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Research Article

Examining the Acceptance of Automated Piggery Cleaner System Using UTAUT Model for Hog Business in the Philippines

Fritz Bacalso[1], Irvin Paul Rendon[1], Rose Ann Campita[1], Froilan Mobo[2], Anesito Cutillas[3]*

[1]Bachelor of Industrial Technology Department, Cebu Technological University-Argao Campus, Cebu, Philippines
[2]Department of Research, Development, and Extension, PMMA San Narciso Zambales
[3]College of Arts and Sciences & Education, Cebu Technological University-Argao Campus, Cebu, Philippines

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**Corresponding author:*
E-mail:
anesito.cutillas@ctu.edu.ph

ABSTRACT

This study examines the acceptance of automated piggery cleaner systems in the hog business in the Philippines using the Unified Theory of Acceptance and Use of Technology (UTAUT) model. It investigates piggery owners' perceptions and attitudes toward adopting this technology and its potential impact on cleaning practices, hygiene standards, and productivity. A survey questionnaire was administered to 50 piggery owners in Cebu, Philippines, employing a mixed-methods approach. The analysis reveals that piggery owners generally hold positive perceptions and attitudes towards automated piggery cleaner systems, recognizing their potential benefits in enhancing productivity, efficiency, and career advantages. Factors influencing acceptance, such as performance expectancy, effort expectancy, facilitating conditions, and social influence, were explored. Although the correlation analysis does not show significant relationships between UTAUT constructs and behavioral intention, it emphasizes considering other factors like subjective norms and perceived behavioral control. The findings have important implications for the hog business in the Philippines. Embracing automated piggery cleaner systems can improve cleaning practices, enhance hygiene standards, prevent disease outbreaks, and increase productivity. Collaborative efforts among piggery owners, industry associations, and technology providers are recommended to address concerns and barriers, including providing training and support, ensuring compatibility, and emphasizing voluntary adoption. This study offers valuable insights for pig farmers, industry stakeholders, and policymakers, enabling the adoption of innovative technologies and achieving sustainable and efficient pig farming practices in the Philippines.

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Introduction

The hog business is crucial in pork production and requires effective hygiene and disease control measures. As technology advances, the adoption of automated systems has the potential to revolutionize cleaning processes in pig farming.

Maintaining hygiene in pigpens is essential to minimize disease risks and enhance productivity (Mannion et al., 2007). Factors such as piggery design, management practices, routine cleaning and disinfection, and overall housekeeping contribute to maintaining high hygiene standards. Inadequate sanitation can compromise pigs' infection resistance and facilitate disease transmission, highlighting the importance of maintaining clean and sanitary environments (Else et al., 2020; Mannion et al., 2007).

Effective cleaning and disinfection methods have been recognized for reducing bacterial levels and breaking the reinfection cycle of infectious diseases (Mannion et al., 2007). Recent outbreaks of African swine fever serve as reminders of the rapid spread of animal diseases and emphasize the need for stringent cleaning practices in pig farming (Bellini et al., 2016). Effective cleaning and disinfection practices safeguard the pig population and prevent devastating disease outbreaks.

Furthermore, the increasing demand for pork products requires the evolution of pig farming practices to meet consumer preferences and ensure sustainable production (He et al., 2020). To meet these demands, pig farmers must adopt modern technologies and innovative solutions to enhance productivity and produce high-quality pork products (Sun et al., 2021).

Traditional cleaning methods using brooms, shovels, and wheelbarrows have become insufficient for the evolving needs of the industry (Banson et al.,2018). Modern high-pressure cleaners have become efficient solutions for professional pigsty cleaning (Hallett et al., 2016). Thorough and regular cleaning of pigpens is crucial to prevent contamination and ensure the well-being of animals and workers involved in the hog business.

Feeding practices in pig farming also play a significant role in maintaining hygiene and preventing disease transmission. While pigs can consume table scraps, caution should be exercised due to the potential spread of diseases such as African swine fever (Dorca-Preda et al., 2023). Prudent decision-making is necessary when considering the inclusion of table scraps in pig diets to minimize the risk of disease outbreaks (Croft et al., 2020).

Despite the importance of cleaning and disinfection practices, some pig producers perceive them as burdensome and expensive tasks, leading to inadequate cleaning practices (Štukelj et al., 2021). However, poor cleaning and disinfection practices can result in financial losses, missed benefits, and increased susceptibility to disease outbreaks. Hence, it is crucial to explore the acceptance of automated piggery cleaner systems to improve cleaning practices and optimize operations. Therefore, this study aims to investigate the acceptance of mechanical piggery cleaner systems using the Unified Theory of Acceptance and Use of Technology (UTAUT) model.

This study adopts the UTAUT model to investigate the acceptance of automated piggery cleaner systems. The UTAUT model proposes that individuals' behavioral intentions to use technology are influenced by critical constructs such as performance expectancy, effort expectancy, facilitating conditions, social influence, behavioral intention, and attitude toward technology (Altalhi, 2021; Shafi & Weerakkody, 2009). Additionally, the impact of these predictors is moderated by factors like age, gender, experience, and voluntariness of use (Venkatesh et al., 2003).

While other theoretical models exist to understand technology adoption, such as the Theory of Planned Behavior and the Diffusion of Innovation Theory, the UTAUT model offers a unified approach that incorporates variables from different perspectives and disciplines, enhancing its applicability to diverse contexts

(Alam et al., 2022; Marikyan & Papagiannidis, 2021; Venkatesh et al., 2003).

This study focuses on the municipality of Cebu, Philippines, which has significant involvement in the hog business. Given the substantial fattening recorded in the region, exploring routine cleaning and upkeep of backyard piggeries is particularly relevant. The study aims to assist pig owners in adhering to a scheduled cleaning module, improving hygiene practices, and optimizing their operations. Hence, this study examines the acceptance of automated piggery cleaner systems using the UTAUT model. Understanding the factors that influence the adoption of such technology can help pig farmers enhance their cleaning practices, promote better hygiene, prevent disease outbreaks, and ultimately increase productivity in the hog business. By embracing innovative technologies, the hog business in the Philippines can adapt to evolving industry needs and ensure sustainable and efficient pig farming practices.

Methods

This study employed a mixed-methods approach to collect and interpret data for examining the acceptance of automated piggery cleaner systems using the Unified Theory of Acceptance and Use of Technology (UTAUT) model (Sarfaraz, 2017). The methodology encompassed two main components: data collection and data interpretation.

Data Collection

The data collection process involved a questionnaire administered to 50 piggery owners in Cebu, Philippines. Random sampling was employed to ensure a representative sample of the target population. The questionnaire consisted of two parts.

Part 1 focused on gathering demographic information from the respondents, including age, gender, number of hogs, and years in the piggery business. This section provided contextual details about the respondents' backgrounds and served as a basis for understanding their characteristics and experiences.

Part 2 assessed the respondents' perceptions of the automated piggery cleaner systems. This section included performance expectancy, effort expectancy, facilitating conditions, social influence, behavioral intentions, and attitudes toward technology. The questionnaire was adapted from existing literature and studies that utilized the UTAUT model, ensuring the incorporation of relevant constructs and indicators.

Data Interpretation

The collected data were subjected to a comprehensive analysis to interpret the findings and address the research questions and objectives of the study. The data interpretation process involved several steps and analytical techniques.

Firstly, the demographic data were analyzed descriptively to provide an overview of the respondents' characteristics. This analysis included calculating frequencies, percentages, and measures of central tendency to summarize the demographic information.

Secondly, the questionnaire's responses to the items in Part 2 were analyzed to assess the respondents' perceptions of the automated piggery cleaner systems. The UTAUT model served as the conceptual framework for this analysis. Quantitative analysis techniques, such as mean scores, standard deviations, and inferential statistics (e.g., t-tests, correlations), were employed to examine the relationships between the UTAUT constructs and identify significant patterns or associations.

The data interpretation process integrated the quantitative and qualitative findings to comprehensively understand the respondents' acceptance of automated piggery cleaner systems. The results were discussed concerning the research objectives, UTAUT model, and existing literature, providing meaningful insights into the factors influencing the acceptance and utilization of this technology in the piggery industry.

Overall, the methodology involved collecting data through a survey questionnaire and the subsequent interpretation of the data using quantitative and qualitative analysis techniques. The data collection process captured the demographic information and perceptions of piggery owners. In contrast, the data interpretation process involved descriptive and inferential analyses to provide a comprehensive understanding of the acceptance of automated piggery cleaner systems based on the UTAUT model.

Results and Discussion

Demographic Profile

Table 1 provides information on the age and gender distribution of the respondents in the study. A total of 50 piggery owners participated in the survey. The table shows the number and percentage of male and female respondents in each age category.

The table presents the distribution of respondents' age and gender in a study comprising 50 participants. Two respondents aged 21 and below were male (2%) and one female (2%). There were seven respondents aged 22-30, with two males (4.1%) and five females (10.2%). Participants aged 31-45 accounted for 17 respondents, including four males (8.2%) and 13 females (26.5%). Similarly, the age range of 46-60 also had 17 participants, with four males (8.2%) and 13 females (26.5%). In the age group of 60 and above, there were six respondents, consisting of 3 males (6.1%) and three females (6.1%).

Table 1. Respondent's Age & Gender

Age	Gender					
	Male		Female		Total N = 50	
	F	%	F	%	F	%
21 below	1	2.00	1	2.00	2	4.10
22 – 30	2	4.10	5	10.20	7	14.30
31 – 45	4	8.20	13	26.50	17	34.70
46 - 60	4	8.20	13	26.50	17	34.70
60 above	3	6.10	3	6.10	6	12.20
Total	14	28.60	35	71.40	49	100

The study's findings indicate that 14 respondents were male (28.6%), and 35 were female (71.4%).

These findings provide insights into the gender and age distribution of the piggery owners participating in the study. Considering these demographics in analyzing the acceptance of automated piggery cleaner systems is essential, as they may influence perceptions, attitudes, and behaviors related to technology adoption (Venkatesh et al., 2000).

Years of Operation

Table 2 presents data on the number of years that respondents have been involved in the piggery business. The table includes respondents' frequency and percentage distribution based on their years of experience.

Table 2. Year/s in Piggery Business

Year/s in Piggery Business	F	Percentage (%) N = 50
5 years Below	27	57.40
6 to 10 Years	10	21.30
11 years above	10	21.30
Total respondents	47	100

As seen in the table, out of the 50 respondents, 27 reported having been in the piggery business for five years or less. This accounts for 57.4% of the sample. A smaller group of ten respondents reported having 6 to 10 years of experience in the piggery business.

This represents 21.3% of the model. Similarly, another group of 10 respondents reported having 11 years or more of piggery experience, accounting for 21.3% of the sample.

These findings provide insights into the distribution of experience levels among the piggery owners participating in the study. Understanding the years of experience in the industry is vital for analyzing the respondents' knowledge, expertise, and potential influence on their perceptions and acceptance of automated piggery cleaner systems (Sato et al., 2017).

Schedule of Cleaning

Table 3 displays data on the frequency of cleaning reported by the respondents in the study. The table presents the frequency distribution, frequency count, and percentage breakdown based on the cleaning practices of the participants.

Table 3. Frequency of Cleaning

Frequency in Cleaning	Frequency	Percentage (%) N =50
1 time per day	1	2.10
2 times per day	10	20.80
3 times per day	24	50.00
4 or more times a day	13	27.10
Total respondents	48	100

As observed, out of the 50 respondents, one individual reported cleaning their piggery once daily, representing 2.1% of the sample. A larger group of ten respondents said cleaning their pigpen twice daily accounted for 20.8% of the model.

Most respondents, consisting of 24 individuals, reported cleaning their piggery thrice daily. This represents 50% of the total sample. Furthermore, 13 respondents reported cleaning their pigpen four or more times daily, making up 27.1% of the model.

These findings provide insights into the frequency of cleaning practices among the piggery owners participating in the study. Understanding the frequency of cleaning is crucial for assessing the diligence and hygiene practices of the respondents, which in turn can impact their acceptance and potential adoption of automated piggery cleaner systems (Javier III et al., 2019).

Respondents' Perceptions Regarding the Performance Expectancy

Table 4 presents data on the respondents' perceptions regarding the performance expectancy of the automated piggery cleaner system. The mean scores, standard deviations, and verbal descriptions are provided for each statement, along with the overall average.

Table 4. Performance Expectancy

Performance Expectancy	Mean	Standard Deviation	Verbal Description
1. Automated Piggery Cleaner Systems are useful in education in general.	4.30	.677	Strongly Agree
2. Automated Piggery Cleaner system enables me to accomplish tasks more quickly.	4.08	.876	Agree
3. Using the Automated Piggery Cleaner system increase my productivity.	4.12	.904	Agree
4. If I use the Automated Piggery Cleaner System, I will have more chances for the career.	4.04	.832	Agree
Average	4.13	.627	Agree

The average mean score for all statements in the performance expectancy category is 4.13, with a standard deviation of 0.627. This indicates an overall agreement among the respondents regarding the positive impact of the automated piggery cleaner system on their performance expectations. This data demonstrate that the respondents generally perceive the automated piggery cleaner system as practical, efficient, and capable of increasing productivity and providing potential career benefits (Waller et al., 2019; Sørensen et al., 2005).

Respondents' Perceptions of the Effort Expectancy

The data presented in Table 5 provide insights into the respondents' perceptions of the effort expectancy associated with the Automated Piggery Cleaner System.

Table 5. Effort Expectancy

Effort Expectancy	Mean	Standard Deviation	Verbal Description
1. My interaction with the Automated Piggery Cleaner System would be clear and understandable	4.12	.746	Agree
2. It would be easy for me to become skillful, Automated Piggery Cleaner system exploitation.	3.92	.723	Agree
3. I would find the Automated Piggery Cleaner System easy to use.	4.04	.879	Agree
4. Learning to operate the Automated Piggery Cleaner System will be easy for me.	3.88	.917	Agree
Average	3.99	.608	Agree

As revealed in the table, the mean ratings for all four statements ranged from 3.88 to 4.12, with an overall average mean of 3.99. This indicates that, on average, the respondents agreed that their interaction with the system would be clear, understandable, and easy to use.

The relatively low standard deviations, ranging from 0.608 to 0.917, suggest a moderate level of consistency among the respondents' opinions. This indicates that there is a certain degree of agreement regarding the user-friendliness of the system and the anticipated low level of effort required to operate and become proficient in utilizing it. The data agrees with the findings of Douglas et al. (2018), which indicates that the respondents generally agreed that the Automated Piggery Cleaner System would be clear, understandable, and easy to use, with relatively consistent perceptions regarding the effort expectancy associated with the system.

Respondents' Perceptions Regarding Facilitating Conditions

Table 6 presents data on the respondents' perceptions regarding facilitating conditions related to using the Automated Backyard Piggery Cleaning System. The table includes each statement's mean, standard deviation, verbal description, and overall average.

Table 6. Facilitating Condition

Facilitating Condition	Mean	Standard Deviation	Verbal Description
1. I have the reasons and resources necessary to use the Automated Backyard Piggery Cleaning System.	4.10	.814	Agree
2. I have the knowledge necessary to use the Automated Backyard Piggery Cleaning System.	3.44	1.163	Agree
3. The Automated Backyard Piggery Cleaning System is not compatible with other systems I use.	3.48	1.015	Agree
4. A specific person is available for assistance with system difficulties.	3.78	.789	Agree
5. It would be good to use the Automated Backyard Piggery Cleaning System at work, even if it is not compulsory.	3.94	.913	Agree
6. Management does not require exploiting the Automated Backyard Piggery Cleaning System during work time.	3.69	.796	Agree
7. It is compulsory to use the Automated Backyard Piggery Cleaning System at work.	3.20	1.143	Neither Agree nor Disagree
8. I would be using voluntary the Automated Backyard Piggery Cleaning System	4.22	.771	Strongly Agree
Average	3.73	.566	Agree

The table shows that the average mean score for all statements in the facilitating condition category is 3.73, with a standard deviation of 0.566. This indicates an overall agreement among the respondents regarding facilitating conditions for using the Automated Backyard Piggery Cleaning System.

These findings agree with the findings of Halliday et al. (2021), showing that respondents perceive the presence of favorable conditions, including reasons and resources, knowledge, availability of assistance, and the voluntary nature of using the system. However, there may be concerns regarding compatibility with other systems and the compulsory nature of system usage in the work setting.

Respondents' Perceptions Regarding Social Influence

Table 7 displays data on the respondents' perceptions of social influence related to using the Automated Piggery Cleaner System. The table includes each statement's mean, standard deviation, verbal description, and overall average.

Table 7. Social Influence

Social Influence	Mean	Standard Deviation	Verbal Description
1. People who influence my behavior think that me would be easy to use the Automated Piggery Cleaner System	3.80	.639	Agree
2. People who are important to me, believe that I should use the Automated Piggery Cleaner System	3.72	.784	Agree
3. Management would motivate me to use the Automated Piggery Cleaner System.	3.73	.995	Agree
4. People who influence my behavior think that for me would be easy to use the Automated Piggery Cleaner System	3.75	.670	Agree
Average	3.80	.639	Agree

As observed, the average mean score for all statements in the social influence category is 3.80, with a standard deviation of 0.639. This indicates an overall agreement among the respondents regarding the influence of significant others and management in supporting the Automated Piggery Cleaner System.

These findings suggest that the respondents perceive a positive social influence surrounding using the system. Individuals who have an impact on their behavior, including important people and those who influence them, are seen to believe that they should use the system and find it easy to do so (Ziebland & Wyke, 2012).

Furthermore, the respondents perceive that management would motivate them to use the system (Bullock et al., 2015). These social influences contribute to the overall perception of the system's acceptance and usability.

Respondents' Behavioral Intentions

Table 8 presents data on the respondents' behavioral intentions regarding the use of the Automated Piggery Cleaner System. The table includes each statement's mean, standard deviation, verbal description, and overall average.

Table 8. Behavioral Intention

Behavioral Intention	Mean	Standard Deviation	Verbal Description
1. I intend to use the Automated Piggery Cleaner System in the next 12 months.	3.56	1.072	Agree
2. I predict I would use the Automated Piggery Cleaning System in the next 12 months.	3.66	1.099	Agree
3. I know that I will use the Automated Piggery Cleaner System in the next 12 months.	3.36	.875	Neither Agree nor Disagree
4. I always try new advanced technologies.	3.76	1.061	Agree
5. I have to buy and own devices of instant generation.	3.32	1.203	Neither Agree nor Disagree
6. I will not regret buying the automated piggery cleaner system	3.78	1.200	Agree
7. I want to have the most advanced means of communication.	3.88	1.003	Agree
Average	3.62	.787	Agree

As observed, the average mean score for all statements in the behavioral intention category is 3.62, with a standard deviation of 0.787. This indicates an overall agreement among the respondents regarding their intentions and inclinations toward using the Automated Piggery Cleaner System.

These findings suggest that the respondents generally intended to use the system within the next 12 months and predicted their usage. Additionally, they demonstrated a positive attitude towards adopting new advanced technologies and desired the most advanced communication means. These behavioral intentions indicate a favorable disposition towards adopting and utilizing innovative technologies in the context of piggery cleaning systems (Sun et al., 2021).

It is important to note that these findings align with previous research on technology acceptance and adoption. The Unified Theory of Acceptance and Use of Technology (UTAUT) posits that behavioral intention significantly predicts technology adoption (Dwivedi et al., 2019). The results of this study align with the UTAUT framework, as the respondents expressed a positive behavioral intention towards using the Automated Piggery Cleaner System, indicating a higher likelihood of adoption in the future.

The positive behavioral intentions expressed by the respondents can be attributed to several factors. As indicated in previous sections, the system's perceived usefulness and ease of use contribute to favorable behavioral intentions (Al-Hamad et al., 2021). Furthermore, the respondents' inclination towards trying new advanced technologies and their desire to have the most advanced means of communication aligns with the innovation diffusion theory, which suggests that individuals with a higher propensity for adopting innovations are more likely to express positive intentions (Franceschinis et al., 2021; Mariscal et al., 2023).

In conclusion, the data in Table 8 indicate that the respondents generally expressed an intention to use the Automated Piggery Cleaner System shortly, predicted their usage, and demonstrated positive attitudes towards adopting new technologies. These findings suggest a favorable disposition towards adopting and utilizing the system. The alignment of these findings with established theories on technology acceptance reinforces their validity. It highlights the potential for successfully implementing the Automated Piggery Cleaner System in the industry (Herrera & Trujillo-Díaz (2022).

Respondents' Attitudes toward the Automated Piggery Cleaner System

Table 9 presents respondents' attitudes toward the Automated Piggery Cleaner System technology. The table includes each statement's mean, standard deviation, verbal description, and overall average.

Table 9. Attitude towards technology

Attitude towards technology	Mean	Standard Deviation	Verbal Description
1. Using the Automated Piggery Cleaner System is a good idea.	4.54	.579	Strongly Agree
2. Exploitation of the Automated Piggery Cleaner System makes the job more interesting.	4.02	.654	Agree
3. Exploitation of the Automated Piggery Cleaner System is fun.	3.63	.755	Agree
4. I will use the Automated Piggery Cleaner System with pleasure.	4.02	.863	Agree
Average	4.06	.432	Agree

The table shows that the average mean score for all statements in the attitude towards technology category is 4.06, with a standard deviation of 0.432. This indicates an overall agreement among the respondents regarding their positive attitude toward the Automated Piggery Cleaner System.

These findings suggest that the respondents hold a favorable attitude towards the system, perceiving it as a good idea, capable of making the job more enjoyable and providing a sense of fun and pleasure in its exploitation. These positive attitudes can contribute to a greater acceptance and willingness to adopt the system in piggery cleaning operations.

The positive attitudes expressed by the respondents align with previous research on technology acceptance. Attitude is an essential factor influencing individuals' intention to use and adopt technology (Qashou, 2021; Rahman et al., 2016; Cutillas et al., 2022). The respondents' favorable attitudes towards the Automated Piggery Cleaner System indicate a higher likelihood of acceptance and adoption in the piggery industry.

Moreover, the positive attitude towards the system can be attributed to its perceived benefits and advantages. The system's ability to enhance job interest, provide enjoyment, and contribute to a sense of satisfaction aligns with the job characteristics theory, which suggests that technological interventions can improve individuals' experiences in their work environment (Langer et al., 2021; Zhao et al., 2021).

In conclusion, the data presented in Table 9 indicate that the respondents hold a positive attitude towards the Automated Piggery Cleaner System, perceiving it as a good idea, capable of making the job more enjoyable and providing a sense of fun and pleasure. These findings suggest a favorable disposition toward adopting and utilizing the system. The alignment of these findings with established theories on technology acceptance reinforces their validity. It underscores the potential for successfully implementing the Automated Piggery Cleaner System in the industry.

The Correlation Between the UTAUT Constructs

The data presented in Table 10 show the correlation between the UTAUT constructs (Performance Expectancy, Effort Expectancy, Facilitating Conditions, and Social Influence) and various variables related to the Automated Piggery Cleaner System usage.

As observed, Performance Expectancy had a strong positive correlation with age (r = 0.975, p = 0.005**), indicating that as individuals' age increased, their perceived performance expectations regarding the system also increased. This suggests that older individuals may have higher expectations of the system's performance.

Effort Expectancy showed a moderate positive correlation with the number of hogs owned (r = 0.790, p = 0.040**), suggesting that as the number of hogs increased, individuals perceived the system to require more effort. This implies that the scale of pig farming operations may influence the action needed to use the system.

Table 10. Significant Relationship among the aforementioned Constructs in Using the Automated Piggery Cleaner System

MODERATORS	UTAUT CONSTRUCTS							
	Performance Expectancy		Effort Expectancy		Facilitating Conditions		Social Influence	
	r	P – value	r	P – value	r	P – value	r	P – value
Age	.975	.005**	.672	.062	.630	-.070	.988	-.002
Gender	.063	.268	.926	-.014	.563	.085	.737	-.049
No. of Hogs	.790	.040**	.292	.155	.685	.060	.560	.086
Year/s in piggery business	.947	.010**	.062	.275	.954	.009	.511	.098
Frequency of Cleaning	.528	.093	.818	.034**	.218	.181	.981	-.004

***. Correlation is significant at the 0.01 level (2-tailed).*
**. Correlation is significant at the 0.05 level (2-tailed).*

Regarding Facilitating Conditions and Social Influence, no significant correlations were observed with the specified variables (Age, Gender, No. of Hogs, Year/s in piggery business, and Frequency of Cleaning). This suggests that the perceived facilitating conditions and social influence may not strongly influence the variables under consideration. However, it is essential to note that further analysis and exploration may be needed to fully understand the relationships between these constructs and the specified variables.

A study conducted by Sun et al. (2021) found that farmers' adoption intention of technology, similar to the Automated Piggery Cleaner System, was influenced by multiple factors, including performance expectancy, effort expectancy, social influence, personal innovation, and perceived risk. The study also highlighted the mediating role of personnel innovation in the relationship between effort expectancy and adoption willingness and the moderating role of perceived risk in the relationship between personal innovation and adoption willingness.

These findings suggest that factors such as performance expectations, perceived effort, social influence, personal innovation, and perceived risk play essential roles in shaping individuals' intention to adopt and use technology in the agricultural context (Beh et al., 2021; Giua et al., 2022; Cutillas et al., 2022).

Overall, the correlation analysis in the table provides insights into the relationships between the UTAUT constructs and the specified variables related to using the Automated Piggery Cleaner System. These findings can contribute to a better understanding of the factors influencing the acceptance and adoption of the system in the piggery industry.

Constructs to Behavioral Intention

The data presented in Table 11 show the correlation between the UTAUT constructs (Performance Expectancy, Effort Expectancy, Facilitating Conditions, and Social Influence) and Behavioral Intention.

Table 11. UTAUT Constructs to Behavioral Intention

Behavioral Intention			
Performance Expectancy	R	P – value	Interpretation
	.000	.615	Not Significant
Effort Expectancy	.005	.393	Not Significant
Facilitating Conditions	.000	.713	Not Significant
Social Influence	.000	.691	Not Significant

As observed, Performance Expectancy did not significantly correlate with Behavioral Intention (r = 0.000, p = 0.615). This indicates that the perceived performance expectations regarding the behavior did not strongly influence the intention to engage in that behavior.

Effort Expectancy showed a minimal positive correlation with Behavioral Intention (r = 0.005, p = 0.393). This suggests that as the perceived effort required for the behavior slightly increased, there was a slight increase in the intention to engage in that behavior. However, this correlation was not statistically significant.

Facilitating Conditions also did not significantly correlate with Behavioral Intention (r = 0.000, p = 0.713). This indicates that the perceived conditions that enabled the behavior did not strongly influence the intention to engage in that behavior.

Social influence also showed no significant correlation with Behavioral Intention (r = 0.000, p = 0.691). This suggests that the effect of social factors on the behavior did not strongly impact the intention to engage in that behavior.

A study by Lutuli (2019) found that among farmers, the critical determinants for technology adoption included performance expectancy, facilitating conditions, trust, peer recommendation, and investment priorities. The availability of user support and market access were identified as necessary enabling conditions for farmers. The study also highlighted that prior experience with mobile applications positively influenced factors that encouraged the use of technology. Additionally, the study found that farmers engaged in land-intensive enterprises, such as pig and poultry farming, were likelier to adopt the technology. Relevance, ease of use, and offline functionality were appealing technology characteristics (Li et al., 2019).

Overall, the correlation analysis in the table suggests that the UTAUT constructs of Performance Expectancy, Effort Expectancy, Facilitating Conditions, and Social Influence did not significantly influence Behavioral Intention concerning the Automated Piggery Cleaner System. These findings highlight the need to investigate further and identify other factors that may play a more significant role in shaping farmers' behavioral intention toward adopting and using such technologies in the piggery industry.

Correlation between Attitude and Behavioral Intention

The data presented in Table 12 indicate no significant correlation between Attitude and Behavioral Intention (r = 0.000, p = 0.509). This suggests that individuals' attitudes toward the behavior being examined do not strongly influence their intentions to engage in that behavior.

Table 12. Behavioral Intention

	Attitude		
Behavioral Intention	R	P – value	Interpretation
	.000	.509	Not Significant

The lack of a significant correlation implies that individuals' overall evaluation or perception of the behavior does not strongly predict their readiness or willingness to engage in that behavior. Attitude is one of the key constructs in the theory of planned behavior (TPB), which posits that attitudes, subjective norms, and perceived behavioral control collectively influence behavioral intentions (Chen, 2016).

However, it is essential to note that these findings may differ based on the specific context and behavior being examined. For instance, in a study by Matharu (2020) on the wastewater treatment behavior of swine farmers in Taiwan, the TPB constructs of attitude, subjective norms, and perceived behavioral control significantly influenced behavioral intentions to perform wastewater treatment. The study highlights the importance of environmental knowledge and the perceived effectiveness of enforcement as intervention factors that can further enhance farmers' intents and behaviors related to wastewater treatment.

Therefore, while the current study did not find a significant relationship between Attitude and Behavioral Intention, it is essential to consider other factors, such as subjective norms and perceived behavioral control, that may contribute to individuals' intentions and behaviors in different contexts (Hermosisima et al., 2023).

Conclusion

This study examined the acceptance of automated piggery cleaner systems in the hog business in the Philippines using the UTAUT model. The findings indicated that piggery owners held positive perceptions and attitudes towards the technology, recognizing its potential to enhance productivity and provide career benefits. They also perceived the system as user-friendly and easy to use. The favorable perceptions of facilitating conditions and social influence suggested that supportive conditions and encouragement were present for adopting the technology. These findings have significant implications for the hog business in the Philippines as adopting automated piggery cleaner systems can improve cleaning practices, enhance hygiene standards, prevent disease outbreaks, and increase productivity.

Collaborative efforts among piggery owners, industry associations, and technology providers are recommended to address concerns and barriers to maximize acceptance and adoption. Providing training, ensuring compatibility, and emphasizing the voluntary nature of adoption can facilitate successful implementation. In conclusion, this study contributes to the literature on technology adoption in the hog business, offering insights for pig farmers, industry stakeholders, and policymakers. By embracing automated piggery cleaner systems, the hog business in the Philippines can optimize cleaning practices, ensure better hygiene, prevent diseases, and achieve sustainable and efficient pig farming practices.

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