A Summary of Recent Studies Published by DIU Researchers

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
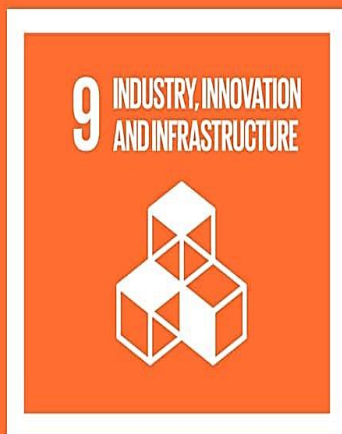
Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Daffodil International University

The researchers of Daffodil International University (Faculty, Students, Alumni) have conducted a number of research projects related to SDG 9 (Industry, Innovation & Infrastructure) and results of the projects have also been published as research papers in various international reputed peer reviewed and Scopus indexed journals. The summary of the research publications related to SDG 9 are given below:

1. Investigating the impact of AI-powered technologies on Instagrammers' purchase decisions in digitalization era–A study of the fashion and apparel industry

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Highlights

- We investigate the effects of digital technology experiences on Instagrammers' purchase decisions.
- This research uses the perceived eWOM, emotional value, risk and price to investigate the effects of DT.
- The results confirm that perceived emotional value and eWOM shown a positive influence on users' purchase decisions.

Abstract

Over the last couple of decades, technological advancements have accelerated exponentially, especially in the realm of online social networking networks. The artificial intelligence (AI)-powered digital technologies applications continue to emerge to enhance and improve novel ways of communication on social media platforms, particularly Instagram. Indeed, this has caused a change in the behavioral and social customer journey, where customers need to embrace a digital experience adoption. The AI applications primarily aim to study the shoppers browsing trend to draw new clients and expand businesses. Even the fashion industry has tapped into Instagram's business benefits in this fast-paced and competitive industry. With this quick and compelling way to capture shoppers' attention towards fashion products, the purchase decision may differ between e-shoppers and conventional shoppers. AI seems to be extremely promising and has the potential to be a game changer for Instagram users, advertisers, and influencers. This study applies the Engel-Kollat-Blackwell (EKB) theory to investigate the effects of AI-based digital technology experiences on Instagrammers' fashion apparel purchase decisions - perceived eWOM, perceived emotional value, perceived quality, perceived risk and perceived price. Based on data collected from Instagram users, the framework of this study was evaluated using structural equation modelling (SEM). Semi-structured in-depth interviews were also conducted as part of the research to get a more in-depth understanding of the profiles and behaviors of Instagram users. Our findings from both methodologies confirm that perceived emotional value, perceived quality, and perceived eWOM revealed a statistically significant and positive influence on Instagrammers' purchase decisions for fashion apparel. Meanwhile, the importance performance matrix analysis

(IPMA) identified perceived emotional value as the most important factor for Instagrammers, but the highest performance was perceived quality. This research has important implications for Malaysian online retailers and shoppers to adapt to the fast-changing digital transformation. Assuredly, this study makes a noteworthy contribution to attitudinal research on social media commerce within the fashion industry.

2. Nexus among blockchain visibility, supply chain integration and supply chain performance in the digital transformation era

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Sook Fern Yeo (Faculty of Business, Multimedia University, Melaka, Malaysia) (Department of Business Administration, Daffodil International University,Dhaka, Bangladesh)

Kee-Hung Lai (Faculty of Business, The Hong Kong Polytechnic University, Kowloon, China)

Ajay Kumar (AIM Research Centre on AI in Value Creation, Emlyon Business School,Ecully, France)

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Abstract

Purpose

Digital transformation (DT) in the semiconductor industry goes beyond traditional business operations and supply chain management (OSCM) to the digital world. Despite significant developments in recent years, blockchain implementations for OSCM remain relatively underdeveloped in the semiconductor industry. Therefore, this research aims to examine the relationships between blockchain visibility, supply chain integration (SCI) and supply chain performance (SCP) in the era of DT in Malaysia's semiconductor industry to shed light on this emerging area.

Design/methodology/approach

A convenience sampling of 71 operations and supply chain managers attached to semiconductor manufacturing firms in Malaysia were invited to participate in a survey. In assessing blockchain visibility within the industry, key terms namely business intelligence gathering, information exchange, information technology (IT) and knowledge of asset status, were conceptualised from the literature review. The questionnaires developed to collect data were validated by industry and academic experts.

Findings

The results from the analysis confirmed that SCI mediates the link between blockchain visibility (information exchange, business intelligence gathering and knowledge asset status) and SCP. Likewise, the importance-performance matrix analysis (IPMA) outcomes revealed that IT played a minor role. The results suggested that semiconductor manufacturers should pay less attention to IT since this was identified as having the least priority towards improvement.

Practical implications

The outcomes from this research enable policymakers to strategise and integrate blockchain technology in the era of DT to ensure sustainable SCM in the semiconductor industry in Malaysia.

Originality/value

The research bridges the knowledge gap by revealing the value that blockchain visibility can facilitate SCP and explore SCI as the prevailing factor and demonstrates how Resource-Based Theory and Network Theory can be applied in this study.

3. Digitalization and Centralization of Medical Information and Patient History in Bangladesh

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Abstract:

Some remote area samples are reviewed through both online response and physical survey, where the parameters and specific keywords constructed and novel updated data samples of the conducted survey regions are focused. Through the conducted survey and processed novel dataset, the percentage of

dominant demographics common health issues, their treatment locations, their further treatment of doctor suggested treatment locations, the origination capabilities of physical medical documents, and many other parameters are concluded. This survey generated a decision where the larger demography expressed their recurring need to visit remote doctors and medical centers for treatment. Different sections of our survey report concluded that while visiting these remote medical centers, they have often failed to organize their medical history documents. These reports solidify the need for a digital patient history database and the centralization of this database for ease of access from any location or medical center, or doctor's chamber. Our project has also shed some light on the software and technical architecture that could be the foundation of a centralized database for patients' medical history.

Keywords

- [Medical Digitization](#) ,
- [Centralized Medical](#) ,
- [Patient History](#) ,
- [Bangladesh](#)

4. DVTChain: A blockchain-based decentralized mechanism to ensure the security of digital voting system voting system

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Abstract

Voting is a fundamental democratic activity. Many experts believe that paper balloting is the only appropriate method to ensure everyone's right to vote. But this method is prone to errors and abuse. Many nations utilize digital voting methods to solve the difficulties of paper balloting. A single flaw in digital voting may lead to massive vote-rigging. Election voting methods must be legal, accurate, safe, and convenient. However, issues with digital voting methods may restrict acceptance. Due to its end-to-end verification capabilities, blockchain technology was developed to address these problems. To guarantee We have used blockchain technology anonymity, privacy, verifiability, mobility, integrity, security, and fairness in voting. By using blockchain our proposed system ensures security, privacy, and integrity. This system provides voter anonymity by keeping the voter information as a hash in the blockchain. It also provides fairness by keeping the casted vote encrypted till the ending time of the election. After ending time, the voter can verify their casted vote, ensuring verifiability. To test our protocol, we put it on Ethereum 2.0, a blockchain platform that uses Solidity as a programming language to create smart contracts. The adoption of smart contracts provides a safe means for performing voter verification, ensuring the correctness of voting results, making the counting system public, and protecting against fraudulent activities. We analyzed the system's performance based on security and gas costs. It improves in terms of security characteristics and the related cost for the necessary infrastructure.

Keywords

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