



Digital Transformation in Capital Construction Projects

A Case Study in the Digital Transformation of Saudi Arabia,
Eastern Region

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التحول الرقمي في إدارة مشاريع البناء الحديثة
دراسة حالة التحول الرقمي في المملكة العربية السعودية
المنطقة الشرقية

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• Dedication:

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• Introduction:

Digital transformation has become a cornerstone in the evolution of capital projects, reshaping the way infrastructure is developed, constructed, and managed. In an era defined by rapid technological advancement, the integration of digital tools and methodologies has emerged as a key strategy for driving efficiency, collaboration, and innovation in the capital project landscape. Capital projects encompass a wide range of endeavors, from building bridges and highways to constructing energy facilities and urban developments. Traditionally, these projects have been characterized by complex workflows, disparate stakeholders, and inherent risks. However, the advent of digital transformation has ushered in a new era of possibility, enabling stakeholders to overcome traditional challenges and unlock new opportunities for success. At the heart of digital transformation in capital projects lies the convergence of various technologies, including Building Information Modeling (BIM), Internet of Things (IoT), Artificial Intelligence (AI), and Augmented Reality (AR). These technologies, when integrated effectively, empower project teams to streamline processes, enhance decision-making, and optimize project outcomes. This introduction explores the profound impact of digital transformation on capital projects, examining key trends, challenges, and opportunities shaping the industry. From improving collaboration and productivity to mitigating risks and enhancing sustainability, digital transformation promises to revolutionize the way capital projects are conceived, executed, and delivered in the 21st century.

- Research Problem:

What are the Benefits and Drawbacks of Digital Transformation?!

And to What Extent is Digital Transformation Essential for Capital Project management Success?

- Research significant:

Digital transformation is crucial because it enables organizations to adapt to the rapidly changing technological landscape, improve efficiency, enhance customer experiences, stay competitive, and innovate. By leveraging digital technologies, businesses can streamline operations, gain insights from data analytics, reach new markets, and create new revenue streams. Additionally, digital transformation fosters agility and resilience, allowing organizations to better respond to market shifts and customer demands.

- Referencing:

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