories, which then would then determine if technology is properly integrated into the framework and the objective of Smart Cities.

The Triple-Helix Model

Other models include the Triple-Helix Model, which was put forwarded by Etzkowitz and Leydesdorff (2000), which places lots of emphasis on educational institutions, the business sector and government in fostering innovation in development of cities. This model calls for more of an open partnership in the achievement of smart city strategic interventions whereby different sectors are involved in formulating and implementing smart solutions (Etzkowitz and Zhou, 2017).

Academia

Research and development services are provided by academia for organizations in need of accurate information. Universities and research institutions play the following roles in the innovation process: initiation of research and development activity, technology development and generation of human capital. Engagement with academia helps to ensure that smart city initiatives are underpinned by scientific knowledge and research (Esangbedo et al., 2023).

Industry

Industry partners provide real-world experience, technological know-how and funding for smart city initiatives. SMEs in various industries comprising of technology, telecommunications, and construction are influential when it comes to the adoption of smart city development strategies. Industry engagement approaches guarantee that the solutions delivered in smart city projects are well developed both in terms of technological novelty and market relevance (Quan and Solheim, 2023).

Government

The government bears the responsibility for offering standard policies, financial resources and organizational support to smart cities. They are quite important in the process of enhancing inter-stakeholder cooperation in the implementation of projects that should be in line with the public agenda and regulations. The implication of government in smart city projects makes certain that they realize the needs and aspirations of the people (Clement, Manjon, and Crutzen 2022).

According to the Triple-Helix Model, a partnership between the government, academia, and private sector to advance smart city development is essential. In this way, smart city projects that work together with various stakeholders from academia, industry and government can coordinate resources and skills toward the task of developing the required systems and infrastructures.

Integrating Smart City Development Models

Smart Cities Wheel by Cohen, a model that has been especially designed for analyzing smart cities amid European context as the result of its suitability to societies while the Triple-Helix Model provides a balanced and thorough examination because of its specified aims and line of work. In the case of the application of the dimensions of the Smart Cities Wheel and the European Smart Cities Model, researchers can center their investigation on appropriate themes, which include the promotion of the economic recovery, utilization of the green economy, social integration of the people, and public participation. The Triple Helix Model complements the advancement of creating smart city projects by combining relationships between the academic realm, the industrial realm and the governmental realm to promote efficiency for utilization. This integration allows for gradual advancements and broad adaptability to meet the unstably developing requirements of cities – an aspect crucial for first and foremost experimental and continuously metamorphosing megacities. Much empirical research works substantiates the theoretical postulates of these models and demonstrates their effectiveness in practice. For example, some research confirmed that methods specified by Cohen's dimensions improve project performance (Castelnovo, Misuraca and Savoldelli, 2016); Cocchia (2014) pointed to the European model as a successful factor; and Leydesdorff and Deakin (2011) stated that such system as the Triple-Helix Model helps to upgrade innovative processes due to collaboration.

These models provide an understanding of technology, sustainability, and urban planning required to develop smart cities, thus improving their design. These consist of big data and analytics for data-based decision making, smart grid for integrating renewable energy resources, and smart network for effective communication and optimized operations. These models pay large attention to flexibility and incremental and iterative improvement, which are the main fundamentals of APM. Given the fact that smart cities are relatively new and will continue to grow more complex over time as well as the distributed approach typical of APM practices, the study explores how applying and advocating iterative and adjustable project management methodologies frameworks that relate to evidenced smart city development models can be useful for the relative field.

In other words, the theory of this research is based on the following three principles: Agile Project Management, three criteria for evaluating the success of projects, and three strategic frameworks for the development of smart cities. This is a helpful lens through which to examine The Line and APM's role in the project as well as the prospects for pursuing sustainable urbanization in the future.

Chapter 3

Research Methodology

Research Methodology

This research employs both quantitative and qualitative methods of data collection and analysis to provide sufficient assessment of the role, characteristics and usefulness of APM especially as it applies to The Line project. Incorporating these two paradigms, the study proposes to offer a consistent set of realizations on the project results and stakeholder perception to contribute to methodological validity.

Quantitative Data Collection

Primary data shall be gathered by means of structured questionnaires whereas secondary data shall be gathered through questionnaires and project performance data statistics. Interviews will be administered to the project stakeholders including the project managers, the team members and other project stakeholders in this case referred to as The Line. The next surveys will address the timelines, budget, quality, and the level of customer satisfaction with the management of projects. To avoid any suspicions with regards to its subjectivity, Likert scale questions will be used in capturing perspectives on how specifically APM has enhanced success rates. Furthermore, the assessment of Product Metrics will also involve the assessment of project performance factors such as the success rate in project closure or closed projects, number of cycles, defect density, and resource utilization. This will help in establishing scientific theories that can guide analysis of correlations between APM practices and performance of projects.

Qualitative Data Collection

Data will be collected using interviews that will be conducted with the Line project managers, top influencers, and industry experts. These interviews will provide detailed ideas regarding the various implications of APM, the benefits of ACCA's implementation, and effectiveness of its utilization. Such areas are on the use of iterative development, interaction with other stakeholders, flexibility and impression of the respondent as to the impact that APM has on projects. The deployment of the qualitative research approach helps highlight the social issues that may cause the success or failure of APM if adopted as the quantitative solution.

Data Analysis

Analysis of qualitative data will involve use of frequency distributions while probability measures will be used to make the right conclusions. Descriptive information of the study variables will be based on measures of central tendency, variance, and skewness while the relationships between the APM practices and project outcomes will be tested using regression analysis. The data collected will be analyzed thematically where the researcher is able to group and describe the data collected in relation to the participants' experience and perception.

Statistical Analysis Software: SPSS will be used to analyze the results of the questionnaire. This software will assist in processing and interpreting quantitative data, identifying patterns, and drawing statistically significant conclusions about the impact of Agile versus traditional management methods.

Triangulation

Combining the qualitative and quantitative data enhances the validity and dependability of the study results through the technique of triangulation. The study aims to give an extensive analysis of The Line project where APM is involved by comparing statistical information with the views of the project team members.

Temporal Boundaries

The study will focus on the duration of The Line project, specifically from its initial planning phase to the present date, with an emphasis on key milestones and phases relevant to Agile and traditional management practices. This includes tracking project progress over a defined timeframe, such as quarterly or yearly intervals, to assess the impact of different management approaches at various stages of the project.

Spatial Boundaries

The spatial scope of the study is limited to the geographical area encompassed by The Line project. This includes all development zones, infrastructure components, and any relevant spatial areas impacted by the project. The study will consider how Agile and traditional management practices affect different spatial components of the project, such as construction sites, operational areas, and logistical hubs within the project's geographic footprint.

This approach ensures that the study captures the productivity impacts and the underlying phenomena of implementing Agile Project Management in a smart city initiative of significance, providing valuable data for future initiatives.

Research Tools

1. Surveys: To assess and measure different aspects of the project and its performance using various parameters to identify areas of satisfaction.
2. Interviews: To gather qualitative data from the PMs, stakeholders as well as other professionals of the field.
3. Project Performance Metrics: Since such important parameters as time, cost, quality and sustainability indicators are used.

Research Limitations

There are several limitations that may affect research on The Line project, limiting the validity and reliability of the research conclusions. Firstly, there is a potential issue of data availability for projects since they contain sensitive information which cannot be disclosed or shared with others, thus limiting the depth of analysis. Secondly, the qualitative interviews as useful to provide contextual data and understand deeper perceptions may have some limitations such as perceptual or interviewer biases. Third, there are internal factors that relate to the changing nature of the Line project where the contexts surrounding project management practices and stakeholders may change with time thus may affect the outcomes and conclusion of the study based on the existing research. Though there are these drawbacks, measures to minimize biases, to improve the validity of data, and to provide an objective analysis of the results will be taken where applicable to increase the reliability and applicability of the study.

Chapter 4

Research Findings and Recommendations

Assessing Agile Project Management for Project Success

APM is acknowledged for the specific ways it contributes to the improvement of the probability of success in projects via various elements: flexibility, stakeholders, iterations. While traditional approaches offer a more rigid project management framework that follows a sequential process, APM promotes a more fluid environment that includes feedback and adaptations as key aspects of the project process. This flexibility is especially beneficial for large-scale and pioneering constructions, for instance, The Line in Saudi Arabia – a smart city – where high adaptability to the changing conditions and demands is crucial.

Flexibility and Adaptability

Perhaps one of the greatest assets of Agile Project Management (APM) is the flexibility and adaptability that is ingrained within this framework due to the iterative processes and approaches used in this approach. APM methodologies like Scrum and Kanban are implemented around the idea of sprints which are repetitive cycles that are normally between two to four weeks long. A sprint review is usually done at the end of each sprint with a focus on assessing the progress made, identifying issues, seeking feedback from stakeholders, and revising the plan. This round of development means that project teams can continually refine existing work, adequately address newly identified concerns, and incorporate new specifications progressively.

This flexibility is rather beneficial in large-scale and pioneering projects like The Line in Saudi Arabia. As the presented project is very large scale and smart city development is fast progressing and involves lots of new technologies and changing environmental issues, flexibility is the key factor. Therefore, through APM The Line project can periodically integrate such innovative solutions and practices in the development process and make it revolutionary. This iterative process not only helps to facilitate such integration but also to incorporate new solutions and assess the environmental factors as they become available (Digest, 2024).

Additionally, APM allows for adaptability within project management since the teams can easily shift their efforts as necessary due to emerging difficulties or required alterations to address stakeholders' expectations. This flexibility is crucial to address the challenges and risks inherent to smart city initiatives as their needs and contexts may evolve quickly. Through APM adoption, The Line of project can continue to stay on the right course in line with its goals as well as the objectives of smart city advancement.

Stakeholder Collaboration

Stakeholder management is an integral part of the Agile Project Management strategy, which is important to consider for project success. APM enhances stakeholder engagement through daily scrum meetings, sprint review meetings, and retrospective meetings. These meetings are intended to help all stakeholders to maintain their focus on the goals of the project as well as guarantee that their inputs are integrated into the project.

Daily scrum meetings give a chance for fast reporting and fast feedback, so if the stakeholder's demand is changed or problems appear, they can be solved on the spot. In contrast, more detailed Sprint Review meetings usually take place at the end of each sprint

and involve stakeholders in the assessment of the progress made and the work done so far to be able to make suggestions where necessary for changes. The retrospective meetings also help revisit some process and see what worked and what did not, which improves stakeholder engagement and satisfaction.

This kind of documented and consistent communication keeps all the team members abreast with the status and progress of the project. With The Line project, which is a complex collaboration of government agencies, technology vendors, and planners, this approach is especially useful. It is critical to maintain the project aligned to the vision of innovation and sustainability through management of stakeholder relationships. It enables the assimilation of multiple viewpoints and specialty fields, and it is a must when shielding a smart city from all the rising demands and issues related to its development.

Through stakeholder engagement and communication, APM increases the project's sensitivity to stakeholders' needs and ensures everyone is on board and working towards realizing The Line. This synergy does not only facilitate better project outputs but also enhances project partnership by ensuring that the output is in accordance with the vision and anticipation of all entities involved.

Iterative Progress and Continuous Improvement

In Agile Project Management (APM) process, iteration is one of the core principles where successive improvements and values are delivered incrementally during the project life cycle. This cycle is carried out iteratively and involves the division of the project into smaller segments called sprints, the duration of which range from two to four weeks. To achieve this, functional increments are delivered at the end of each sprint, thus providing a regular and incremental delivery of functionality. This approach engulfs continuous improvement since the teams can evaluate and enhance the process due to feedback and changing needs.

In the framework of the project “The Line”, which implies the construction of a new large-scale smart city, this approach is beneficial. Challenges and changes always threaten large-scale projects, and the described projects are no exception. By having an iterative approach, The Line will be able to develop and define the various sections of the smart city model in phases rather than launching the whole project at one instance. It reduces risk exposure since potential problems are tackled step by step, eliminating the chance of systemic failures that could endanger the project.

For instance, first sprints may be centered on creating essential frameworks, while subsequent sprints could aim at incorporating superior technologies or enhancing sustainability components. It is adopted that each segment is subjected to a thorough analysis and optimization before passing on to the next, which guarantees continual refinement according to the feedback received and the specific requirements at any given time.

The iterative nature and constant improvement provided through APM are beneficial for The Line project as these methods enable the step-by-step introduction of intricate and efficient solutions. This ensures that each aspect of the smart city is well done and made to fit well within the greater scheme of the project. Particularly, the provision of values in sequences as well as the continuous improvement contribute to the problem solving of the

organization in the ever-evolving, complex field of smart city development as well as the organizational progress toward the goals of APM.

Risk Management

Risk management benefits from APM since it is flexible and broad, ideal for large-scale and complex projects. Through breaking up a large project into smaller chunks or sprints, APM helps to identify risks at an early stage and address them before becoming critical.

In APM every sprint involves development only in that specific area of interest besides a sprint review and retrospective. Such review processes are important for evaluation, problem determination, and modification where necessary, within the progress of the project. From this perspective, this proactive approach helps in containing any risks or issues and making sure they do not compound and impact the entire project.

Hence, the risk management of The Line project, a complex smart city development initiative, is critical. It consists of multiple systems and technologies, which must be synchronized to meet the efficiency and sustainability objectives of the project. By applying the principles of APM to the Line project, there is a way to approach risks associated with each component of a smart city, for example, technology-related risks, integration risks, or potential environmental risks.

For instance, it is possible to determine certain features of the smart city infrastructure during every sprint. This means that any risks or challenges that may be present in the process can be corrected easily through continuous enhancements. Sprint reviews allow for assessing these risks in a predefined manner, and retrospectives enable identifying lessons learned and promoting better approaches to risk management in the subsequent sprints.

Thus, the iterative risk management process is especially effective as for the case of The Line being large-scale and multifaceted. Since APM divides the smart city project into phases and always oversees and controls the risks, it allows the project to develop, react correspondingly to the emerging problems. It also increases the project's robustness while aiding the delivery of the project's innovative and challenging objectives.

Performance Metrics and Feedback Loops

While employing the concept of APM, performance measurement as well as feedback mechanisms assist in keeping projects on track and aiming at the right goal. Burn down charts and velocity charts are some of the common tools that are used to monitor progress as well as for work control. In scrum, burndown charts show the amount of work remaining in a sprint and help teams determine progress made. Velocity charts depict the scope of work being done within a given period and can help to understand the effectiveness of a particular team.

These metrics are important with regard to keeping the authorities responsible for the project and to provide adequate supervision. It helps the teams to promptly detect any discrepancies to the laid down plan and promptly correct them to proceed with the project

objectives. In the case of The Line project, some of these performance indicators are crucial in appraising the effectiveness of smart technologies, identifying sustainable practices and determining customer satisfaction.

It is evident that using these metrics and feedback mechanisms, The Line project can proceed in assessing its performance periodically and make necessary changes to enhance it to meet the goals of the smart city development as they concern innovation and sustainability. Such an iterative feedback loop assists in constant enhancement and ensures that the project stays on track and aims at producing the best results (Holdsworth & Holdsworth, 2023).

Therefore, it is possible to conclude that Agile Project Management can be viewed as a sound strategy for managing and completing large and breakthrough projects like The Line. The principles of flexibility, stakeholder engagement, incremental progression, and continual enhancement are also inherent with the smart city projects implementation because this field changes and is novelty sensitive. Thus, APM can influence the decision-making as a decisive factor in the development of The Line to solve objectives and target smart city projects, which is confirmed by the ability to provide adaptive planning, enhance stakeholder relations, and facilitate iterative development.

Indicators of Progress in Agile Project Management

Stakeholder reviews, frequent feedback loops, and the continuous delivery of project increments are how Agile Project Management gauges progress. Important metrics consist of:

- Iteration Reviews: Evaluation of work completed at the conclusion of every sprint or iteration. By doing these evaluations, you can make sure the project is moving forward and accomplishing its goals.
- Burndown charts: Monitoring the quantity of work finished in relation to the quantity yet unfinished. These graphs show development in a visual format and aid in locating any bottlenecks.
- Customer Feedback: Consistent feedback from relevant parties to guarantee adherence to project objectives. This feedback loop guarantees that the project can adjust to new requirements while being customer focused.

Implications for Enhancing Smart Sustainable City Initiatives

APM practices can be used to bring positive changes to SSCI goals as the application of flexible planning, incremental development, and constant improvement mechanisms. When applied to the context of The Line project in KSA, it will further support the deployment of smart technologies as well as the incorporation of sustainable and innovative practices to meet the future needs of the proposed smart city. The principles of APM are in line with the objectives of developing a sustainable environment in cities; thus, can be applied effectively in the context of smart city challenges.

Adaptive Planning

Another strength of APM lies in its feature on adaptive planning. Unlike other methods of managing projects which tend to be slow, static, and long-term, APM supports work in shorter cycles with frequent reviews of objectives and tactics. This approach is more useful for smart city projects which must continuously change due to progress in technology and changing needs in urban environments. As demonstrated in The Line project, it is called adaptive planning that adapts to implement new technologies and solutions when they are available to maintain the idea of an innovative city (VirtualSpace, 2023).

Iterative Development

Another aspect of the APM's development approach is incremental, where the project is divided into smaller incremental cycles or sprints. At the end of each sprint, a review is conducted to assess the progress and the activities to be corrected or adapted are discussed. This facilitates sustained delivery of functional project sub-products with resultant early identification and correction of problems. Based on the concept of 'The Line', iterative development enables the progressive integration of smart technology and the physical environment within the project while minimizing the potential for major failures at each stage of development. This method ensures that the project can readily adapt to opportunities and challenges that exist in the market thus being able to meet the needs of all stakeholders at every stage of the development process (Wrike, n.d.).

Continuous Improvement

It is an integral strategy guided by the standards of APM that encourages the evaluation of project work and its continuous enhancement. In its approach, APM focuses on reflecting on the previous sprint and providing continuing feedback and incremental improvement based on the results of its performance measures. Within the prospect of the operational line concept of The Line project, the principle of Kaizen means that sustainability and innovation are constantly being developed and improved. This approach is vital to the concept of a smart city, enabling it not only to satisfy the population's immediate demands but also to prepare for future challenges that cities will face (Rashidy, 2023).

Collaboration and Stakeholder Engagement

APM underlines interaction with other people, thus, project management according to the APM approach implies high levels of activity involving other people. Meeting with the stakeholders daily through stand-up meetings, sprint reviews, and retrospectives helps to meet stakeholders' needs and expectations. This fosters transparency that helps in building trust, besides achieving intended project objectives that meet stakeholder needs. Engagement of the stakeholders in line project greatly is crucial for developing a smart city which will effectively and efficiently support the inhabitants of the city as it will involve the government, technology companies, planners and citizens among others (10 Principles of Stakeholder Engagement | APM, n.d.).

Improved Project Transparency

Therefore, the adoption of APM in The Line project can have positive effects such as enhanced project visibility with up-to-date information and platforms. Transparency tends to support stakeholders in monitoring project progress, decision-making, and providing feedback when needed. This visibility assists in developing confidence among stakeholders, thus ensuring that they remain committed in the project life cycle (Hidalgo, 2019).

Increased Stakeholder Satisfaction

The motivation towards incremental value and the ability of the APM to align with stakeholder demands results in higher stakeholder satisfaction. Through stakeholder engagement in the planning and development process and showing that the needs of the stakeholders have been considered, APM ensures that what is implemented within the project meets their expectations and needs. In terms of The Line project, it marks the formation of a smart city that would be more appropriate for the needs and desires of its inhabitants and other stakeholders involved (Conforto et al., 2016).

Enhanced Risk Management

APM improves risk management by enabling one to address any risks that may be present at a very early stage. The values of flexibility and learning nature of the iterative approach mean that risks can be evaluated several times to return to a better point where corrections can be made, thus the chances of experiencing serious disruption are minimized. As the process of smart city formation often unveils new challenges and uncertainties in the middle of its execution, it is crucial to keep managing risks and to prevent possible disturbances of the project (Márquez, 2022).

Coordination and Adaptability

Conventional smart city projects such as The Line involve the integration of various systems into a single infrastructure that is malleable to the daunting challenges that come with city development. APM allows the establishment of organization projects and various project components and different project stakeholders to have direction on their work and effort to prevent lack of co-ordination and inefficiency. Particularly when it comes to developing smart cities, such a dynamic knowledge and information processing approach is vital in terms of technology inclusion as well as addressing sustainability challenges (Márquez, 2022).

In conclusion, the considered approach to project management – Agile Project Management benefits can be depicted as considerable to strengthen the implementation of smart sustainable cities. Overall, adopting the key principles contained within APM immediately enhances the intelligibility and coherence of smart city initiatives and affords an effective approach for navigating the inherent challenges and risks of these projects. By using the ideas of APM in The Line project, the areas of project transparency, satisfaction of the stakeholder, and risk could be the potential benefits for the success of creating a livable, efficient, and resilient city context.

Conclusion

The expansion of project management methodologies has been helpful as it assisted in solving issues that are caused by the growth of large-scale projects. However, among all these methodologies, there is one that is ideal for large and visionary initiatives like The Line in Saudi Arabia – The Agile Project Management (APM) as it focuses on the frequent cycles and stakeholders.

The essential tenets of Agile Project Management (APM)—adaptive planning, iterative development, continuous improvement, and collaboration—align perfectly with the requirements of smart city initiatives. One advantage of APM is that, supporting frameworks can be easily incorporated which will enable projects to adopt sustainable practices and new technologies within a short span of time in response to changing demands of urban societies and technological advancements. Although APM is cyclical, it is easier to deliver working project components in a steady manner, so that an iterative process can be used to refine the project and to also identify problems early. Combine this with multiple feedback and co-decision making and not only do you minimize risk, but you also ensure that the project is right in sync with stakeholder perceptions.

When applied to The Line project, it reveals how APM contributes to championing smart sustainable city initiatives. With the help of increased transparency, satisfaction of the involved stakeholders and improved recognition of the risks, APM becomes a cause of emergence of the livable, effective and sustainable urban habitat. Since MOR is interactive, or more specifically, time-variant, it allows for management of intricate aspects of projects, as well as adaptability – that is an essential requirement when addressing the issues that arise with the formation of smart cities.

Concisely, by adopting APM techniques in The Line project it sets the blueprint for the other smart city projects to come globally while addressing the needs of current aggressive city development. The study's conclusions demonstrate the importance of APM in handling the difficulties of smart city projects by providing a workable framework for environmentally and technologically flexible urban development. This study highlights the value of agile approaches in developing creative, resilient, and sustainable urban environments, offering a model for future large-scale infrastructure projects with comparable objectives.

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Appendices

Abstract (English)

Over the years, the project management environment has been changing subtly or drastically depending on the degree of change which has been changing for decades due to evolving challenges of large projects. To support the implementation of smart city initiatives that involve the use of advanced technology and environmental preservation in the improvement of living standards, effective project management frameworks are required. APM is one of the most used approaches in software development due to its flexibility, extending processes and other factors that make it effective.

Smart city: The Line Project – a futuristic urbanization project in Saudi Arabia refers to a novel and challenging experiment in designing an advanced environmentally friendly sustainable city. The adoption of best practices of APM can help The Line realize better project outcomes, optimized performance, risk management, and stakeholder satisfaction. The effectiveness of Agile Project Management in The Line project is discussed in this research paper with a comparison of the results gotten with the conventional project management approach (Neom, n.d.).

The objective of this research is to assess the role that APM may possibly play in enabling the success of The Line project based on the contextual nature of smart city concepts. Besides, the paper has the potential to offer some theoretical lessons into the ways in which APM could contribute towards the improvement of sustainable urban development.

الملخص (عربي)

على مر السنين، تغيرت بيئة إدارة المشاريع بشكل جذري اعتمادا على درجة التغيير التي حدثت منذ عقود بسبب التحديات المتطورة للمشاريع الكبيرة. لدعم تنفيذ مبادرات المدن الذكية التي تنطوي على استخدام التكنولوجيا المتقدمة والحفاظ على البيئة في تحسين مستويات المعيشة، هناك حاجة إلى طرق فعالة لإدارة المشاريع. إدارة المشاريع الرشيقة هي واحدة من أكثر الأساليب استخداما في تطوير البرمجيات نظرا لمرونتها وتوسع عملياتها وعوامل أخرى تجعلها فعالة.

المدينة الذكية: مشروع ذا لاین - مشروع حضري مستقبلي في المملكة العربية السعودية يشير إلى تجربة جديدة وصعبة في تصميم مدينة مستدامة متقدمة صديقة للبيئة. يمكن أن يساعد اعتماد أفضل ممارسات إدارة المشاريع الرشيقة على تحقيق نتائج أفضل للمشروع؛ وتحسين الأداء وإدارة المخاطر ورضا أصحاب المصلحة. تمت مناقشة فعالية إدارة المشاريع الرشيقة في مشروع ذا لاین في هذه الورقة البحثية مع مقارنة النتائج التي تم الحصول عليها مع نهج إدارة المشاريع التقليدية (Neom، n.d.).

الهدف من هذا البحث هو تقييم الدور الذي يمكن أن تلعبه إدارة المشاريع الرشيقة في تمكين نجاح مشروع ذا لاین بناء على الطبيعة السياقية لمفاهيم المدن الذكية. وإلى جانب ذلك، فإن الورقة لديها القدرة على تقديم بعض الدروس النظرية في الطرق التي يمكن أن تسهم بها الآلية في تحسين التنمية الحضرية المستدامة.

Scientific Research

نموذج طلب نشر بحث علمي

عنوان اليحت باللغة العربية: أثر ممارسات إدارة المشاريع الرشيقية في تسليم مشروع ذا لامين؛ المدينة
الذككية في المملكة العربية السعودية

التخصص العام لليحت: ماجستير في الإدارة

التخصص الدقيق: ماجستير إدارة المشاريع

تاريخ التقدّم: 2. August.2024

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الأهمية والإضافة العلمية للبحث:

- تقييم الدور الذي قد تلعبه إدارة المشاريع الرشيدة في تمكين نجاح مشروع ذا لائن.
- تقديم بعض الدروس النظرية حول الطرق التي يمكن أن تساهم بها إدارة المشاريع الرشيدة في تحسين التنمية الحضرية المستدامة.
- تساهم هذه الدراسة في المعرفة الأكاديمية والعملية في مجال إدارة المشاريع، لا سيما في مجال المدن الذكية.
- تساهم هذه الدراسة في التشجيع على اعتماد ممارسات رشيدة لتلبية الطلبات المتزايدة للنحضر والتقدم التكنولوجي.

أتعهد أنا الموقع أدناه بأن هذا البحث لم يسبق نشره أو مقدم للنشر جزئياً أو كلياً إلى أي جهة أخرى. وأن ما ورد في هذا البحث من فكر وتأليف الباحث وأتحمل مسؤولية ذلك.

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