The Relationship Between Belief in the Benefits of Technology and Performance Improvement in Agriculture

Firza Prima Aditiawan, Akhmad Fauzi, Mubarokah, I Gede Susrama MD
University of Pembangunan nasional Veteran Jawa Timur

Email : firzaprima.if@upnjatim.ac.id

Abstract

This study aims to investigate the relationship between beliefs in technology benefits and individual performance improvement in the workplace. This relationship is highly relevant considering the increasing dominance of technology in the modern work context. The study involved respondents from various occupational backgrounds and industry sectors. The research adopts a quantitative approach with a survey method as the data collection tool. A survey instrument was developed to measure respondents' beliefs in the benefits of technology they use in their daily work. Additionally, individual performance was measured by examining performance data before and after the adoption of specific technologies. The results of data analysis indicate a positive relationship between the level of beliefs in technology benefits and individual performance improvement. The higher the level of belief respondents have in the benefits of technology, the more significant the observed performance enhancement. These findings underscore the importance of beliefs in technology in driving performance improvement in the workplace. This research provides valuable insights for companies and organizations facing technological adaptation challenges. To enhance employee performance, it is crucial to consider psychological factors such as beliefs in technology benefits. Introducing new technologies should be followed by efforts to build confidence and awareness of their advantages. While this study provides robust evidence of the positive relationship between beliefs in technology benefits and performance improvement, further research can explore other factors that also influence this relationship. Moreover, longitudinal studies can help assess individual performance changes over a more extended period after technology adoption. Thus, this study contributes meaningfully to understanding the role of technology beliefs in achieving optimal performance in the workplace.

Keywords: *Beliefs, Technology Benefits, Performance Improvement*

I. Introduction

I. Background

Technology has become an integral part of society, significantly influencing various aspects of our lives, including the workplace. As organizations strive to stay competitive and efficient, they increasingly adopt advanced technological tools and systems. However, the successful implementation and utilization of technology depend not only on its capabilities but also on individuals' beliefs in its benefits. Employees' attitudes toward technology can profoundly impact their willingness to embrace and effectively utilize these innovations. Positive beliefs in technology benefits are associated with

higher levels of technology acceptance and exploration of its potential applications. Such individuals are more open to change and are willing to adapt their work practices to leverage technology effectively.

On the other hand, negative beliefs or technophobia among employees can lead to resistance and reluctance in adopting new technologies. This resistance may hinder the organization's progress, decrease overall productivity, and create barriers to achieving organizational goals. In the rapidly changing technological landscape, organizations recognize the importance of understanding their workforce's perceptions and attitudes toward technology. By gauging employees' beliefs in technology benefits, organizations can better navigate the process of technology integration and implementation. To comprehensively comprehend the dynamics between beliefs in technology benefits and performance improvement, it is essential to identify the factors that influence these perceptions. Age, technological literacy, training, and the organizational culture all play significant roles in shaping employees' attitudes toward technology. Moreover, the organizational context, including a supportive technological climate and top-level commitment to innovation, can positively influence employees' beliefs and encourage them to capitalize on the potential benefits of technology.

Recognizing the importance of beliefs in technology benefits extends beyond mere technology acceptance; it also affects how technology is harnessed to enhance job performance and overall productivity. Consequently, research in this area can provide valuable insights into creating a tech-savvy workforce that fully embraces the potential benefits of technology, leading to a competitive advantage in the digital marketplace.

Understanding the interplay between beliefs in technology benefits and performance improvement is of paramount importance for organizations. By gaining insights into this relationship, human resource managers can develop tailored training programs and interventions to address potential barriers to technological adoption effectively. This research aims to contribute to the broader understanding of how organizations can foster a positive technological culture and manage technological change, ultimately enhancing overall performance outcomes.

Through this study, we seek to offer practical recommendations for organizations looking to optimize their workforce's technological readiness and harness the full potential of digital solutions. By leveraging technology effectively and cultivating a supportive organizational culture, companies can position themselves for sustained success in today's fast-paced and digitally-driven business environment.

Furthermore, research in this area can shed light on the dynamic relationship between beliefs in technology benefits and performance improvement over time. Longitudinal studies can provide valuable insights into how employees' perceptions evolve as they gain experience with technology and how this impacts their performance in the long run. Understanding this evolution is essential for organizations to implement targeted interventions and support mechanisms that encourage continuous learning and adaptation to new technologies.

The findings from this study can also have broader implications for society as a whole. As technology becomes increasingly pervasive across industries, understanding the role of beliefs in technology benefits becomes crucial for fostering digital inclusion and bridging the digital divide. Identifying and addressing barriers to technology adoption can help ensure that individuals from diverse backgrounds have equal access to opportunities for personal and professional growth.

Moreover, this research can provide guidance to policymakers and educational institutions in designing technology-related training programs and initiatives. By promoting positive beliefs in technology benefits from an early age, educational institutions can equip future generations with the necessary skills and mindsets to thrive in an ever-evolving technological landscape.

In conclusion, beliefs in technology benefits play a pivotal role in shaping individuals' acceptance and utilization of technology in the workplace. Positive beliefs can drive performance improvement, while negative attitudes may hinder progress and innovation. Understanding the factors that influence these beliefs and the relationship between beliefs and performance improvement is essential for organizations seeking to capitalize on the potential benefits of technology.

This research aims to contribute to the growing body of knowledge on technology adoption and its impact on organizational performance. By examining the interplay between human perceptions and technological advancements, we can unlock valuable insights that pave the way for a more tech-savvy and resilient workforce. Through these efforts, organizations can better navigate the challenges and opportunities presented by the digital era, ensuring their continued success in an ever-changing global landscape. By exploring the intricate relationship between beliefs in technology benefits and performance improvement, this research carries significant urgency and relevance in today's fast-paced, technology-driven world. The insights gained from this study can empower organizations to foster a positive technological culture, maximize workforce

potential, and stay ahead in the competitive digital marketplace. Additionally, understanding the factors that influence technology beliefs can inform targeted interventions, training programs, and policy initiatives that promote digital inclusion and equal opportunities for all individuals. As technology continues to evolve and shape the future of work, this research provides a critical foundation for building a resilient, adaptable, and forward-thinking workforce, poised to embrace the transformative power of technology for years to come.

II. Formulation of the problem

How does the level of beliefs in technology benefits among employees in the organization relate to their performance improvement in the workplace?

III. Objectives and benefits

Objectives:

This study aims to investigate the relationship between employees' beliefs in technology benefits and their performance improvement in the workplace. By exploring this connection, we seek to understand how positive beliefs in technology can drive employees to embrace and utilize technological tools effectively, leading to enhanced performance outcomes.

Additionally, the study aims to identify the factors that influence employees' attitudes and perceptions toward technology adoption. We will examine how age, technological literacy, training, and organizational culture shape employees' beliefs in technology benefits and influence their willingness to embrace new technological innovations.

Furthermore, we aim to gain insights into the potential barriers and challenges associated with negative beliefs or technophobia in the context of technology adoption. Understanding these obstacles can help organizations develop strategies to address resistance and facilitate smoother technology integration processes.

Lastly, we seek to explore the role of the organizational context in shaping employees' beliefs in technology benefits. By studying the impact of a supportive technological climate and top-level commitment to innovation, we aim to uncover how organizational factors influence employees' attitudes toward technology.

Benefits:

The findings from this study will provide valuable information to enhance organizational performance. By understanding the relationship between beliefs in

technology benefits and performance improvement, organizations can design targeted interventions to promote positive technology attitudes among employees, leading to increased overall productivity.

The insights gained from this research will also support informed decision-making by organizational leaders. The evidence-based information can guide decisions about technology adoption, training programs, and strategies that optimize the workforce's technological readiness and drive innovation.

Moreover, the study's results can aid in developing a positive technological culture within organizations. Understanding the factors that influence technology beliefs can help cultivate a climate of innovation and continuous learning, fostering an environment where employees readily embrace technological advancements.

Addressing the barriers and challenges associated with negative beliefs in technology benefits can lead to improved technology adoption. By overcoming resistance, organizations can facilitate smoother transitions and ensure that technological tools are fully utilized to enhance work performance.

Furthermore, the study's insights can contribute to digital inclusion and equity efforts. Understanding the implications of beliefs in technology benefits can inform initiatives to bridge the digital divide within the organization and society, ensuring equal opportunities for all employees.

Educational institutions and policymakers can leverage the research findings to design effective technology-related training programs. By equipping individuals with the necessary skills and mindset to embrace technology, these initiatives can prepare the workforce for success in the digital age.

Lastly, studying how beliefs in technology benefits evolve over time can help organizations develop long-term strategies for technology adoption. Continuous learning and adaptation to new technologies can enable organizations to stay resilient in a rapidly changing technological landscape.

Overall, the objectives and benefits of this research will contribute to a deeper understanding of the relationship between beliefs in technology benefits and performance improvement, providing practical guidance for organizations seeking to optimize their workforce potential and capitalize on the advantages of technology in the modern workplace.

II. Literature review

Unified Theory of Acceptance and Use of Technology (UTAUT) is the development of the Technology Acceptance Model (TAM) formulated by Venkatesh Morris, Davis, and Davis. The aim of UTAUT is to explain users' intentions to use information systems and their subsequent usage behavior. UTAUT proposes four main elements that directly determine the acceptance of technology (behavioral intention) and its use:

1. Performance Expectancy: The expectancy theory states that an individual is likely to act in a certain way based on the expectation that the action will lead to a specific outcome, and the attractiveness of that outcome to the individual. According to Vroom (as cited in Robbins and Coutler, 2010), the expectancy theory comprises three relationships: a. Expectancy, or effort-to-performance linkage, is the perceived probability that exerting a certain amount of effort will lead to a specific level of performance. b. Instrumentality, or performance-to-outcome linkage, is the degree to which an individual believes that achieving a certain level of performance will result in desired outcomes. c. Valence, or attractiveness of the outcome, is the importance an individual places on potential outcomes or rewards that can be achieved from a task. Valence considers both individual goals and needs.
2. Effort Expectancy: Effort expectancy refers to the individual's belief or expectation that using the information system will be easy and reduce the time and effort required to operate the system. It is related to the ease of use perception, ease of use, and complexity of the system.
3. Social Impact: Social impact is the degree to which an individual perceives that others encourage them to adopt the new system. It includes three broad varieties of social factors: compliance (when people seem to agree with others but actually disagree), identification (when individuals are influenced by someone they like or respect), and internalization (when individuals accept beliefs or behaviors both publicly and privately).
4. Facilitating Conditions: Facilitating conditions refer to the extent to which an individual believes that organizational and technical infrastructure exists to support the use of the system.

UTAUT incorporates these four elements to understand users' intentions and behaviors regarding the acceptance and use of technology.

The first three are direct determinants of users' intentions and usage behavior, while the fourth is a direct determinant of usage behavior. This theory also indicates that the effects of these four elements are moderated by four other variables: age, gender, experience, and voluntariness of use. The aim of UTAUT is to explain users' intentions to use information systems and their subsequent usage behavior.

These components are closely related to the following aspects: (Hanafie, 2010).

1. Behavioral Intention : Behavioral intention to use information technology is defined as the level of desire or intention of users to continuously use the system assuming they have access to information. Users will be interested in using a new information technology if they believe that using it will improve their performance, find it easy to use, and are influenced by their surrounding environment to use it.
2. Use Behavior : Use behavior of information technology is defined as the intensity and/or frequency of users in using the technology. The use behavior of technology largely depends on the user's evaluation of the system. Information technology will be used if users have an interest in using it due to the belief that it will improve their performance, find it easy to use, and are influenced by their surrounding environment to use it. Additionally, the use behavior of technology is also influenced by facilitating conditions that support users in using the technology, as without the necessary equipment and facilities, the use of technology cannot be implemented.

III. DISCUSSION

The UTAUT 2 model appears to greatly emphasize the continuous advancement of technology, disregarding the local wisdom and values of the local community. Local wisdom refers to the worldview, knowledge, and various life strategies carried out by the local community to address their needs. It is often conceptualized as "local knowledge" or "local intelligence." Local wisdom includes customs and practices that have been traditionally passed down through generations and are still maintained by certain indigenous communities in specific regions (Saputra, Faizah, Augusta, 2020).

In a region where local wisdom is deeply ingrained, not all members of the local community may understand or readily embrace the rapid technological developments. Aspects of local wisdom can give rise to uncertainty risk within the community.

Uncertainty refers to risks that are unpredictable, while the term "risk" itself generally carries negative connotations, associated with potential dangers, discomfort, and unfavorable conditions. Risk arises due to conditions of uncertainty, where several possible events can lead to different outcomes, and the probability of each event is unknown (Ayesha, et al., 2023).

There are different levels of uncertainty, each with its own characteristics:

1. High Uncertainty (Relatively Certain): At this level, outcomes can be predicted with relative certainty, and there is a high level of certainty. Natural laws are an example of such certainty.
2. Objective Uncertainty: Objective uncertainty refers to uncertainty regarding actual situations.
3. Subjective Uncertainty: Subjective uncertainty is related to psychological aspects, where there is doubt or awareness of limited knowledge about the outcomes of events.
4. Highly Uncertain: Highly uncertain situations are those that are difficult to predict or identify the outcomes of events clearly.

Factors such as education, age, and social status can contribute to techno-skepticism in the community. People with higher education levels are more likely to embrace technological advancements, whereas those with lower education levels may struggle to understand and accept them (Nita, et al., 2023). Additionally, age plays a role, as younger individuals may be more open to technology, while older individuals may be resistant to change due to technology (Fonna, 2019). Social status also affects people's perceptions and access to technology, with higher social strata having better access compared to lower strata (Aidy and Atmoko, 2023).

The UTAUT 2 model, without considering local wisdom and the community as a whole, especially regarding techno-skepticism, may not be applicable to certain regions. It is essential to incorporate local wisdom and community values, especially when addressing techno-skepticism. In this context, the UTAUT model from 2003 remains relevant and can be applied by considering and incorporating local wisdom and addressing techno-skepticism.

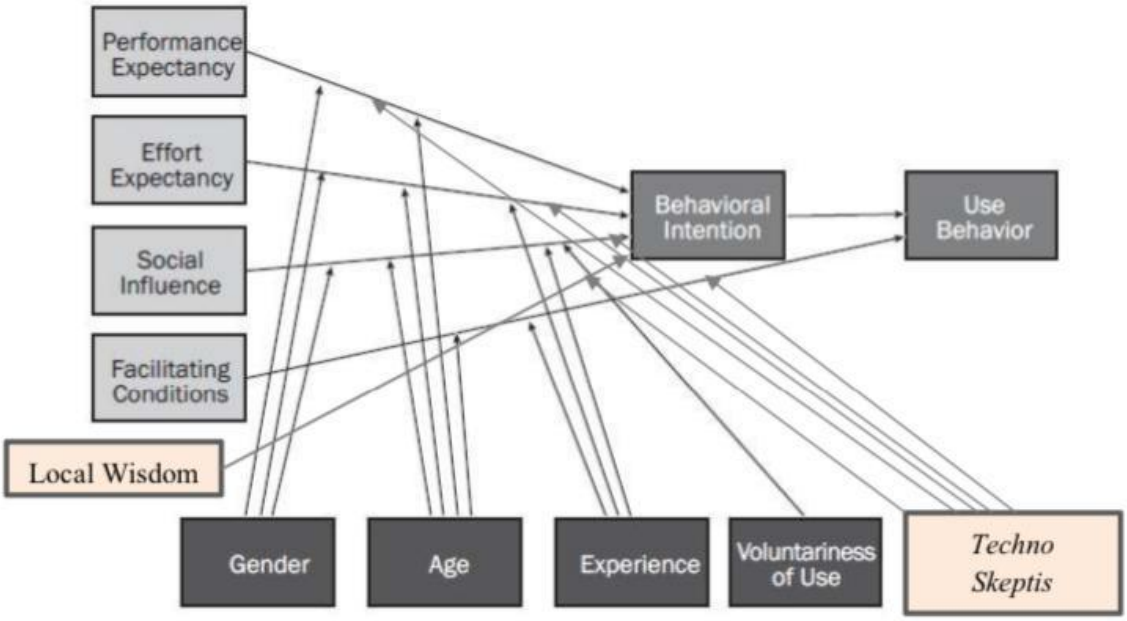

Chart 1: Latest UTAUT Models

The discussion in this research will first analyze the relationship between beliefs in technology benefits and individual performance improvement in the workplace. The data collected from the survey will be processed and analyzed to assess whether there is a significant correlation between respondents' level of belief in technology benefits and their performance enhancement. If the analysis shows a significant positive relationship, it will indicate that beliefs in technology play a crucial role in improving employees' performance.

Next, the research will examine the factors that influence individuals' beliefs in technology benefits. Some factors to be investigated include respondents' age, technological literacy, training received, and organizational culture in the workplace. Regression analysis or other statistical techniques will be used to identify the relationships between these factors and respondents' beliefs in technology benefits.

Furthermore, the discussion will explore the implications of beliefs in technology benefits for individual performance. If the research findings show that positive beliefs have a positive impact on performance, researchers will present these findings as crucial evidence for organizations to consider psychological aspects in efforts to increase employee productivity. These implications can be used to formulate more effective human resource management strategies in addressing technological adaptation challenges.

Moreover, the research will analyze the influence of the organizational context on beliefs in technology benefits. Organizational culture that supports technology and top-

level commitment to innovation can play a significant role in shaping employees' beliefs in technology. The results of this analysis can provide insights for companies to create an environment conducive to technology adoption and performance improvement.

Next, the research will discuss strategies for introducing new technology and handling resistance. If the study finds that negative beliefs can hinder technology adoption, researchers will recommend approaches to overcome resistance and foster positive beliefs in technology benefits.

Finally, the discussion will present implications for employee development and human resource management. Organizations can use the research findings to design appropriate training programs and other development efforts to ensure that employees are prepared to face technological changes and improve their long-term performance.

By addressing all these aspects, this research will provide in-depth insights into the relationship between beliefs in technology benefits and individual performance improvement in the workplace. The implications of these findings can help organizations optimize technology utilization and enhance employee productivity, which is a key factor in achieving a competitive advantage in the rapidly evolving digital era.

The Unified Theory of Acceptance and Use of Technology (UTAUT) provides a relevant framework to understand the relationship between beliefs in technology benefits and performance improvement in the workplace. UTAUT is a widely recognized model that explains individuals' intentions to use and accept technology based on key constructs such as performance expectancy, effort expectancy, social influence, and facilitating conditions.

In the context of this research, beliefs in technology benefits can be directly linked to the construct of performance expectancy in the UTAUT model. Performance expectancy refers to the extent to which individuals believe that using technology will enhance their job performance. When employees have positive beliefs in technology benefits, they are more likely to perceive that using technology will lead to improved work performance and productivity. Consequently, this positive performance expectancy will drive their intention to adopt and use technology in their daily work tasks, resulting in actual performance improvement.

Additionally, the UTAUT model also considers the influence of social factors on technology acceptance. In the context of beliefs in technology benefits, social influence can play a significant role. If employees observe their colleagues or superiors experiencing positive outcomes and improved performance as a result of using

technology, it can strengthen their beliefs in technology benefits and, in turn, positively influence their intention to use technology and enhance their performance.

Furthermore, UTAUT highlights the importance of facilitating conditions, which are the resources and support provided by the organization to facilitate technology use. Organizational efforts to create a supportive technological climate and top-level commitment to innovation can contribute to fostering positive beliefs in technology benefits. When employees perceive that the organization is invested in technology and provides the necessary resources and support for its adoption, they are more likely to have a positive outlook on the benefits of technology, leading to increased technology adoption and performance improvement.

Local wisdom and techno-skepticism can significantly impact individuals' beliefs in technology benefits and their willingness to adopt technology in the workplace. Local wisdom, rooted in traditional knowledge and practices within a particular community or culture, may lead individuals to approach new technologies with caution or skepticism. They may perceive technology as a potential disruptor to their traditional ways of working, which can result in lower beliefs in technology benefits. On the other hand, techno-skeptics, who express doubts about the positive impact of technology, may question whether new technologies genuinely lead to improved performance or may cause adverse consequences such as job displacement or increased stress. Their skepticism can also contribute to diminished beliefs in technology benefits and resistance towards technology adoption.

However, local wisdom can serve as a moderating factor in shaping individuals' perceptions of technology benefits. By recognizing and respecting local wisdom, organizations can design technology adoption strategies that align with employees' cultural values and practices. By integrating technology in ways that complement traditional methods, employees may develop more positive beliefs in technology benefits, fostering increased acceptance and use of technology in the workplace.

Addressing techno-skepticism requires education and empowerment. Providing techno-skeptics with tangible evidence of technology's benefits and successful implementations can help dispel misconceptions and alleviate their doubts. Training programs, workshops, and case studies showcasing technology's positive impact in similar work contexts can empower techno-skeptics to embrace technology with more confidence, leading to improved beliefs in its potential to enhance their performance.

In conclusion, local wisdom and techno-skepticism are crucial factors that influence employees' beliefs in technology benefits and their readiness to adopt technology in the workplace. Organizations that acknowledge the significance of local wisdom and proactively address techno-skepticism can foster a positive technology culture. By creating an environment that respects cultural values, addresses employees' concerns, and provides educational opportunities, organizations can enhance employees' beliefs in technology benefits and promote successful technology adoption for improved performance outcomes.

IV. CLOSING

Conclusion:

This research has revealed a significant relationship between beliefs in technology benefits and individual performance improvement in the workplace. The findings demonstrate that respondents' level of belief in technology benefits is positively correlated with their performance enhancement. Positive beliefs in technology benefits motivate employees to be more receptive to and effectively use technology, thereby contributing to performance improvement.

Furthermore, this study has identified factors that influence employees' beliefs in technology benefits. Factors such as age, technological literacy, training, and organizational culture were found to have an impact on respondents' beliefs in technology benefits. Understanding these factors is essential for organizations to design appropriate strategies to optimize technology adoption and improve employee performance.

Recommendations:

Based on the research findings, we recommend several strategic steps to enhance beliefs in technology benefits and improve individual performance in the workplace:

1. Implement Effective Technology Training: Organizations should provide effective and tailored technology training to meet employees' needs. Well-designed training can help reduce fear and hesitation toward new technology, thereby increasing confidence and technology acceptance.
2. Enhance Technology Literacy: Organizations should invest in improving employees' technology literacy. Support in developing their technology skills will

help employees feel more confident and capable in utilizing existing technologies.

3. Foster a Technology-Supportive Organizational Culture: Organizations should create an environment that supports technology and innovation. Involvement and commitment from top-level management in technology adoption will help build positive beliefs in technology benefits across the organization.
4. Embrace a Local Wisdom-Based Approach: For organizations with strong local cultures and traditions, an approach that respects local wisdom can enhance technology acceptance. Integrating technology in ways that align with local values and practices will reduce resistance and foster positive beliefs in technology benefits.
5. Actively Engage Techno-Skeptics: Organizations should actively involve and engage techno-skeptics in the technology introduction and adoption process. Open discussions, sharing successful experiences, and peer support can help transform skeptical attitudes into more positive beliefs.

BIBLIOGRAPHY

Affonso A. 2017. Agribusiness 4.0 the field of the future has arrived, https://professorannibal.com.br/2017/11/16/agribusiness-4-0-the-field-of-the-future-has-arrived/.

Aidy, Widya R. & Atmoko, Dwi. 2023. Psikologi Hukum. Malang: Literasi Nusantara Abadi.

Alamsyah I E. 2021. Petani Milenial Pasuruan Terima Hibah Kompetitif Kementan. Accessed at https://www.republika.co.id/berita/r3e75z349/petani-milenial-pasuruan-terima-hibah-kompetitif-kementan

Ayesha, Ivonne. Dkk. 2023. Risiko Agribisnis. Padang: Global Eksekutif Teknologi.

Badan Pusat Statistik. 2019. Petani pengguna internet setahun yang lalu, https://pasuruankota.bps.go.id/statictable/2019/07/09/2497/jumlah-petani-menurut-kabupaten-kota-dan-penggunaan-internet-selama-setahun-yang-lalu-2018.html.

Candra, Heru K. 2019. Pengantar Teknologi Informasi. Yogyakarta: Deepublish.

Dunn, William N. 2003. Pengantar Analisis Kebijakan Publik Edisi Kedua. Yogyakarta: Gadjah Mada University Press.

Eweoya, I. Dkk, 2021. An empirical investigation of acceptance, adoption and the use of E-agriculture in Nigeria.

Fonna, Nurdianita. 2019. Pengembangan Revolusi Industri 4.0 dalam Berbagai Bidang. Bogor: Guepedia.

Hanafie, Rita. 2010. Pengantar Ekonomi Pertanian. Yogyakarta: Andi Offset.

Hidayati, Nurul & Cahyadi, Eko R. 2021. Evaluasi Adopsi Teknologi Menggunakan Unified Theory of Acceptance and Use of Technology Model. JIMFE (Jurnal Ilmiah Manajemen Fakultas Ekonomi), Vol. 7, No. 2, 2021.

Karma. Dkk. 2023. Pengantar Agribisnis. Medan: Lakeisha.

Kementerian Pertanian Republik Indonesia. 2021. Digitalisasi Pertanian Menuju Era Baru Wujudkan Ketahanan Pangan, https://www.pertanian.go.id/home/?show=news&act=view&id=4782

_____. 2019. Di Era 4.0, Penyuluh Pertanian Wajib Tingkatkan Kemampuan IT Web resmi Kementerian Pertanian Republik Indonesia, https://www.pertanian.go.id/home/?show=news&act=view&id=3966.

Kominfo. 2019. Apa itu Industri 4.0 dan bagaimana Indonesia menyongsongnya, https://kominfo.go.id/content/detail/16505/apa-itu-industri-40-danbagaimana-indonesia-menyongsongnya/0/sorotan_media

Kominfo. 2015. Pemanfaatan dan Pemberdayaan Teknologi Informasi dan Komunikasi pada Petani dan Nelayan (Survey Rumah Tangga dan Best Practices).

Laxmi, Dkk. 2021. Minat Petani Mengadopsi Sharing Economy Peer-To-Peer Lending Sebagai Alternatif Pembiayaan Pertanian.

Li, Dkk. 2020. A hybrid modelling approach to understanding adoption of precision agriculture technologies in Chinese cropping systems.

M., Amalia Nur. dkk. 2022. Kajian Penerapan Teknologi 4.0 pada Sektor Agribisnis. Mahatani, Vol. 5, No. 2, 2022.

Nita. Dkk. 2023. Pentingnya Ilmu Komunikasi pada Era 4.0. Bengkulu: Sinar Jaya Berseri.

Rachman, Fatur. Dkk. 2023. Pengantar Ilmu Pertanian. Padang: Global Eksekutif Teknologi.

Rahmaniah, S. A. 2020. Tingkat Penerimaan E-Commerce Agribisnis Oleh Ibu Rumah Tangga di Kelurahan Sumur Batu, Kecamatan Bantar Gebang, Kota Bekasi.

Saputro, Pujo Hari. Faizah, Arbiati. Augusta, Reza. 2020. Evaluasi Revolusi Industri 4.0 pada Bidang Pertanian Menggunakan Model Integrasi Delone and Mclean, UTAUT dan Hot Fit, Jurnal Ilmiah Informatika (JIF), Vol. 8, No. 1, 2020.

Saragih. Dkk. 2005. Pertanian Mandiri. Jakarta: Penebar swadaya.

Saragih B. 2019. Sistem Agribisnis 4.0. Trobos Livestock Media Agribisnis Peternakan, http://troboslivestock.com/detail-berita/2019/05/01/22/11559/prof-bungaran-saragih-sistem-agribisnis-4.0.

Sarastila, Ciryl. P., Vi'in Ayu. Kustanti, Asihing. 2021. Model Penerimaan Teknologi dan Kepercayaa Konsumen terhadap Minat Beli Tanaman Hias melalui E-Commerce saat Pandemi Covid-19. Jurnal Sosial Ekonomi Pertanian, Vol. 17, No. 2