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Research paper

Path Analysis of Quality, E-Government Trust, and Satisfaction on Net Benefits: A Study of The Interventions Monitoring Platform (IMP) of The Department of Agriculture

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Abstract

This study determines the factors influencing the perceived net benefits of the Interventions Monitoring Platform (IMP) of the Department of Agriculture, with a particular focus on the mediating roles of stakeholder trust and satisfaction. Specifically, it examined fertilizer merchants' perceptions of the quality dimensions of the IMP in terms of information quality, system quality, and service quality, and how these relate to their trust in and satisfaction with the platform. The study also examines the perceived net benefits and costs associated with using the platform. It developed a structural equation model to analyze the relationship between quality dimensions and net benefits, while testing the mediating effects of trust and satisfaction.

A mixed-methods exploratory research design was employed to comprehensively investigate the factors influencing the perceived net benefits of the Interventions Monitoring Platform (IMP). The quantitative phase adopted a descriptive correlational design to statistically examine the relationships among key variables: system quality, information quality, service quality, stakeholder trust, satisfaction, and perceived net benefits. Complementing this, the qualitative phase utilized a Focus Group Discussion (FGD) to gain deeper insights into users' experiences, specifically the challenges encountered while using the platform. Data were gathered through a pre-tested and validated questionnaire administered to 87 fertilizer merchants, proportionally and randomly selected from the five provinces of the MIMAROPA Region. Descriptive statistics were used to summarize the responses, while Pearson correlation and path analysis (using Jamovi version 2.6.44) were conducted to assess the strength and significance of relationships among variables and to validate the study's proposed structural model.

Findings showed that fertilizer merchants rated the information and service quality of IMP as excellent, while system quality was rated very satisfactory, indicating confidence in the platform's content and support, but moderate concerns about technical performance. Both trust and satisfaction were rated excellently, with respondents emphasizing the platform's reliability in tracking fertilizer voucher transactions. Net benefits were rated as excellent, especially in enhancing business operations and improving service delivery, indicating that users recognize the overall value of the IMP. However, perceived costs are rated only very satisfactory, emphasizing the ongoing challenges, particularly for users in low-resource settings. These costs are not limited to financial expenses but also include the time, effort, and technical capacity required to access and use the platform effectively. For users with limited internet connectivity, digital skills, or access to smartphones or computers, these barriers can significantly hinder adoption. In many cases, the burden of learning the system, troubleshooting issues without adequate support, or incurring mobile data expenses outweighs the perceived benefits, particularly during busy agricultural periods. Thus, even a well-designed platform may face resistance if the associated costs are not addressed. To encourage broader and more equitable adoption, it is crucial to implement cost-reducing strategies such as user-friendly design, offline features, localized training, or data subsidies that lower both the real and perceived burdens of platform use. Path analysis revealed that all three quality dimensions significantly affected trust and satisfaction; information and service quality were strong predictors of both, while system quality only influenced satisfaction. Furthermore, trust emerged as a significant predictor of net benefits, while satisfaction did not have a direct effect. An IEC material was developed based on the findings of the study, which highlighted the need for improved awareness, clearer process flow communication, and better stakeholder engagement regarding the use of the IMP system.

Keywords: *Egovernment; Information Quality; System Quality; Service Quality; Stakeholder Trust; Stakeholder Satisfaction; Net Benefits.*

1. Introduction

Agriculture remains the backbone of many economies, providing food security, livelihoods, and socio-economic stability to millions of people across the globe. Farmers play a critical role not only in national development but also in sustaining rural communities and ensuring

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environmental stewardship. Recognizing this, governments around the world have long implemented various forms of interventions, from subsidies and training to technology transfers to enhance productivity, improve welfare, and ensure food security. According to the Food and Agriculture Organization (FAO, 2021), over 80% of the world's food is produced by smallholder farmers, underscoring their central role in global food systems [1].

Recognizing these contributions, both governments and international institutions have long rolled out various support mechanisms such as input subsidies, crop insurance, conditional cash transfers, capacity-building efforts, market access facilitation, and agricultural technology promotion. In both developed and developing nations, digital innovations have become increasingly integral in modernizing agricultural service delivery.

However, several studies highlight challenges in the application of digital agriculture, especially in low-resource environments. According to Wang and Dong (2023), the effective use of agricultural digital services can promote the transformation of agricultural production methods and actively promote the development of the agricultural economy. Still, in the process of agricultural production and operation, farmers find it difficult to use agricultural digital services and are still at a disadvantage in the use of information [1]. In the Philippine context, various technology-based interventions have been introduced to support farmers. Programs such as the Agricultural Competitiveness Enhancement Fund (ACEF) and the Rice Competitiveness Enhancement Fund (RCEF) provide credit, training, and equipment. Still, gaps persist. Estigoy and Abon (2020) noted that digital learning under DA's e-Extension Program excluded geographically isolated farmers due to poor connectivity [3]. These examples show recurring implementation problems like logistical inefficiencies and the lack of evaluation frameworks that prioritize user experience.

Concurrently, the net benefit approach to evaluating public programs and their impacts on society represents a governance paradigm where governments act as public managers while citizens are partners in service delivery. This concept of "publicness" emphasizes net benefit as a key indicator of good governance in service delivery. However, given the high failure rates of e-government initiatives in developing countries, more insight is needed into the factors that contribute to successful implementation, particularly in rural and agricultural settings. Addressing challenges such as the digital divide, infrastructure gaps, and usability issues is essential to realizing the full potential of e-government in agricultural governance.

This study addresses these limitations by focusing on the Interventions Monitoring Platform (IMP) of the Department of Agriculture (DA) in the Philippines. The adoption of e-government provides great value to government organizations. This study positions itself at the intersection of digital governance, stakeholder engagement, and net benefit creation in Philippine agriculture. The insights generated are expected to guide evidence-based policy decisions on the future of digital platforms in the DA and contribute to a more sustainable and inclusive agricultural governance model.

2. Objectives

This study aimed to determine the factors influencing the net benefit of the Interventions Monitoring Platform (IMP) in the Department of Agriculture and the mediating role of stakeholder satisfaction and trust in the IMP. It specifically answered the following:

1) What is the respondent's perceived level of IMP quality in terms of the following dimensions:
   - information quality
   - system quality
   - service quality
2) What is the respondent's level of trust and satisfaction towards IMP?
3) What are the net benefits of IMP based on the perception of the respondents?
4) What are the challenges and problems encountered by the respondents in the implementation of IMP, and to what extent do they experience it?
5) What structural equation model may be developed to explore the path from the quality of IMP to net benefit?
6) What information, education, and communication (IEC) materials may be proposed?

3. Materials and methods

This study employed a mixed-methods exploratory research design to comprehensively examine the factors influencing the net benefits of the Interventions Monitoring Platform (IMP). The quantitative phase of the study used a descriptive correlational design to determine the statistical relationships among variables, including system quality, information quality, service quality, stakeholder trust, satisfaction, and the perceived net benefits of IMP. Complementing this, the qualitative phase involved a Focus Group Discussion (FGD) that explored in greater depth the lived experiences of users, particularly the challenges they faced while using IMP.

The creation of the data gathering instrument was anchored on a modified version of the questionnaire developed by Osmani (2014). The modified questionnaire was validated and then pretested with 19 fertilizer merchants from Central Luzon, while the administration of the finalized instrument was done through a face-to-face survey with the 87 fertilizer merchants across the five provinces of the MIMAROPA Region.

The respondents were asked their degree of agreement on each item, where their answer fell between 1-7; 1 being the lowest and 7 being the highest. They are also allowed to answer between two integers, such as 1.2, 2.3, 3.4, etc.

Table 1: Scoring and Interpretation

Mean Score	Level of Trust, Satisfaction and Benefit	Quality	Extent of Experience
6.50 – 7.00	Extremely High	Excellent	Extremely Great Extent
5.50 – 6.49	Very High	Very Satisfactory	Very Great Extent
4.50 – 5.49	High	Satisfactory	Great Extent
3.50 – 4.49	Average	Fair	Moderate Extent
2.50 – 3.49	Low	Poor	Least Extent
1.50 – 2.49	Very Low	Very Poor	Very Least Extent
1.00 – 1.49	Extremely Low	Abysmal	None at All

Table 1 presents the scoring range and corresponding interpretation used in analyzing the results of the study. It serves as a reference for interpreting the mean scores generated from respondents' answers on various indicators related to trust, satisfaction, perceived quality, and extent of experience with the Interventions Monitoring Platform (IMP).
The data collected through the questionnaire were analyzed using Jamovi version 2.6.44. Frequency and percentage distributions described the demographic characteristics of respondents, while descriptive statistics and weighted means assessed their perceptions of the IMP in terms of quality, trust, satisfaction, and benefits. Pearson correlation analysis was conducted to determine the strength and direction of relationships among system quality indicators and stakeholder responses. Path analysis was employed to assess both direct and indirect effects among quality dimensions (system, information, and service quality), mediators (trust and satisfaction), and the perceived net benefits of IMP.

4. Results and discussions

4.1. Perceived level of IMP quality

4.1.1. Perceived level of information quality of the IMP

Table 2 presents fertilizer merchants' perceptions of the IMP's information quality, which was rated overall as Very Satisfactory ($\bar{x}$ = 5.82, SD = 1.21), reflecting strong agreement on its usefulness. Clarity received the highest rating ($\bar{x}$ = 5.99), suggesting the platform is easy to understand. Relevance ($\bar{x}$ = 5.84) had the least variation, indicating consensus on the usefulness of the data. Accuracy ($\bar{x}$ = 5.95) and Reliability ($\bar{x}$ = 5.90) were also rated highly, though Accuracy showed slightly more variability. Timeliness showed the greatest variation (SD = 1.37), pointing to inconsistent access to up-to-date information, likely due to connectivity issues in remote areas. Accessibility ($\bar{x}$ = 5.61) also showed notable variation, possibly influenced by user location and internet access. This means that Fertilizer merchants rated the IMP's information quality as very satisfactory, with high marks for clarity and relevance, but noted variability in timeliness and accessibility likely due to differences in connectivity and location.

Table 2: Fertilizer Merchants' Perceived Level of Information Quality of the IMP

Information Quality	Mean	SD	Interpretation
1. Accuracy	5.95	1.26	Very Satisfactory
2. Timeliness	5.62	1.37	Very Satisfactory
3. Relevance	5.84	1.08	Very Satisfactory
4.Completeness	5.81	1.23	Very Satisfactory
5.Reliability	5.90	1.13	Very Satisfactory
6. Clarity	5.99	1.11	Very Satisfactory
7. Accessibility	5.61	1.23	Very Satisfactory
Overall	**5.82**	**1.21**	**Very Satisfactory**

The high ratings given by fertilizer merchants during the survey were supported by FGD results, where participants described the IMP's informational outputs as "clear," "systematic," and "easy to reference", particularly during voucher redemption and beneficiary validation. Merchants appreciate that IMP provides updated lists of eligible farmers and relevant intervention details, helping them avoid unnecessary confusion. However, there were occasional issues raised regarding data mismatches between IMP and the Farmers Information Management System (FIMS), leading to some farmers being excluded or double-listed. Despite this, merchants generally agreed that the platform's information was dependable and allowed for better coordination between them and the DA

4.1.2. Perceived level of system quality of the IMP

Table 3 shows the fertilizer merchants' perceived level of IMP quality in terms of the System.

Table 3: Fertilizer Merchants' Perceived Level of System Quality of the IMP

System Quality	Mean	SD	Interpretation
1. User-friendliness	5.87	1.18	Very Satisfactory
2. Ease of navigation	5.69	1.21	Very Satisfactory
3. Efficiency	4.95	1.25	Satisfactory
4. Stable	4.78	1.40	Satisfactory
5. Quick loading	5.06	1.32	Satisfactory
6. Compatibility	5.06	1.58	Satisfactory
7. Consistency or Usability	5.24	1.22	Satisfactory
Overall	**5.24**	**1.36**	**Satisfactory**

Table 3 shows that the respondents rated the system quality of the Interventions Monitoring Platform (IMP) as Satisfactory overall ($\bar{x}$ = 5.24, SD = 1.36), indicating that while the system is functional, improvements are needed. User-Friendliness ($\bar{x}$ = 5.87) and Ease of Navigation ($\bar{x}$ = 5.69) received the highest ratings, both interpreted as Very Satisfactory, suggesting that the platform is generally intuitive and accessible. These qualities support user engagement, even among those with limited digital skills.
In contrast, System Stability ($\bar{x}$ = 4.78), Efficiency ($\bar{x}$ = 4.95), and Quick Loading ($\bar{x}$ = 5.06) were all rated as Satisfactory, but with higher standard deviations, indicating inconsistent user experiences. Some users likely encountered delays or crashes, particularly during peak periods, highlighting the need for backend improvements. Compatibility had the highest variability (SD = 1.58), suggesting that access across different devices and browsers is not uniform. This points to the importance of enhancing cross-platform functionality and mobile responsiveness. Meanwhile, the low SD for User-Friendliness (1.18) indicates a consistently positive experience across users, reinforcing it as a key strength of the platform.
The consensus across FGDs was that if system crashes and slowdowns could be addressed through better backend support and optimization, the IMP would be considered one of the most efficient digital tools they've used. These qualitative insights provide a grounded understanding of how system quality is both a strength and a challenge in the current IMP implementation.

4.1.3 Perceived level of service quality of the IMP

Table 4 presents the fertilizer merchants' perceived level of IMP quality in terms of Service

Table 4: Fertilizer Merchants' Perceived Level of Service Quality of the IMP

Service Quality	Mean	SD	Interpretation
1. Expectation fulfillment	5.65	1.10	Very Satisfactory
2. Transparency	5.78	1.10	Very Satisfactory
3. Promptness	5.69	1.10	Very Satisfactory
4. Responsiveness	5.53	1.43	Very Satisfactory
5. Technical support	5.56	1.34	Very Satisfactory
6. Response Time	5.46	1.37	Satisfactory
7. User guidance	5.76	1.24	Very Satisfactory
Overall	**5.63**	**1.25**	**Very Satisfactory**

Table 4 shows that respondents rated the IMP's service quality as Very Satisfactory overall ($\bar{x}$ = 5.63, SD = 1.25), with high scores for transparency, guidance, and promptness, though variability in response time, responsiveness, and technical support suggests some inconsistency in service delivery. This means that the IMP's service quality was perceived as very satisfactory, though some users experienced inconsistencies in responsiveness and technical support.

From the FGD, many fertilizer merchants affirmed that IMP's service features, such as clear instructions, accessible transaction histories, and transparent processing, made the platform highly favorable compared to manual methods. However, they also noted gaps in the responsiveness of technical support. Several shared that while submitting tickets or service requests was straightforward through the Viber group chats, the turnaround time for actual resolution was often slow. Some merchants recounted waiting several days to a week to hear back on urgent issues, which disrupted their operations. Field implementers confirmed these observations, adding that they frequently assisted merchants directly while waiting for centralized support. They emphasized that these delays typically occurred during periods of high system traffic, such as planting season. Despite these issues, most stakeholders maintained a positive view of IMP's service quality, suggesting that improved response mechanisms, such as dedicated support teams or decentralized technical help, would significantly enhance the user experience and the platform's overall reliability

4.2. Perceived level of trust and satisfaction towards IMP

4.2.1. Perceived level of trust towards the IMP

Table 5 presents the Fertilizer Merchants' level of Trust Towards the IMP.

Table 5: Fertilizer Merchants' Level of Trust Towards the IMP

Stakeholder Trust	Mean	SD	Interpretation
1. Data accuracy	5.96	1.12	Very High
2. Data reliability	6.09	1.11	Very High
3. Data security	5.93	1.07	Very High
4. Data consistency	5.23	1.36	High
5. Data transparency	5.74	1.18	Very High
6. Fraud protection	5.64	1.17	Very High
7. User confidence	5.87	1.10	Very High
Overall	**5.78**	**1.18**	**Very High**

Table 5 shows that fertilizer merchants had a Very High overall level of trust in the IMP ($\bar{x}$ = 5.78, SD = 1.18), with particularly strong confidence in data reliability, accuracy, and security, while lower ratings and higher variability in data consistency suggest concerns over update issues or record mismatches. This means that fertilizer merchants expressed very high trust in the IMP, especially in its data reliability and security, though concerns about data consistency indicate a need for improved record accuracy and updates.

The FGD revealed that Merchants acknowledged occasional technical glitches but viewed the IMP as a significant improvement over manual systems, particularly appreciating its enhanced transparency and traceability. They emphasized the value of verifiable processes that reduce human error and manipulation. Implementers noted discrepancies between IMP and other databases that sometimes caused distrust, particularly when farmers' records were inconsistent. Despite these challenges, stakeholders remained optimistic about IMP's potential, highlighting those continuous technical improvements are essential to fully realize the system's benefits

4.2.2. Perceived level of satisfaction towards the IMP

Table 6 presents the Fertilizer Merchants' level of satisfaction with the IMP.

Table 6: Fertilizer Merchants' Level of Satisfaction Towards the IMP

Stakeholder Satisfaction	Mean	SD	Interpretation
1. Continued use	6.09	1.21	Very High
2. Preference	5.90	1.26	Very High
3. Exploration	5.55	1.43	Very High
4. Data Reliance	5.61	1.19	Very High
5. Recommendation	5.83	1.24	Very High
6. Integration	5.51	1.29	Very High
7. Engagement	6.17	1.10	Very High
Overall	**5.81**	**1.27**	**Very High**

Table 6 presents that fertilizer merchants reported a Very High level of satisfaction with the IMP ($\bar{x}$ = 5.81, SD = 1.27), with strong ratings for engagement and continued use, though lower scores for exploration and integration suggest some users still face challenges in fully

incorporating the platform into their daily workflows. This means that Fertilizer merchants are highly satisfied with the IMP overall, but some hesitate to fully explore or integrate it into their daily routines, likely due to limited familiarity or skills.
Additional feedback from merchants supports these findings, with many reporting that the platform is mainly used during voucher distribution seasons, and less frequently outside those windows. This seasonal usage pattern limits familiarity with other functions and reduces opportunities for deeper learning and confidence-building.

4.3. Perceived benefits of the IMP

Table 7 presents the fertilizer merchants' perceived net benefits of using the Interventions Monitoring Platform (IMP).

Table 7: Fertilizer Merchants' Perceived Net Benefits of IMP

Perceived Benefits	Mean	SD	Interpretation
1. Faster task completion	5.79	1.12	Very High
2. Reduced manual effort	5.83	1.03	Very High
3. Improved overall efficiency	5.86	1.03	Very High
4. Reliable information	5.97	1.07	Very High
5. Informed decisions	5.87	1.09	Very High
6. Better work quality	6.01	1.02	Very High
7. Efficient goal achievement	5.93	1.15	Very High
8. Enhanced performance	6.06	0.99	Very High
9. Positive impact	6.08	1.02	Very High
Overall	**5.93**	**1.06**	**Very High**

As presented in Table 7, fertilizer merchants perceived Very High net benefits from using the IMP ($\bar{x}$ = 5.93, SD = 1.06), particularly in improving business outcomes, performance, and work quality, while lower ratings for task speed, manual effort, and overall efficiency suggest that some users have yet to fully experience the platform's productivity advantages. This means that Fertilizer merchants widely recognize the IMP's positive impact on work quality and performance, though some still face challenges in realizing its full efficiency benefits.
As revealed in the FGD, this spread in responses may point to inconsistencies in internet access, differences in users' digital literacy, or varying levels of system exposure across provinces and merchant profiles. It is also possible that certain features designed to streamline work are underutilized due to limited orientation or awareness. These findings imply that although the platform shows potential in reducing manual work and boosting operational efficiency, its full benefits are not yet equally realized across all users.

4.4. Challenges and problems encountered in the implementation of IMP

Table 8 presents the challenges and problems encountered by rating the costs or identifying the barriers and challenges faced by stakeholders during IMP implementation.

Table 8: Fertilizer Merchants' Perceived Problems and Challenges of IMP

Perceived Problems and Challenges	Mean	Deviation	Interpretation
1. Time-consuming to learn	4.56	1.86	Great Extent
2. Difficult to navigate	4.04	1.76	Moderate Extent
3. Costly usage of the platform	3.65	1.86	Moderate Extent
4. Needs extra resources	4.91	1.69	Great Extent
5. Frequent technical issues	4.59	1.69	Great Extent
6. Data privacy concerns	4.21	1.81	Moderate Extent
Overall	**4.32**	**1.82**	**Moderate Extent**

As shown in the table, the overall mean score of 4.32 (SD = 1.82) indicates that fertilizer merchants experienced a moderate extent of challenges in using the Interventions Monitoring Platform (IMP), with a high variability suggesting unequal access and digital readiness. The top concern was the need for extra resources ($\bar{x}$ = 4.91). Frequent technical issues ($\bar{x}$ = 4.59) also ranked high, with problems like bugs and downtime disrupting operations, especially during peak periods.
The challenge "Time-consuming to learn" ($\bar{x}$ = 4.56) had the highest SD, reflecting wide variation in users' digital literacy and reinforcing the need for structured training, tutorials, and local language support. Difficulty in navigation ($\bar{x}$ = 4.04) also showed high variability. Data privacy concerns ($\bar{x}$ = 4.21) revealed mixed user perceptions. Lastly, the cost of using the platform ($\bar{x}$ = 3.65) was the lowest-rated concern. These findings were further elaborated in the FGD with fertilizer merchants, in which many participants described the platform as "not intuitive", especially for older users or those with limited digital literacy. Some merchants admitted they had to rely on their children or staff to help them navigate the IMP.

4.5. Exploring the path from quality of IMP to net benefits

4.5.1. Strength of association among quality dimensions

Table 9 shows that significant interrelationships exist among the three quality dimensions (information, system and service) of IMP ($p<.001$).

Table 9: Significance of Relationship among IMP's Quality Dimensions

Variable	R	p-value	Interpretation
Information and System Quality	0.809	<.001	Strong
Information and Service Quality	0.832	<.001	Strong
System and Service Quality	0.840	<.001	Strong

The quality dimensions of IMP—information, system, and service—are highly interrelated, each significantly influencing the others to shape user satisfaction and perceived effectiveness. Strong correlations were found among these dimensions, including between system and service quality (r = 0.840), information and service quality (r = 0.832), and information and system quality (r = 0.809), all at p < 0.001. This interdependence means that weaknesses in one area can negatively impact the overall user experience, while strengths in one can enhance others.

4.5.2. Strength of association among factors of IMP's net benefits

Table 10 shows the Correlation of IMP's qualities (information, system, and service), stakeholders' trust, and satisfaction with the net benefits of the IMP.

Table 10: Correlation of IMP's Qualities, Stakeholders' Trust, and Satisfaction to IMP's Net Benefit

Variable	R	p-value	Interpretation
Information Quality	0.739	<.001	Strong
System Quality	0.688	<.001	Moderate
Service Quality	0.775	<.001	Strong
Stakeholders' Trust	0.786	<.001	Strong
Stakeholders' Satisfaction	0.677	<.001	Moderate

The Net Benefits of the Interventions Monitoring Platform (IMP) for the Fertilizer Discount Voucher (FDV) Program show a significantly strong association with all key predictors: information quality (r = 0.739), system quality (r = 0.688), service quality (r = 0.775), stakeholder trust (r = 0.786), and stakeholder satisfaction (r = 0.677), all at p < 0.001.
The statistical findings led to the rejection of the null hypothesis at the 5% level of significance. H1: There is a significant relationship between IMP quality dimensions and respondents' trust in IMP. H2: There is a significant relationship between IMP quality dimensions and respondents' satisfaction. H3: There is a significant association between respondents' trust in IMP and its net benefits. H4: There is a significant association between respondents' satisfaction in IMP and its net benefits.

4.5.3. Path analysis

Results of path analysis (Table 11) indicated that the IMP's information, system, and service qualities have positive effects on the level of satisfaction of stakeholders.

Table 11: Parameter Estimates of Path Analysis on IMP Net Benefit

Dependent Variable	Predictor Variable	Estimates	p-value
Satisfaction	Information	0.259	0.014
	System	0.257	0.014
	Service	0.435	<.001
Trust	Satisfaction	0.844	<.001
Net Benefits	Trust	0.707	<.001

Based on significance, information predicted the stakeholders' satisfaction (b=0.259, p=0.014), system quality is a significant predictor of stakeholders' satisfaction (b=0.257, p=0.014) towards IMP, and service quality also predicted satisfaction (b=0.435, p<.001) of the stakeholders. Data also shows that citizen satisfaction significantly predicts the trust of the stakeholders in electronic government (b=0.844, p<.001). In terms of net benefits, stakeholders' trust is a significant predictor and has a strong positive effect on IMP's net benefits (b=0.707, p<.001).

Table 12: Indirect Effects of IMP's Qualities on Net Benefit through Trust and Satisfaction as Mediators

Independent Variable	Mediator Variable 1	Mediator Variable 2	Estimates	p-value
Information	Satisfaction	Trust	0.155	0.017
System	Satisfaction	Trust	0.154	0.017
Service	Satisfaction	Trust	0.260	<.001
Satisfaction	Trust		0.597	<.001

As shown in Table 12, all quality dimensions, such as information (b =0.155, p=0.017), system (b =0.154, p=0.017), and service (b=0.260, p<.001) have an indirect effect on net benefits through the stakeholders' satisfaction and trust. In addition, satisfaction (b =0.597, p<.001) also indirectly affects net benefit with trust as its mediator.

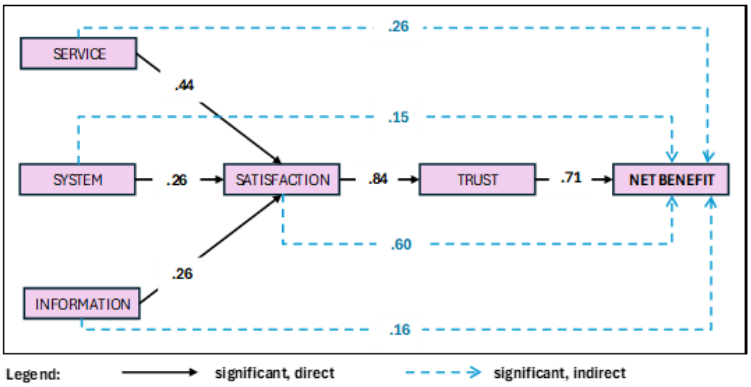

Fig. 3: Path Model of IMP's Net Benefits.

Figure 3 presents a path model that depicts the relationships between the quality dimensions of an Information Management Platform (IMP), such as information quality, system quality, and service quality, and their influence on stakeholder satisfaction, trust, and ultimately, net benefits. The model shows that both information quality (β = 0.26, p = .014) and system quality (β = 0.26, p = .014) have a direct, positive but weak effect on satisfaction. This means that when stakeholders perceive the information provided by the platform as accurate, relevant, and timely, and when the system is seen as reliable and easy to use, their satisfaction improves, though modestly. On the other hand, service quality reveals a stronger impact, with a moderate positive effect on satisfaction (β = 0.44, p < .001). This shows that the quality of support services like responsiveness, empathy, and helpfulness plays a more significant role in shaping stakeholders' positive perceptions of the IMP.

Satisfaction, in turn, is expected to influence trust, although specific coefficients for this relationship are not provided in the excerpt. Nonetheless, established theoretical models suggest that higher satisfaction enhances users' confidence in the platform's reliability and integrity, leading to increased trust. Trust then acts as a critical bridge to net benefits, as stakeholders who trust the system are more likely to engage with it meaningfully, rely on its outputs, and incorporate it into their decision-making processes. This development from quality dimensions to satisfaction, trust, and finally net benefits emphasizes the interrelated nature of user experience and system success.

This model, therefore, illustrates the importance of all three quality dimensions, while stressing that service quality has the greatest direct influence on satisfaction. Satisfaction itself serves as a key mediating factor that shapes trust and helps realize the full value of the IMP in terms of net benefits. This implies that for organizations to maximize the impact of their information systems, they should focus not only on technical and informational aspects but also invest significantly in the quality of support services provided to users.

4.5.4. Structural equation model

The Structural Equation Model (SEM), as shown in Table 13, reveals that all hypothesized relationships in the study are statistically significant, confirming the robustness of the proposed theoretical framework.

Table 13: Structural Paths and Estimates from Quality Dimensions to Net Benefits

Structural Paths							Estimate
Quality Dimensions							
Information Quality	➔	Citizen Satisfaction					0.259*
System Quality	➔	Citizen Satisfaction					0.257*
Service Quality	➔	Citizen Satisfaction					0.435*
Citizen Satisfaction	➔	Trust in eGovernment					0.844*
Trust in eGovernment	➔	Net Benefit					0.707*
Mediation Analysis							
Information Quality	➔	Citizen Satisfaction	➔	Trust in eGovernment	➔	Net Benefit	0.155*
System Quality	➔	Citizen Satisfaction	➔	Trust in eGovernment	➔	Net Benefit	0.154*
Service Quality	➔	Citizen Satisfaction	➔	Trust in eGovernment	➔	Net Benefit	0.260*
Citizen Satisfaction	➔	Trust in eGovernment	➔	Net Benefit			0.597*

The table reveals that service quality had the strongest direct and indirect influence on citizen satisfaction and perceived net benefits, highlighting the critical role of responsive, reliable service in driving positive user experiences with the IMP. Satisfaction strongly predicted trust, which in turn significantly influenced the perceived value of the platform, confirming that trust acts as a key link between quality and benefits. While information and system quality also contributed, their impact was most effective when paired with strong service delivery. The findings emphasize that enhancing user experience, particularly through human-centered services, not only builds trust but also amplifies the overall value of digital government platforms like the IMP, supporting long-term engagement and public sector digital transformation.

4.6. Proposed IEC material based on the findings

Table 14 shows the Matrix of Findings for the proposed IEC Material.

Table 14: Indices of the IMP Model

Fit Index	Standard	Value	Interpretation
X^2	low value	88. 0	poor fit
SRMR	< 0.08	0.070	good fit
RMSEA	< 0.05	0.365	poor fit
GFI	> 0.90	0.995	excellent fit

The IEC (Information, Education, and Communication) material was proposed based on the findings of this study. This was designed for the Interventions Monitoring Platform (IMP) in the MIMAROPA region, which presents a valuable resource that can be adopted and adapted by other regions facing similar challenges in digital service delivery. Moreover, this addresses the usability issues, limited technical support, and infrastructure constraints. The material simplifies system functions, enhances user awareness, and offers practical support for individuals with varying levels of digital literacy. These challenges are common across many agricultural regions in the Philippines, hence this suggests strong potential for broader applicability.

To enable adoption in other regions, the IEC material could be scaled through a modular approach that maintains core instructional content while allowing for localization. Regional offices could adapt the material by translating it into local languages, incorporating region-specific examples, and using culturally relevant visual aids. This flexibility would ensure that the content remains relatable and effective across diverse user groups. This further preserves the main goal of increasing engagement with the IMP.

In addition, the Department of Agriculture and its partners can develop a standardized framework for implementing and evaluating the IEC material across regions. This may include training modules, distribution strategies, and feedback mechanisms to continuously improve its relevance and effectiveness. Digital and printed formats can also be developed based on the infrastructure and connectivity levels of each area to uphold inclusivity in both online and offline contexts.

Future research may explore the long-term impact of the IEC material on platform adoption and user performance. Long-term studies could track changes in user engagement, satisfaction, and trust over time to provide deeper insights into how sustained exposure to IEC interventions influences behavior. Comparative studies between regions that implement the IEC material and those that do not could further validate its effectiveness. Additionally, cross-platform comparisons between the IMP and other e-government systems could uncover best practices in digital communication strategies and user support, guiding broader efforts in public sector digital transformation. Therefore, the IEC material is not only a tool to resolve current user challenges but also a strategic asset to promote equitable access to digital services.
The QR Code shown contains the flipped version of the Information, Education, and Communication (IEC) material titled "The Interventions Monitoring Platform (IMP): Innovative. Merchant-Friendly. Proven To Serve". The IEC emphasized the need for improved awareness, clearer process flow communication, and better

5. Conclusions

The foregoing findings prompted the following conclusions:
1) Merchants value the quality of service delivered through IMP more highly than the system's technical quality or the quality of information it provides. They highly value IMP due to its user-friendly and easy navigation.
2) The majority of the fertilizer merchants have a very high trust in IMP as a reliable tool in expediting their transactions.
3) IMP is perceived as beneficial overall. The advantages of IMP implementation outweigh their associated costs, leading to improved outcomes, users' trust, and satisfaction.
4) The need for extra resources and time, as identified barriers to IMP implementation, may discourage wider adoption, especially among users with limited access to technology or lower digital literacy.
5) Information quality and service quality do not have a direct effect on net benefits, but they indirectly influence them through their impact on trust. Stakeholders' trust mediates the relationship between information and service quality and net benefits, whereas satisfaction does not play this intermediary role.
6) The proposed IEC material is a strategic response to the identified challenges in the implementation of the IMP, offering tailored solutions that enhance usability, accessibility, and stakeholder confidence. By bridging knowledge gaps and promoting inclusive digital participation, it strengthens the overall effectiveness and equity of the Department of Agriculture's service delivery in MIMAROPA.

6. Recommendations

The following recommendations were forwarded to address the identified areas for improvement:
1) To enhance the Interventions Monitoring Platform (IMP), the DA Central Office should simplify its user interface, invest in infrastructure upgrades, and introduce offline capabilities to support areas with poor connectivity. In MIMAROPA, assigning field focal persons to assist merchants can improve engagement, promote accountability, and ensure consistent use. DA management must institutionalize improvements through official guidelines, reinforce transparency, and build stakeholder trust.
2) Municipal Agriculturists are encouraged to actively support the implementation of the Interventions Monitoring Platform (IMP) by serving as frontline advocates and technical guides for farmers and merchants in their respective localities.
3) For fertilizer merchants, who serve as the direct users of the Interventions Monitoring Platform (IMP), it is essential to consistently provide feedback to support the continuous improvement of the system.
4) Lastly, future researchers are encouraged to conduct similar studies using varied methodologies, both quantitative and qualitative, to validate and strengthen the findings of this research. Additionally, it is recommended to test the developed path model in diverse settings to assess its applicability and reliability across different stakeholder environments.

References

[1] Wang, Bo & Dong< Hao (2023) Research on Farmers' Agricultural Digital Service Use Behavior Under The Rural Revitalization Strategy – Based on the Extended Technology Acceptance Model. https://doi.org/10.3389/fenvs.2023.1180072.
[2] FAO. (2021). The state of food and agriculture 2021: Making agrifood systems more resilient to shocks and stresses. Food and Agriculture Organization of the United Nations. https://www.fao.org/publications/sofa/2021.
[3] Estigoy, R. D., & Abon, C. C. (2020). Barriers to the implementation of e-extension services among rice farmers in the Philippines. Journal of Agricultural Technology, 16(2), 455–470.