

DIGITAL ADOPTION DRIVERS INFLUENCING OVERALL PERFORMANCE OF GROCERY RETAILERS SELLING ONLINE IN THE NORTHERN DISTRICTS OF KERALA

Dr. Arunpriya S¹, Hashik P P²

Professor and Head (I/C), Department of Commerce, Dr. N.G.P.Arts and Science College Coimbatore,
Tamil Nadu, India¹

Research Scholar, Dr. N.G.P.Arts and Science College Coimbatore, Tamil Nadu, India²

Abstract: The rapid growth of digital platforms has considerably renovated the grocery retail promotions, specifically facilitating the grocery retailers to operate and reach beyond the boundaries of physical stores. This work explores the adoption of digital drivers influencing the overall strategic performance of grocery retail outlets selling online in the district of North Kerala. The objective is to study the digital adoption drivers influencing overall performance of grocery retailers selling online. The researcher obtained 480 grocery retailers from the study area. The grocery retailers selling online were selected by using convenient sampling method. Statistical Tools such as Percentage Analysis, Descriptive Statistics, Correlation and Regression are used for the study. Result shows digital adoption drivers fluctuate in their effects on performance outcomes. Significant association was found positive with digital readiness and perceived benefits demonstrating that adequate infrastructure and acceptance of digital world offers more vital support to strategic performance. In conclusion, the result highlights that a consistent digital initiative turns the online grocery retail business into strategic, sustainable and profitable.

Key Words: Grocery Retailers, Digital adoption, Online Selling, Strategy, Performance, etc.

INTRODUCTION

The rapid growth of digital platforms has considerably renovated the grocery retail promotions, specifically facilitating the grocery retailers to operate and reach beyond the boundaries of physical stores. Grocery retailers from the district of North Kerala are intensively adopting online channels changing themselves towards the digital world and consumer preferences, augmenting consumer need towards convenience also the aggressive market pressure. In this context digital adoption is not a limit for online selling alone but covers various drivers that includes digital readiness, perceived benefits, supply chain efficacy and level of adoption. These combinations of drivers shapes the retail stores turn into digital hub ensuring smooth operations and influence retailers to improve their efficiency, market reach and consistent long term growth.

Comprehending the impact of digital drivers on strategic performance becomes important, as retailers scatter widely in digital adoption, execution capacity and perceived value of operating online. While the base aspects like digital readiness and infrastructure, supports online engagement, performance outcome are highly associated to the efficient utilization of online channels and the efficacy of supply chain coordination. By evaluating these interlinks offers insights thus, ensuring the transformation of digital initiatives into operational efficiency, revenue growth, competitive advantage and sustainable business progress. Therefore, this work explores the adoption of digital drivers influencing the overall strategic performance of grocery retail outlets selling online in the district of North Kerala.

LITERATURE REVIEW

Purkayastha et al. (2023) examines the part of consumer operating societal resources in determining value creation towards grocery selling online. This work explores the consumer knowledge, digital based skill and interaction with peer-network facilitates to integrate the firm resources and customers, thereby inducing purchase related intentions. By

obtaining primary data among online Indian grocery users through online survey, evaluating the associations that are empirically tested by adopting statistical tools like PLS and SEM models. The observations showed that utilization of social resources that includes sharing platform links, suggestions and promotional details among social network offered a positive perception among customers encouraging loyalty, perceived value and repeated usage intentions. The work highlights that grocery retailers engaged in selling online can intensify their performance by encouraging customer participation thus, elevating their business performance.

Tomar (2024) investigates the main facets that are influencing satisfaction among consumers while shopping groceries online in a non-metropolitan setting in India. The investigations aimed to evaluate the functional aspects that are interface design, convenience, security, trust and efficiency of delivery influencing satisfaction level of consumers. A structured instrument was used to collect the responses and the tools used are reliability test for internal consistency, factor analysis and regression analysis to evaluate the relationships. The results displayed significant relationships among explanatory constructs like convenience, design of platform, transaction security and delivery reliability in predicting satisfaction among customers, however, price incentives did not found to achieve significance due to the absence of reliable service quality. In conclusion, consistent progress in non-metro localities depends purely on reliable service backing rather than relying solely on price promotional strategies.

Sundar and Bhattacharjee (2025), in their work evaluated consumer behaviour in adopting the emergent quick-commerce or e-platform grocery segment in India. This research adopted the dimensions like TAM, Perceived value and logistics performance to elucidate the utility behaviour and re-purchase intentions. Data were collected from users actively engaged in adopting instant grocery apps while, SEM was used as statistical technique for examining direct and indirect effects. The observations denotes that the perception of consumers on convenience and perceived value have significant influence on user attitude, while, accuracy in delivery, transparency and reliability play a crucial role in constructing the trust among users towards sustained usage. Indirect effect was observed among social influence and habitual usage on attitude. In conclusion, sustained competitiveness in e-commerce grocery retailing is based on dependable logistic system and value of timely delivery influencing sustainable growth.

PROBLEM STATEMENT

Inspite of the augmented move towards online grocery retailing in the district of North Kerala, many retailers keep on experiencing irregular performance outcomes while adopting digital platforms. Few retailers' articulate enhancements in operational efficacy, growth in sales volume and online platforms support to reach distant markets, while few others scuffle to transform digital ideas into consistent strategic gains due to disparity in digital readiness, supply chain efficacy and the actual level of online adoption. This absence provides a clear understanding of how these digital adoption drivers collectively influence overall strategic performance builds ambiguity for retailers in planning or prioritizing their digital venture. Accordingly, there a need arises to empirically examine the function of key digital adoption drivers in determining the overall performance of grocery retailers selling online in the district of North Kerala.

OBJECTIVE OF THE STUDY

➤ To study the digital adoption drivers influencing overall performance of grocery retailers selling online in the northern districts of Kerala

METHODOLOGY

The research methodology denotes the general plan of organizing the process for obtaining suitable and dependable data for the rationale of research. The present work uses both primary data systematically obtained from grocery retailers in the district of North Kerala and secondary data collected from various sources. A well-structured questionnaire was prepared as an instrument among retailers adopting online platform for selling groceries. The researcher obtained 480 grocery retailers from the study area. The grocery retailers selling online were selected by using convenient sampling method. Statistical Tools such as Percentage Analysis, Descriptive Statistics, Correlation and Regression are used for the study.

HYPOTHESIS

A hypothesis is a tentative statement about the relationship between two or more variables. It is a prediction that describes in concrete (rather than theoretical) terms what is expected in the study and what has happened. Therefore, the hypothesis is classified as null hypothesis and alternate hypothesis.

H₀: Level of online adoption does not significantly influence the strategic performance

H₁: Level of online adoption significantly influence the strategic performance

H₀: Digital Readiness does not significantly influence the strategic performance

H₁: Digital Readiness significantly influence the strategic performance

H₀: Perceived Benefits does not significantly influence the strategic performance

H₀: Perceived Benefits significantly influence the strategic performance

H₀: Supply Chain Efficacy does not significantly influence the strategic performance

H₀: Supply Chain Efficacy significantly influence the strategic performance

ANALYSIS AND RESULTS

Frequency Analysis

Statistical results are presented in this section intended to examine the empirical results with regard to impact of adopting digital drivers on overall strategic performance based on the perception of retailers selling grocery through online in the district of North Kerala. The retailers profile computed using frequency analysis followed by descriptive statistics measuring the (mean, SD and Cronbach's alpha) of the four predictor constructs like digital readiness, perceived benefits, supply chain efficacy, level of online adoption and the outcome variable was overall strategic performance.

Table 1: Grocery Retailers Profile

Sl.	Retailer Profile	Frequency (N-480)	Percent (%)
1.	Type of Retail Outlet		
	Kirana / Traditional Grocery	148	30.8
	Super market / Mini market	332	69.2
2.	Business Experience		
	Less than 5 years	123	25.6
	6 to 10 years	192	40.0
	More than 10 years	165	34.4
3.	Store Location		
	Urban	161	33.5
	Semi-Urban	171	35.6
	Rural	148	30.8
4.	Store Size (Sq.Ft.)		
	Upto 600 Sq.ft.	108	22.5
	600 to 1000 Sq.ft.	224	46.7
	More than 1000 Sq.ft.	148	30.8
5.	Channel of Sales		
	Own Website or App	105	21.9
	WhatsApp Group	181	37.7
	Market Place (Swiggy / Zepto, etc.)	128	26.7
	Others (Insta/Facebook, etc.)	66	13.8

Grocery retailers profile Table 1 initially exhibits the Type of retail outlet in which three hundred and thirty two (69.2%) retailers operating organized retail format while 148 retailers are engaged in Kirana / Traditional Grocery store. With regard to business experience as high as 192 retailers possess 6 to 10 years experience, while 165 grocery retailers have more than 10 years experience and 123 (33.5%) retailers possess less than 5 years experience. It is evident that most retailers possess high operationally maturity naturally persuade to adopt online platforms to augment their business performance. With regard to location of the stores, distribution was almost found even among Urban 161 (33.5%), Semi urban 171 (35.6%) and Rural 148 (30.8%) across the district of north Kerala indicating online services comfortably reaches beyond the city limits. Size of the store speaks more about the space to stack the stocks for selling either ways (offline and online) shows the highest 224 retailers (46.7%) indicated store space from 600 to 1000 sq.ft. while, 148 retailers (30.8%) mentioned more than 1000 sq.ft., 108 retailers (22.5%) opined upto 600 sq.ft. of operational space. With

regard to channel of promotion, as high as 181 (37.7%) retailers adopted WhatsApp groups for selling groceries online, while, 128 retailers (26.7%) adopted market space like Swiggy / Zepto, etc. for online selling, 105 retailers (21.9%) created their own webspace or App for selling and the least 66 retailers (13.8%) stated other methods like Instagram / Facebook like social media platforms. Though digital adoption is increasing among grocery retailers, most of them adopt generally used methods like Whatsapp, Swiggy, etc. rather than developing websites or applications which is relative lower than the generic platforma.

Descriptive Statistics

Table 2: Perception on Digital Readiness

Items	Mean	SD	Cronbach's Alpha
Adequate digital infrastructure at store supports managing online orders.	3.90	.950	0.840
Easy integration of customers digital payment system.	3.98	1.006	
Records like inventory and billing are digitally maintained at store.	3.77	1.062	
Frequent updates helps improving the digital systems.	3.86	1.035	

Descriptive statistics measures the mean and standard deviation based on perception of retail grocery sellers towards digital readiness to sell groceries online. Therefore, the agreement of grocery retailers was high (M=3.98, SD=1.006) with regard to integrating ease of digital payment system for customers followed by digital infrastructure adequacy supporting the retailers to manage online orders (M=3.90, SD=0.950) while retailers agreed that the frequency of updating their digital systems (M=3.86, SD=1.035) to sell groceries through online, finally, maintenance of records like billing and inventory are made easy through digital adoption (M=3.77, SD=1.062). Reliability of digital readiness construct (0.840) was strong and consistent collectively provided by the items of the construct. To sum up, adopting digital platforms improves the ease of order processing and transactions of the stores.

Table 3: Perception on Perceived Benefits

Items	Mean	SD	Cronbach's Alpha
Online selling supports to reach consumers beyond local area.	3.31	1.542	0.858
Customer convenience and satisfaction immensely increased by online platforms.	3.32	1.502	
Brand viability improved selling through online	3.38	1.472	
Long term profitability and potency increased through online selling	3.48	1.414	

Descriptive statistics with regard to Perceived benefits perceived by retail grocery sellers through online reveals the agreement levels with the highest (M=3.48, SD=1.414) perception on increased potency and long term profit realisation for selling groceries through online, followed by brand viability support to improve online selling (M=3.38, SD=1.472) while perception of retailers on augmented increase in customer convenience and satisfaction adopting online platforms (M=3.32, SD=1.502), finally, online selling supports to reach consumers beyond local vicinities (M=3.31, SD=1.542). Reliability of perceived benefits construct (0.858) was strong and consistent enough collectively recorded by four items of the construct. To sum up, adopting digital platforms increases the perceived benefits for retailers as well as grocery merchants.

Table 4: Perception on Supply Chain Efficacy

Items	Mean	SD	Cronbach's Alpha
Consistently deliver orders to customers on time.	3.71	1.012	0.722
Effectively managing perishable items effectively through online sales.	3.81	.964	
Store coordinates well with delivery partners for order fulfillment.	3.76	1.063	
Stock availability is maintained accurately for online orders.	3.36	1.476	

Descriptive statistics with regard to perception on supply chain efficacy among retail grocery sellers through online in North Kerala district shows the agreement levels registering the highest ($M=3.81$, $SD=0.964$) perception with regard to efficacy in managing perishable items adopting online sales, followed by perception on good coordination store and delivery partners to fulfill the orders ($M=3.76$, $SD=1.063$) while retailers perceived consistency in delivering orders to customers on time ($M=3.71$, $SD=1.012$), finally, accurate maintenance of stock availability while entertaining orders online ($M=3.36$, $SD=1.476$). Reliability of perception on supply chain efficacy construct (0.722) was found reasonable enough collectively recorded by four items of the construct. To sum up, adopting digital platforms increases the supply chain efficacy of the grocery retailers selling online.

Table 5: Level of Online Adoption

Items	Mean	SD	Cronbach's Alpha
Customer orders are handled through digital platform.	3.73	1.059	0.759
Our regular customers mostly use online channels for ordering.	3.65	1.070	
Store frequently involved in using digital payment.	4.21	.958	
Online sales contribute significantly to overall business revenue.	3.84	1.049	

Descriptive statistics with regard to perception on level of online adoption among retail grocery sellers in the study area shows the agreement levels recording the highest ($M=4.21$, $SD=0.958$) perception with regard to high frequency of adopting digital platforms for customer payments, followed by perception on significant online sales contribution to achieve the overall business revenue ($M=3.84$, $SD=1.049$) while retailers agreed that their customer orders are handled smoothly through digital adoption ($M=3.73$, $SD=1.059$), finally, the regular customers of retail grocery merchants frequently using online channels for ordering products ($M=3.65$, $SD=1.070$). Reliability of perception on level of online adoption construct (0.759) was found good enough collectively recorded by four items of the construct. To sum up, level of online adoption supports the grocery retailers to enhance their online transactions, online payments and business revenues.

Table 6: Overall Strategic Performance

Items	Mean	SD	Cronbach's Alpha
Digital tools have improved the Operational Efficacy	4.15	1.055	0.879
Online adoption has increased the Sales Growth & Market Reach	4.30	.935	
Online activities have strengthened our competitive position.	4.17	.954	
Online selling has improved Business Sustainability & Strategic Performance	4.21	.964	

Descriptive statistics with regard to perception on overall strategic performance by adopting online grocery shows the agreements of retailers recording the highest ($M=4.30$, $SD=0.935$) perception with regard to increase in sales growth and market reach, followed by perception on sustainable improvements in business increases the strategic performance by selling through online ($M=4.21$, $SD=0.964$) while retailers activities through online selling has strengthened the competitive position of grocery retailers ($M=4.17$, $SD=0.954$), finally, digital tools have improved their operational efficacy of retail grocery sellers ($M=4.15$, $SD=1.055$). Reliability collectively recorded by four items of the construct based on perception on overall strategic performance construct shows the internal consistency $\alpha=0.879$ was sound enough. To sum up, the overall strategic performance of adopting selling through online indicates improvement in operational efficacy, sales growth, market reach, sustainability and competitive position enhancing strategic performance among grocery retailers.

CORRELATION AND REGRESSION ANALYSIS

Table 7: Relationship between Digital Adoption Drivers and Overall Strategic Performance

Variables	Mean	SD	r	Sig.	N
Overall Strategic Performance	4.21	.838	1.000		480
Level of Online Adoption	3.85	.788	.511	.000	
Digital Readiness	3.88	.833	.368	.000	

Perceived Benefits	3.37	1.242	.421	.000	
Supply Chain Efficacy	3.66	.847	.533	.000	

From the sample of 480 grocery retail in the district of north Kerala shows their perception on adoption of digital drivers to sell their groceries online and the outcome based on overall strategic performance shows the descriptive results (mean and SD) and the correlation among four predictors are strong compared with outcome variable Level of Online adoption ($M=3.85$, $SD=0.788$), strongly associated ($r=0.511$, $P=0.000$) with the strategic performance, likewise for Digital readiness ($M=3.88$, $SD=0.833$), exhibits moderate association ($r=0.368$, $P=0.000$) with the strategic performance, while, perceived benefits ($M=3.37$, $SD=1.242$), shows moderately strong association ($r=0.421$, $P=0.000$) with the strategic performance and finally Supply chain efficacy ($M=3.66$, $SD=0.847$), reveals strong association ($r=0.533$, $P=0.000$) with the strategic performance ensuring meaningful correlation among the explanatory and outcome constructs.

Result proved effective utilization of online platforms by retailers for selling grocery indicates augmented strategic business outcome. The coefficient results were not only positive but also had achieved the statistical significance at 1% levels substantiating that advancements in digital readiness ensures perceived benefits and the efforts to improve supply chain efficacy works well in achieving consistent performance levels of adopting digital platforms by retailers to sell groceries through online.

Table 8: Model measuring Digital Adoption Drivers on Overall Strategic Performance

Model			ANOVA	
Constant	:	1.400	Sum of Squares	
Std. Error	:	0.181	126.845	210.178
t-value (Sig.)	:	7.740** (0.000)	Mean Square	
R	:	0.613	31.711	.442
R Square	:	0.376**	F(df=4,475)	
Adjusted R Square	:	0.371	71.667**	
Std. Error	:	0.665	Sig.: 0.000	

**Significant at one per cent level, *Significant at five per cent level, NS: Not Significant

Overall strategic performance with regard to online promotion by grocery retailers explains the correlation coefficient ($R=0.613$) observed strong, while model explains 37.6% ($R^2=37.6\%$ and $Adj. R^2=37.1\%$) was also found the be good enough confirming the precision. ANOVA reflects fitness of the digital adoption drivers while predicting the Overall strategic performance proving statistical significance of $F(4,475)=71.667$, $Sig.0.000$ showing good relationship between the independent (digital drivers) and outcome (Strategic performance) variables.

Table 9: Collinearity Statistics

Variable	Tolerance	VIF
Level of Online Adoption	.632	1.583
Digital Readiness	.744	1.343
Perceived Benefits	.621	1.611
Supply Chain Efficacy	.575	1.738

Impact of digital adoption drivers on overall strategic performance Indication multi-collinearity did not reveal any concern with the predictor variables that includes Level of online adoption (Tolerance=0.632, VIF=1.583), Digital readiness (Tolerance=0.744, VIF=1.343), Perceived Benefits (Tolerance=0.621, VIF=1.611), Supply Chain Efficacy (Tolerance=0.575, VIF=1.738). It is clear that the tolerance threshold of digital adoption drivers (predictors) is more than 0.1 and the Variance Inflation Factor (VIF) of the predictors are also less than 0.5 that indicates well within the threshold, thus, confirming no excessive correlation among independent variables ensuring the reliability of regression coefficients. All predictors are found unique when explaining variations in the model. Graphical representation of P-P plot (Figure-1) further substantiates the multi-collinearity results.

Figure 1: P-P Plot measuring distribution

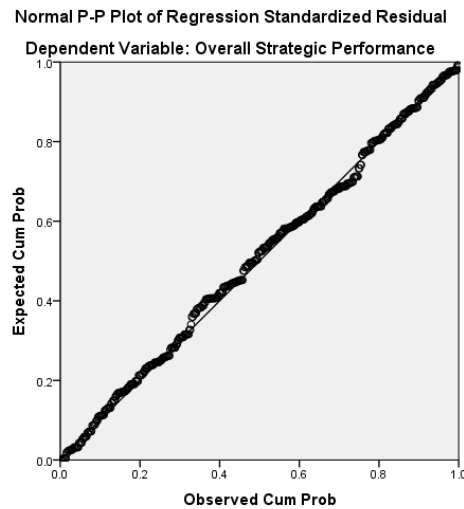


Table 10: Impact of Digital Adoption Drivers on Overall Strategic Performance

Variable	Unstd. Coeff.	Std. Coeff.	SE	t (p. value)
Level of Online Adoption	.289	.272	.048	5.959** (0.000)
Digital Readiness	.096	.096	.042	2.275** (0.023)
Perceived Benefits	.058	.086	.031	1.881** (0.061)
Supply Chain Efficacy	.308	.311	.047	6.521** (0.000)

Positive impact was predicted by the explanatory constructs viz. Level of Online Adoption ($B=0.289$, $\beta=0.272$, $SE=0.048$, $t=5.959$, $P=0.000$) observed significant (1%) followed by Digital Readiness ($B=0.096$, $\beta=0.096$, $SE=0.042$, $t=2.275$, $P=0.023$); Supply Chain Efficacy ($B=0.308$, $\beta=0.311$, $SE=0.047$, $t=6.521$, $P=0.000$) whereas, Perceived Benefits ($B=0.058$, $\beta=0.086$, $SE=0.031$, $t=1.881$, $P=0.061$) achieved significance only at 10% level. Perception of retailers shows relationship between predictor constructs (digital drivers) having strong positive impact on Strategic Performance while selling retail grocery through online.

SUMMARY OF RESULTS

Profile of Grocery Retailers

- It is clear that most (69.2%) of the retailers possess supermarket / mini market type retail outlets.
- It is observed that more than one third possess 6 to 10 years or more than 10 years experience respectively.
- Even distribution observed among store location in which semi-urban topped the highest (35.6%)
- Nearly half (46.7%) retailers operate with the store space from 600.to 1000 sq.ft.
- More than one third (37.7%) grocery retailers adopt common group channel like WhatsApp group for sales.

Descriptive Statistics

Observations shows, the retailers strongly perceive incorporating digital tool to conduct operation on a day to day basis had improved their efficiency and exclusively specifying adoption of digital payment system. Further, other factors like handling orders online, sales with the support of online platforms also contributed significantly elevating operational efficacy as well augmenting revenue generation.

Descriptive and Correlation

Grocery retail in the district of north Kerala shows their perception on adoption of digital drivers to sell their groceries online and the outcome based on overall strategic performance shows that the descriptive results are above the mid range (3.00) with a narrow spread of Standard deviation around the mean indicating strong positive agreeableness among retail grocery sellers also the correlation coefficient results are found positive when comparing the digital drivers (predictors) and overall strategic performance (outcome) indicating meaningful relationships among the explanatory and outcome constructs.

Regression

Result shows a unit increase in level of online adoption / digital adoption enhances strategic performance by 0.289 units, likewise, a unit increase in digital readiness elevates digital strategic performance by 0.096 units, while, a unit increase in perceived benefits elevates digital strategic performance by 0.058 units finally, a unit increase in supply chain efficacy elevates digital strategic performance by 0.308 units. Further, it is observed that considering the standardized coefficient results supply chain ranks 1st (0.311) followed by level of online adoption (0.272), digital readiness (0.096) and Perceived benefits (0.086) perceived by the groceries retailers using online platforms.

To sum-up, the results reveal those digital adoption drivers fluctuate in their effects on performance outcomes. Efficiency in Supply chain and the level of online adoption display a significantly positive association with overall strategic performance, indicating the necessity of online platforms fulfilling orders effectively, having sync with delivery partners, and dynamic adoption of online channels. Significant association was found positive with digital readiness and perceived benefits demonstrating that adequate infrastructure and acceptance of digital world offers more vital support to strategic performance.

SUGGESTIONS

- Retailers selling grocery online shall strengthen continuous supply chain coordination, specifically maintaining inventory accuracy and the uninterrupted delivery to any customer beyond vicinity, ensures fulfillment of committed service quality selling online.
- Though the common platform was mostly adopted by retail outlets, consistency in information updates encourages customers repeatedly to place orders; also the apps shall be updated frequently and shall be made user friendly that shall encourage the customers smoothly to place orders.
- Continuous promotion, digital readiness with order management updates, payment technology updates not only elevates operational efficacy but also increases scalability
- Retailers shall specifically focus to communicate the benefits of online ordering to consumers this can enhance the perceived value of the store and encourages the customer to frequent adopt online platform therefore, increasing the growth performance and revenue of the grocery outlet.

CONCLUSION

In conclusion, adopting digital platforms play a significant part in elevating the overall strategic performance of the grocery sellers through online in the district of North Kerala. The observations demonstrates that the digital readiness and perceived benefits play a foundation role in achieving the strategic performance was further strongly driven by the efficacy of supply chain and the level of online adoptions. Grocery retailers who successfully incorporate digital procedures tirelessly performs their day to day operations, making certain that orders are fulfilled consistently and reliably with the coordination of digital partners who supports constantly to deliver groceries to the distant vicinities thus, ensuring continues business progress. Overall, the result highlights that a consistent digital initiative turns the online grocery retail business into strategic, sustainable and profitable.

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