Chapter 1
Engineering, Project Management, and Artificial Intelligence Roles in Diversified Portfolio Projects

Ahmed Sedky
https://orcid.org/0000-0002-8087-4175
Walden University, USA

ABSTRACT

Business diversification enables firms to achieve revenues but comes with increased risks when compared to operating in a single industry. Business diversification risks range from wrong investments to a total failure to compete with market competition and complete withdrawal from those markets. Business leaders invest in finding means to successfully diversify their business to achieve business sustainability and success. Grounded in the modern portfolio theory, the purpose of this chapter is to explore if integrating engineering management, project management, and artificial intelligence may sustain projects across diversified business portfolios. Data were collected from a review of previous literature and cases of successful integrations of engineering and project management and artificial intelligence from well-known brands globally. A key recommendation is to invest in such an integration. The integration may allow business leaders to sustain projects across diversified business portfolios, maintain operations, and contribute to communities' stability and economic growth.

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INTRODUCTION

In every business around the globe, firms are exposed to risks that may ascend from lost opportunities up to business closure. Business leaders look to successfully secure business to achieve revenues and profits that enable those firms to continue operations (Mouzas & Bauer, 2022). Those targeted markets by business leaders are those where they find opportunities to succeed by filling the gap resulting from the scarcity of products and services offered (Sedky, 2024). Although those markets may have the needed demand to encourage business owners to enter them, businesses may not achieve the desired results. Without a proper business strategy, businesses may deviate from achieving their goals, business continuity, and profitability (Dyer et al., 2021). A business leader needs to ensure that the business strategy is well-planned and tailored to enable the business to perform, achieve organizational goals, and ensure business continuity and organizational success. One of those strategic initiatives is the diversification of business to ensure gaining business from several industries, a key aspect of achieving business sustainability.

Business diversification has long been recognized as a strategic approach that enables firms to spread risk and capitalize on growth opportunities in multiple industries. However, while the concept of diversification in business is widely accepted, executing such strategies presents significant challenges (Podolsky & Hackett, 2021). The management of a diversified portfolio requires a sophisticated understanding of both the internal dynamics of the organization and the external market forces that influence its operations (Ohara & Mefford, 2022). This complexity is further compounded by the need to maintain alignment with the business strategy, ensuring that each business unit contributes to the company's long-term goals. Therefore, firms need to understand that business diversification is an extensive exercise that requires proper planning and studying of internal and external business factors that need time to achieve successful business diversification models.

The importance of diversification cannot be overstated in today's volatile and unpredictable business environment. Economic fluctuations, technological disruptions, and geopolitical tensions all contribute to an uncertain landscape where traditional business models may no longer suffice (Kostynets & Kostynets, 2023; Odulaja, et al., 2023). In this context, firms that diversify across multiple industries are better positioned to absorb shocks and sustain growth. Business diversification allows companies to mitigate the risks associated with reliance on a single market or product line, thereby enhancing their resilience in the face of external challenges and firms need to use technology to anticipate risks and make sure they are prepared to face them. Therefore, the use of technology may allow businesses to overcome potential risks of market entry, resistance, competition, and economic fluctuations to achieve successful business diversification.

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