Multidisciplinary Research Journal
ISSN (online): 3108 – 1533

Volume 2, Issue 2, 2026
April – June 2026

Research Article

Adoption of IT Tools in Supplier Selection: A Pilot Study of Cattle Farmers in Kamrup (M) District, Assam

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Received: Date: 22 October 2025; Accepted: Date: 06 July 2026 ; Published: 15 October 2026

Abstract: This pilot study aims to investigate the degree to which cattle farmers in the Kamrup (M) District of Assam, North-East India, have accepted and embraced information technology [IT] tools in choosing suppliers and for necessary inputs like livestock, equipment, feed and cattle health-care. Grounded in the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) framework, the study examines five constructs, namely Performance Expectancy, Effort Expectancy, Facilitating Conditions, Price Value and Trust, using data from 33 cattle farmers collected through a structured Likert-scale questionnaire. Multiple Spearman correlation tests are also employed along with descriptive analysis. Findings indicate strong positive perceptions of IT in improving supplier decision quality (Performance Expectancy mean: 3.36–3.61) and value recognition (Price Value mean: 3.48–3.64). Significant trust-related barriers like data privacy (mean: 3.73) and information credibility are also found. Facilitating conditions like limited internet access and high IT service costs emerge as the primary adoption barriers. The study contributes a theoretically grounded baseline for understanding digital procurement adoption in rural livestock farming contexts in Northeast India.

Keywords: IT Tool Adoption; Supplier Selection; Cattle Farmers; Livestock Farming; Digital Literacy; Kamrup (M) District; UTAUT2

1. Introduction

Supplier selection is an important managerial task in cattle farming because the choice of vendors for feed, veterinary medicines, breeding inputs and equipment directly influences that shapes animal health, product quality and cost. Historically, small farmers have relied on proximity, personal connections and word-of-mouth to navigate procurement practices. However, this practice restricts their ability to review supplier performance and comapre prices across. Farmers now however, have digital options for searching and comparing suppliers, thanks to the steady spread of information technology (IT), which started with simple mobile tools and has now progressed to platform-style marketplaces. However, it is seen that the knowledge of how these tools actually affect the choice of suppliers in rural livestock settings, particularly in North-East India, is unclear. Agri-food supply chains [AFSCs] nowadays are information-intensive and multi-tiered. Procurement behaviour throughout these supply chains is often influenced by governance decisions made upwards in the chain. Evidence from multi-tier sustainability programmes as studied by Wilhelm et al. [1] demonstrates that information inconsistencies are a fundamental challenge, with top-tier vendors frequently acting as double agents. Not only are they obligated to ensure that standards are followed across lower tiers of the supply chain, but they must also adhere to the requirements of the primary company.

Information technology can help reduce these irregularities, key features including access to larger supplier databases, simpler documentation exchange and traceability records, improved accountability and lower supplier reliability verification costs.

Previous research findings also indicate that supplier selection needs to be structured. Despite being strongly expressed by citizens, animal welfare preferences are frequently overshadowed by stakeholder convenience as shown by studies such as [2]. Purchase decisions automatically prioritise reliable information and reliable verification methods when welfare, health and quality assurances become significant. Biosecurity studies [3] demonstrate how farmers' on-farm practices impact the risk of cattle disease, while strategies targeted at small-scale farmers highlight the impact of service design and market connections on adoption and genetic gains [4].

When taken as a whole, these threads suggest that choosing a supplier is not just a price problem but also involves xonsiderations of credibility, risk management and service quality. Therefore, decisions must be made after receiving the appropriate information.

The role of governing bodies has also been examined in broader supply-chain research. Zero-deforestation pledges and certification programmes yielded inconsistent results without reliable monitoring if public policy is not supportive [5, 6, 7]. Digital tools work best when they are set up as mechanisms for compliance, such as buyer groups or cooperative societies that convert standards into concrete rewards working as motivation for compliance. In Indian food supply chains, cooperation through Farmer Producer Organisations (FPOs) and related platforms has been identified as a mechanism to share information by studies such as [8]. Empirical studies have demonstrated that such coordination frequently passes through intermediary organisations.

Additionally, factors like nutrition, gender and environment all intersect with livestock development, influencing the qualities cattle farmers look for in suppliers. Data from Ethiopian research indicates that household nutrition and the functioning of dairy markets are related [9]. Likewise, research on women's empowerment indicates that inclusive programme designs boost the uptake of animal health services such as vaccination drives, which rely on easily accessible and trust-worthy service providers [10, 11].

Environmentally, discussions about nitrogen pollution such as those by [12] show how policy tools influence production decisions and input markets, while pig system intervention studies such as [13] show that management strategies are intrinsically connected to market structure and reliable guidance.

These global trends collide with local realities in the Kamrup (M) district of Assam in the North-eastern part of India. Although services like phone based searches, peer-to-peer messaging and price comparison have found some experimentation and on ground use-cases, these practices can be particularly found among the younger farmers and those connected to cooperative societies or a broader farmer base. Despite this, the cattle industry remains primarily relationship-driven and decisions are still anchored by long-standing ties to local input retailers and service providers. However, it is important to note that different villages have different levels of network accessibility and digital comfort, which makes it more difficult for farmers to adopt more structured online platforms. Kamrup (M) is a proper setting for examining whether information technology-based features such as searchability, comparability, record- keeping and traceability affect procurement practices because of this combination of preparedness and constraint.

Against this backdrop, the present paper is framed explicitly as an exploratory pilot study.

Working with a bounded sample of 33 cattle farmers in Kamrup (M), this study seeks to:

- Describe current decision practices across key input categories such as livestock, seeds and food;
- Assess the extent and nature of IT usage in those decisions;
- Identify perceived benefits and bottlenecks including skills, infrastructure, trust;

The authors believe this study makes two noteworthy contributions. From a conceptual standpoint, it expands upon supplier-selection conversations, which are generally created for industrial and urban supply chains, into a rural, livestock-based context where information inconsistencies are much more prevalent and where minor improvements in price discovery, quality control and service dependability can have significant effects on the livelihoods of rural cattle farmers. The paper presents a logical framework for assessing which IT features are most important to small cattle farmers. Empirically, it provides preliminary evidence from a small representative sample of North-East Indian cattle farmers regarding the use of information technology in agri-food procurement patterns, studying the perceived advantages of digital comparison and record keeping and the obstacles that keep many farmers stranded in traditionally outdated methods.

Lastly, presenting this work as a pilot study has significant effects on the scope of its claims. The analysis places more emphasis on description, measurement and decision-making than it does on making generalisations of prevalent practices and suggesting policy reforms. It also includes pertinent guidelines for instrument revision and power calculations for future large-scale studies. This approach directly addresses the research gap that existing studies in agriculture and livestock have rarely examined: how digital tools shape the procurement and supplier-selection decisions of small cattle farmers in this region and sets the stage for hypotheses that are testable with richer samples in future work. The analysis is theoretically grounded in the UTAUT2 framework, which provides a validated lens for examining technology adoption in consumer and rural contexts.

2. Literature Review

2.1. Farmer Learning, Experimental Methods and Sustained Change

A consistent theme in agricultural development literature is that farmer knowledge alone is rarely sufficient to produce durable behavioural change. Interventions such as Farmer Field Schools (FFS) have been promoted widely and evidence suggests that they improve farmer competence and decision-making ability, but sustaining these effects over the longer term requires follow-up support and institutional reinforcement [14]. Similarly, studies on livestock-focused programmes show that technical advice on feeding, breeding and animal care leads to productivity gains, but only when combined with continued monitoring and refresher training and follow-up support [15]. These findings highlight that information distribution must be accompanied by mechanisms for refreshment if changes in procurement and supplier selection practices are sustained.

Adoption research also highlights that technology adoption is gradual. Studies on input uptake demonstrate that farmers often engage in trial periods before making commitments, with demonstration mainly driving eventual local adaptation [16, 17]. Such patterns indicate that IT-enabled supplier-selection interventions should be structured as low-risk, testable options, where farmers can gradually build confidence in new procurement channels before shifting fully away from established routines.

2.2. Institutional Arrangements, Collective Action and Scaling

Collective action emerges in the literature as a crucial mechanism to overcome information gaps and market failures. Farmer cooperatives and producer organisations provide platforms for aggregating demand, negotiating better terms and ensuring reliability of supply. Research by the authors of [8] demonstrates that collaborative structures in food supply chains facilitate sustainability, efficiency and innovation. Similarly, research shows that the way policies and programmes are designed influences the extent of farmer response [18]. Incentives that align with farmer needs such as price premiums, easier market access or reliable supply, tend to generate stronger engagement and more lasting adoption.

However, certification and sustainability initiatives that raise compliance costs often risk excluding smaller or poorer farmers [6]. When governance is weak, collective organisations tend to reinforce local inequalities rather than mitigate them. These findings imply that IT-enabled supplier-selection solutions should not be limited to a solitary app or tool but rather embedded within cooperative and institutional frameworks.

2.3. Animal Health, Vaccination and Service Delivery

Research also indicates how farmers' procurement decisions are influenced not only by price and proximity but also by reliability. Adoption of veterinary vaccines, for example, has been constrained by high prices and weak distribution systems, especially in the rural setup. Studies suggest that targeted policy interventions like subsidies, public-private partnerships and improved regulation are needed to make such services accessible and reliable [19]. Beyond price, factors such as the credibility of providers, continuity of supply and farmer trust in product quality play major roles in shaping supplier choice.

Gendered dynamics also influence procurement behaviour. Research indicates that women's empowerment within households increases participation in animal health services, including vaccination and breeding programmes [10, 11]. However, IT tools will fail to reduce inequalities in decision-making if access to information is gendered. Therefore, it is imperative to design platforms that account for women's roles in procurement decisions to broaden adoption and improve household-level outcomes.

Additionally, studies of disease management emphasize that effective interventions require coordinated action across multiple stakeholders, such as producers, suppliers, veterinarians and traders.

Niemi et al. [13] highlight that procurement cannot be treated as an isolated decision, showing how controlling diseases in pig systems required aligning procurement practices with husbandry and market arrangements. This reinforces the argument that IT-based procurement tools must integrate with broader service ecosystems, linking farmers not only to product suppliers but also to external actors like veterinary.

2.4. Sustainability, Certification and Market Governance

Another rich strand of literature examines the role of certification and governance mechanisms in shaping procurement behaviour. The authors of [5] argue that voluntary, private sustainability initiatives, such as zero-deforestation pledges, often fall short of their objectives unless coupled with credible public policy support, monitoring and enforcement. Researched proposed in [7] showed that deforestation control programmes in Brazil worked only when incentives and monitoring were strong enough to influence behavior across the supply chain. [6] emphasized that sustainability certifications can enhance environmental outcomes but also carry risks of excluding small scale cattle-farmers who lack resources.

These findings suggest parallels for IT-enabled supplier selection: credibility of supplier claims matters as much as the claims themselves. Farmers will be more likely to adopt digital tools if they can trust that supplier ratings, certifications or credentials are backed by verifiable evidence. Platforms that tie supplier claims to cooperative endorsements, extension services or third-party certifications are more likely to succeed than those relying solely on self-reported information.

2.5. Methodological Approaches in Agricultural Intervention Research

The reviewed literature also offers insights into methodological approaches suitable for studying procurement and IT adoption. Simulation models and agent-based modelling have been used to examine adoption dynamics under uncertainty, allowing researchers to anticipate bottlenecks before large-scale interventions are rolled out [20]. Mixed-methods research, which combines survey data with qualitative interviews or ethnographic insights, has been particularly effective in unpacking complex behavioural and institutional drivers of adoption [13, 17].

Historical modelling of supply responses illustrates how expectations and policy changes can shape market outcomes over the long run [22]. For researchers studying IT-enabled procurement, these methods highlight the importance of combining descriptive pilots with simulation and system-level modelling. Doing so can reveal both the immediate behavioural changes and the potential longer-term welfare and environmental implications.

2.6. Cross-Cutting Themes: Nutrition, Gender and Resilience

A body of literature underscores that procurement decisions intersect with broader welfare and development outcomes. Research by [9] shows that functioning livestock markets contribute to improved household nutrition, suggesting that reliable procurement practices have indirect but important social benefits. Livestock systems can act as engines of pro-poor growth, provided that interventions are designed inclusively. Studies on gender confirm that women's participation in livestock decision-making influences not only service uptake but also household welfare outcomes [10]. Resilience considerations also emerge. Research by [15] highlights that adaptive capacity in livestock systems depends on the ability to access reliable inputs and services, suggesting that procurement systems are central to resilience. In this respect, IT-enabled procurement tools may serve as a buffer against shocks, by broadening supplier options, reducing dependence on single vendors and increasing access to critical inputs during crises.

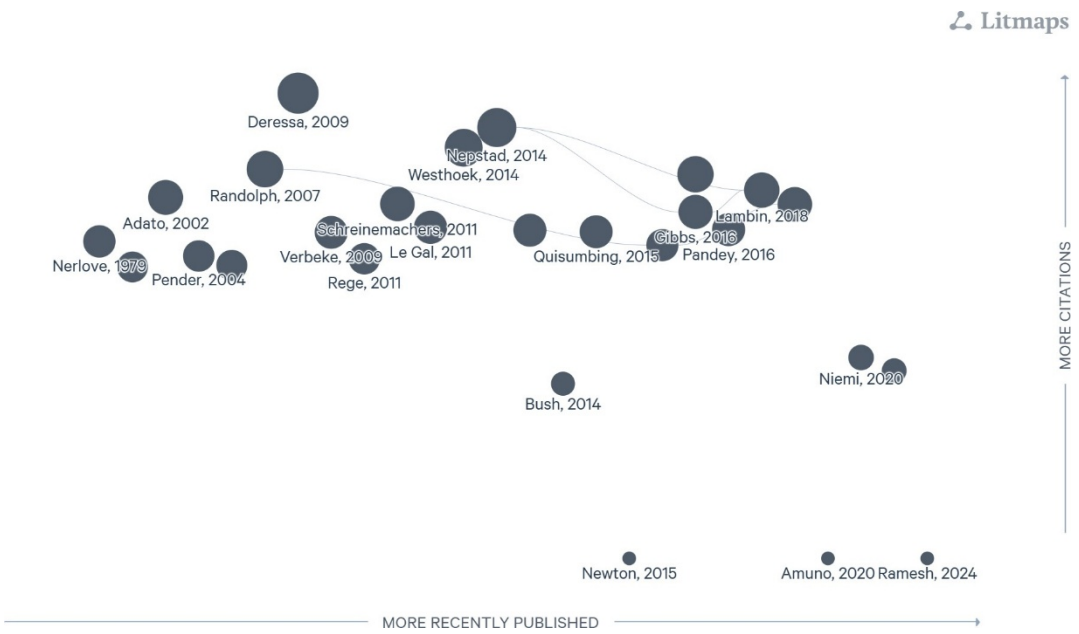


Figure 1. A temporal map showing significant researchers and their works

As we can see in Figure 1, the work by Deresa et al. [21] is the highest cited work in the reviewed literature with over 1.9k citations and Nerlove (1979) [22] is the oldest referenced paper. Figure 1 clearly indicates the authors have tried to collect and reference literature covering a wide time period, from 1979 to recent studies published in 2024.

2.7. Research Gaps

A considerable body of research undertaken on the role of technology and decision-making in agriculture [2, 3, 23] but this is mostly directed at large datasets or generalised farmer population. However, small, region-specific farmer populations have received comparatively limited attention in the literature, especially in case of cattle farming and supplier selection through IT tools in North – East India. The sample size of 33 respondents in our study conducted in Kamrup (M) district of the Indian state of Assam is consistent with the methodology of such precedents in similar, niche and region specific farming and business communities. For instance, the authors of [11] who conducted a focused empirical study on women's participation in livestock vaccination programmes in Northern Ghana involved a sample size of 33 respondents, sensing the limited population size and the regional concentration of the target group. Having limited number of cattle farmers in the region using or aware of IT based tools for supplier selection, we have justified our sample size. The approach recovers context specific which are pertinent for framing regionally adapted IT intervention strategies.

3. Research Methodology

3.1. Theoretical Framework: UTAUT2

This study adopts the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2), developed by Venkatesh et al [24], as its theoretical framework. UTAUT2 extends the original UTAUT model to consumer technology adoption contexts by incorporating three

additional constructs: Hedonic Motivation, Price Value and Habit. The framework identifies seven core determinants of behavioural intention and technology use, namely Performance Expectancy (PE), Effort Expectancy (EE), Social Influence, Facilitating Conditions (FC) from the original UTAUT and Hedonic Motivation (HM), Price Value (PV) and Habit (HB) from the extended UTAUT2.

UTAUT2 has been widely applied in agricultural and rural technology adoption studies. Notably, scholars have extended the model to include Trust as an additional construct in contexts where platform credibility and data security are salient conditions highly relevant to rural farming populations with limited prior experience of digital transactions [25, 26]. UTAUT2 with a Trust extension provides the most theoretically appropriate lens given the pilot nature of the study.

Four constructs are operationalised in this study:

- Performance Expectancy (PE): the degree to which farmers believe using IT tools will help them in supplier-selection quality, cost efficiency and decision-making speed.
- Effort Expectancy (EE): the degree of ease associated with using IT platforms for procurement.
- Facilitating Conditions (FC): the extent to which infrastructure (internet access, the affordability of IT services) supports or constrains adoption.
- Price Value (PV): the comparison between the perceived monetary and time costs of IT adoption and the benefits received.

Along with these four constructs, Trust (TR), the degree to which farmers trust the accuracy and credibility, of digital platform information is also explored.

Frequency of IT platform usage and awareness of IT tools serve as proxies for Behavioural Intention and actual Use Behaviour the dependent variables in the UTAUT2 model. Demographic variables (gender, education, experience and farm size) are treated as moderating variables, consistent with UTAUT2's treatment of age, gender and experience as boundary conditions for each construct-to-intention relationship.

It is acknowledged that not all UTAUT2 constructs are fully operationalised. Effort Expectancy is captured by a single item and Hedonic Motivation is not directly measured in the study. These are identified as limitations and are addressed in the recommendations for future research.

3.2. Research Design

Primary data was collected using a structured questionnaire designed on a five-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree) to assess farmers' perceptions across the UTAUT2 constructs. A sample of 33 cattle farmers from Kamrup (M), Assam was selected using purposive and snowball sampling techniques, consistent with the exploratory pilot study design. Secondary data were drawn from academic literature on IT adoption in agriculture and supply chain management.

The sample size of 33 is consistent with precedents in region-specific, niche agricultural studies. Omondi et al. [11], for instance, also employed 33 respondents in a focused empirical study of livestock vaccination adoption in Northern Ghana. The limited population of IT-aware

cattle farmers in this region further justifies a smaller and bounded sample for an exploratory instrument.

3.3. Tools Used for Data Analysis

Descriptive statistics (mean scores, frequency distributions) are reported for all constructs. Multiple Spearman rank-order correlation tests were conducted to examine relationships between demographic variables and UTAUT2 construct scores. Spearman's rho is used in preference to Pearson's r given the ordinal nature of the Likert-scale data.

4. Data Analysis and Interpretation

4.1. Demographic Profile of Respondents

Table 1. Consolidated Demographic Profile of Respondents

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	18	54.5%
	Female	15	45.5%
Education Level	Primary	02	6%
	Higher Secondary	06	18%
	Graduate and above	25	76%
Years of Experience	Less than 5 years	13	39%
	5–10 years	06	18%
	11–15 years	05	15%
	More than 15 years	09	28%
Farm Size (cattle)	Less than 10	07	21%
	10–20	09	27%
	21–50	12	37%
	More than 50	05	15%

The sample comprises a near-equal gender split (54.5% male, 45.5% female). A majority (76%) hold a graduate or higher qualification, suggesting relatively high educational attainment among this sub-group of IT-exposed cattle farmers. Experience levels are distributed across all brackets, with 39% having less than five years in the trade. Most farms are small-to mid-scale (21–50 cattle, 37%), with only 15% operating at a large scale.

4.2. Construct-wise Analysis: UTAUT2 Framework

4.2.1. Performance Expectancy (PE)

Five survey items capture PE or the perceived usefulness of IT tools in supplier decision-making.

Table 2. Performance Expectancy Items Mean Scores

Survey Item	% Agree/Strongly Agree	Mean Score
Perceived ease of comparing different suppliers due to IT interventions	58%	3.52
Effectiveness of IT tools in enhancing supplier selection decisions	55%	3.61
Reliance on data from IT platforms to assess cattle health and quality	49%	3.36
Perception of IT tools in improving efficiency of supplier selection process	64%	3.58
Role of real-time data access through IT platforms in improving deal negotiations	58%	3.55

Performance Expectancy is the strongest construct in this sample. Across all five items, respondents broadly agree that IT tools improve supplier comparison, selection quality and health assessment and provide negotiation advantages. The highest mean (3.61) relates to IT tools helping farmers make better supplier selection decisions. The lowest mean (3.36) for cattle health and quality assessment via digital platforms suggests that physical inspection remains the dominant practice and the transition to data-driven quality assessment is still nascent.

4.2.2. Effort Expectancy (EE)

Effort Expectancy is measured by a single item on perceived difficulty in using IT platforms for supplier selection. The mean score is 3.06, the second-lowest across all survey items, with 36% reporting challenges and 30% reporting no difficulty. The relatively low mean indicates that difficulty of use is a widespread concern, not confined to a minority, a more significant barrier than that which the Performance Expectancy perceptions suggest. This points to a real need for improved interface design and digital literacy support. The limited operationalisation of this construct to a single item is acknowledged as a methodological constraint and is prioritised for instrument revision in future scaled studies.

4.2.3. Facilitating Conditions (FC)

Two items capture Facilitating Conditions: the external infrastructure enabling or constraining adoption.

Table 3. Facilitating Conditions Items Mean Scores

Survey Item	% Agree/Strongly Agree	Mean Score
Impact of limited internet access on effective use of IT-based solutions	46%	3.36
Influence of IT service costs on the adoption of digital platforms	44%	3.25

Facilitating Conditions present a notable adoption barrier. Almost half the respondents identify limited internet connectivity as impeding effective IT use a finding consistent with the documented digital infrastructure gap in Northeast India. IT service cost is similarly flagged by 44% of respondents as an adoption deterrent, while 19% do not view cost as significant, suggesting heterogeneity within the sample possibly linked to income level.

4.2.4. Price Value (PV)

Price Value captures the perceived economic and time benefits of IT adoption. Two items address time savings in the selection process (mean: 3.64, 61% agree) and cost reduction in supplier search (mean: 3.48, 48% agree). Time savings emerge as the clearer perceived benefit — consistent with the real-data finding that time savings score higher than cost reduction — possibly because time savings are more immediately observable than abstract cost comparisons. The relatively high proportion of neutrals on cost reduction (46%) suggests that the cost-benefit calculus has not yet crystallised for many respondents, consistent with their early-stage engagement with digital tools.

4.2.5. Trust (TR) Context Extension

Three items are mapped to the Trust construct, which is introduced as a context-appropriate extension to the UTAUT2 model, following established precedents in agricultural technology adoption research.

Table 4. Trust Items Mean Scores

Survey Item	% Agree/Strongly Agree	Mean Score
Level of trust in information provided by digital platforms when selecting suppliers	39%	3.42
Influence of digital information on supplier reliability in purchase decision-making	52%	3.39
Concerns regarding data security and privacy when using digital platforms	67%	3.73

Trust presents a paradox. While 52% of respondents acknowledge that digital supplier reliability information influences their purchase decisions, only 39% actually trust the information provided by digital platforms. Most strikingly, 67% express data security and privacy concerns, the highest agreement percentage across all survey items. This suggests that although farmers recognise the instrumental value of digital supplier data, distrust constitutes a substantial adoption barrier that pure performance or cost arguments cannot overcome.

4.2.6. Behavioural Intention and Use Behaviour Proxies

Awareness of IT tools (42% aware, 46% neutral; mean: 3.36) and frequency of platform usage (49% report regular use, 36% rarely or never; mean: 3.03) serve as proxies for Behavioural Intention and Use Behaviour respectively. The relatively low mean on usage frequency (3.03, the lowest across all items) compared to the positive PE perceptions reveals an attitude-behaviour gap: farmers recognise the value of IT tools more readily than they act on that recognition. This gap is theoretically consistent with UTAUT2's framing, where facilitating conditions and trust moderate the translation of positive expectations into actual use.

4.3. Spearman's Correlation Analysis

Given the ordinal nature of the Likert-scale data, Spearman's rank-order correlation (rs) was computed to examine the relationships between demographic variables and key UTAUT2 construct proxies. Table 5 presents the results.

Table 5. Spearman Correlation Matrix Demographics vs. UTAUT2 Construct Proxies (n = 33)

	IT Awareness (BI proxy)	IT Usage Frequency (UB proxy)	PE: Ease of comparison	FC: Internet barrier	TR: Data security concern
Education level	$r_s = 0.15$, $p = 0.404$	$r_s = 0.15$, $p = 0.417$	$r_s = -0.01$, $p = 0.963$	$r_s = -0.24$, $p = 0.173$	$r_s = -0.11$, $p = 0.561$
Years of experience	$r_s = -0.04$, $p = 0.827$	$r_s = -0.10$, $p = 0.585$	$r_s = 0.09$, $p = 0.624$	$r_s = 0.06$, $p = 0.759$	$r_s = -0.18$, $p = 0.327$
Farm size (cattle)	$r_s = 0.15$, $p = 0.404$	$r_s = 0.06$, $p = 0.748$	$r_s = 0.14$, $p = 0.434$	$r_s = 0.23$, $p = 0.202$	$r_s = 0.23$, $p = 0.203$

None of the correlations reached conventional statistical significance ($p < 0.05$) at n = 33, which is expected for a pilot study of this size. The p-values range from 0.173 to 0.963, confirming no statistically reliable associations between demographic variables and the selected UTAUT2 construct proxies in this sample. The rs values themselves are predominantly weak ($|r_s| < 0.25$), with the strongest coefficients being education level vs. internet barrier ($r_s = -0.24$) and farm size vs. internet barrier and data security concern (rs = 0.23 each).

Still, the direction of these weak associations is informative. More educated farmers tend to report slightly less internet-access friction ($r_s = -0.24$), consistent with the expectation that educational attainment correlates with digital literacy. Farm size shows a consistent positive direction with both awareness and data security concern. Larger farms may have more at stake in digital adoption decisions. The near-zero experience correlations ($r_s = -0.04$ to 0.09) suggest that years in cattle farming alone do not predict IT adoption in this sample.

These directional patterns generate testable hypotheses for a larger follow-up study. Statistical non-significance here reflects power limitations, not the absence of theoretically meaningful relationships.

5. Findings of the Study

This study examines the following areas: (a) sociology, (b) psychology and (c) education.

Interpreted through the UTAUT2 lens, the following findings emerge from the pilot study:

1. Performance Expectancy is the main positive driver of the intent to adopt digital tools. Cattle farmers broadly recognise IT tools as improving supplier comparison, decision quality and health assessment. Mean scores across PE items range from 3.36 to 3.61, with particular strength in better decision-making and efficiency perceptions.
2. Trust is the most critical adoption barrier. Data security and privacy concerns command the highest agreement among any survey item (67%, mean 3.73). This is compounded by moderate platform information trust (39% agree) and partial reliance on digital supplier

reliability data (52% agree), creating a trust deficit that positive performance perceptions alone cannot overcome.

3. Facilitating Conditions constrain adoption independently of motivation. Limited internet access (46% barrier agreement) and IT service costs (44%) represent structural barriers that cannot be resolved through awareness or training interventions alone.
4. An attitude-behaviour gap exists between PE recognition and actual use. Usage frequency (mean 3.03) is the lowest-scoring item in the entire survey, while PE items cluster at 3.36–3.64. Farmers value IT tools more than they use them
5. Demographic correlations are directionally consistent but statistically underpowered at n = 33. Farm size and education level show the strongest directional relationships with IT awareness and usage frequency, suggesting these are priority moderator variables for larger follow-up studies.

6. Suggestions and Conclusion

6.1. Suggestions

- Platform developers need to prioritise data security and privacy as these have come up as the biggest adoption barriers.
- Rural internet infrastructure investment remains a prerequisite for realising the perceived benefits of IT tools. It is essential for policymakers to make interventions targeting better digital connectivity.
- IT platform interfaces should be designed for low digital literacy contexts too.
- Subsidised or cooperative-model access to IT services can reduce the Price Value barrier, particularly for smaller farms.
- A larger-scale follow-up study with $n \geq 100$ is recommended to achieve statistical power sufficient for full UTAUT2 hypothesis testing, including moderation analysis and, potentially, PLS-SEM for latent construct modelling.

6.2. Conclusion

This study examined IT tool adoption for supplier selection among cattle farmers in Kamrup (M), Assam, through the theoretical lens of UTAUT2. The results reveal a landscape of strong latent potential. Farmers recognise the performance and time-saving benefits of digital procurement tools, but are held back by deficits in infrastructure and deep-seated concerns regarding platform trust and data security.

The UTAUT2 framework organises these findings coherently: Performance Expectancy and Price Value perceptions are positive, but Trust barriers and weak Facilitating Conditions suppress the translation of positive intent into regular usage behaviour. Demographic correlations suggest that education level and farm scale merit attention as moderating variables in future research.

This pilot contributes a theoretically grounded baseline for understanding digital transformation in Northeast India's livestock farming sector and establishes the measurement framework and directional hypotheses for a larger, statistically powered follow-up study.

Multidisciplinary Domains

This research covers the domains: (A) Agri-based supply chains, (B) Digital Literacy, (C) Livestock farming

Funding

This research received no external funding.

Conflicts of Interest

No conflicts of interest are disclosed by the authors.

Declaration on AI Usage

The authors declare that AI has been used for grammar checking.

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