

An Examination of Competitive Analysis in E-Commerce across Districts in Madhya Pradesh

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Abstract—The academic and expert community is increasingly focusing on the learning process of SMEs and e-commerce, given the significant role that SMEs play in contributing to the nation's income. Due to their limited resources, SMEs require a robust and emotionally driven learning process to enhance their contribution to economic development through e-commerce. Therefore, it is essential to examine the factors influencing e-commerce adoption among SMEs. While existing research predominantly focuses on larger firms or organizations, this study aims to delve into the key factors of e-commerce adoption among SMEs in Madhya Pradesh, India. Special attention is given to factors such as increased opportunities and competitive pressure within the industry. The study employs a comprehensive research design, including surveys distributed to CEOs and managers from various regions. Despite receiving only 135 completed surveys out of the 300 distributed, the data is analyzed using various methods such as frequency, readiness, descriptive, relational, and regression analysis. The study evaluates the competitive pressure, relative advantage, and e-commerce adoption in the Indore district of Madhya Pradesh, using MATLAB 7.14 software for analysis. The experimental results demonstrate the effectiveness of the proposed approach.

Index Terms—Competitive Pressure, Relative Advantage, E-Commerce Adoption, accuracy of transactions and business growth percentages

I. INTRODUCTION

Competitor analysis is a strategic method that companies or brands utilize to compare themselves against other players in the industry on key aspects such as online presence, pricing, service offerings, well-crafted marketing strategies, social media, and more. It involves a comprehensive process of observing and evaluating the products, marketing, and well-crafted designs of the competition. The analysis also provides a combination of qualitative and quantitative observations to assess the strengths and weaknesses of your top competitors. How well your business compares to your competitors on these fronts determines your level of competitiveness. With this information, you can gain insights into potential untapped opportunities for your online business, leverage strengths, and be aware of potential threats. By understanding what your competitors are doing, you can make informed decisions for your marketing strategies.

II. REVIEW OF LITERATURE

Friedkin, N.E. (1993) Examining the relationship between personal power and power dynamics within the context of organizational discussions. By controlling for foundational sources of power (such as rewards, coercion, authority, identification, and expert knowledge), I identify three sources of power that emerge from the network structure of groups (cohesion, centrality, similarity, and prestige). Analyzing

longitudinal data on individuals' sources of group power, frequency of interactions between individuals, and their impact on power dynamics reveals that cohesion, centrality, similarity, and prestige significantly influence power dynamics beyond the initial power sources. The impact of structural sources of power is moderated by the frequency of issue-related communication. The primary structural factor influencing the frequency of issue-related communication is network cohesion.

Flynn, L.R., Goldsmith, R.E., & Eastman, J.K. (1996) conducted research on developing multiple item scales to measure leadership quality and decision-making efforts in specific product or service fields. They established a common quality framework for leadership and decision-making, critiqued previous measurement attempts, and successfully developed scales through five distinct phases involving data from 1,128 respondents. The study provided substantial evidence for the reliability, validity, and predictive power of the developed scales. Finally, implications for leadership theory and marketing strategies were discussed.

Friedkin, N. E.(2001) presents a framework for the organization of normal part structuring and support that integrates Greek and Latin theory in grouping psychology on perspectives and grouping comparisons with a formal network theory of grouping influence. The structuring of normal ways of acting is underpinned by the pervasive belief that there is a correct move for every position, and an inclination for individuals to base their actions on these

correct foundations. Given such a belief, a reinforcement of a feeling, thought, or action is likely to arise when individuals become aware that their positive or negative reinforcement is shared by one or more influential others. If agreements between individuals shape perspectives and lead to changes in behaviors towards normal ways of acting, then the development of a theory of normal part structuring may build upon existing "combinatorial" theories of general agreement production that explain how shared perspectives are generated and supported in groups. The network theory of grouping influence that I utilize is one such combinatorial approach. An important sociological implication of this network theory is that the alignment of normal ways of acting must be in accordance with the grouping process of establishing levels (or more general instances of irregularity) of interpersonal effects in a group. I illustrate the theory with examples and Dickson's (1939) seminal observations on the Bank Wiring Observation Room.

Cowles, D. L., Kiecker, P., & Little, M. W. (2002) have provided store owners with varying levels of success as they strive to incorporate new technology into traditional retail practices. Despite some uncertainties, the rise of online retailing has been evident, yet the lack of a solid theoretical framework guiding e-retailing decisions remains a challenge for retailers. We argue that the internet presents a unique environment that requires experts to contribute to the development of knowledge and understanding in this field. Qualitative research and observational methods can significantly contribute to e-retailing theory and decision-making processes. We share insights from a key informant learning process involving e-retailers, laying the groundwork for a comprehensive framework for integrating online retail into traditional practices.

Shenton, A. K. (2004) has provided that while many individuals may be hesitant to accept the validity of qualitative research methods, frameworks for ensuring rigor in this type of work have been established for quite some time. Guba's models, in particular, have gained significant recognition and hold a prominent position in this field. Researchers strive to offer clear examples and guidelines in order to establish Credibility. They aim to demonstrate that an accurate portrayal of the phenomenon being studied is being presented. In terms of transferability, researchers provide sufficient contextual details of the study area for readers to determine if the findings can be applied to similar settings they are familiar with. Ensuring Dependability in qualitative research is challenging, but researchers should strive to enable future researchers to replicate the study. Lastly, researchers must ensure that the findings are derived from the data itself and not influenced by personal biases. The paper concludes by emphasizing the importance of educators in guiding learners to adhere to rigorous qualitative research practices.

Geiger, S., & Turley, D. (2005) have provided a comprehensive analysis of the impact of social interactions

on business-to-business industries. Despite the lack of research in this area, their study highlights the potential benefits and drawbacks of interpersonal relationships in a professional setting. By examining qualitative data, the authors demonstrate that social interactions can enhance both the transactional and relational aspects of buyer-seller interactions. Specifically, the findings suggest that close relationships between buyers and sellers are built on shared experiences and interactions outside of the office environment. The study emphasizes the importance of carefully designed social interactions in improving business relationships and calls for further research in this area to enhance the overall exchange of goods and services.

Zhou, K. Z. (2006) conducted a study that compares the impact of innovative designs and meticulously crafted imitations on the performance of new products, examining their effectiveness under varying market conditions in China. Through a comprehensive analysis of data collected from various industries, it was found that, when compared with imitated designs, innovative designs result in superior new product performance. Furthermore, the advantage of innovative designs over imitated ones is more pronounced in situations where market demand is uncertain, technology evolves rapidly, and competition intensifies. The author contrasts these findings with predictions made in previous Western literature and discusses the implications of these results in the context of China's unique market characteristics.

Sharma, A., & Mehrotra, A. (2007) In the last two decades, especially in the month leading up to Christmas, several carefully crafted strategies have emerged in business-to-business marketing. These strategies allow businesses to reach out to customers in multiple ways, expanding their reach. Additionally, these strategies enable customers to reach out to businesses using various channels (e.g. the internet, supply chain, or added value). The potential increase in customer reach through multiple channels (e.g. supply chain, trial, profit) is not entirely offset by the potential negative effects of these channels. Firstly, multiple channels create competition that may deter some customer segments from purchasing the firm's product. Secondly, as the number of channels through which the product is sold increases, the revenue generated from each new channel decreases, making it difficult for a business to recoup its initial investment. Taking these factors into consideration, the paper presents a framework that will help businesses optimize their channel mix in multichannel environments. We apply the framework in the context of a software business and provide high-level guidance for managing follow-ups.

Zott, C., & Amit, R. (2007) Examine the relationship between a firm's product market carefully crafted design and its business design to be imitated. We have developed a framework to analyze the impact of product market carefully crafted design and business design to be imitated choices on firm performance. We conduct a unique, hand-collected

dataset, and find that innovation-oriented business imitations combined with product market carefully crafted designs that emphasize differentiation, cost leadership, or early market entry can enhance firm performance. Our findings suggest that business design to be imitated and product market carefully crafted design are complements, not substitutes.

Brinkmann, J., & Voeth, M. (2007) examined the possibility of replacing Greek and Latin person getting support or goods overviews with predictions of future events based on group giving money for decisions. They conducted a two-step observation process. In the first step, they asked questions related to the future operation of various measurement processes in the exchange of goods force, considering self-expressed desires and fixed addition scales. In the second step, they compared the predictions made by a Greek and Latin person getting support or goods using limited observations with the future statements derived from the exchange of goods force. The results indicated that when evaluating the exchange of goods force, limited observations were more accurate than self-expressed desires. Regarding the measurement of control, no significant differences were found between the two methods. The main finding was that predictions based on the exchange of goods force were not only more cost-effective but also more reliable than those from the person getting support or goods.

Coulter, K. S., & Roggeveen, A. (2012) have presented a study on the impact of providing information on group donations for online purchases, the potential limitations on the number of items purchased, and the duration of the offer. The aim of the research is to demonstrate that by disclosing such information, the perceived value of the items available for purchase may decrease under certain circumstances. The methodology involved an analysis of current online data followed by a 222-participant experiment to illustrate the psychological processes at play. The findings suggest that informing users about previous purchases can positively influence their decision to buy from an online group donation platform. Setting a limit on purchases can enhance this effect, but providing information on the expiration time of the offer may diminish its impact, especially if the timeframe is lengthy. Perceived value and anticipated regret were identified as mediating factors. It is important for retailers to pay attention to the timing of information disclosure and align it with the purchase process on group donation platforms. This study is innovative in its exploration of how these mediating factors can influence online purchase decisions.

T., Sun, L., Zhu, C., & Sohal, A. S. (2012) have paid special attention to the new product development (NPD) process of conducting observations. This learning process examines and validates a theory of complementarities between the introduction of new technology and the adjustment of support or goods by individuals. Furthermore, this learning process provides detailed insights into the relationships between different perspectives on the

adjustment of support or goods by individuals and the development of new products. The data is derived from 176 manufacturing companies in China. This learning process evaluates the initial hypothesis that three dimensions of support or goods adjustment have a direct impact on new product outcomes, and it reveals a diminishing relationship between support or goods adjustment and new product development. Regression results indicate that (1) the primary location of support or goods, the integration of support or goods, and interactions with support or goods do not significantly affect new products; (2) the introduction of new technology significantly contributes to the integration and interactions with support or goods. The implications of these findings are discussed in relation to a Contingency theory of downward movement through support or goods adjustment, future observational practices, and management strategies.

Cheng, H.-H., & Huang, S.-W. (2013) With the rise of e-commerce, numerous dotcom businesses are engaging in cross-border and cross-industry product trading. Managers of online group buying businesses are striving to increase user participation and product sales in the face of competition. Online group buying refers to a group of users joining together via the internet to collectively purchase a product at a discounted price. This study examines the factors influencing participation in online group buying and the relationship between intention and behavior. The research methodology is based on system design theory, electronic network infrastructure, and online quality assessment. A total of 373 participants from the ihergo online platform were surveyed, and the data was analyzed using partial least squares regression to identify factors influencing user behavior and intention in online group buying. The findings suggest that system quality, perceived usefulness, and intention significantly influence online group buying behavior. This study contributes to the understanding of electronic commerce and provides insights into the factors influencing participation in online group buying, thereby advancing e-commerce and network theory.

Shiau and Luo (2013) conducted a study on the behavior of online group giving money for goods and found that user pleasure, trust, and power of invention for trading money are key factors in predicting the purpose of making connections in this context. Their findings indicate that reciprocity, trust, pleasure, and power of invention for trading money have significant explanatory power for online group giving money for behavior.

Bled, Slovenia. Ong, C.E (2016) has contributed significantly to the field of complaint handling in e-commerce by providing insights into ways users seek compensation or resolution for issues that arise during online business transactions. It also emphasizes the importance of maintaining user trust and confidentiality. The study of resolution processes has garnered much attention, particularly in the context of traditional litigation methods in offline businesses. This research focuses on the various

resolution methods users turn to when dealing with e-commerce complaints, based on the experiences and perspectives of a specific group of online users and traders in Melbourne, Australia. The findings highlight the importance of having immediate access to efficient and responsive resolution mechanisms when issues arise in online transactions. This indicates that relying solely on traditional litigation for dispute resolution may not be the most effective approach for users or traders.

Two hypotheses are posited as follows:

H₁: A notable correlation exists between relative advantage and the adoption of E-commerce among small and medium enterprises (SMEs) in the district of MP.

H₂: A significant relationship can be observed between competitive pressure and the adoption of E-commerce among SMEs in the district of MP.

III. METHODOLOGY

The operation offered involves observing and analyzing the practices adopted by managers in small and medium-sized enterprises (SMEs) in the state of India. This study aims to understand how these SMEs, particularly in terms of their competitiveness and opportunities, manage their e-business operations. The data collection process includes distributing questionnaires to respondents, who will be asked about the factors influencing their e-business strategies. The responses will be used to create a structured questionnaire for SME managers in the state of India. A random sample of four SMEs will be selected for this study to ensure unbiased results. The questionnaire will focus on various aspects of e-business management, with a particular emphasis on factors discussed in existing literature. The questions have been specifically designed for this study based on relevant sources such as daily records, newspapers, and online articles. The questionnaires will be distributed electronically to potential respondents, with some being handed out in person to ensure a higher response rate. Additionally, the study will explore the benefits of social media platforms like Face book in enhancing business practices.

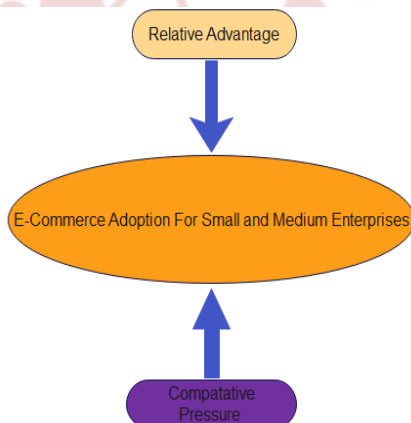


Figure1: Conceptual Framework

IV. ANALYSIS AND FINDINGS

Approximately 300 question forms were distributed, with 130 forms being completed in Alirajpur district, 120 in Dhar district, 127 in Barwani district, and 125 in Khandwa district. The response rates were approximately 43.61% in Alirajpur, 40% in Dhar, 42.61% in Barwani, and 41.61% in Khandwa. Potential reasons for non-response include issues related to the respondents' occupation, computer errors, and the unavailability of the intended recipients. We conducted Descriptive Statistics, Reliability Analysis, Correlation Analysis, and Regression Analysis for the mentioned districts.

A. Descriptive statistics

Table 1 provides an overview of Alirajpur district, showing suggested not-fixed effects ranging from 1.2407 to 3.2117. The suggested values for more chances and competition force over a given square unit are 2.6834 and 3.1117, respectively. Additionally, the size, range, and degree of e-commerce adoption is indicated as 1.2407. The respondents generally agreed with the questions in terms of more chances and competition force over a given square unit. However, a majority of the respondents either do not use or only occasionally use e-commerce in their organization for the size, range, and degree of e-commerce adoption.

Table 1: District Alirajpur Descriptive Analysis

Variables	Mean	Standard Deviation
Relative Advantage	2.6834	0.63349
Competitive Pressure	3.2117	0.47675
The extent of E-commerce Adoption	1.2407	1.01635

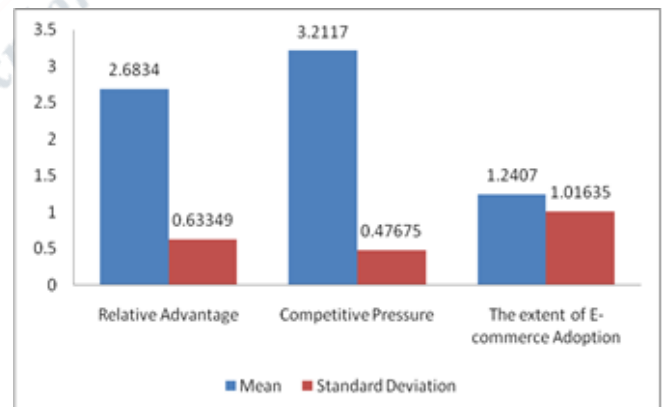


Figure2: Comparison between Mean and SD

Table 1 illustrates that the quality example amount deviates significantly from the expected value for the size, range, and degree of e-commerce adoption, with a value of 1.01635. This deviation indicates that the quality example amount for the size, range, and degree of e-commerce adoption is relatively high. Furthermore, the quality example

amount deviates from the expected value for the size, range, and degree of e-commerce adoption, with values of 0.63349 and 0.47675, indicating a lower deviation in terms of opportunities and competitive pressure per unit area. Respondents are credited for these deviations as the values are lower than the expected value.

B. Reliability analysis

The quantity of items for each random effects and the initial Cronbach's alpha were clearly presented in Table 2. During this educational process, any item on the list deemed unimportant will be removed to ensure the highest level of readiness for measurement. Referring to Sekaran (2009), the closer the readiness coefficient is to 1.00, the better the instrument generally, as a readiness level above 0.80 is considered good, while those below 0.60 are deemed poor.

Table 2: Reliability Analysis

Variables	Number of Items	Cronbach Alpha
Relative Advantage	6	0.872
Competitive Pressure	4	0.723
The extent of E-commerce Adoption	9	0.862

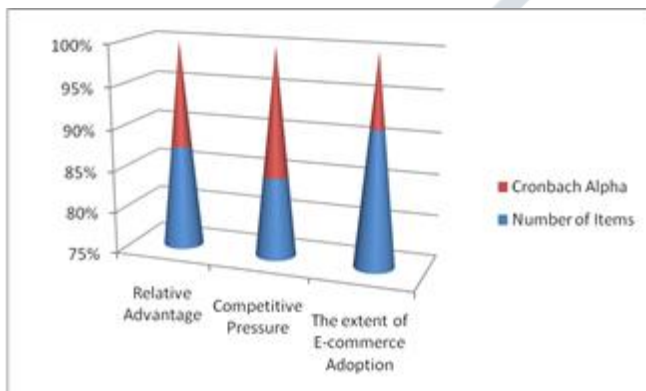


Figure3: Number of Items and Cronbach Alpha With Variable

All non-fixed effects were considered based on Table 2, with values ranging from 0.723 to 0.862. This indicates that, in terms of opportunities and the extent, scope, and intensity of e-commerce adoption, the readiness for operational coefficient remains consistent.

C. Correlation analysis

The Pearson's correlation is tasked with investigating the relationship between a minimum of 2 continuous variables. Davis (1997) guideline stated that a correlation coefficient of 0.70 or higher signifies a very strong relationship, while a coefficient between 0.30 and 0.49 indicates a moderate relationship, and a coefficient of 0.10 suggests a very weak relationship between the 2 continuous variables.

Table 3: Correlation Analysis

Relative Advantage	Competitive Pressure	Extent of E-commerce adoption among SMEs
1		
0.668	1	
0.825	0.835	1

Note: * Correlation is significant at 0.05 levels (2-tailed)
** Correlation is significant at 0.01 levels (2-tailed)

Based on the data presented in Table 3, it is evident that there is a strong and positive relationship between the extent of e-commerce adoption and various factors such as size, range, and degree of involvement. This relationship is quantified by an r-value of 0.825 or 82.5% at a 99% confidence interval. According to Davis (1997), this correlation can be considered significant. Furthermore, the significance of this relationship is confirmed at the 0.05 level (2-tailed). Previous studies have also supported the notion that increased opportunities are positively associated with the implementation of e-commerce. Another notable finding is the strong correlation between competitive forces within a specific market segment and the extent of e-commerce adoption among SMEs, with an r-value of 0.835 indicating a very strong relationship. This correlation is significant at the 0.01 level (2-tailed), further reinforcing the importance of competitive dynamics in influencing e-commerce adoption.

D. Regression Analysis

According to the data presented in Table 4, the coefficient for the quality example is 0.559 in relation to increased opportunities, while the competition force over a given square unit is 0.229. The r-square value indicates that 58% of the variation in the size, range, and degree of e-commerce adoption can be attributed to the non-fixed effects of increased opportunities and competition force over a given oval unit.

Table 4: Regression Analysis (Dependent variable: The extent of E-commerce adoption among SMEs)

Independent Variables	Beta	Significance value (Sig.)
Relative Advantage	0.559**	0.000
Competitive Pressure	0.229**	0.001

In the interim, the p-value is compared with the first or top value (usually 0.05), and if it is small, it can be inferred that the independent non-fixed effect consistently influences the dependent non-fixed effect. Upon reviewing Table 4, it is evident that the independent non-fixed effects related to higher probabilities (P= 0.000) and competitive force over a given area (P= 0.001) have a statistically significant relationship with the size, scope, and level of e-commerce adoption among SMEs. These findings can be used to predict

future trends in e-commerce adoption among SMEs in the central region of India. In summary, higher probabilities and competitive force have a significant impact on e-commerce adoption among SMEs in the central region of India.

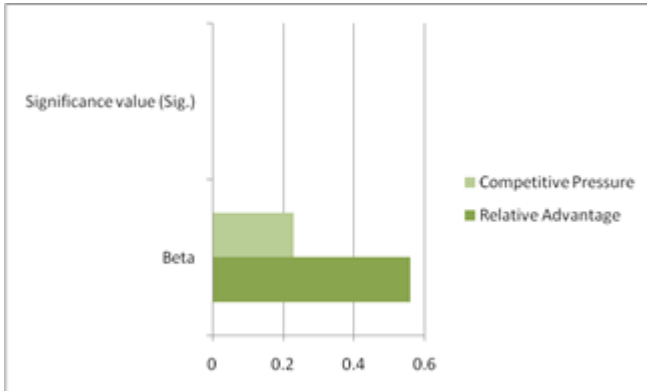


Figure 4 Number Beta and Significance value

Table 5: Summary of the Hypotheses testing results from Multiple Regression Analysis

Hypothesis	Remarks
There is a relationship between Relative Advantage and E-commerce adoption among SMEs in Middle state of India.	Supported
There is a relationship between Competitive Pressure and E-commerce adoption among SMEs in Middle state of India.	Supported

Table 5 clearly illustrates a brief summary of the initial concept testing outcomes derived from multiple regression analyses. The initial concept suggesting a correlation between increased opportunities and e-commerce adoption among SMEs in the central region of India is confirmed. Similarly, the second concept proposing a link between competitive pressure within a specific area and e-commerce adoption among SMEs in the central region of India is also validated.

V. DISCUSSION AND CONCLUSION

From the findings of the study on the learning process (refer to Table 5), it is evident that having control over more opportunities significantly influences the implementation of e-commerce among SMEs. The results of this study build upon previous research, which highlighted the importance of recognizing these opportunities for the successful adoption of e-commerce among SMEs. However, these findings contradict the observations made by Soh et al. (1997) in Singapore and the experiences shared by Soh et al. (2003), which indicated that a large number of SMEs were hesitant to embrace the benefits of e-commerce. This study emphasizes that those who adopt e-commerce must believe that it can not only enhance business transactions, expand market reach, reduce costs, and create new business opportunities, but also

improve relationships with customers and suppliers. While competition may influence the readiness to adopt e-commerce, this study challenges the notion that competition significantly impacts the future adoption of e-commerce, as suggested by Chang (2006). The study suggests that contextual factors, such as societal development and maturity, play a crucial role in determining the success of e-commerce adoption among SMEs. Furthermore, these findings are not consistent with previous studies conducted under the OTE framework.

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