SYSTEMATIC LITERATURE REVIEW OF UTAUT MODEL TO UNDERSTAND ADOPTER'S PERCEPTION OF DIGITAL MOBILE APP APPLICATIONS IN THE INDONESIAN COAL MINING INDUSTRY

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Abstract

Purpose
This study investigates coal mining firms' technology use during epidemics and their strategies. It applies the UTAUT to the coal mining sector, focusing on five main aspects.

Design/methodology/approach
This study employs a systematic literature review (SLR) to analyze data from 13 selected papers on mobile app usage as digital technology. Data from 2014 to 2022 were gathered using the Scopus database, revealing insights into UTAUT-related research trends in the mining industry.

Findings
Reviewing the chosen papers reveals a strong link between tech adoption and leadership in coal mining. Empowered leadership notably drives technology adoption, positively impacting knowledge processes among followers.

Research limitations/implications
It recognizes that the systematic literature review offers valuable insights but findings could be constrained by available relevant papers. Future research might delve into more tech adoption and leadership aspects in coal mining to boost understanding.

Originality/value
This research fills a gap by deeply examining technology adoption with UTAUT in coal mining. Given limited existing research, this study contributes insights and knowledge about digital tech in this field. Moreover, exploring leadership empowerment as a unique form adds originality and value to the research.

Keywords: mobile app technology, adoption, UTAUT, SLR, leadership

HOW TO CITE

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1. INTRODUCTION

The coal mining industry is currently starting to grow again after experiencing a recession due to the global crisis and epidemic crisis (Ndlovu-Gatsheni, 2020). According to a World Bank report in 2022, the global economic recovery in 2022 has driven the rise in commodity prices. The results of international reports show that many large companies have turned to digital companies based on Android applications to capture global customers and expand their business markets (Plantin and De Seta, 2019).

One of the main challenges of market expansion by mining companies is the difficulty of understanding global users. In addition, many companies are not ready for global leadership, which is why they will suffer a lot of losses, although according to the results of the analysis of the mining industry by international researchers there are still many companies that were able to survive after the impact of the epidemic crisis. This is because companies respond to business challenges by hiring managers with a global vision and collaborating with technology consultants to increase their business potential (Rees & Smith, 2021). However, this creates new challenges, especially from the introduction of new technologies by companies to the management of new technologies, and technology adoption by the management to use the technology smoothly (Sjödin et al. 2018).

Many mining companies in Asia is located in Indonesia. The largest coal mine in Indonesia is operating in the Sangatta, East Kalimantan, Indonesia. Some of these companies have been actively introducing new technologies that implement the digitization of business operations from top to bottom. It aims to speed up the business cycle and support green sustainability. There is a potential that the technology used in the form of mobile applications will be an important means of carrying out operational maintenance and communication with users and business partners (De Luna et al. 2019). The introduction of this technology affects its users, which is characterized by changes in behavior before and after its use. According to Chu and Chen's (2016) theory of planned behavior, actual behavior is a function of behavioral intention and perceived behavioral control. In turn, intention is influenced by attitudes toward behavior (attitude beliefs), subjective norms (normative beliefs), and perceived behavioral controls (control beliefs) (Altawallbeh et al., 2015).

However, there is a tendency to adopt the coal mining industry differently to address sustainability issues and other community-related issues (Wognum et al. 2018). For example, increasing the use of mobile app technology can help reduce emissions (Aneke & Wang, 2016) and improve access to healthy environmental workplace. Therefore, in the context of the coal mining industry, it is imperative to evaluate the users' willingness and hesitation regarding the introduction of mobile application technology in coal mining industry and further study of its barriers and drivers.

According to our knowledge, this is the first study to use UTAUT as the primary model for developed nations. Thus, our paper directly responded to Venkatesh et al.'s (2020) appeal for additional research, which recommended evaluating the original model in various countries, age groups, and technologies, and extending them with additional relevant key factors to apply them to diverse user contexts. Therefore, we intend to broaden the scope of the study by evaluating the concept from various angles, such as the coal mining industry and the Indonesian context.

Many factors can influence the adoption of technology in mining companies, including attitudes, beliefs, attitudes and patterns of causal intentions first introduced by social psychologists (Ngai et al. 2015). However, there are still some previous studies that explain this. For this reason, this research focuses on the implementation of mobile
application technology used in mining companies (Min et al. 2021). By using the theoretical analysis of UTAUT, this study observes the phenomenon of technology adoption. However, so far very few studies have addressed the adoption of UTAUT in the use of applications in mining. More specifically, the researcher wants to know what additional designs are offered, if any, that will provide added value to their users (Van Droogenbroeck & Van Hove, 2021). On a more direct level, the researchers are also exploring whether our model can provide insights into the added value of mobile app technology to users who started using mobile app technology during the pandemic.

The purpose of this SLR is to identify existing studies of the UTAUT model used in the observation of technology users in mining enterprises. This study analyzes the selected review work by conducting an in-depth review of the UTAUT model article, the selected work at a certain stage to understand the essence of knowledge, objectives and research results. The study will collaborate with experts to verify the practical classification of research and literature in mining companies, experts including information technology, application developers, and maintenance individuals as users of this application.

2. LITERATURE REVIEW

This research will conduct a systematic literature review. In this study, the systematic literature review is usually the first step in any research to understand the state-of-the-art about the UTAUT original concept. This contains step for assessment and extraction information from a scientific and methodological point of view about previous research (Gorgolewski & Poldrack, 2016). The review also helps to identify the current research work, the methodology carried out, the results of the research and the proposed future studies (Kamble et al., 2018).

2.1. Basic Components of UTAUT

UTAUT is defined as the extent to which the use of technology will benefit users in performance expectancy through a particular technology. It has a great component of hope effort due to the level of ease associated with the use of user technology (Al-Qeisi et al. 2014). Generally UTAUT has main components of Performance expectancy, Effort expectancy, Social influence, Facilitating conditions, and Behavioral Intention.

Users can feel how much they need a product to communicate and share data with family and friends and its added value. These basic requirements will encourage them to use certain technologies. In facilitation situations, it measures the user's perception of the resources and support available to carry out an attitude towards technology adoption (Francisco & Swanson, 2018).

2.2. UTAUT in coal mining and construction

As the world has entered the 5G era, now is the time for mining operators to be at the forefront of the industrial revolution (Making Indonesia 4.0) by utilizing advanced technologies, such as artificial intelligence (AI), internet of things (IoT), Big Data, edge computing, and technology. another new. Utilization of such technology will depend on the strength of the industrial grade network provided by the communication service provider (CSP).

The mining sector must keep up with technological shifts. In the old industrial phase, miners used heavy equipment to automate work in order to gain greater operational profit and increase safety. The key to the technology shift is digitalization, which can drive mining operations more intelligently so as to increase productivity and profit margins, as well as create anticipatory safety measures. UTAUT is the best model
for analyzing the behavior of concerned personnel in the mining area, and this study will apply the theory of adoption and use of integrated technology (UTAUT) with variable performance expectancy, business expectancy, social influence and facility conditions leading to variables in the mining company's territory. With predictive maintenance mobile applications, this study will focus on mobile apps adoption in the industry.

3. RESEARCH METHODS

3.1. State of the Art

In this section, the study presents a general category of research trends using the categories proposed by Butcher et al. (2016) after reviewing database searches, and finally the study chose 13 main studies (Table 1).

<table>
<thead>
<tr>
<th>Steps</th>
<th>Systematic Literature Review</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1: Search</td>
<td>The initial search in Scopus discovered a total of 2,744 articles using the keywords construct of Unified Theory of Acceptance and Use of Technology (UTAUT)</td>
</tr>
<tr>
<td>Step 2: Visualizing</td>
<td>Visualizing the bibliometric network of the existing research using VOSviewer</td>
</tr>
<tr>
<td>Step 3: Screening</td>
<td>Narrowing down to relevant articles through reading its abstract in regards to construct of UTAUT and construct of Leadership construct of into a total of 13 articles</td>
</tr>
<tr>
<td>Step 4: Classification</td>
<td>Classification of 13 articles through carefully reading its title, abstract and content based on the components of UTAUT and leadership.</td>
</tr>
</tbody>
</table>

Source: processing data (2022)

The first stage is to search Scopus, a freely accessible database of user bibliographies, for academic journal articles. In the initial search, the study utilized only the UTAUT model's one-by-one keyword construction. The objective is to determine the total number of relevant articles published in the Scopus-indexed journal. Using the UTAUT model's keyword design, this study located 2,744 articles from various journals and publications.

The second step is to visualize the existing network for book research with VOSviewer. The third step is to search Scopus, a database of user bibliographies that is easily accessible, for academic journal articles. The third step is to search Scopus, a database of user bibliographies that is easily accessible, for academic journal articles. In the initial search, a linking model between UTAUT and leadership was constructed using a single keyword. The goal is to ascertain the total number of pertinent articles published in Scopus-indexed journals.

Consequently, the second stage is to visualize the existing network of research article volumes using the open-source application VOSviewer. Scopus contains approximately 2744 abstracts of scientific articles with the keyword "unified theory of
acceptance and use of technology " and 13 abstracts with the keywords "UTAUT" and "Leadership". Leadership in keywords is related to the technology adoption paradigm, according to Vahdat et al.’s (2002) research. Without strong leadership and coordination at the industry level, the adoption process will inevitably be slowed down by the coordination of various risks and benefits among the numerous involved parties (Jafarzadeh & Utne, 2014).

A total of 13 articles from the collected studies are divided into 7 sectors of social media, digital marketing, digital manufacturing education, health, oil and gas, and mining.

3.2. Quality Rating

The points system is carried out in the process of selecting items. The assessment of this article is used to determine the inclusion and exclusion criteria. Table 2 shows the assessment criterion based on nine criteria established to assess the quality of the 35 selected studies.

<table>
<thead>
<tr>
<th>No</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Clear research objectives</td>
</tr>
<tr>
<td>2</td>
<td>Research design objectives</td>
</tr>
<tr>
<td>3</td>
<td>Clear variable discussion</td>
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<td>4</td>
<td>Clarity of the research steps</td>
</tr>
<tr>
<td>5</td>
<td>Clarity of data collection method</td>
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<tr>
<td>6</td>
<td>Reliability and validity measures are clear</td>
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<td>7</td>
<td>Clear statistical discussion</td>
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<td>8</td>
<td>Clarity of discussion and results</td>
</tr>
<tr>
<td>9</td>
<td>Impact on your research</td>
</tr>
</tbody>
</table>

Source: processing data (2022)

Selected articles will be evaluated based on the 9 points given above. Each question in the checklist (as in Table 3) is graded on a three-point scale (yes = 1 point, some = 0.5 points, no = 0 points). The selected study will be given a score from 0 to 9, where the higher the percentage of journals, the higher the usefulness of journals for researchers.
From the quality assessment carried out for the 13 selected studies, it is known that all studies are above 60% so that they are declared to have passed the quality assessment. 30.7% of studies scored 100%, 23% of studies scored 94%, while 46.1% of studies scored 80-88%. The following section performs an in-depth analysis of the data collected from the 13 selected studies.

4. FINDINGS

Analysis of these results will reveal the components of UTAUT and the literature that supports it. There are several important components of UTAUT leadership. To evaluate all the construct that have been successfully extracted from the SLR, this result can be seen in detail in Figure 1.

![Figure 1. Overview of all main constructs that have been successfully extracted from the SLR study](image-url)

**Table 3. Rating score**

<table>
<thead>
<tr>
<th>No</th>
<th>Author</th>
<th>Year</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q5</th>
<th>Q6</th>
<th>Q7</th>
<th>Q8</th>
<th>Q9</th>
<th>Total</th>
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<tbody>
<tr>
<td>1</td>
<td>Zafer et al</td>
<td>2022</td>
<td>1</td>
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<td>1</td>
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<td>1</td>
<td>0,5</td>
<td>1</td>
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<td>2</td>
<td>Andrea</td>
<td>2022</td>
<td>1</td>
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<td>8,5</td>
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<tr>
<td>3</td>
<td>Vaghasya et al</td>
<td>2021</td>
<td>1</td>
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<td>1</td>
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<td>4</td>
<td>Rahmadi et al</td>
<td>2021</td>
<td>1</td>
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<td>5</td>
<td>Kassim et al</td>
<td>2021</td>
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<td>7,5</td>
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<td>6</td>
<td>Li et al</td>
<td>2021</td>
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<td>7</td>
<td>Krishnan et al</td>
<td>2019</td>
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<td>8</td>
<td>Yosua et al</td>
<td>2017</td>
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<td>Bervell et al</td>
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<td>Germonpre et al</td>
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<td>11</td>
<td>Cataldo</td>
<td>2012</td>
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<td>12</td>
<td>Israel et al</td>
<td>2011</td>
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<tr>
<td>13</td>
<td>Neufeld et al</td>
<td>2007</td>
<td>1</td>
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<td>8,5</td>
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</table>

Source: processing data (2022)
4.1. Performance expectancy

The following sections describe the validity of the classification structure in the UTAUT model. The structure of the deductive classification was carried out on the basis of a review of the literature for the study. UTAUT's classification is mainly involved in research related to social media, digital marketing, and production. The UTAUT concept has been studied in terms of users of social media technology (Herrero & San Martín, 2017; Merhi et al. 2019; Baabdullah, 2018).

There are many surveys of technology users that use UTAUT theory to analyze users' perceptions of social media technology (Gharaibeh et al. 2020). According to the results of the review, there are 5 scientific works from the Scopus database. Various electronic applications have now been developed in various industrial sectors. This illustrates that Performance Expectations affect Digital Wallet Adoption. The results of this study are in accordance with research conducted (Warsame & Ireri, 2018) which discusses how and what factors affect the use of an application. The results of these two studies state that the Performance Expectancy variable has a positive and significant influence on user adoption in using an application. Various applications that have been used in mining applications include Quantum Geology, a technology company, which researches artificial intelligence for gold exploration, to improve efficiency and success in gold reserve discovery. SeePilot uses virtual reality technology to improve safety and productivity in the workplace through spatial communication enabling workers to create a 360° virtual workplace. Thus, the purpose of this study is to assess the impact of mobile app implementation on the sustainable development of coal mining industry in developing countries (Ahmed et al., 2018).

Figure 2. The relationship of performance expectancy to other construct

Source: processing data from VOSviewer (2022)

The results of the analysis show that the components of performance expectancy can be seen in Figure 2 to understand what the internal elements of performance skills indicate. This suggests that UTAUT theory has been applied in digital marketing, with 11 scientific papers from a database of bibliometric scope (Figure 1). The purpose of the digital marketing research is to study Chinese consumer behavior regarding virtual installation spaces using the UTAUT model (Khan et al. 2017; Dwivedi et al. 2016; Tamilmani et al. 2021).

The company is implementing automation technology that has the potential to automate a variety of tasks and reduce costs in numerous industries, including
agriculture, construction, forestry, and mining. According to previous research (Masocha & Dzomonda, 2018), the adoption of mobile money services has a positive and significant impact on the performance of Micro, Small, and Medium-Sized Enterprises (MSMEs). This study's findings simultaneously address the question of whether the adoption of digital wallets can influence the performance of MSMEs. In addition, personal motivation (satisfaction, thought leadership, self-improvement, and economic incentives) and sWOM (Perceived Usefulness and Ease of Use) have a positive effect on user behavior, influence, and involvement (Le et al., 2020).

Indonesia's mining industry has begun instituting "Smart Mining" in part to improve productivity, K3LH, and operating efficiency. Due to a number of factors, including costly technology acquisition costs, a competitive workforce, infrastructure, and operation scale, the implementation of Autonomous Equipment is still in the adaptation phase for the next few years.

The digital production sector is also quite interesting, as evidenced by 7 scientific works from the Scopus database. Off-site production allows construction companies to increase performance. However, the use of off-site manufacturing by the construction industry is slow and varies depending on the type of product manufactured off-site (Khalfan & Maqsood, 2014).

4.2. Effort Expectancy

In the field of education, there are 11 research papers from the Scopus database that reveal effort expectancy. Therefore, in recent digital age, technology-based leadership has an important place to improve the quality of education expected of a new generation of students, which we refer to as digital natives. This concept is important since the emerging technical leadership is an important type of leadership that will be adopted for school administrators in the digital age (Collins & Halverson, 2018). In the context, the purpose of the research is to study the role of self-efficacy technology leadership in the educational process in the digital age in the context of the UTAUT model. The study also used semi-structured interviews as a data collection tool (Zhang & Zhu, 2020).

![Figure 3. Effort Expectancy](source: processing data from VOSviewer (2022))
It was also found that effort expectancy were related to the introduction of health and performance technologies in the medical business. There are 8 scientific works from the Scopus database. Kotter's transformational change model and UTAUT model are used as analytical frameworks to determine the motivation for eHealth adoption. The results show that unlike Kotter's change model, which argues that adaptation to change is based on perceptions and feelings, health care drivers are rational when it comes to deciding whether to adopt the eHealth program (Ginter et al. 2018).

The study also outlines observations on behalf of the Dutch eHealth Expert Center (Van Haeften et al. 2021) that the adoption is accelerated when the value of eHealth applications becomes clear to its users. Analysis of the motivations and drivers of health care professionals shows a strong relationship between the evidence base of effectiveness and responsibility of these specialists with their patients (Van Haeften et al., 2021).

There are 4 scientific papers from the Scopus of the database in the oil and gas industry sector that show UTAUT with its predictable usefulness and ease of use in influencing users' intention to use the technology (Chen & Aklikokou, 2020; Amin et al. 2014).

Data from 203 respondents from Malaysian oil and gas companies were analyzed using multiple regression techniques in SPSS statistical software. The results indicate a positive relationship between an authentic leadership style and perceived efficacy and perceived simplicity of use. Abdullah and others, (2016). In addition, this study demonstrates that perceived efficacy and perceived simplicity of use have a positive correlation with the user's intention to use, thereby corroborating previous research on the UTAUT model. This study demonstrates that genuine leadership styles play a crucial role in the management of technological change within organizations (Men & Stacks, 2014).

4.3. Social influence

Previous social influence studies focused on corporate strategies to drive faster adoption of the technology, particularly in the strategic mining sector. The structure of the deductive classification was carried out on the basis of a review of the literature for the study. Classification dimensions for strategic methods related to case studies, modeling, and initiatives.

There are 13 research papers from the Scopus of the database on technology adoption strategies in terms of social influence. Case studies are research approaches used to create a deeper and more multidimensional understanding of complex problems in real contexts (Hehn & Uebernickel, 2018). It is an established research design that is widely used in various fields for maintenance engineering research (Hewson, 2017). This case study evaluates the use of the eHealth application to improve preoperative rehabilitation (Van Haeften et al., 2021).
The Scopus database also investigates how social influence affects peer adoption of technology and perceived time pressure (Lu, 2014). That means in the new technology adoption, such as modeling in industrial education, science and technology, research or teaching, have received recognition from users who reproduce real events and processes in a test environment (Sepasgozar, 2020). Therefore, developing simulations and machine maintenance technology adoption is often a very complex process. This needs of global leadership of virtual teams in virtual avatar-based environments (Hayes, 2014).

4.4. Facilitating Conditions

Aspects of the term comfort are also expressed in this section, which relates to Europe region (Nordhaof et al. 2020), North America (Nicolopoulos & Likothanassis, 2017), Latin America (Bailey et al. 2022), Asia (Singh & Matsui, 2017) and Australia (Slade et al. 2014). There are 5 scientific works from the Scopus database in the Asian region. Asia, including the Middle East region, has the highest number of users’ published works and the UTAUT model by its region. Subsequently, 13 scientific papers were published from the Scopus database in the US region. The US region is the second most published work, and the UTAUT model is part of the American way of life (Bianchi et al. 2022).
Facilitating conditions such as convenience of time is considered important in persuading users of new technology because it is considered to shape performance and marketing tasks. To find out this relationship, the researchers compared the aforementioned results with other regions such as Europe, Australia, and Africa. There are 7 scientific works from Scopus databases in Europe. The European region ranks third in terms of the number of works and models of UTAUT published with a high-tech population (Gupta & Arora, 2020). This was followed by 4 research papers from the Scopus database in Australia. The Australian region has the fourth most published work and a UTAUT model with a small population (Tamilmani et al. 2021). This was followed by 3 scientific papers from the Scopus database in Africa. The African region has the smallest number of works published and the UTAUT model is not popular compared to the total population.

All countries are above the population average and gain access to different cultures through the mobile application section of the UTAUT cultural model. Indonesia is part of the Asian continent with the fourth population in the world, mobile applications for predictive services in the mining industry will be valuable research to understand its unique culture (Kurnia et al. 2015).

4.5. Leadership role

The use of information technology in various fields is certainly very useful for organizations in achieving the expected goals (Urh et al. 2015). With the development of the Industrial revolution 4.0 and the Government Revolution 4.0, it became fundamental for the change in the adoption of technology (Morrar et al. 2017).

The leadership is important factor in implementing digital transformation in the organization and it is certainly a necessity. Leadership is central theme to the adoption of technology use of data in the industrial 4.0 era. Leaders of the digital age must be equipped with digital and innovation agility to work in uncertain and complex environments (Badri et al. 2018). It has brought effective leaders in the situation of decision-making and innovation process to work in a rapid learning cycle.
From Figure 6, some scholars (Mihai & Creţu, 2019; Kesting et al. 2015) also explain that innovative aspects of leadership, such as, respect for effort and willingness to take risks, communicate well, have a clear mission, plan something unique, assess potential problems, evaluate achievements regularly, validate, set wise boundaries, accept failures, build trust and rewards. The role of organizational leader has a high level of expertise in terms of cloud complexity and data transfer compatibility, interface design workflows, and 100% system functionality (Menta, 2022). As Masood and Egger, (2019) emphasized, that complexity and relevance have not been identified as important factors influencing technology adoption. Thus, improved compatibility performance effectively affects the targeted deployment and strategic implementation of cloud technology adoption. The results showed that leadership empowerment has a significant impact on knowledge creation, sharing, and the application of followers in cloud technology adoption (Türkmendağ & Tuna, 2021). This research provides insight into the role of empowering leaders in accumulating useful and self-managed knowledge in organizations (Türkmendağ & Tuna, 2021), encouraging (Kuo et al. 2011). It also provides autonomous and supportive conditions and making them useful and easy for their followers to adapt to the new environment and technology of the organization (Özarallı, 2015).

4.6. Discussion

From the different perspective and studies given above, we can conclude that there is an important relationship between the adoption of technology and the role of leadership. UTAUT Model is mainly involved in research related to social media, digital marketing, and production. In addition, the model has been studied from the perspective of coal mining industry in terms of users of social media technology adoption. There are many surveys of technology adoption involving the user perception about the UTAUT theory implementation to analyze users’ perceptions of mobile app technology adoption. Today, leadership in technology is an important type of leadership to adopt for school administrators in the digital age. It was also found that expectancy...
for efforts were related to the introduction of health and performance technologies in the medical business.

There are 13 scientific works from the Scopus database. Previous social influence studies focused on corporate strategies to drive faster adoption of the technology, particularly in the strategic mining sector. This section also describes aspects of the term comfort found in Europe, North America, Latin America, Asia, and Australia.

Our research provides for several areas where leadership plays a fundamental role in adopting new communication channels. Leadership is considered an important construct to moderate the relationship between behavioral intentions and actual use. The results showed that leadership has a significant impact on the creation, sharing, and application of follower knowledge.

This study provides some important findings. The results of this study indicate that the role of individual, technology and organizational levels is of particular concern in seeing how technology users respond to digital services in banking. In addition, this study strengthens previous research which states that the UTAUT Model is highly recommended in measuring the acceptance of technology used by organizations, companies and institutions that want to launch products for customers based on digital technology systems.

Our research obviously has many limitations. First, the generalization of our results has limitations since it tries to focus on coal mining industry. The on UTAUT in the mining sector has provide some significant results but it also has drawback due to the small data about UTAUT model.

The resulting dataset may not be representative of all datasets dated from late 2014. However, researchers believe that this is not a big issue, at least because of the uptake of mobile application technology, it did not change dramatically between 2015 and early 2020. In addition, the researchers did not take into account the potential socio-demographic effects, since the key factor in users' intention to use mobile application adoption services in the future is partly determined by the user willingness and other components which not mentioned in the original UTAUT model.

That result provide limitation which exist in this study. For some users, only once they encounter a new situation through the service in terms of the technology construct. However, in turn, other samples from new studies of potential adopters and users should be taken. Further studies can perform length analysis to determine how new variable change over time.

5. CONCLUSION(S)

The UTAUT Model, a research instrument, has been utilized extensively in numerous disciplines, including social media, digital marketing, and production, among others. It has been studied in the coal mining industry, with a concentration on how consumers perceive the adoption of mobile application technology. Leadership in technology is essential for the expectations of school administrators and medical businesses. Prior research has focused on corporate strategies to accelerate technology adoption, primarily in the strategic mining industry. The study emphasizes the significance of individual, technological, and organizational levels for comprehending how technology consumers respond to digital banking services. The UTAUT Model is highly recommended for measuring the acceptability of technology utilized by organizations, businesses, and institutions launching digital technology-based products. However, the research is limited by its generalization to the coal mining industry and its tiny sample size. In addition, the study does not consider potential socio-demographic effects, as user willingness and other factors not specified in the original UTAUT model are the primary determinants of users' intention to adopt mobile
application adoption services. It requires additional research to ascertain how novel variables evolve over time.

6. RESEARCH IMPLICATION

The findings of this study emphasize the importance of technology adoption in the coal mining industry and its positive effects on the production, dissemination, and application of knowledge among followers. These insights can be utilized by coal mining enterprises to develop and implement effective technology adoption strategies. Understanding the significance of leadership empowerment in promoting technology adoption can also result in the creation of leadership development programs that focus on empowering leaders to drive technological advancements within their organizations. By adopting digital technologies and leveraging leadership support, coal mining companies can improve their crisis management capabilities, increase operational efficiency, and adapt more effectively to epidemic and other challenges.

7. REFERENCES

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