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EXPLORING THE ROLE OF INFORMATION QUALITY- FARMER'S PERSPECTIVE ON THE E-GOVERNANCE PORTAL IN AGRICULTURE SECTOR

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Abstract

The agricultural sector in India serves as a vital revenue source for rural communities, with approximately 82% of the population engaged in farming. Despite its importance, the sector faces challenges due to insufficient technical inputs. This research examines the role of e-governance and its technological contributions to the agricultural sector, focusing on factors influencing farmers' intention to use technology in Kerala. By extending the Traditional Technology Acceptance Model (TAM) with the external variable Information Quality (IQ), the study measures farmers' satisfaction with the e-governance portal. A survey was conducted with 401 farmers, and the collected data were analyzed using Structural Equation Modelling (SEM). The findings indicate that Information Quality positively affects Perceived Ease of Use (PEU), Perceived Usefulness (PU), and Attitude (ATT) among farmers. The results show significant relationships between PEU and PU (path coefficient = 0.285), PEU and Behavioral Intention (BI) (path coefficient = 0.060), PU and ATT (path coefficient = 0.472), PU and BI (path coefficient = 0.322), and ATT and BI (path coefficient = 0.528). Additionally, IQ shows significant positive effects on PEU (path coefficient = 0.692), PU (path coefficient = 0.630), and ATT (path coefficient = 0.475). These findings highlight the importance of providing high-quality, relevant, and timely information to farmers through e-governance portals to enhance their ease of use, perceived usefulness, and positive attitudes towards technology adoption. The study offers policy implications and recommendations for improving the effectiveness of e-governance initiatives in the agricultural sector.

Keywords: Information Quality (IQ), E-Governance, Agriculture Sector, Technology Acceptance Model (TAM), Rural Communities, Digital Literacy, Technology Adoption.

1. INTRODUCTION

In the present scenario, ICT became a vital tool for every governmental activities (Kuziemski, M., & Misuraca, G, 2020). It helps the authorities to extend their facilities to the citizen in a transparent way to achieve sustainable development goals continuing citizen participation in a cost effective manner. (NeGP, 2006; Lofstedt, 2012; PandeyandSuri, 2020).

The concept of e-governance is rooted from the agenda of good governance in India. The good governance is promising a responsive and accountable framework within the

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government bodies. (Hartanto, D., Dalle, J., Akrim, A., & Anisah, H. U, 2021; Vaidya, 2020). The basic principle of electronic governance starts from the "SMART" governance (*Simple, Moral, Accountable, Responsive and Transperant*) (Jiang, H., Geertman, S., & Witte, P, 2022; Alqaryouti, O., Siyam, N., Abdel Monem, A., & Shaalan, K, 2024).

The realm of e-governance promising the citizen to curtail the corruption and enabling the democratic process according to the need of the citizens. (Abou ElSeoud, M, 2024). New technology requires skilled workers or authorities to solve all the challenges faced by the consumers (Babacan, H, 2005).

Universal Corporation in the social development should offers the suggestions for enlarging the scope and possibility of the social development (Midgley, J., & Pawar, M. (Eds.), 2016). The information quality provided by the e-governance platform is appreciable.

The Information Quality (IQ) explained about the accuracy, completeness, preciseness, timely and relevant information (Diop, E. B., Zhao, S., & Duy, T. V, 2019). This research paper focused on the importance of Information Quality in the e-governance portal.

1.1 Importance of e- governance in agriculture sector

*The availability of the ICT in the agrarian community benefits the farmers to get updated information, acquire and exercise the sustainable farming and sell their products directly to the consumers (*Magesa, M. M., Michael, K., & Ko, J, 2020).

*With one- time registration the farmers can login the portals and apply for schemes and funds provided by the government (*Emeana, E. M., Trenchard, L., & Dehnen-Schmutz, K, 2020) *E-governance in agriculture sector will promote all-inclusive, sustained and unbiased intervention for conquering food security, preservation, protection and maintainable use of natural resources for diminishing the poverty to get better ecology and future (*Jha, R., & Basu, A, 2023; Zejnullahu, & et.al, 2023; Dalela, P. K.& et.al ,2020).

1.2 The economic outlook of Kerala: Agriculture based

The Kerala economy positioned at 9th place in India. The GDP growth of Kerala is almost similar to the Kerala model which contains political, social and environmental. The GDP contribution of Kerala in 2017 was 10.58% of the annual GDP of India.

The most common productions in Kerala are spices, coconut and coffee, which is different from other states. Most of the farmers are in Kerala are either marginalized or part time farmers.

The concept of farming in full-time doesn't have more eagerness in Kerala (Kar, S. K., Harichandan, S., & Prakash, O, 2024). The prime concern is the declining of area because of the natural calamities and improper irrigational facilities.

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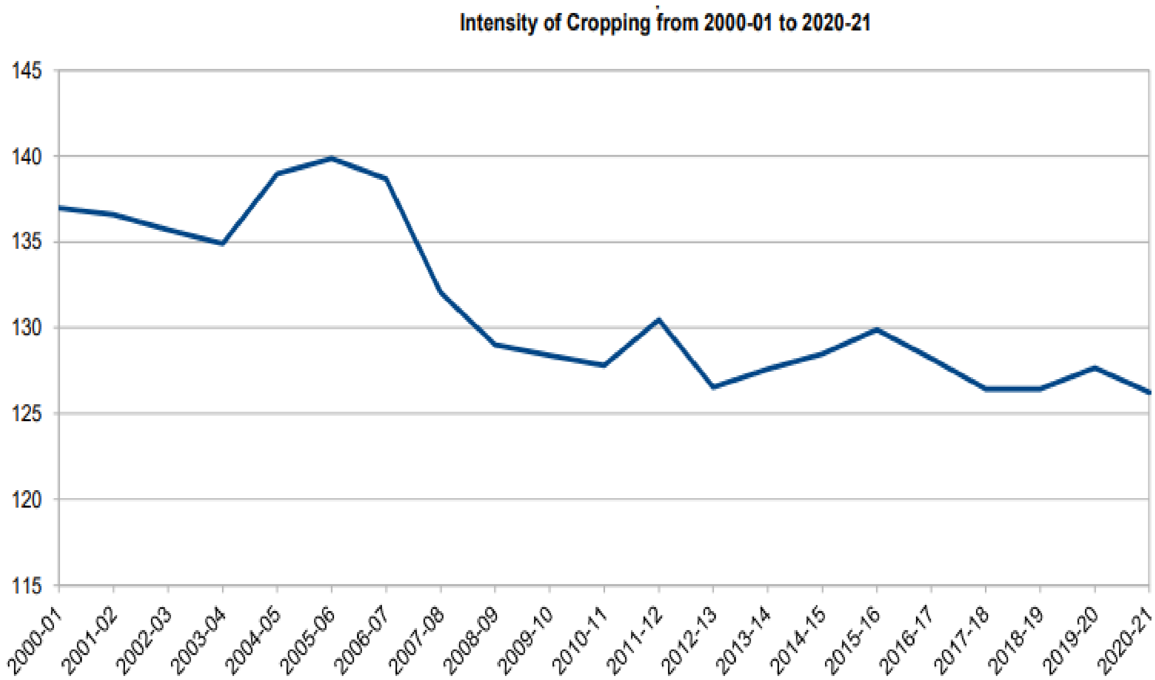

Figure: 1 Intensity of cropping from 2000-01 to 2020-21
(*Source:https://keralaagriculture.gov.in/wp-content/uploads/2023/04/AGRICULTURAL-STATISTICS-2023.pdf)*

1.3 Need of the study

Agriculture sector of Kerala is still facing several challenges because of the continuous climate change and need a special consideration. Floods and landslides are the usual hazards in the state. In the year 2018 and 2019 the unpredictable flood damages the agriculture-sector of Kerala (Mehta, P., Jangra, M. S., Baweja, P. K., & Srivastav, A. L, 2024).

According to the FIR Summary Report of the Department of Agriculture Development and Farmer's Welfare, Kerala the approximate crop loss in 2020 was 5, 47,074.38 and in 2022 was 8, 70,145.31.

That means the rate of crop loss has increasing fastly. There is a crucial need to enhance the sustainable food and land for the future. Away from that a wide information gap among the farmers is exist. Information and communication technology is the only one solution to overcome the problems (Datta, P., & Behera, B, 2024).

1.4 Gross Value Added in Agriculture

The agriculture and allied departments in our country's entire GVA price has declined 15.5% (P). In the state of Kerala has also declined to 8.88% from the last year.

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Table 1: Share of agriculture and allied sectors in GVA/GSVA National and State level, constant prices 2013-14 to 2021-22

Year	Share of Agriculture and allied sectors in Total GVA (India) (%)	Share of Agriculture and allied sectors in GSVA Kerala) (%)
2013-14	17.8	12.37
2014-15	16.5	11.92
2015-16	15.4	10.74
2016-17	15.2	9.96
2017-18	15.1	9.61
2018-19	14.6.	9.03
2019-20	15.0	8.55
2020-21	16.3	**9.52(P)**
2021-22	**15.5(P)**	**8.88(Q)**

*(*Note: (P) Provisional, (Q) Quick Source: National Accounts Statistics 2022, GoI; Directorate of Economics and Statistics, GoK)

One of the major problem in the usage and acceptance of ICT is the lack of awareness about the new system and its infinite benefits (Sharma, E. 2020) and it is helps to decrease the intensity of risk and manipulation. It is clear that awareness about the usage and benefits of information technology is reduce the intensity of the risk perceived (Gutierrez, N & et.al, 2024). If the awareness of the technology is increasing will definitely increase intuition of perceived usefulness and ease of use and which leads to intention to use (Wong, G. Z & et.al, 2024). The quality of information provides latest and accurate information helps the consumers to take right decision and improve their economic planning, it improves the perspective of the farmers about the technology (Zhai, Z., & et.al, 2020).

Many researchers tried to interpret and update the technological acceptance of the new system with the help of TAM model. In the last ten years the Technological Acceptance Model has been authorised by different application including agriculture sector (Correia, R., & Tam, C, 2024). But TAM model is not covered all aspects or elements that influencing the intention to use the new technology (Mutahar & et.al, 2018). Under this model's both practical and theoretical perspective the present study wants to measure the perceived ease of use (PEU), Perceived usefulness (PU) and attitude (ATT) depends upon the Information quality (IQ) and the Intention to use of the e-services from the agriculture sector of the Government of Kerala.

2. REVIEW OF LITERATURE

Agriculture is considered as the backbone on Indian economy (Borah & et.al, 2021). More than half of the population directly or indirectly being a part of this sector (Thacker, S. & et.al 2019). According to the Jawaharlal Nehru's wordings, agriculture sector need country's first priority because otherwise its affects the Indian economy. Usage of the latest technology in the agriculture sector will makes a drastic change in the overall development of the country (Kitole, F. A., & et.al, 2024). E-governance is the only one

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transparent way for the farmers to communicate with government officials instantly (Panganiban, G. G. F, 2019).

In the present scenario the ICT became an integral part of every government sectors. So, the awareness about the technology became a curial element among the citizens, which promotes knowledge full and tech savvy people and which leads to economic growth (Misa, T. J, 2022). Information quality (IQ) is the one of the major factor that affecting the user's satisfaction and it helps to measures the perspective of the people. The quality of information is directly proportional to the trustworthiness of the people (Niu, B., & Mvondo, G. F. N, 2024).

Information Quality plays a significant role in the effectiveness of all e-governance portal Sakhokia, A, 2023). Because IQ ensuring the accuracy of the data, transparency of the data, reliability of the data, efficiency, accountability, user satisfaction. It creates more impacts on the information provided by the government through e-Governance platform (Agrawal, S., Singh, V., & Upadhyay, Y, 2021)

A valuable cost-effective initiatives definitely benefits the customers. The intention to use of the new technology is directed by the Perceived ease of use, perceived usefulness and attitude of the people, as introduced in Technological Acceptance Model (TAM) (Davis, 1986; Davis, 1989; Davis et al., 1989).

2.1 Theoretical Background

There are a lot of models which explains about the user behaviour and intention to use of the technologies. According to the science direct index More than 7400 papers used TAM as the keyword till the date. So, Compare to the all alternative models TAM is the only one model which helps to predicts attitude of the people accurately.

By applying Technology acceptance model (TAM) to evaluate the influence of external factors on the perceived ease of use (PEU), Perceived usefulness (PU) and Attitude (AT) of the farmers, it became conceivable to measure the intention of use of the e-governance platform in the agriculture sector. More than that, the adoption of new variable may create significant correlation with PEU, PU and ATT which creates an effect on Behavioural Intention (BI).

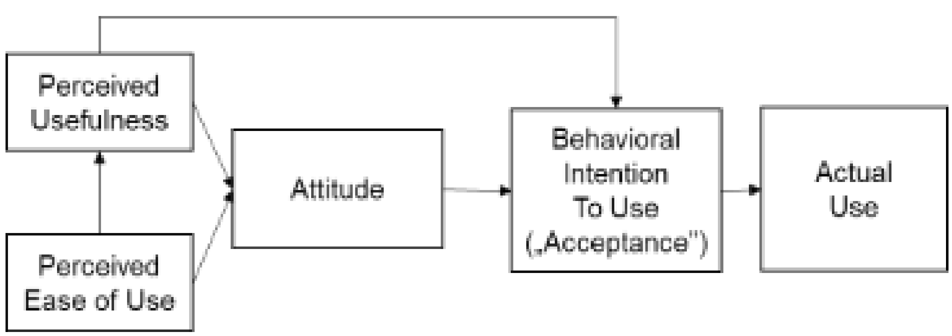

Figure 2: Technology acceptance model (TAM)

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Technology Acceptance Model consist of two factors that defines whether a computer technology will be accepted by the users. The two factors are like Perceived Usefulness (PU) and Perceived Ease of Use (PEU).

The important feature of TAM model is helps to measure the perception of the users towards the computer technology (Davis, 1989). PU explains about whether the new technology helps to improve the performance of the user.

PEU describes about the user believes that by the usage of the technology helps to reduce the effort or free from the effort (Jonas, D., Maria, E., Widiasari, I. R., Rahardja, U., & Wellem, T, 2024). The variable Behavioural Intention (BI) that guide the people to use the new technology. ATT defines the perception of the people towards the technology (Azman Ong, M. H., & Ibrahim, N. S, 2024)

2.2 Perceived Ease of use

In the context of farmer's perspective towards the ICT in agriculture, Perceived ease of use refers about how much easy to learn the technology, easier to find the new information related to farming community, flexibility of the technology, make the farmers more skilful (Mallinger, K., & Baeza-Yates, R, 2024). The major factors influencing the PEU is Perceived usefulness and behavioural intention of the farmers (Davis, 1989).

H1: Perceived Ease of Use has a positive effect on Perceived Usefulness

H2: Perceived Ease of Use has a positive effect on Behavioural Intention

2.3 Perceived Usefulness

Perceived usefulness explains about the performance, productivity, effectiveness etc. and helps the farmers free from the effort (Rezaei, R., Safa, L., & Ganjkhanloo, M. M, 2020). Perceived usefulness change the attitude of the farmers and behavioural intention of them (Caffaro, F., Cremasco, M. M., Roccato, M., & Cavallo, E, 2020).

H3: Perceived Usefulness has a positive effect on Attitude

H4: Perceived Usefulness has a positive effect on Behavioural Intention

2.4 Attitude

Attitude refers about the cost-effectiveness, accurate information etc and it is explains about the perception of the people towards the technology which is used in the agriculture sector for the fastest service delivery in a transparent way (Kamruzzaman, M, 2023). Attitude leads to the behavioural intention of the users (Mailizar, M., Burg, D., & Maulina, S, 2021).

H5: Attitude has a positive effect on Behavioural Intention

2.5 Information Quality

The notion of Information Quality was introduced by DeLone and McLeane and he explains the Information quality is the leading factor for the accomplishment of Information and Communication Technology (DeLone, W. H., & McLean, E. R, 1992).

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Information Quality refers to the complete and précised of the information that getting to the farmers through e-governance portals, timeliness and relevant of the information (Desmal, A. J., Othman, M. K., Hamid, S., & Zolait, A, 2022). So from this explanation we can predict that information quality leads to the perceived ease of use, usefulness and attitude of the people.

H6: Information Quality has a positive effect on Perceived Ease of Use

H7: Information Quality has a positive effect on Perceived Usefulness

H8: Information Quality has a positive effect on Attitude

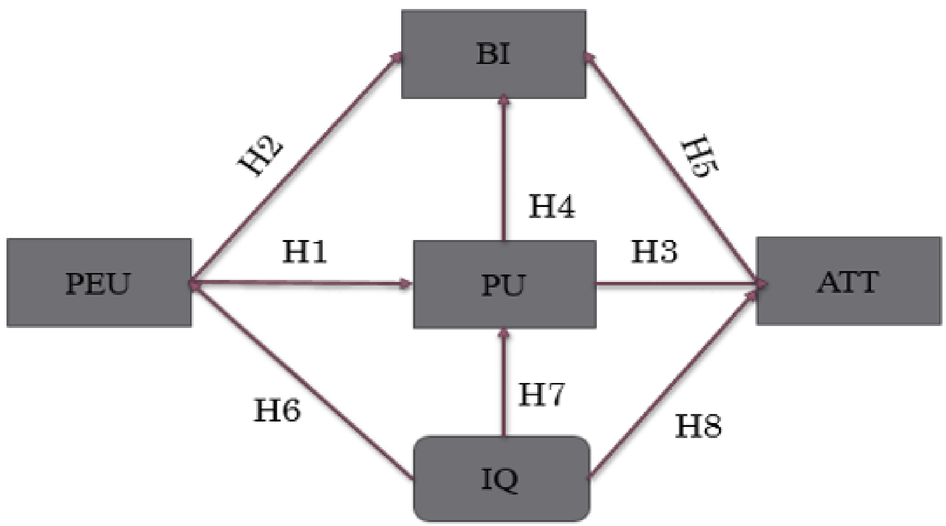

Figure 3: The extended TAM model by Author with Information Quality (IQ)

3. RESEARCH DATA AND METHOD

The study conducted in Kerala. Kerala is having good agro-climate with fertile soil. Kerala is super famous for the production of coconut tree, whole spices and others. Paddy cultivation is also famous in this state. Wide variety of hybrid paddy is cultivation in Kerala has increased like 96.7 % from the past ten years. Kerala harvests half percent of the national output.

3.1 Participants

According to the previous research TAM is perfect model to predict the acceptance of the technology among farmers. The farmers in the present study are using the e-governance agriculture portal in Kerala. 500 samples distributed to the farmers in the Kerala.

After the data reduction we got 401 samples from the finite population with their consent. 83% are male participant and 16 % are female. Age group is between below 25 to above 60.

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Table 2: Demographic details of the samples

Attributes	Subgroups	Frequency	Percentage
Gender	Male	334	83.3%
	Female	67	16.7%
Age	Below 25	84	20.9%
	26-35	153	38.2%
	36-45	45	11.2%
	46-55	35	8.7%
	56-60	55	13.7%
	Senior citizen	29	7.2%
Education	Below SSLC	42	10.5%
	HSC	122	30.4%
	UG	131	32.7%
	PG	92	22.9%
	Others	14	3.5%

3.2 Measurement Scale

The measurement items selected for this study after a critical literature review of the previous study till 2024 January. All items are already validated in the already existing studies. All items are measured according to Rensis 5 point Likert scale from strongly agree, agree, neutral, disagree and strongly disagree.

4. RESULT AND DATA PROCESSING METHOD

The statistics software SPSS used for the basic analysis and Smart PLS is used for the advanced analysis of the study. The research model was constructed with two-stage approach method introduced by Anderson and Gerbing (1988). First stage completed with Confirmatory Factor Analysis (CFA) to check the validity and reliability. Second stage is completely concentrated on the structural equation modelling (SEM).

4.1 Measurement Model

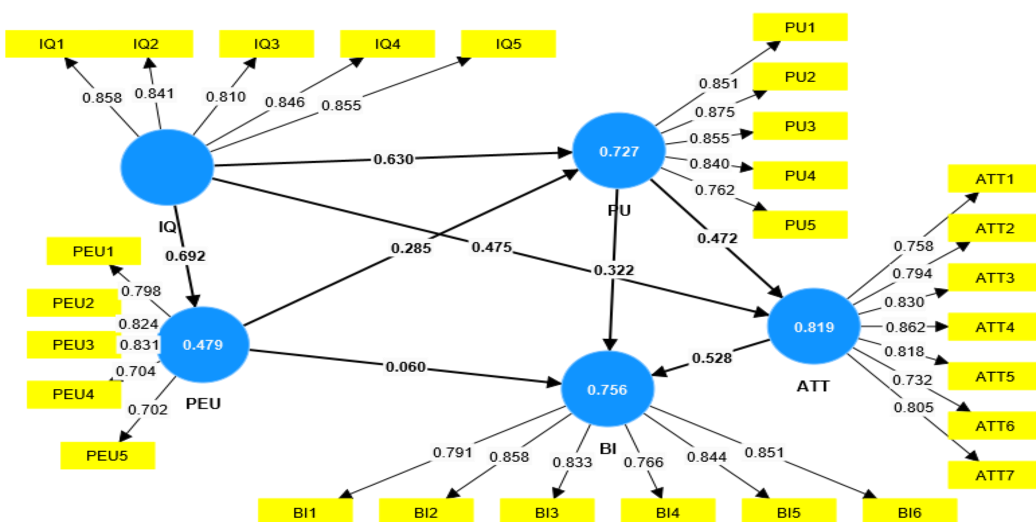

Figure 4: Author's Model

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The Standardized Root Mean Square Residual (SRMR) value represents the average absolute standardized difference between the observed and predicted covariance. In this model, the SRMR for the structural model is 0.046. Generally it should be less than 0.08. So, the model is fit. The structural model has an NFI of 0.983, usually it should be more than 0.9. Chi-square value is 1019.501. Overall, we can say that the model is good fit.

The path coefficient value of Information Quality (IQ) with Perceived Ease of Use (PEU), Perceived Usefulness (PU) and Attitude (ATT) are 0.692, 0.630 and 0.472. The value of R^2 of PEU is 0.479 for PU is 0.727 and ATT is 0.819. So the Information Quality will create positive effects on the Perceived Ease of Use, Perceived Usefulness and Attitude of the farmers.

If the quality of the information is accurate and updated then farmers are ready to use the e-Governance platform because it is free from effort and it reduce the time delay usually happened in the traditional methods. The good information quality will definitely increase the farmers trust and satisfaction on the system of the e-portals.

4.2 Construct reliability and validity

Table 3: Construct reliability and validity

Variables	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
ATT	0.906	0.909	0.926	0.642
BI	0.906	0.909	0.927	0.680
IQ	0.897	0.899	0.924	0.709
PEU	0.831	0.840	0.881	0.599
PU	0.893	0.896	0.921	0.701

Reliability and validity are concepts used to evaluate the quality of research. They indicate how well a method, technique or test measures something. Reliability is about the consistency of a measure, and validity is about the accuracy of a measure opt (Janssen, E & et. Al, 2017). Construct reliability is usually assessed using composite reliability and Cronbach's alpha

The variables which is taken for the study are Information Quality (IQ), Behavioural Intention (BI), Attitude (ATT), Perceived Ease of Use (PEU), and Perceived Usefulness (PU). Cronbach's Alpha measured the internal consistency reliability. It interprets the items under each variables and construct are related to each other. The value range between 0-1 generally it should be more than 0.7. Here all variables are having more than 0.8, which means it is reliable. Composite reliability (rho_a & rho_c) are also similar to Cronbach's alpha value should be closer to 1. Here all variables have high reliability signifying decent internal consistency reliability. Average variance extracted (AVE) explains convergent validity values are normally more than 0.5, here all variables have more than 0.5 this representing satisfactory convergent validity for all variables. All these factors indicating the measurement model seemed to be acceptable.

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4.3 Discriminant Validity'

Table 4: Fornell & Larcker criterion

	ATT	IQ	BI	PEU	PU
ATT	**0.892**				
IQ	0.841	**0.913**			
BI	0.841	0.841	**0.876**		
PEU	0.833	0.828	0.852	**0.891**	
PU	0.843	0.831	0.840	0.840	**0.897**

The matrix provided represents the discriminant validity analysis for the constructs Attitude (ATT), Information Quality (IQ), Behavioral Intention (BI), Perceived Ease of Use (PEU), and Perceived Usefulness (PU). Discriminant validity ensures that the constructs in your study are distinct from each other. The diagonal values in the matrix, such as 0.892 for ATT and 0.913 for IQ, represent the square root of the average variance extracted (AVE) for each construct. These values indicate the amount of variance captured by the construct itself relative to the measurement error, suggesting good convergent validity. For discriminant validity, these diagonal values should be greater than the off-diagonal values, which represent the correlations between constructs.

In this matrix, all diagonal values are higher than the corresponding off-diagonal values. For example, the square root of AVE for ATT is 0.892, which is greater than its correlations with IQ (0.841), BI (0.841), PEU (0.833), and PU (0.843). Similarly, the square root of AVE for IQ is 0.913, higher than its correlations with BI (0.841), PEU (0.828), and PU (0.831). This pattern holds for all constructs, indicating that each construct is distinct from the others. The strong correlations between constructs, such as 0.841 between IQ and BI or 0.852 between PEU and BI, suggest a significant relationship but still confirm discriminant validity as each construct's AVE is higher than these correlation values.

Overall, the matrix supports the validity and reliability of the measurement model, demonstrating that the constructs used in your study are both reliable and distinct. This robust discriminant validity ensures that the constructs are measuring different aspects as intended, providing a strong foundation for further analysis and interpretation of the structural model.

4.4 Testing the Hypothesis, R^2 Value, F^2 Value and VIF

Table 5: Testing the Hypothesis

Hypothesis	Relationship	β	P value	Decision	R^2	F^2	VIF
H1	PEU -> PU	0.285	0.000	ACCEPTED	0.727	0.260	1.919
H2	PEU -> BI	0.060	0.001	ACCEPTED	0.756	0.395	2.309
H3	PU -> ATT	0.472	0.010	ACCEPTED	0.819	0.919	1.990
H4	PU -> BI	0.322	0.000	ACCEPTED	0.756	0.756	2.342
H5	ATT -> BI	0.528	0.000	ACCEPTED	0.756	0.060	2.398
H6	IQ -> PEU	0.692	0.020	ACCEPTED	0.479	0.155	1.00
H7	IQ -> PU	0.630	0.000	ACCEPTED	0.727	0.389	1.919
H8	IQ -> ATT	0.475	0.010	ACCEPTED	0.819	0.100	2.129

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In the **H1** the path co-efficient of the PEU and PU IS 0.285. According to the hypothesis testing the alternative hypothesis is accepting and rejecting the null hypothesis, which means PEU has a positive effect on the PU. The R^2 of the PU is 0.727 and the F^2 is 0.260, so the global fit index is perfect. The multi collinearity (VIF) is 1.919 which is less than 3. When the Perceived Ease of Use create and good effect on the Perceived Usefulness. When the technology is easy to use it is flexible in nature then the farmers can use according to their need without any one help.

In the **H2** the path co-efficient is 0.060 between PEU and BI, the p value is less than 0.05 which means the PEU has a positive effect on the BI the R^2 and F^2 values are 0.756 and 0.395. There is no multicollinearity issues between the questions. When the Perceived Ease of Use increases the Behavioral intention use the new technology also increases. If the technology is easy to use for the farmers then their interest on the technology will automatically increase.

In the **H3** the path co-efficient value is 0.472 for PU and ATT, which means it is significant because the p value is significant. The R^2 and F^2 values are 0.819 and 0.91, the VIF values is also less than 3. When the consumers or the farmers ready to perceive the technology for their farming practices it may leads to good cropping because the technology can help to connect the authorities for soil testing or to communicate the pest infections happed in the farmland

In **H4** the path co-efficient value is 0.322 between PU and BI and p value is significant in nature. The R^2 and F^2 values are perfect in the relationship. Perceived Usefulness plays an important role to shaping the behaviors of the farmers to adopt the new technology in their agriculture practices. If the farmers are believes that the technology will helps to remove the challenges faced by them like meeting the authorities, getting the fund allocations, paper works etc. then it will definite create an impact in the country.

In the **H5** the relationship value between the ATT and BI is 0.528 and p value is significant. The R^2 and F^2 values are perfect in the relationship. Farmers attitude toward the new technology will definitely influence their decision making process. When the farmers have positive attitudes towards the new technology they may leads to the positive behavioral intention. For e.g., the farmers believes that the new technology will reduce their problems than the traditional method. Then the farmers are ready to invest to use the technology in their daily life.

In the **H6** the IQ and PEU having significant relationship and the path co-efficient value is 0.692. The R^2 value is 0.692 and F^2 values is 0.155. Good quality information gives clear understanding about the new updating about the fund allocation or giving application to the new schemes and it's create a potential benefits to them. The accurate information will reduce the anxiety, confusions and uncertainty among farmers.

In **H7** the path co-efficient between the IQ and PU is 0.630.The alternative hypothesis is accepted that means IQ has a positive effect on the PU, because the p value is showing as significant. The R^2 value is 0.727 and F^2 values is 0.389. High quality and relevant information will improves the confidence level of the farmers to use new agriculture

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practices in their farm lands. The authorities' gives guidance to the farmers about the new technological wise agriculture practices then definably it helps farmers to improve their cropping. So the Government should ensure the information provided in the e-governance portals are having perfect quality, accuracy and relevancy and also make sure that every farmers can access the information equally.

In **H8** the path co-efficient between the IQ and ATT is 0.475. Here, the p value is showing as less than 0.05 so, the alternative hypothesis is accepted that means IQ has a positive effect on the ATT. The R^2 value is 0.819 and F^2 values is 0.100. When the farmers have access the high quality information it automatically leads a positive attitude towards the technology. The clear and accurate information will definite reduce the risk while applying the schemes. It create confidence and trust among them to use the technology.

5. DISCUSSION

The findings of this study underscore the significant role of Information Quality (IQ) in enhancing farmers' acceptance and usage of e-governance portals in the agricultural sector. High-quality information positively influences the Perceived Ease of Use (PEU), Perceived Usefulness (PU), and Attitude (ATT) of farmers toward the e-governance portal. This alignment with the Technology Acceptance Model (TAM) suggests that accurate, relevant, and timely information can reduce complexity and improve the perceived benefits of technology. When farmers receive precise and reliable information, it mitigates their uncertainty and anxiety, making the technology easier to use and more beneficial.

The relationship between PEU and Behavioral Intention (BI) further illustrates that when farmers find the technology easy to use, their intention to adopt it increases. This supports the TAM hypothesis that ease of use is a significant determinant of technology adoption. Therefore, government initiatives should focus on simplifying the user interface and providing user-friendly guidance to enhance technology acceptance among farmers.

The study reveals that PU significantly impacts ATT, indicating that when farmers perceive the technology as useful, their attitude towards it becomes more positive. This underscores the importance of demonstrating the practical benefits of e-governance portals, such as improved access to resources, simplified processes, and enhanced communication with authorities. Showcasing real-world benefits can significantly enhance the perceived usefulness of these portals.The strong relationship between PU and BI highlights that perceived benefits drive the intention to use e-governance portals. Farmers are more likely to adopt technology if they believe it will help them overcome challenges such as fund allocations and meeting authorities. Thus, policymakers should ensure that e-governance portals provide tangible benefits that address farmers' needs.

A positive attitude towards technology significantly influences farmers' behavioral intentions. Efforts to foster positive attitudes, such as training programs and success stories, can be effective in promoting technology adoption. Campaigns that highlight the advantages of technology and provide support for transitioning from traditional methods to digital solutions can foster positive attitudes among farmers.

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Vol: 44 Issue: 01-2025
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The results of this study have several policy implications. Governments should invest in ensuring the accuracy, relevance, and timeliness of information provided through e-governance portals. High-quality information is essential for building trust and confidence among farmers. Simplifying the technology's use by providing user-friendly interfaces and clear guidance can significantly improve the perceived ease of use. Demonstrating practical benefits by showcasing successful case studies can enhance the perceived usefulness of these portals. Moreover, promoting positive attitudes through government campaigns can influence farmers' decision-making processes. This study underscores the importance of Information Quality in driving the adoption of e-governance portals in the agricultural sector. By focusing on enhancing information quality, simplifying technology use, demonstrating practical benefits, and promoting positive attitudes, policymakers can significantly improve the adoption rates and overall effectiveness of these digital tools. Future research should explore additional factors that may influence technology adoption in different agricultural contexts.

6. POLICY MAKERS' IMPLICATIONS AND UNIQUE CONTRIBUTION

The findings of this research have profound implications for policymakers in the agricultural sector. The demonstrated importance of Information Quality (IQ) on the adoption and effective use of e-governance portals underscores the need for policies that ensure the provision of high-quality, relevant, and timely information to farmers. Policymakers must prioritize the development and maintenance of e-governance portals with user-friendly interfaces and accurate information to build trust and enhance usability.

One key implication is the necessity for continuous investment in technology infrastructure and training programs. By allocating resources towards improving the digital literacy of farmers, policymakers can ensure that e-governance tools are accessible and beneficial to all. Training programs that focus on the practical applications of these portals will empower farmers to utilize the technology effectively, thereby improving their farming practices and overall productivity.

Additionally, policymakers should emphasize the practical benefits of e-governance portals through targeted communication strategies. Highlighting success stories and tangible outcomes can enhance the perceived usefulness of these tools, encouraging more farmers to adopt them. Clear and consistent messaging about the advantages of digital tools in agriculture can foster positive attitudes and behavioral intentions among farmers. Moreover, the study's unique contribution lies in its focus on the Technology Acceptance Model (TAM) with an external variable of Information Quality (IQ) in the context of the agricultural sector.

This integration offers a comprehensive understanding of the factors influencing farmers' satisfaction and intention to use e-governance portals. By demonstrating the significant impact of IQ on various aspects of technology acceptance, this research provides a valuable framework for future studies and policy development. The research highlights the critical role of Information Quality in driving the adoption of e-governance portals in agriculture. Policymakers must ensure that these portals are equipped with high-quality

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information, user-friendly interfaces, and practical benefits that address farmers' needs. By doing so, they can foster positive attitudes and behavioral intentions towards technology adoption, ultimately enhancing the agricultural sector's efficiency and productivity.

7. LIMITATION OF THE STUDY

While this study provides valuable insights into the role of Information Quality (IQ) in the adoption of e-governance portals among farmers, several limitations need to be acknowledged. Firstly, the study's scope is confined to farmers in Kerala, India. Therefore, the findings may not be generalizable to other regions with different agricultural practices, technological infrastructures, and socio-economic conditions. Future research could extend the geographical scope to include diverse regions for a more comprehensive understanding. Secondly, the study relies on self-reported data collected through surveys. This approach may introduce biases, such as social desirability bias or recall bias, where respondents might provide answers that they believe are expected or forget crucial details. Incorporating additional data collection methods, such as interviews or focus groups, could provide a more nuanced understanding of farmers' experiences and perceptions.

Thirdly, the use of the Traditional Technology Acceptance Model (TAM) with an added external variable of IQ, while insightful, may not capture all the factors influencing technology adoption. Future studies could explore other relevant variables, such as cultural factors, government support mechanisms, and economic incentives, to provide a more holistic view of the determinants of e-governance portal adoption in agriculture.

Moreover, the cross-sectional design of the study limits the ability to draw causal inferences. Longitudinal studies that track changes in farmers' perceptions and technology usage over time would be beneficial in understanding the dynamic nature of technology adoption. Finally, the study's sample size, although adequate for the analysis, may not fully represent the diverse demographic and socio-economic characteristics of the entire farming population. Ensuring a more diverse sample could enhance the validity and reliability of the findings. In conclusion, while the study offers valuable contributions to understanding the impact of Information Quality on e-governance portal adoption in agriculture, these limitations should be considered when interpreting the results. Addressing these limitations in future research can provide a more robust and comprehensive understanding of the factors influencing technology adoption in the agricultural sector.

8. FUTURE SCOPE OF THE STUDY

The current study provides a foundational understanding of the role of Information Quality (IQ) in influencing the adoption and usage of e-governance portals among farmers in Kerala. However, several avenues exist for future research to expand and build upon these findings. Firstly, future studies could explore the applicability of these findings in different regions and agricultural contexts. By conducting similar research in various

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E-Publication: Online Open Access
Vol: 44 Issue: 01-2025
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states across India, or even in other countries, researchers can determine if the observed relationships hold true universally or if regional factors play a significant role. This comparative approach would offer a more comprehensive understanding of the factors influencing e-governance adoption in diverse agricultural settings.

Secondly, incorporating additional variables into the Technology Acceptance Model (TAM) could provide deeper insights into the factors affecting farmers' technology adoption. Variables such as cultural influences, economic conditions, government policies, and the level of digital literacy among farmers could be examined. This holistic approach would enable policymakers to design more targeted and effective interventions to promote e-governance in agriculture. Furthermore, future research could employ longitudinal study designs to track changes in farmers' perceptions, attitudes, and usage of e-governance portals over time. Such studies would offer valuable insights into the dynamics of technology adoption and the long-term impact of e-governance initiatives on agricultural productivity and farmers' livelihoods.

Another promising area for future research is the development and evaluation of tailored training programs and support systems for farmers. Investigating the effectiveness of different training methodologies and support mechanisms in enhancing farmers' digital literacy and confidence in using e-governance portals could lead to more effective and scalable solutions. Additionally, exploring the impact of emerging technologies, such as artificial intelligence, blockchain, and the Internet of Things (IoT), on the agricultural sector's e-governance landscape could provide valuable insights. These technologies have the potential to revolutionize agricultural practices and governance, and understanding their integration with existing e-governance systems would be beneficial.

Lastly, future studies could focus on the socio-economic outcomes of adopting e-governance portals. Evaluating how the use of these portals affects farmers' income, productivity, access to resources, and overall well-being would provide a comprehensive assessment of the benefits and challenges associated with e-governance in agriculture. The future scope of research on e-governance in agriculture is vast and multifaceted. By expanding the geographical scope, incorporating additional variables, employing longitudinal designs, evaluating training programs, exploring emerging technologies, and assessing socio-economic outcomes, future studies can contribute to a deeper understanding and more effective implementation of e-governance initiatives in the agricultural sector.

9. CONCLUSION

This study provides valuable insights into the role of Information Quality (IQ) in influencing the acceptance and usage of e-governance portals among farmers in Kerala. By integrating the Technology Acceptance Model (TAM) with the external variable of Information Quality, the research highlights the significant impact of high-quality, relevant, and timely information on farmers' perceptions and attitudes towards technology adoption. The findings reveal that Information Quality positively affects Perceived Ease of Use (PEU), Perceived Usefulness (PU), and Attitude (ATT), ultimately enhancing

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Vol: 44 Issue: 01-2025
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farmers' Behavioral Intention (BI) to use e-governance portals. These results underscore the importance of providing accurate and reliable information to reduce uncertainty and improve the perceived benefits of e-governance tools.

The study also emphasizes the need for policymakers to focus on simplifying the user interface of e-governance portals and providing user-friendly guidance and training programs. By highlighting the practical benefits of these portals and fostering positive attitudes through targeted communication strategies, policymakers can significantly improve the adoption rates and overall effectiveness of e-governance initiatives in the agricultural sector. Despite its valuable contributions, the study acknowledges certain limitations, such as its regional focus and reliance on self-reported data. Future research should expand the geographical scope, incorporate additional variables, and employ longitudinal designs to provide a more comprehensive understanding of the factors influencing technology adoption in agriculture.

In conclusion, enhancing Information Quality and simplifying technology use are critical to promoting the adoption of e-governance portals in the agricultural sector. By addressing these factors, policymakers can help farmers overcome challenges, improve their farming practices, and ultimately enhance agricultural productivity and sustainability.

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