Contents available at the publisher website: G A F T I M . C O M

International Journal of Theory of Organization and Practice (IJTOP)

Journal homepage: https://journals.gaftim.com/index.php/ijtop/index

How Technology Solutions Providers are Using Platform Engineering to Improve Efficiency, Agility, Performance and Responsiveness: Case Studies

Mounir El Khatib[1], Ahmed Alzarooni [2]

[1]*Associate Professor, Hamdan bin Mohamad Smart University, School of Business & Quality Management, Dubai. UAE*

[2]*Graduate Business Management, Hamdan bin Mohamad Smart University, School of Business & Quality Management, Dubai, UAE.*

A R T I C L E I N F O

Keywords:
Platforms, Platform engineering, Solution providers, IT providers, Efficiency, Agility, Performance, Responsiveness.

Received: July, 11, 2023
Accepted: Sep, 21, 2023
Published: Dec, 22, 2023

A B S T R A C T

This study explores the impact of platform engineering on technology-based solutions providers. It examines the benefits of platform engineering in terms of improving the efficiency and scalability of technology-based solutions. The study analyzes the role of platform engineering in enabling faster and more efficient development of customized solutions for businesses, and how this can be leveraged to improve the competitiveness of technology-based solutions providers. The study provides an overview of platform engineering and its essential characteristics, as well as the potential opportunities and challenges that it presents for technology-based solutions providers. It also includes case studies of businesses that have successfully implemented platform engineering to enhance their technology-based solutions and drive innovation. Finally, the study provides recommendations for technology-based solutions providers looking to incorporate platform engineering into their operations. Overall, the study highlights the transformative potential of platform engineering for technology-based solutions providers, enabling them to deliver more innovative and competitive solutions to their clients.

1. INTRODUCTION

Platform engineering has emerged as a crucial component in the development and implementation of software programs, including project management software. It is a method used by businesses to increase the efficiency and reliability of their cloud platforms, and to ensure that software products can be produced on time and to a high standard. The platform engineering team is responsible for designing, building, and managing the company's cloud platforms, which can be utilized by software developers and other IT experts within the organization to deploy and manage software in a safe and effective manner (Rahnama et al., 2022).

The goal of platform engineering is to create a single platform that can manage a range of services and applications within an organization. It involves the development of a basic infrastructure that supports and assists developers' work, allowing them to focus on creating high-quality applications that meet the needs of end users (Buchholz et al., 2013). In the context of project management software, platform engineering is essential for establishing a reliable and scalable infrastructure that can support the various features and functions required by project teams (Amiri et al., 2020; Nuseir, 2021; Varma et al., 2023). This includes designing a platform that offers a variety of services, such as data storage, user administration, communication tools, and reporting capabilities

(Johansen and Rönnbäck, 2021).
However, the impact of platform engineering extends beyond the technical features of an application. It can also significantly influence the layout and operation of an IT department (Van Der Linden and Wijnstra, 2002). For example, it may result in the formation of specialized teams focused on platform development and maintenance, as well as the adoption of cutting-edge development approaches like DevOps, which emphasizes teamwork, automation, and continuous integration and delivery (Rahnama et al., 2021) (H. M. Alzoubi et al., 2022g; M. El Khatib et al., 2023b).
In conclusion, platform engineering has a considerable overall impact on IT companies and project management software. It can change the way IT teams operate and assist businesses in creating more effective and efficient applications. As a result, it is a discipline that companies aiming to develop top-notch project management solutions should prioritize and invest in (Zhou et al., 2010).

1.1. Research Questions

- What are the positive effects of platform engineering in technology-based solutions provider?
- How it can leverage the technology-based solutions provider.
- What is the future of platform engineering with technology-based solutions provider?

1.2. Research Objectives

The objective of the research is to address the following goals:
The positive effects of platform engineering in technology-based solutions provider.
The leverage that the technology-based solutions provider can make from the usage of platform Engineering.
The future of platform engineering with technology-based solutions provider.

1.3. Hypothesis

1. **Hypothesis 1:** Platform engineering can lead to increased efficiency and agility in technology-based solutions provider.
2. **Hypothesis 2:** Platform engineering can lead to increased performance and responsiveness to industry changes and market conditions in technology-based solutions providers.

2. LITERATURE REVIEW

2.1. Types & Definition of platform engineering

Platform engineering is the designing and organizing a set of programming software tools and workflows that provide self-service abilities for software engineering companies in the cloud services (H. Alzoubi et al., 2020; M. El Khatib et al., 2023a; Hani Al-Kassem, 2021; Sakkthivel et al., 2022). Platform technologists deliver a unified outcome that is mostly called “Internal Developer Platform” combine all the requirements of the complete lifespan of an application (H. M. Alzoubi et al., 2022b).
Platform is a new business prototype that uses technological solutions to link people establishments and reserves in a collaborative multiple network system in which wonderful volume of value can be formed (M. T. Alshurideh et al., 2023a; Nuseir et al., 2020). Platforms have different types such the business deal platforms, that enable business deals involving multi kinds of persons and companies that would if not have trouble discovering each other. Clear examples include Uber, Google Search, Amazon, and eBay. This category of platform is called a multi-sided market (Al-Awamleh et al., 2022; Arshad et al., 2023; M. El Khatib et al., 2023h). Another type of platforms is the innovative type that contains the technological building blocks (The technological building blocks in information and communication technology business (ICT) substructure contains all the basic elements of the ICT business including hardware, software system, employees, networking, and data that are utilized as a base that many innovators can progress compatible facilities or products (Tariq et al., 2022a) (H. M. Alzoubi et al., 2022h; El Khatib et al., 2020; Gulseven and Ahmed, 2022; Nuseir, 2020). These innovators can be anybody, from any place on the earth, and mutually they develop an innovation network over the platform (H. M. Alzoubi et al., 2022d; Nuseir and Aljumah, 2022) (A I Aljumah et al., 2022a; Alzoubi and Ahmed, 2019). For instance, iPhone applications developed by innovators all around the globe and they are using the Apple technology that is provided by the company through the software median (application programming interface) or inventor kits (Tariq et al., 2022b) (El Khatib et al., 2022; Lee et al., 2023a). This practice

will promote the innovators to make more applications and iPhone will benefit for obtaining this new application with innovative ideas.

2.2. Positive effects of platform engineering in technology-based solutions provider

In General:

In 2014 three of the five major companies in the world are using platform business model.

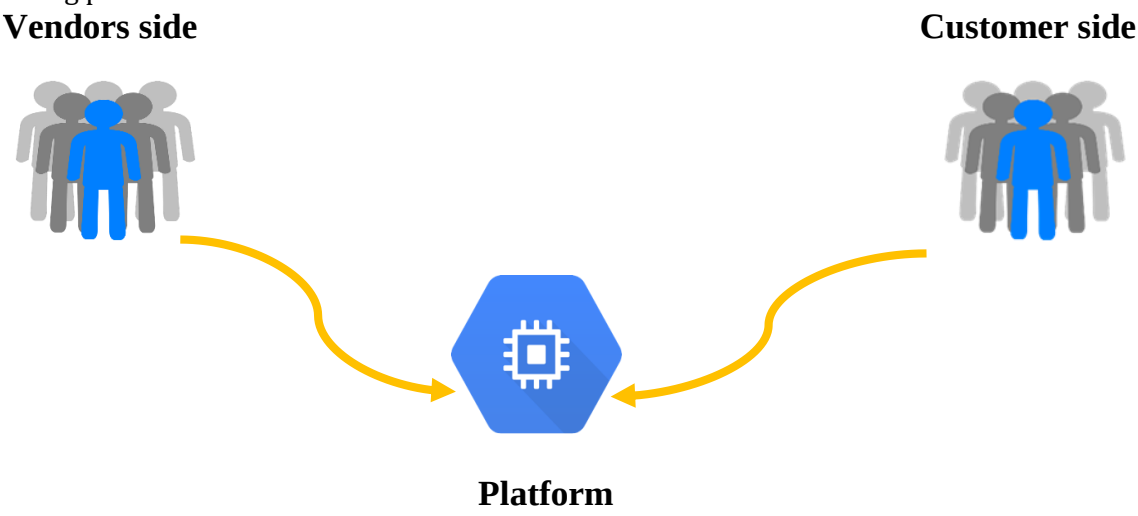

Figure 1:

Is open, letting controlled contribution, positively encourages relations among diverse vendors and customers in a multi-sided market, its widely quicker than a traditional pipeline business because the cost of the product or services are under the vendors or supplier's responsibilities (H. Alzoubi et al., 2022; M T Nuseir et al., 2022a) (Al-Maroof et al., 2022a).

2.3. Features of the platform

2.3.1. Efficiency

Platform style is a new organizational approach for bringing creativity and business dealings in different industries. Therefore, platform revolution has achieved the greatest strategy for accomplishing sustainable profits, mainly in the IT and mobile fields (M. Alzoubi et al., 2021; Mubeen et al., 2022) (R. S. Al-Maroof et al., 2021a). There are various important situations where the organizations have adopted a platform supply strategy, Apple, Amazon, Nintendo, Microsoft, and Google have become one of the richest technology firms in the world. These firms were aware of how to supply their platforms to the market (M. Alshurideh et al., 2023) (M. T. Alshurideh et al., 2023d; H. M. Alzoubi et al., 2022f; M. El Khatib et al., 2023d). The platform organizations supply different types of services, dealings and values that are related to mobiles, tablets, personal computer, and the electronical appliances.

2.3.2. Agility

In 2007 the biggest mobile phone producers Nokia, Samsung, Motorola, Sony Ericsson, and LG all together dominate 90% of the business's worldwide income. By 2015, the iPhone alone had gained 92% of word wide income and the other companies except one of them had no profit totally (Aljumah et al., 2021b) (M Alshurideh et al., 2022). How can this be clarified and how the iPhone has dominated the market?

The fallen companies had a traditional plan that should not allow such loosing and falling in the market, the plan includes big research and developments funds, well known brands, developed regulation, fantastic logistic system and developed distinguishing merchandise system (Seethamraju and Sundar, 2013) (Ahmed et al., 2022; Al-Maroof et al., 2022b). These companies have moderate condition in the market and gain profit, so they are deep rooted in the market. Basically, iPhone had a creative design and high abilities (Abudaqa et al., 2021; El khatib et al., 2023b). Although in 2007 apple was not as much as usually strong it is, and other well-developed companies are in the market. it had no stocks in mobile phones and it had only 4% stocks in desktop operating system (M. El Khatib et al., 2023g; Nuseir and Aljumah, 2020). Apple advanced

more than its competitors by manipulating the platform technologies and adapting the new plan of strategy they follow it (Aljumah et al., 2021a; T M Ghazal et al., 2023a). The Platform joins the creators and users allowing them to exchange valuable products or services. The major things apple has is the information and connection that is the basis of the value they invent and give them the progression among others (Akour et al., 2021; Nuseir et al., 2021) (Muhammad Turki Alshurideh et al., 2022b; El Khatib et al., 2021a). Considering the above apple dealt with the iPhone not as a product only but a method to coordinate with their customer in two-way market in one way is the inventors and in other way is the customers or users (Aljumah et al., 2020; Khatib et al., 2022). The number of contributors in each way increased, which implies the value the company are producing also increased (Aityassine et al., 2022; Al-Kassem, 2014; Almasaeid et al., 2022). This scenario is the impact of network, and the platforms can furnish it. In 2015 the apple store offered 1.4 million applications and had generate 25 billion for inventors (Elkhatib, M., Al Hosani, A., Al Hosani, I., & Albuflasa, 2022). Apples success to advance using the platform strategy is a good example to the other companies in the market. companies who are not able to apply the new technologies such as the platform will be in trouble competing with other companies (Al-Dmour et al., 2023; Mat Som and Kassem, 2013).

2.3.3. Performance

platforms have been significant bases of innovation. For instance, in 2014, nine U.S. platforms were granted 11,585 patents of invention. several start-up platforms have been effective in appealing significant investment from the investor's capitals (Alhamad et al., 2021; Farrukh et al., 2023). Many of them are known as "unicorns" and they are starting companies whose asset evaluation reach 1 billion $, and among 115 companies 80 of them or 70 percent are platform companies (Alshawabkeh et al., 2021; Amiri et al., 2020; Khatib et al., 2023).

2.4. Responsiveness to industry changes and market conditions

Software platforms have strengthened new businesses for example: private computers and mobile phones, weakening old-style businesses such as using normal type machine for writing, and interrupted several businesses from music to bank cards (Akour et al., 2023; El Khatib et al., 2019). Software platforms are powerful machines of change because of the flexibility of code programming and their different sided behaviors allows them to generate networks of complementors (I. A. Akour et al., 2022; Al-Kassem et al., 2022). Web-based platforms that simplify business dealings and lower dealings costs are disturbing the traditional marketing sector and the promotion reinforced media (H. M. Alzoubi et al., 2020; Blooshi et al., 2023; Nuseir and Elrefae, 2022). The 24 percent decrease in the market value of the main newspaper producers between the years 2004 and 2005 is just one sign of future renovation. The principal Web-based platforms based on sales (eBay) and search (Google) have established multisided plans grounded on delivering services through APIs (application programming interface) to developers and further third parties and inspiring the making of exciting networks around their platforms (A. Al-Maroof et al., 2021; A I Aljumah et al., 2022b; T M Ghazal et al., 2023b). Software platforms play serious role in the third manufacturing revolution that began about 1980. The first part of this revolution concentrates on the software platforms that perform on certain computing apparatus (M T Alshurideh et al., 2022; T M Ghazal et al., 2023c; Yasir et al., 2022). The second part, which initiated about 2000, is concerned with software platforms that work on Web servers and that assist companies and customers to buy products and services (Kassem and Martinez, 2022).

There are three main reasons pulling the business toward the platform model: new infrastructure and technology, wealthier and more infrastructure data, and persistent demand to decrease costs (Al-Kassem, 2017; M. M. El Khatib et al., 2023; Louzi et al., 2022a). Customers are looking for the high functionality that the platform offers with the cost decrease that is generated from the optimization of the company assets. The value is coming through the chain, and no one owns the whole chain (AlDhaheri et al., 2023; M. El Khatib et al., 2023c; Taher M. Ghazal et al., 2023).

2.5. The future of platform engineering with technology-based solutions provider.

Gartner (Tech. research organization) predicts

that by 2026, 80% of software engineering establishments will launch platform group as interior workers of recurring services, components, and methods for application preparation and issuing. There are several users for the platforms such as suppliers, vendors, customers, and inventors (El khatib et al., 2023a; Louzi et al., 2022b) (M T Alshurideh et al., 2022). The platform is the place where all these parties can join so the collaboration will be enhanced among them (I. Akour et al., 2022; El Khatib et al., 2021b; Mohammed T. Nuseir et al., 2022). The market is having more tendency to apply the platform as a service where the inventors can develop the new application themselves using the platform facilities such as the servers, saving capabilities, etc (Aljumah et al., 2023; Gaytan et al., 2023; E. Khatib et al., 2021). With greater businesses in banking, health, and technological divisions, the market is anticipated to have a widely higher request of generating the platforms (H. M. Alzoubi et al., 2022a; M. El Khatib et al., 2023f; M T Nuseir et al., 2022b). As per the Market Research Future, the platform services will range 213.68 billion $ by 2030, increasing at an 18.63% at persistent rate of return during the assessment period (2020-2030). Platform allows industries to advance and exam their apps.

3. CASE DEMONSTRATION

3.1. (AWS) amazon web services

It's a cloud platform which provide a service, provides a variety of facilities for developing, utilizing, and handling software applications. AWS is a platform that has a considerable effect on technology-based solution suppliers (M. T. Alshurideh et al., 2023b).

3.2. Google Cloud Platform (GCP)

is a set of cloud computing facilities, it gives multiple of integrated cloud services containing processing, data storing, data analytics and machine learning.

3.3. Uber

Uber is a ride-sharing online platform that works in more than 600 urban communities around the world. The organization has fostered a powerful stage that empowers riders to interface with drivers continuously, track their outing progress, and pay for their rides carefully (Nadzri et al., 2023) (Ahmad Ibrahim Aljumah et al., 2022a; Khan et al., 2022). The stage utilizes progressed information examination to improve courses, decrease stand-by times, and give superior general experience to riders and drivers.

3.4. Airbnb

Airbnb is an internet-based commercial center that interfaces travelers with hosts who have spare rooms, homes for rent, and apartments (Alzoubi et al., 2019; Nuseira and Aljumahb, 2020). The platform permits hosts to list their properties, set their own costs, and deal with their appointments through a focal dashboard. Airbnb has turned into a worldwide peculiarity, with more than 7 million postings in 220 nations (Ahmed and Nabeel Al Amiri, 2022; R. S. Al-Maroof et al., 2021b; Muhammad Turki Alshurideh et al., 2022a; H. M. Alzoubi et al., 2022c; El Khatib and Ahmed, 2018).

3.5. Shopify

It is a well-known e-commerce platform that helps people to make online stores and sell the products around the world. The platform engineering team of Shopify provides emphasis on company's infrastructure, such as API services, payment processing, mobile applications etc (H. M. Alzoubi et al., 2022e; M. El Khatib et al., 2021).

4. RESEARCH METHODOLOGY

The reason for this research is to examine the agility performance, efficiency, and responsiveness of platform engineering and its future. The examination will utilize qualitative research to gain bits of knowledge and comprehension of the topic. The qualitative methodology will include interviews with specialists in the field, explicitly three specialists from Google and three from Amazon. The meetings will be directed by five open-ended questions connected with the speculation. The review will likewise use secondary data to enhance the discoveries of the interview.

The qualitative research design will be utilized in this review. This approach is reasonable for this research since it focuses on understanding the encounters and points of view of the specialists in the field of platform engineering. Qualitative research includes gathering information in a characteristic setting and breaking down it to acquire experiences into the peculiarity under

study. This approach will empower the specialist to grasp the agility performance, efficiency, and responsiveness of platform engineering and its future from the perspective of the specialists.

The essential information for this study will be gathered through interviews with six experts, three from Amazon and three from Google. The specialists will be chosen in view of their experience and information in the field of stage design. The meetings will be directed through telephone or video call to oblige the geological distance between the specialist and the members. The meetings will be recorded with the authorization of the members to guarantee exactness and empower the specialist to catch every one of the pertinent types of information. The meetings will be directed by five inquiries without a right or wrong answer connected with the speculation, as follows:

1. What do you consider the main elements for accomplishing performance, agility, and platform engineering efficiency?
2. How would you quantify the performance, agility, and efficiency of your platform engineering groups?
3. What are some of the difficulties that your company has experienced in terms of platform engineering and how have you tended to those difficulties?
4. Which job do you see emerging technologies, for example, artificial intelligence and machine learning playing in store for stage designing?
5. What steps do you take to guarantee that your platform engineering groups stay responsive to the changing necessities of the business and the marketplace?

These inquiry questions mean to accumulate bits of knowledge from specialists in the field of platform engineering at Amazon and Google. Along with the primary research, secondary data, for example, industry reports, whitepapers, and contextual investigations will be gathered and broken down to help the research findings. The research methodology will include a thorough course of information assortment, investigation, and combination to guarantee that the discoveries are dependable and substantial. The consequences of the review will be introduced in a report design, framing the key discoveries, suggestions, and proposals for associations hoping to further develop their foundation designing capacities. The findings will then be combined to give an extensive outline of the effectiveness, agility, performance, and responsiveness of platform engineering, as well as the eventual fate of the discipline.

Moreover, six cases studied, analyzed as followings:

Case	Demonstration	Motivation
Case 1 **(AWS) amazon web services**	cloud platform which provide a service, provides a variety of facilities for developing, utilizing, and handling software applications. AWS is a platform that has a considerable effect on technology-based solution suppliers.	To improve the overall efficiency and reliability of an organization's cloud-based infrastructure. Building and maintaining a set of tools and services that allow software teams to develop, test, deploy, and manage their applications more easily and efficiently.
Case 2: **Google Cloud Platform (GCP)**	is a set of cloud computing facilities, it gives multiple of integrated cloud services containing processing, data storing, data analytics and machine learning.	Streamline their cloud-based infrastructure and automate many routine tasks. Help to reduce the risk of errors and outages, and ensure that applications are always available and performing at their best.
Case 3 **Uber**:	Uber is a ride-sharing online platform that works in more than 600 urban communities around the world. The organization has fostered a powerful stage that empowers riders to interface with drivers continuously, track their outing progress, and pay for their rides carefully. The stage utilizes progressed information examination to improve courses, decrease stand-by times, and give superior general experience to riders and drivers.	ensure that its platform is reliable and available to users and drivers at all times
Case 4 **Airbnb**:	Airbnb is an internet-based commercial center that interfaces travelers with hosts who have spare rooms, homes for rent, and apartments. The platform permits hosts to list their properties, set their own costs, and deal with their appointments through a focal dashboard. Airbnb has turned into a worldwide peculiarity, with more than 7 million postings in 220 nations.	To handle a large volume of traffic and transactions. Adapt to changing market conditions and user needs
Case 5: **Shopify:**	It is a well-known e-commerce platform that helps people to make online stores and sell the products around the world. The platform engineering team of Shopify provides emphasis on company's infrastructure, such as	To support its platform and scale its business. Shopify may use DevOps practices to improve collaboration between

5. RESULT ANALYSIS

The paper includes interviews with six specialists from Google and Amazon to evaluate the effectiveness, agility performance, and responsiveness of platform engineering and its

future. The specialists concurred that the advancement of platform engineering has empowered associations to decrease time to market and speed up development. They likewise featured that platform engineering gives a more proficient way to deal with programming improvement by empowering the reuse of parts across projects. Besides, the specialists noticed that platform engineering advances coordinated efforts across groups and divisions, accordingly, expanding the general agility of the association (Al-Kassem et al., 2012; Aziz et al., 2023).

The specialists were additionally gotten some information about the difficulties looked at by platform engineering, and they recognized a few normal issues, for example, keeping up with consistency across groups, offsetting customization with normalization, and overseeing conditions between parts. Also, they noticed that these difficulties could be relieved through successful correspondence and cooperation across groups, clear documentation and norms, and an emphasis on a particular plan.

While asking the question of platform engineering, the specialists anticipated that it would proceed to develop and turn out to be more refined, with a more prominent accentuation on automation, versatility, and security. They additionally noticed that the utilization of machine learning and artificial intelligence in stage designing will turn out to be more common, empowering associations to advance their cycles and frameworks further.

5.1. SWOT Analysis

Strengths
• Platform engineering empowers associations to decrease time to market and speed up development.
• It gives a more effective way to deal with software development by empowering the reuse of parts across projects.
• Platform engineering advances coordinated effort across groups and divisions, in this way expanding the agility of the association.
Weaknesses
• Keeping up with consistency across groups can be a challenge.
• Offsetting customization with normalization can be troublesome.
• Overseeing conditions between parts can be complex.
Opportunities
• Platform engineering will proceed to develop and turn out to be more complex.
• There will be more emphasis on scalability, automation, and security.
• The utilization of machine learning and artificial intelligence in platform engineering will turn out to be more predominant.
Threats
• Competitors might foster comparative or better platform engineering arrangements.
• Changes in innovation or industry patterns might deliver platform engineering less pertinent.
• Associations might battle to stay aware of the developing intricacy of platform engineering.

6. DISCUSSION AND RECOMMENDATION

In view of the research paper, platform engineering has turned into a fundamental part of the progress of any company in the present advanced world. The review uncovers that there are serious areas of strength between the productivity, readiness, and responsiveness of platform engineering and its future development. The discoveries of the review show that organizations that put resources into platform engineering are bound to make progress and remain in front of their rivals (Bawaneh et al., 2023; M. El Khatib et al., 2023e).

One of the key suggestions that arise out of this study is that organizations should focus on putting resources into the right platform engineering instruments and innovations to further develop proficiency and execution (Abudaqa et al., 2022; Ahmad Ibrahim Aljumah et al., 2022b; Lee et al., 2023b). This incorporates distinguishing the right technology stacks, tools, and structures to help in platform engineering initiatives. Companies must focus on making a cooperative culture that upholds platform engineering groups and empowers them to work intimately with different groups across the

association.

Another key suggestion is to take a data-driven way to deal with platform engineering. Associations should use information examination and machine learning to distinguish examples and experiences that can assist with working on the proficiency and responsiveness of their foundation. This incorporates embracing agile advancement approaches that empower groups to answer rapidly to changing business prerequisites and client needs. Furthermore, associations should focus on building strong security and consistency structures to safeguard their foundation and information. This incorporates taking on industry norms and best practices for security and consistency, for example, ISO 27001, SOC 2, and HIPAA. Associations must also focus on recruiting experienced security experts to regulate stage security and consistency.

The study emphasizes the significance of constant improvement in platform engineering. Associations should take on a culture of constant improvement to guarantee that their foundation stays productive, responsive, and versatile. This incorporates leading normal reviews and evaluations of stage execution and distinguishing regions for development (M. T. Alshurideh et al., 2023c). If we consider global cases, there are numerous examples of effective platform engineering drives across different businesses. For example, in the healthcare industry, the United Kingdom's National Health Service (NHS) has executed a computerized stage to help the conveyance of medical care administrations. The stage empowers patients to get to online healthcare services, including booking arrangements, requesting remedies, and getting to clinical records. This has further developed effectiveness, responsiveness, and patient results, while likewise decreasing expenses for the NHS.

In the finance business, PayPal has fabricated a stage that empowers clients to safely send and get installments on the web. The stage use progressed security highlights, including multifaceted verification and misrepresentation discovery, to safeguard clients' monetary data. This has empowered PayPal to turn into a confided-in installment supplier for many clients around the world, while likewise conveying critical worth to dealers and organizations. In conclusion, platform engineering is fundamental for associations that need to make progress and remain in front of their rivals in the present computerized world. By putting resources into the right instruments, innovations, and systems, taking on an information-driven approach, focusing on security and consistency, and embracing a culture of persistent improvement, associations can work on the productivity, nimbleness, and responsiveness of their foundation, and drive future development.

7. CONCLUSION

The study analyzed the role of platform engineering in improving the proficiency, dexterity, execution, and responsiveness of associations in the digital age. Through a qualitative research approach that elaborate meetings with six specialists from Amazon and Google, as well as optional information examination, the review uncovered that stage designing assumes a basic part in driving computerized change and conveying worth to clients. The findings of the research featured that platform engineering empowers associations to accomplish more prominent productivity and dexterity by utilizing particular engineering, mechanization, and DevOps rehearses. Besides, the review uncovered that platform engineering empowers associations to work on their exhibition and responsiveness by giving better information experiences, quicker time-to-advertise, and improved adaptability.

The SWOT analysis led to the research findings uncovered that the qualities of platform engineering lie in its capacity to drive advanced change, upgrade productivity and agility, and further develop execution and responsiveness. In any case, there are additional shortcomings, for example, the potential for siloed improvement, as well as any open doors, for example, the potential for stage designing to drive development and make new income streams. There are likewise dangers, for example, the rising contest on the lookout and the potential for cyber security breaches. The study has a few limitations, for example, the small sample size of specialists talked with, which might restrict the generalizability of the discoveries. Furthermore, the review focused on just Amazon and Google, which may not be delegated, with everything being equal. Also, the review didn't address the likely difficulties and restrictions of platform engineering, for example, merchant

security and specialized obligation.

The study findings give important bits of knowledge into the role of platform engineering in the digital age and its capability to drive advanced change, upgrade proficiency, and readiness, and further develop execution and responsiveness. The review suggests that associations should embrace platform engineering as an essential tool to drive development, convey worth to clients, and gain an upper hand on the lookout. Also, associations should likewise be aware of the expected difficulties and limits of platform engineering and go to proactive lengths to address them.

- *Limitation of Research*

One of the limitations of the study is that the sample size of the expert interviews is moderately little, with just six specialists being consulted from two organizations. While the members were chosen in view of their ability in the field, their perspectives and encounters may not be representative of the more extensive industry. Another limitation is that the paper only focuses on two large organizations, Amazon and Google, and their encounters with platform engineering. While these organizations are pioneers in the innovation business, their encounters may not really be generalizable to different organizations in various ventures or of various sizes.

Also, the study didn't investigate the challenges and limits of carrying out platform engineering in associations, for example, expected protection from change, social obstructions, and monetary imperatives. These variables can altogether affect the progress of platform engineering in organizations and are also considered in future exploration. The study didn't investigate the possible moral ramifications of platform engineering, for example, information protection and security concerns. As platform engineering turns out to be more far-reaching, it is essential to consider the potential risks and moral ramifications related to it.

REFERENCES

Abudaqa, A., Alzahmi, R.A., Almujaini, H., Ahmed, G., 2022. Does innovation moderate the relationship between digital facilitators, digital transformation strategies and overall performance of SMEs of UAE? Int. J. Entrep. Ventur. 14, 330–350.

Abudaqa, A., Hilmi, M.F., Almujaini, H., Alzahmi, R.A., Ahmed, G., 2021. Students' perception of e-Learning during the Covid Pandemic: a fresh evidence from United Arab Emirates (UAE). J. E-Learning Knowl. Soc. 17, 110–118.

Ahmed, G., Abudaqa, A., Jayachandran, C., Limbu, Y., Alzahmi, R., 2022. Nation Branding as a Strategic Approach for Emerging Economies: The Case of UAE, in: Marketing Communications and Brand Development in Emerging Economies. Springer, pp. 41–57.

Ahmed, G., Nabeel Al Amiri, 2022. the Transformational Leadership of the Founding Leaders of the United Arab Emirates: Sheikh Zayed Bin Sultan Al Nahyan and Sheikh Rashid Bin Saeed Al Maktoum. Int. J. Technol. Innov. Manag. 2, 1.

Aityassine, F., Soumadi, M., Aldiabat, B., Al-Shorman, H., Akour, I., Alshurideh, M., Al-Hawary, S., 2022. The effect of supply chain resilience on supply chain performance of chemical industrial companies. Uncertain Supply Chain Manag. 10, 1271–1278.

Akour, I., Alnazzawi, N., Alshurideh, M., Almaiah, M.A., Al Kurdi, B., Alfaisal, R.M., Salloum, S., 2022. A Conceptual Model for Investigating the Effect of Privacy Concerns on E-Commerce Adoption: A Study on United Arab Emirates Consumers. Electron. 11, 3648.

Akour, I., Alshurideh, M., Al Kurdi, B., Al Ali, A., Salloum, S., 2021. Using Machine Learning Algorithms to Predict People's Intention to Use Mobile Learning Platforms During the COVID-19 Pandemic: Machine Learning Approach. JMIR Med. Educ. 7, 1–17.

Akour, I., Rahamneh, A.A.L., Al Kurdi, B., Alhamad, A., Al-Makhariz, I., Alshurideh, M., Al-Hawary, S., 2023. Using the Canonical Correlation Analysis Method to Study Students' Levels in Face-to-Face and Online Education in Jordan. Inf. Sci. Lett. 12, 901–910.

Akour, I.A., Al-Maroof, R.S., Alfaisal, R., Salloum, S.A., 2022. A conceptual framework for determining metaverse adoption in higher institutions of gulf area: An empirical study using hybrid SEM-ANN approach. Comput. Educ. Artif. Intell. 3, 2.

Al-Awamleh, H.K., Alhalalmeh, M.I., Alatyat, Z.A., Saraireh, S., Akour, I., Alneimat, S., Alathamneh, F.F., Abu-Farha, Y.S., Al-Hawary, S.I.S., 2022. The effect of green supply chain on sustainability: Evidence from the pharmaceutical industry. Uncertain Supply Chain Manag. 10, 1261–1270.

Al-Dmour, N.A., Ali, L., Salahat, M., Alshurideh, M., Alzoubi, H.M., Ghazal, T.M., Chabani, Z., 2023. Information Systems Solutions for the Database Problems. Stud. Comput. Intell. 2023, 703–715.

Al-Kassem, A.H., 2017. Recruitment and Selection

Practices in Business Process Outsourcing Industry. Arch. Bus. Res. 5, 40–52.

Al-Kassem, A.H., Aguenza, B.B., Alghurabli, Z.E., 2022. Accreditation of Academic Programs : Implications on Quality Governance and Administrationof Taguig City University. J. Posit. Sch. Psychol. 6, 3908–3923.

Al-Kassem, Aguenza, B.B., Hami, A., Som, A.P.M., 2012. Social Media and Productivity in the Workplace: Challenges and Constraints. Interdiscip. J. Res. Bus. 2, 22–26.

Al-Kassem, H., 2014. Determinants of employee's overall satisfaction toward training and development programs. Int. J. Econ. Financ. Manag. 3, 129–135.

Al-Maroof, A., Salloum, A., Al-Maroof, R.S., Akour, I., Aljanada, R., Alfaisal, A.M., Alfaisal, R.M., Aburayya, A., Salloum, S.A., 2021. Acceptance determinants of 5G services Title Acceptance determinants of 5G services International Journal of Data and Network Science Acceptance determinants of 5G services. Canada. Int. J. Data Netw. Sci. 5, 613–628.

Al-Maroof, R.S., Alahbabi, N.M.N., Akour, I., Alhumaid, K., Ayoubi, K., Alnnaimi, M., Thabit, S., Alfaisal, R., Aburayya, A., Salloum, S., 2022a. Students' perception towards behavioral intention of audio and video teaching styles: An acceptance study. Int. J. Data Netw. Sci. 6, 603–618.

Al-Maroof, R.S., Alhumaid, K., Akour, I., Salloum, S., 2021a. Factors that affect e-learning platforms after the spread of covid-19: Post acceptance study. Data 6.

Al-Maroof, R.S., Alnazzawi, N., Akour, I., Ayoubi, K., Alhumaid, K., Nasser, N.M., Alaraimi, S., Al-Bulushi, A.A., Thabit, S., Alfaisal, R., Aburayya, A., Salloum, S., 2022b. Students' perception towards using electronic feedback after the pandemic: Post-acceptance study. Int. J. Data Netw. Sci. 6, 1233–1248.

Al-Maroof, R.S., Alnazzawi, N., Akour, I.A., Ayoubi, K., Alhumaid, K., Alahbabi, N.M., Alnnaimi, M., Thabit, S., Alfaisal, R., Aburayya, A., Salloum, S., 2021b. The effectiveness of online platforms after the pandemic: Will face-to-face classes affect students' perception of their behavioural intention (BIU) to use online platforms? Informatics 8, 4.

AlDhaheri, H., Hilmi, M.F., Abudaqa, A., Alzahmi, R.A., Ahmed, G., 2023. The relationship between HRM practices, innovation, and employee productivity in UAE public sector: a structural equation modelling approach. Int. J. Process Manag. Benchmarking 13, 157–176.

Alhamad, A.Q.M., Akour, I., Alshurideh, M., Al-Hamad, A.Q., Kurdi, B. Al, Alzoubi, H., 2021. Predicting the intention to use google glass: A comparative approach using machine learning models and PLS-SEM. Int. J. Data Netw. Sci. 5, 311–320.

Aljumah, A., Nuseir, M., Refae, G., 2023. Examining the effect of social media interaction, E-WOM, and public relations: Assessing the mediating role of brand awareness. Int. J. Data Netw. Sci. 7, 467–476.

Aljumah, A., Nuseir, M.T., Islam, A., 2020. Impacts of service quality, satisfaction and trust on the loyalty of foreign patients in Malaysian medical tourism. International journal of innovation. Creat. Chang. 11, 451–467.

Aljumah, A.I., Nuseir, M.T., Alam, M.M., 2021a. Traditional marketing analytics, big data analytics and big data system quality and the success of new product development. Bus. Process Manag. J. 27, 1108–1125.

Aljumah, A.I., Nuseir, M.T., Alam, M.M., 2021b. Organizational performance and capabilities to analyze big data: do the ambidexterity and business value of big data analytics matter? Bus. Process Manag. J. 27, 1088–1107.

Aljumah, A I, Nuseir, M.T., El Refae, G.A., 2022a. Exploring the Effect of Social Media Marketing and Destination image on Destination Loyalty in Covid-19 Times: Sequential Mediating Role of Brand Love and Brand Loyalty, in: In 2022 International Arab Conference on Information Technology (ACIT). IEEE, pp. 1–8.

Aljumah, A I, Nuseir, M.T., El Refae, G.A., 2022b. Business Analytics and Competitive Advantage for SMEs in UAE: A Mediating Role of Technology Assets, in: In 2022 International Arab Conference on Information Technology (ACIT). IEEE, pp. 1–9.

Aljumah, Ahmad Ibrahim, Nuseir, M.T., El Refae, G.A., 2022a. The effect of sensory marketing factors on customer loyalty during Covid 19: Exploring the mediating role of customer satisfaction. Int. J. Data Netw. Sci. 6, 1359–1368.

Aljumah, Ahmad Ibrahim, Shahroor, H., Nuseir, M.T., El Refae, G.A., 2022b. The effects of employee commitment and environment uncertainty on product quality: The mediating role of supply chain integration. Uncertain Supply Chain Manag. 10, 1379–1386.

Almasaeid, T., Alzoubi, H., El Khatib, M., Ghazal, T., Alshurideh, M., Al-Dmour, N., Sattar, O., Ae, 2022. Futuristic Design & Development of Learning Management System including Psychological Factors Resolution. J. Reatt. Ther. Dev. Divers. 5, 176–188.

Alshawabkeh, A., Nuseir, M.T., Aljumah, A., 2021. Impacts of social media on the buying intention of the consumers in Edinburgh, UK. Int. J. Procure. Manag. 14, 470–486.

Alshurideh, M., Al Kurdi, B.H., Alzoubi, H.M., Salloum, S., 2023. The Effect of Information Technology on Business and Marketing Intelligence Systems. Springer Nature.

Alshurideh, M, Alzoubi, H., Alshurideh, M., Kurdi, B., Obeidat, B., Hamadneh, S., Ahmad, A., 2022. The influence of supply chain partners' integrations on organizational performance: The moderating role of trust. Uncertain Supply Chain Manag. 10, 1191–1202.

Alshurideh, M.T., Al-Hadrami, A., Alquqa, E.K., Alzoubi, H.M., Hamadneh, S., Al Kurdi, B., 2023a. The effect of lean and agile operations strategy on improving order-winners: Empirical evidence from the UAE food service industry. Uncertain Supply Chain Manag. 11, 87–94.

Alshurideh, M.T., Al Kurdi, B., Alhamad, A., Hamadneh, S., Alzoubi, H.M., Ahmad, A., 2023b. Does social customer relationship management (SCRM) affect customers' happiness and retention? A service perspective. Uncertain Supply Chain Manag. 11, 277–288.

Alshurideh, M.T., Alquqa, E.K., Alzoubi, H.M., Al Kurdi, B., Alhamad, A., 2023c. The impact of cyber resilience and robustness on supply chain performance: Evidence from the UAE chemical industry. Uncertain Supply Chain Manag. 11, 187–194.

Alshurideh, M.T., Alquqa, E.K., Alzoubi, H.M., Al Kurdi, B., Hamadneh, S., 2023d. The effect of information security on e-supply chain in the UAE logistics and distribution industry. Uncertain Supply Chain Manag. 11, 145–152.

Alshurideh, Muhammad Turki, Alzoubi, H.M., El khatib, M., Ghazal, T.M., Al-Dmour, N.A., Sattar, O., Kukunuru, S., 2022a. An Experimental Evaluation on Resource Attribute, Internal Risks and Regime Structure of R&D Association-Including Exploration of Moderating Effect of Association Management Capability, Psychological. J. Reatt. Ther. Dev. Divers. 5, 201–215.

Alshurideh, M T, Alzoubi, H.M., Ghazal, T.M., Alami, R., Al Masaeid, T., 2022. Risk Management Model for Telecom Enterprises Based on Variables (RM, SO, RC, SI) with Nature, Sense and Positive Psychology Hypothesis. J. Reatt. Ther. Dev. Divers. 2022, 5.

Alshurideh, Muhammad Turki, Obeidat, B.Y., Victoria, V., Alzoubi, H.M., Fatima, A., Ilyas, A., Rustam, I., 2022b. A Systematic Literature Review of Security in 5G based Social Networks, in: International Conference on Cyber Resilience, ICCR 2022. ICCR 2022, 2022.

Alzoubi, H., Ahmed, G., 2019. Do TQM practices improve organisational success? A case study of electronics industry in the UAE. Int. J. Econ. Bus. Res. 17, 459–472.

Alzoubi, H., Alshurideh, M., Gasaymeh, A., Ahmed, G., Kurd, B. Al, 2020. Loyalty program effectiveness: Theoretical reviews and practical proofs. Uncertain Supply Chain Manag. 8, 599–612.

Alzoubi, H., Alshurideh, M., Kurdi, B. Al, Akour, I., Aziz, R., 2022. Does BLE technology contribute towards improving marketing strategies, customers' satisfaction and loyalty? The role of open innovation. Int. J. Data Netw. Sci. 6, 449–460.

Alzoubi, H.M., Ahmed, G., Al-Gasaymeh, A., Al Kurdi, B., 2020. Empirical study on sustainable supply chain strategies and its impact on competitive priorities: The mediating role of supply chain collaboration. Manag. Sci. Lett. 10, 703–708.

Alzoubi, H.M., Ahmed, G., Alshurideh, M., 2022a. An empirical investigation into the impact of product quality dimensions on improving the order-winners and customer satisfaction. Int. J. Product. Qual. Manag. 36, 169–186.

Alzoubi, H.M., Alshurideh, M., Kurdi, B. Al, Akour, I., Obeidat, B., Alhamad, A., 2022b. The role of digital marketing channels on consumer buying decisions through eWOM in the Jordanian markets. Int. J. Data Netw. Sci. 6, 1175–1185.

Alzoubi, H.M., Alshurideh, M.T., Al Kurdi, B., Ghazal, T.M., Said, R.A., AlHamad, A.Q., Hamadneh, S., Sahawneh, N., Al-kassem, A.H., 2022c. Fuzzy assisted human resource management for supply chain management issues. Ann. Oper. Res. 2, 617–629.

Alzoubi, H.M., Ghazal, T.M., El khatib, M., Alshurideh, M.T., Alami, R., Al Masaeid, T., 2022d. Creation of Indicator System for Quality Estimation of Safety Management of Personnel and it's Psychological impact on Industrial Enterprises. J. Reatt. Ther. Dev. Divers. 5, 143–151.

Alzoubi, H.M., In'airat, M., Ahmed, G., 2022e. Investigating the impact of total quality management practices and Six Sigma processes to enhance the quality and reduce the cost of quality: the case of Dubai. Int. J. Bus. Excell. 27, 94–109.

Alzoubi, H.M., Kurdi, B. Al, Akour, I., Alshurideh, M.T., 2022f. The effect of blockchain and smart inventory system on supply chain performance: Empirical evidence from retail industry. Uncertain Supply Chain Manag. 10, 1111–1116.

Alzoubi, H.M., Kurdi, B. Al, Alshurideh, M., Akour, I., Tariq, E., Alhamad, A., 2022g. The effect of social media influencers' characteristics on consumer intention and attitude toward Keto products purchase intention. Int. J. Data Netw. Sci. 6, 1135–1146.

Alzoubi, H.M., Mehmood, T., Alshurideh, M., Al-Gasaymeh, A., Ahmed, G., 2019. Schumpeterian entrepreneurship theory: Evolution and relevance. Acad. Entrep. J. 25, 1–10.

Alzoubi, H.M., Sahawneh, N., Alhamad, A.Q., Malik, U., Majid, A., Atta, A., 2022h. Analysis Of Cost Prediction In Medical Insurance Using Modern Regression Models, in: International Conference on Cyber Resilience, ICCR 2022. ICCR 2022, 2022.

Amiri, N. Al, Rahim, R.E.A., Ahmed, G., 2020. Leadership

styles and organizational knowledge management activities: A systematic review. Gadjah Mada Int. J. Bus. 22, 250–275.

Arshad, M., Brohi, M., Soomro, T., Ghazal, T., Alzoubi, H., Alshurideh, M., 2023. NoSQL: Future of BigData Analytics Characteristics and Comparison with RDBMS. pp. 1927–1951.

Aziz, A., Brohi, M.N., Soomro, T.R., Alzoubi, H.M., Ghazal, T.M., Alshurideh, M., 2023. Aircraft Turnaround Manager (ATM): A Solution to Airport Operations. Stud. Comput. Intell. 2023, 679–702.

Bawaneh, A., Massadeh, D., Akour, I., Abu haija, A., Alshurideh, M., 2023. The Impact of Green Auditing on Organizational Performance in Jordan: the Moderating Effect of the Auditor's Opinion. Inf. Sci. Lett. 12, 1505–1512.

Blooshi, I., Alamim, A., Said, R., Taleb, N., Ghazal, T., Ahmad, M., Alzoubi, H., Alshurideh, M., 2023. IT Governance and Control: Mitigation and Disaster Preparedness of Organizations in the UAE. pp. 661–677.

Buchholz, J., Schwentner, A., Brunnenkan, B., Gabris, C., Grimm, S., Gerstmeir, R., Takors, R., Eikmanns, B.J., Blombacha, B., 2013. Platform engineering of corynebacterium glutamicum with reduced pyruvate dehydrogenase complex activity for improved production of l-lysine, l-valine, and 2-ketoisovalerate. Appl. Environ. Microbiol. 79, 5566–5575.

El Khatib, M., Ahmed, G., Alshurideh, M., Al-Nakeeb, A., 2023a. Interdependencies and Integration of Smart Buildings and Smart Cities: A Case of Dubai, in: Alshurideh, M., Hikmat, A.K.B., Masa'deh, R., M., A.H., Salloum, S. (Eds.), The Effect of Information Technology on Business and Marketing Intelligence Systems. Springer International Publishing, Cham, pp. 1637–1656.

El Khatib, M., Al Qurashi, F., Al Brieki, S., 2021a. Challenges of Design and Implementation of Program Governance
—Cases from Government Bodies in UAE. Am. J. Ind. Bus. Manag. 11, 566–581.

El Khatib, M., Alabdooli, K., AlKaabi, A., Al Harmoodi, S., 2020. Sustainable Project Management: Trends and Alignment. Theor. Econ. Lett. 10, 1276–1291.

El Khatib, M., Alnaqbi, Ahmed, Alnaqbi, Abdulla, Alsuwaidi, H., Marri, M., Ankit, A., 2023b. Implementing IOT in Effective Project Management. Int. J. Comput. Their Appl. 30, 192–200.

El Khatib, M., Alzoubi, H., Hamidi, S., Alshurideh, M., Baydoun, A., Al-Nakeeb, A., 2023c. Impact of Using the Internet of Medical Things on e-Healthcare Performance: Blockchain Assist in Improving Smart Contract. Clinicoecon. Outcomes Res. 2023, 397–411.

El khatib, M., Beshwari, F., Beshwari, M., Beshwari, A., Alzoubi, H.M., Alshurideh, M., 2023a. Covid19 Unknown Risks---Using AI for Disaster Recovery, in: Alshurideh, M., Hikmat, A.K.B., Masa'deh, R., M., A.H., Salloum, S. (Eds.), The Effect of Information Technology on Business and Marketing Intelligence Systems. Springer International Publishing, Cham, pp. 2113–2137.

El Khatib, M., Beshwari, F., Beshwari, M., Beshwari, A., Alzoubi, H.M., Alshurideh, M., 2023d. Can Better Capabilities Lead to Better Project and Program Governance? Cases from Dubai, in: Alshurideh, M., Hikmat, A.K.B., Masa'deh, R., M., A.H., Salloum, S. (Eds.), The Effect of Information Technology on Business and Marketing Intelligence Systems. Springer International Publishing, Cham, pp. 1295–1313.

El Khatib, M., Hamidi, S., Ameeri, I., Zaabi, H., Marqab, R., 2022. Digital Disruption and Big Data in Healthcare - Opportunities and Challenges. Clin. Outcomes Res. 14, 563–574.

El Khatib, M., Ibrahim, A., Blooshi, S., Almansoori, S., El Khatib, A., 2023e. Digital Transformation and Disruptive Technologies: Effect of 3D Printing on Managing Projects. pp. 1–13.

El Khatib, M., Khadim, S., Ketbi, W., Kuwaiti, N., El Khatib, A., 2023f. Digital Transformation and Disruptive Technologies: Effect of Blockchain on Managing Construction Projects. pp. 1–9.

El Khatib, M., Khayat, A., Mansoori, S., Alzaabi, A., Ankit, A., 2023g. Metaverse Skills for Executives and Senior Managers: The Pros and Cons. pp. 1–7.

El khatib, M., Mahmood, A., Al Azizi, A., Al Marzooqi, A., Al Abdooli, K., Al Marzooqi, S., Al Jasmi, S., Alzoubi, H.M., Alshurideh, M., 2023b. A Trial to Improve Program Management in Government Bodies Through Focusing on Program Resource Management: Cases from UAE, in: Alshurideh, M., Hikmat, A.K.B., Masa'deh, R., M., A.H., Salloum, S. (Eds.), The Effect of Information Technology on Business and Marketing Intelligence Systems. Springer International Publishing, Cham, pp. 1315–1340.

El Khatib, M., Yaish, A., Ali, H., 2021b. Implementation Challenges of Data Quality Management -Cases from UAE Public Sector. iBusiness 13, 144–153.

El Khatib, M., Zitar, R., Alnaqbi, K., Alnaqbi, W., Alharmoodi, S., Baydoun, A., 2023h. Effect of Big Data and Analytics on Managing Projects. Int. J. Comput. Their Appl. 30, 173–182.

El Khatib, M.M., Abidi, N., Al-Nakeeb, A., Alshurideh, M., Ahmed, G., 2023. Dubai Smart City as a Knowledge Based Economy, in: Alshurideh, M., Hikmat, A.K.B., Masa'deh, R., M., A.H., Salloum, S. (Eds.), The Effect of Information Technology on Business and Marketing Intelligence Systems. Springer

International Publishing, Cham, pp. 1657–1672.

El Khatib, M.M., Ahmed, G., 2018. Improving Efficiency in IBM Asset Management Software System "Maximo": A Case Study of Dubai Airports and Abu Dhabi National Energy Company. Theor. Econ. Lett. 08, 1816–1829.

El Khatib, M.M., Al-Nakeeb, A., Ahmed, G., 2019. Integration of Cloud Computing with Artificial Intelligence and Its Impact on Telecom Sector—A Case Study. iBusiness 11, 1–10.

Elkhatib, M., Al Hosani, A., Al Hosani, I., & Albuflasa, K., 2022. Agile Project Management and Project Risks Improvements: Pros and Cons. Mod. Econ. 13, 1157–1176.

Farrukh, M., Soomro, T.R., Ghazal, T.M., Alzoubi, H.M., Alshurideh, M., 2023. Perspectives of Online Education in Pakistan: Post-covid Scenario, in: The Effect of Information Technology on Business and Marketing Intelligence Systems. Springer, pp. 519–550.

Gaytan, J.C.T., Rafiuddin, A., Sisodia, G.S., Ahmed, G., Paramaiah, C., 2023. Pass-through Effects of Oil Prices on LATAM Emerging Stocks before and during COVID-19: An Evidence from a Wavelet - VAR Analysis. Int. J. Energy Econ. Policy 13, 529–543.

Ghazal, T M, Al-Dmour, N.A., Said, R.A., Moubayed, A., Ali, L., Alzoubi, H.M., Alshurideh, M., 2023a. DDoS Intrusion Detection with Ensemble Stream Mining for IoT Smart Sensing Devices. Stud. Comput. Intell. 2023, 1987–2012.

Ghazal, T M, Hasan, M.K., Abdullah, S.N.H.S., Alzoubi, H.M., Alshurideh, M., 2023b. An Integrated Cloud and Blockchain Enabled Platforms for Biomedical Research. Stud. Comput. Intell. 2023, 2037–2053.

Ghazal, Taher M., Hasan, M.K., Ahmad, M., Alzoubi, H.M., Alshurideh, M., 2023. Machine Learning Approaches for Sustainable Cities Using Internet of Things. Stud. Comput. Intell. 2023, 1969–1986.

Ghazal, T M, Hasan, M.K., Alzoubi, H.M., Alshurideh, M., Ahmad, M., Akbar, S.S., 2023c. Internet of Things Connected Wireless Sensor Networks for Smart Cities. Stud. Comput. Intell. 2023, 1953–1968.

Gulseven, O., Ahmed, G., 2022. The State of Life on Land (SDG 15) in the United Arab Emirates. Int. J. Soc. Ecol. Sustain. Dev. 13, 1–15.

Hani Al-Kassem, A., 2021. Significance of Human Resources Training and Development on Organizational Achievement. PalArch's J. Archaeol. Egypt / Egyptol. 18, 693–707.

Johansen, K., Rönnbäck, A.Ö., 2021. Small Automation Technology Solution Providers: Facilitators for Sustainable Manufacturing. Procedia CIRP 104, 677–682.

Kassem, A., Martinez, E.B., 2022. Operationalization of Negosyo Center as an Entrepreneurial Strategy to Selected Micro, Small, and Medium Enterprises in Taguig City. Glob. Bus. Manag. Res. 14, 88–104.

Khan, A., Hasana, M.K., Ghazal, T.M., Islam, S., Alzoubi, H.M., Mokhtar, U.A., Alam, R., Ahmad, M., 2022. Collaborative Learning Assessment via Information and Communication Technology, in: Proceedings - 2022 RIVF International Conference on Computing and Communication Technologies, RIVF 2022. RIVF 2022, 2022, pp. 311–316.

Khatib, E., M., Z., A., R., Al-Nakeeb, A., 2021. The effect of AI on project and risk management in health care industry projects in the United Arab Emirates (UAE). Int. J. Appl. Eng. Res. 6, 1.

Khatib, M. El, Alzoubi, H.M., Mulla, A. Al, Ketbi, W. Al, 2022. The Role of Blockchain in E-Governance and Decision-Making in Project and Program Management. Adv. Internet Things 12, 88–109.

Khatib, M. El, Beshwari, F., Beshwari, M., Beshwari, A., 2021. The impact of blockchain on project management. ICIC Express Lett. 15, 467–474.

Khatib, M. El, Shehhi, H. Al, Nuaimi, M. Al, 2023. How Big Data and Big Data Analytics Mediate Organizational Risk Management. J. Financ. Risk Manag. 12, 1–14.

Lee, K.L., Nawanir, G., Cheng, J., Alzoubi, H., Alshurideh, M., 2023a. Educational Supply Chain Management: A View on Professional Development Success in Malaysia. pp. 2473–2490.

Lee, K.L., Wong, S., Alzoubi, H., Al Kurdi, B., Alshurideh, M., El Khatib, M., 2023b. Adopting smart supply chain and smart technologies to improve operational performance in manufacturing industry. Int. J. Eng. Bus. Manag. 15, 1–14.

Louzi, N., Alzoubi, H.M., Alshurideh, M.T., El khatib, M., Ghazal, T.M., Kukunuru, S., 2022a. Psychological & Prototypical Model of Execution Management evaluation for the framework Development. J. Reatt. Ther. Dev. Divers. 5, 216–223.

Louzi, N., Alzoubi, H.M., El Khatib, M., Ghazal, T.M., Alshurideh, M., Kukunuru, S., 2022b. Psychological Health and Environmental Effect of using Green Recycled Amassed Concrete on Construction. J. Reatt. Ther. Dev. Divers. 5, 163–175.

M. Alzoubi, H., Ghazal, T., Hasan, M., Alshurideh, M., Ahmad, M., Akbar, S., Al Kurdi, B., Akour, I., 2021. IoT for Smart Cities: Machine Learning Approaches in Smart Healthcare-A Review. Futur. Internet 13, 218.

Mat Som, A.P., Kassem, H. Al, 2013. Domestic Tourism Development in Asir Region, Saudi Arabia. J. Tour. Hosp. 02.

Mubeen, S., Shahid, M.H., Sahawneh, N., Al-Kassem, A.H., Ahmad, A., Naseer, I., 2022. Education, Employment and Women Empowerment in an Agrarian Economy: A Case Study. pp. 1–9.

Nadzri, W., Hashim, A., Majid, M., Jalil, N., Alzoubi, H.,

Alshurideh, M., 2023. Share Your Beautiful Journey: Investigating User Generated Content (UGC) and Webrooming Among Malaysian Online Shoppers. pp. 2265–2285.

Nuseir, M., Elrefae, G., 2022. The effects of facilitating conditions. Cust. Exp. Brand Loyal. Cust. Brand equity through Soc. media Mark. 6, 875–884.

Nuseir, M.T., 2021. Assessing the impact of brand equity and customer experience on brand loyalty in the United Arab Emirates' hotel industry. Int. J. Bus. Excell. 25, 459–473.

Nuseir, M.T., 2020. Potential impacts of blockchain technology on business practices of bricks and mortar (B&M) grocery stores. Bus. Process Manag. J. 27, 1256–1274.

Nuseir, M.T., Aljumah, A., 2022. The impact of entrepreneur orientation on sustainable entrepreneurship among SMEs in the UAE: mediating effects of the sustainability orientation and bricolage behaviours of entrepreneurs. Int. J. Trade Glob. Mark. 16, 250–264.

Nuseir, M.T., Aljumah, A., 2020. The role of digital marketing in business performance with the moderating effect of environment factors among SMEs of UAE. Int. J. Innov. Creat. Chang. 310–324.

Nuseir, Mohammed T., Aljumah, A.I., El-Refae, G.A., 2022. Digital marketing and public relations: A way to promote public relations value. Int. J. Data Netw. Sci. 6, 1331–1340.

Nuseir, M T, Aljumah, A.I., El Refae, G.A., 2022a. The Influence of E-Iearning M-learning, in: And D-Learning on the Student Performance: Moderating Role of Institutional Support. In 2022 International Arab Conference on Information Technology (ACIT) . IEEE, pp. 1–9.

Nuseir, M T, Aljumah, A.I., El Refae, G.A., 2022b. Trust in Adoption of Internet of Things: Role of Perceived Ease of Use and Security, in: In 2022 International Arab Conference on Information Technology (ACIT). IEEE, pp. 1–7.

Nuseir, M.T., Basheer, M.F., Aljumah, A., 2020. Antecedents of entrepreneurial intentions in smart city of Neom Saudi Arabia: Does the entrepreneurial education on artificial intelligence matter? Cogent Bus. Manag. 7.

Nuseir, M.T., El-Refae, G.A., Aljumah, A., 2021. The e-Learning of Students and University's Brand Image (Post COVID-19): How Successfully Al-Ain University Have Embraced the Paradigm Shift in Digital Learning, Studies in Systems, Decision and Control. Springer International Publishing.

Nuseira, M.T., Aljumahb, A., 2020. Digital marketing adoption influenced by relative advantage and competitive industry: a UAE tourism case study. Int. J. Innov. Creat. Chang. 2020, 617–631.

Rahnama, H., Johansen, K., Larsson, L., Rönnbäck, A.Ö., 2022. Collaboration in Value Constellations for Sustainable Production: The Perspective of Small Technology Solution Providers. Sustain. 14.

Rahnama, H., Johansen, K., Larsson, L., Rönnbäck, A.Ö., 2021. Exploring digital innovation in the production process: A suggested framework for automation technology solution providers. Procedia CIRP 104, 803–808.

Sakkthivel, A.M., Ahmed, G., Amponsah, C.T., Muuka, G.N., 2022. The influence of price and brand on the purchasing intensions of Arab women: an empirical study. Int. J. Bus. Innov. Res. 28, 141–161.

Seethamraju, R., Sundar, D.K., 2013. Influence of ERP systems on business process agility. IIMB Manag. Rev. 25, 137–149.

Tariq, E., Alshurideh, M., Akour, I., Al-Hawary, S., 2022a. The effect of digital marketing capabilities on organizational ambidexterity of the information technology sector. Int. J. Data Netw. Sci. 6, 401–408.

Tariq, E., Alshurideh, M., Akour, I., Al-Hawary, S., Kurdi, B. Al, 2022b. The role of digital marketing, CSR policy and green marketing in brand development. Int. J. Data Netw. Sci. 6, 995–1004.

Van Der Linden, F., Wijnstra, J.G., 2002. Platform engineering for the medical domain, in: van der Linden, F. (Ed.), Lecture Notes in Computer Science (Including Subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics). Springer Berlin Heidelberg, Berlin, Heidelberg, pp. 224–237.

Varma, A.J., Taleb, N., Said, R.A., Ghazal., T.M., Alzoubi, H.M., Alshurideh, M., 2023. A Roadmap for SMEs to Adopt an AI Based Cyber Threat Intelligence. Stud. Comput. Intell. 2023, 1903–1926.

Yasir, A., Ahmad, A., Abbas, S., Inairat, M., Al-Kassem, A.H., Rasool, A., 2022. How Artificial Intelligence Is Promoting Financial Inclusion? A Study On Barriers Of Financial Inclusion, in: 2022 International Conference on Business Analytics for Technology and Security (ICBATS). pp. 1–6.

Zhou, J., Ji, Y., Zhao, D., Liu, J., 2010. Platform engineering in enterprise application development, in: Proceedings of the International Conference on E-Business and E-Government, ICEE 2010. pp. 112–115.