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FACTORS INFLUENCING THE GROWTH OF E-COMMERCE IN BANGLADESH

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ABSTRACT

This paper highlights the interaction of the aspects that are as long as insights into how stakeholders can address barriers and capitalize on prospects to ensure justifiable growth in the e-commerce segment in Bangladesh. Study explores the key features prompting the growth of e-commerce in the country. Its things to see the rapid development of internet infiltration, the increasing affordability of smartphones, and the expanding youth demographic as prime drivers of evolution. The need for premeditated investments in digital substructure, consumer instruction, and governing contexts to sustain the mounting route of e-commerce in Bangladesh. The findings make available valued insights for policymakers, entrepreneurs, and stakeholders directing to capitalize on the prospects in this dynamic segment. This study makes available a comprehensive synopsis of the existing landscape, potential evolution areas, and strategic commendations for stakeholders to foster a robust e-commerce ecosystem in Bangladesh.

Key words: e-commerce, factors, challenges, environment, industry, MFS, digital.

I. INTRODUCTION

The e-commerce segment in Bangladesh has experienced amazing growing in the recent years, driven by a combination of technological advancements, economic progress, and changing consumer behaviour. The combination of social media as a marketing tool has further amplified the conspicuousness and reach of e-commerce industries. The COVID-19 pandemic further enhanced the shift to online spending as lockdowns and health concerns pushed more customers and trades toward into the digital stages [1]. Initiatives like "Digital Bangladesh" has shaped an encouraging situation for trades to squeeze digital change, while digital imbursement systems such as bKash, Nagad, Rocket and Upay has abridged transactions for a population earlier contingent on cash [2]. Moreover, the rise of social media advertising has permitted small and medium-sized enterprises (SMEs) to enter the e-commerce ecosystem, catering to both urban and rural clienteles. However, the journey of e-commerce in Bangladesh is not deprived of its encounters. Logistics and supply chain inefficiencies pose momentous hurdles, often important to deferred distributions and amplified costs [3]. By considerate the aspects, stakeholders can develop strategies to exploit on opportunities and moderate the risks, thereby fostering a robust and resilient e-commerce ecology.

II. LITERATURE REVIEW

A. Application of dependent and independent variables

In this research engrossed on the factors influencing the growth of e-commerce in Bangladesh, categorizing the dependent and independent variables as like as:

- **Dependent variable:** 'Growth of e-commerce' is the primary dependent variable in this study. It can be measured concluded numerous indicators such as:
  - Revenue growing, Number of lively users, Market infiltration and Transaction volume
- **Independent variables:** The features that are hypothesized to impact the growth of e-commerce. Here, some of the significant independent variables are:
  - Internet penetration, Mobile financial services (MFS), Government initiatives, Customer confidence, Logistics structure, Digital knowledge, Product diversity and quality, Cultural factors.

B. Hypotheses development

Based on the independent and dependent variables, below hypotheses can be formulated:

- **H1:** Higher internet penetration completely influences the growth of e-commerce
- **H2:** Increased implementation of MFS leads to a sophisticated rate of e-commerce transactions.
- **H3:** Strong government care and initiatives significantly increase the growth
- **H4:** Higher levels of customer trust are accompanied with increased contribution.
- **H5:** Enhanced logistics structure positively influences customer satisfaction
- **H6:** Greater digital literacy among customers contributes to higher acceptance rates.
- **H7:** A diverse range of products and high-quality contributions positively influence consumer procuring behavior in the e-commerce area.

C. Research questions

In this research, e-commerce in the context of Bangladesh, firstly, has developed the central research questionnaires. And secondly, has developed the questionnaire for supplementary research. The key observations stated as:

- Central research questions:
  - What is the current situation of e-commerce in Bangladesh?
- Supplementary research questions:
  - What are the outcomes of the PESTLE analyses of e-commerce in Bangladesh?
  - What changes are required to foster the growth of this sector?

III. RESEARCH FOCUS AND INTEGRATED FRAMEWORK OF ADOPTION

The research is designed for the factors influencing the growth of e-commerce. It also observes the barriers, openings, and encounters associated with the growth in developing economies.

A. Research design and Integrated framework with factors impacting of e-commerce adoption:

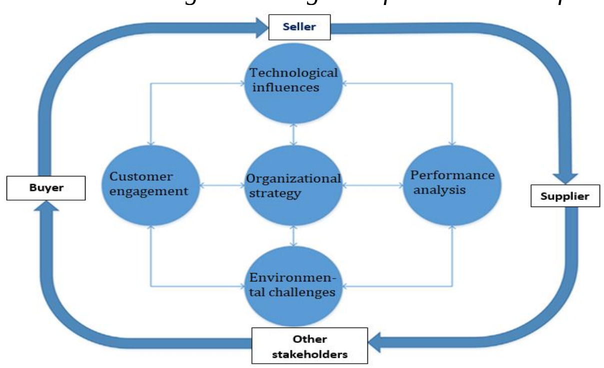

Figure 1: Research and area focus

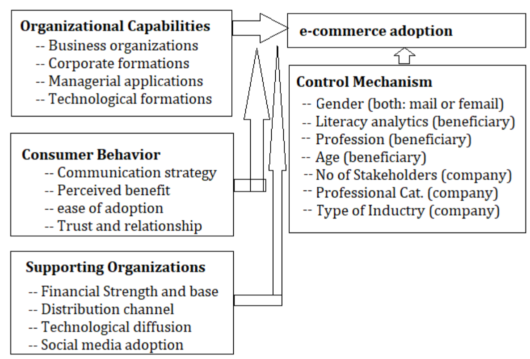

Figure 2: Integrated framework of adoption

Increasing internet penetration is likely to have an inspiring effect on e-commerce progress. Customer trust levels can vary broadly explore how growing trust that measured through surveys, influences the willingness to participate. Analyzing the effect of logistics proficiency that was measured by distribution times and trustworthiness at the different performance levels as like as poor, average, excellent, which could be provided the insights into how logistics impacts e-commerce growth [4]. The level of numerical literacy among customers is another critical variable. The Sensitivity breakdown could assess the effects of growing digital literacy levels that are low, medium, high, on the e-commerce platforms participation rates in the country.

B. Data analysis

To rate the challenging factors for purchaser perspective, 55 customers participated. They were ranked from every factor from 1 to 5 category where 1 is strongly disagree and 5 is strongly agree. The participants were asked also to describe their view and give some analytical information's also. To get 'appropriate and accurate information' was visited and observed the country top classes 05 (five) e-commerce industry, that are: Daraz, Chaldal, Bikroy.com, Othoba.com, Pathao. The most critical objective of data gathering is ensuring that information-rich and reliable data is collected for numerical analysis so that data-driven results can be made for research.

- Data collection
- Model expansion
- Scenario testing
- Judgmental Analysis and error identifications
- Interpretation of results and review the Task

IV.RESEARCH METHODOLOGY

To comprehensively explore the factors influencing the growth, a mixed-methods research approach was applied. This methodology combines quantitative and qualitative techniques to provide a holistic view of the changing aspects at play.

A. Data Collection Methods

- **Primary Data Collection**
  - **Surveys**: Use structured questionnaires directing:
    - Consumers both of the urban and rural areas
    - E-commerce businesses, associated Top five e-commerce industry
  - **Interviews**: Conduct semi-structured interviews with:
    - E-commerce entrepreneurs
    - Logistics providers
    - Government bureaucrats and relevant policy makers
    - IT specialists
  - **Focus Groups**: To gather in-depth perceptions into consumer predilections and challenges.

- **Secondary Data Collection**

  We know, Secondary data refers to data that has already been collected, processed, and published by others. In this study:
  - Analyze industry reports, government periodicals, and academic articles.
  - Review online data from Bangladeshi e-commerce stages and trade bodies

B. Key Factors to Investigate

- **Technological**:
  - Cyberspace penetration.
  - Mobile and digital imbursement systems.
- **Economics**:
  - Income levels and buying power.
  - Influence of remittances.
- **Social**:
  - Customer trust in online stages.
  - Cultural arrogances towards e-commerce.
- **Logistics & Substructure**:
  - Delivery systems.
  - Accessibility of warehouses.
- **Policy & Regulation**:
  - Government strategies
  - Taxation and lawful frameworks.
- **Market Competition**:
  - Entry of global players.
  - Role of resident startups.
  - Ethical Reflections
  - Confirm participant confidentiality and information protection.
  - Obtain informed consensus from all contributors.
  - Avoid biased inquiries in surveys and discussions.

V.LIMITATIONS, RESULTS AND DISCUSSIONS

A. Limitations

The progress of e-commerce in Bangladesh faces quite a lot of boundaries, which includes:

- Insufficient Internet Penetration
- Payment Structure
- Logistics and Distribution Encounters
- Regulatory Context
- Confidence Issues
- Technological Blockades
- Power Supply Difficulties

B. Results

- Despite the challenges, some features have positively influenced the growth of e-commerce:
- Expanding Internet and Smartphone Usage
- Youth Demographics
- Government Initiatives
- Social Media Platforms
- Pandemic Consequence
- Expansion of Local Marketplaces

C. Discussions

The progress of e-commerce in Bangladesh is formed by a combination of prospects and encounters:

- Corresponding of Urban and Rural Development
- Structure of Consumer Confidence
- Implementation of Digital Payments
- Logistics and Distribution Resolutions
- Role of SMEs
- Rule and Policy formation
- Sustainability

From the sources of Secondary data collection, some key challenges are summarized in the Table 1 (Customer Perspective) and Table 2 (Company Perspective) correspondingly.

Table 1: Challenges (Customer perspective).

Sl #	Challenges
1	Product Quality and Authenticity
2	Delivery Issues
3	Limited Return and Refund Options
4	Payment Barriers
5	Limited Access and Digital Literacy
6	Lack of Trust in E-commerce Platforms
7	Technological Challenges
8	Limited Variety in Rural Areas
9	Cybersecurity Concerns
10	Cultural and Behavioral Barriers

Table 2: Challenges (Company perspective)

Sl #	Challenges
1	Logistics and Delivery Challenges
2	Payment System Challenges
3	Regulatory and Policy Issues
4	Market Competition
5	Customer Trust and Retention Issues
6	Technological Barriers
7	Infrastructure and Operational Issues
8	Scalability Challenges
9	Limited Digital Ecosystem
10	Economic and Political Factors

For Table 1 and Table 2, each feature had been rated on a Likert scale (1-5). 1, 2, 3, 4 & 5 that specified the strongly disagreed, disagreed, neutral, agreed & strongly agreed correspondingly. To filter the substantial factors, One Sample T-test was applied. Then the RII process was applied to rank the filtered aspects by shaping their relative standing.

A. *Numerical Results*

These numerical insights emphasize the rapid development of e-commerce in Bangladesh, driven by internet connectivity, a young population, mobile financial services, and government strategies. After converting the data into a five-point Likert scale have executed the t-test analysis by using SPSS application. And had fixed the level of confidence as of 90%. So, a t-value (significant percentage) below 10% was accepted, and the otherwise rejected.

In this case, the Null Hypothesis, H_{0n} = The nth factor is Significant

And, Alternative Hypothesis, H_{an} = The nth factor is not significant.

Where, n is the serial number of each challenging factor.

Here, the Table 3, displays the statistical parameters of challenges that is 'Customer Perspective' and that are includes Mean, Standard (stndrd) Deviation, Standard (stndrd) Error Mean.

Table 3: Statistical parameters of challenges (Customer Perspective)

One sample statistic					
Sl#	Challenges	N	Mean	Stndrd Deviation	Stndrd Error Mean
1	Product Quality and Authenticity	55	2.51	0.374	0.050
2	Delivery Issues	55	2.75	1.504	0.203
3	Limited Return and Refund Options	55	3.11	1.453	0.196
4	Payment Barriers	55	3.31	1.216	0.164
5	Limited Access and Digital Literacy	55	3.63	1.402	0.189
6	Lack of Trust in E-commerce Platforms	55	3.21	1.328	0.179
7	Technological Challenges	55	2.95	1.439	0.194
8	Limited Variety in Rural Areas	55	3.27	1.482	0.200
9	Cybersecurity Concerns	55	3.81	1.502	0.203
10	Cultural and Behavioral Barriers	55	3.48	1.463	0.197

Observations:

- **Cybersecurity Concerns**: By means of the highest mean (3.81), it is a major issue. Efforts to the strengthen online security structures are complex.
- **Limited Access and Digital Literacy**: The trials are associated to the education and internet access persist the significant barriers.
- **Cultural and Behavioral Issues**: These entail the targeted involvements, such as campaigns to build trust and encourage digital implementation.
- **Product Value and Authenticity**: While rated lower, continuing high product standards remains essential for customer retaining.

Here, Table 4, indicates all challenging features from customer analysis, the implication value is less than 10%. This specifies that failed to reject the null hypothesis for those challenging features. In the case have to reject the null hypothesis values.

Table 4: One sample t-test for Challenges from Customer Perspective

Sl#	Challenges	Test Value = 2.5					
		t	df	Sig (2-tailed)	Mean Difference	90% Confidence Interval of the Difference	
						Lower	Upper
1	Product Quality and Authenticity	0.518	54	0.607	0.01	-0.07	0.09
2	Delivery Issues	2.195	54	0.033	0.25	0.03	0.47
3	Limited Return and Refund Options	4.135	54	0.000	0.61	0.39	0.83
4	Payment Barriers	5.005	54	0.000	0.81	0.59	1.03
5	Limited Access and Digital Literacy	3.087	54	0.003	1.13	0.85	1.41
6	Lack of Trust in E-commerce Platforms	6.129	54	0.000	0.71	0.48	0.94
7	Technological Challenges	1.415	54	0.163	0.45	0.19	0.71
8	Limited Variety in Rural Areas	3.554	54	0.001	0.77	0.50	1.04
9	Cybersecurity Concerns	2.964	54	0.004	1.31	0.92	1.70
10	Cultural and Behavioral Barriers	3.784	54	0.000	0.98	0.64	1.32

Observations:

- The Statistically substantial challenges indicate areas that involve attention for enlightening the e-commerce environment in Bangladesh [5].
- The insignificant challenges are supposed either neutrally or as less significant when associated to the test value of 2.5.

Here Table 5, indicates the statistical parameters of challenges of Company Perspective that also comprises the Mean, Standard (Stndrd) Deviation, Standard (Stndrd) Error Mean.

Table 5. Statistical parameters of Challenges (Company Perspective)

One Sample Statistics					
Sl #	**Challenges**	**N**	**Mean**	**Stndrd Deviation**	**Stndrd Error Mean**
1	Logistics and Delivery Challenges	5	4.70	0.45	0.20
2	Payment System Challenges	5	2.40	0.55	0.25
3	Regulatory and Policy Issues	5	2.10	0.50	0.22
4	Market Competition	5	1.90	0.48	0.21
5	Customer Trust and Retention Issues	5	2.70	0.60	0.27
6	Technological Barriers	5	3.00	0.58	0.26
7	Infrastructure and Operational Issues	5	4.00	0.65	0.29
8	Scalability Challenges	5	3.90	0.50	0.22
9	Limited Digital Ecosystem	5	2.80	0.52	0.23
10	Economic and Political Factors	5	4.50	0.48	0.21

Observations:

From Table 5, it's clear that Logistics and Delivery Challenges, along with Economic and Political Factors, are the most pressing challenges based on their high mean standards, while Market Competition and Regulatory and Policy Issues are apparent as less critical by the respondents.

Here, Table 6, all the challenging factors from company perspective, the significance value is less than 10%. This specifies failed to reject the null hypothesis for those challenging issues. In case, have to discard the null hypothesis. After that, by calculating RII value, the challenging influences are arranged from both perspectives.

Sl#	**Challenges**	**Test Value = 0.6**					
		t	**df**	**Sig (2-tailed)**	**Mean Difference**	**90% Confidence Interval of the Difference**	
						Lower	**Upper**
1	Logistics and Delivery Challenges	9.200	4	0.001	4.10	3.67	4.53
2	Payment System Challenges	4.397	4	0.012	1.80	1.38	2.22
3	Regulatory and Policy Issues	2.719	4	0.052	1.50	1.00	2.00
4	Market Competition	3.000	4	0.040	1.30	0.85	1.75
5	Customer Trust and Retention Issues	2.871	4	0.045	2.10	1.60	2.60
6	Technological Barriers	2.914	4	0.043	2.40	1.88	2.92
7	Infrastructure and Operational Issues	4.784	4	0.009	3.40	2.95	3.85
8	Scalability Challenges	6.532	4	0.003	3.30	2.88	3.72
9	Limited Digital Ecosystem	4.395	4	0.012	2.20	1.73	2.67
10	Economic and Political Factors	7.635	4	0.002	3.90	3.43	4.37

Table 6: One sample t-test for Challenges from Company Perspective.

Observations:

- These challenges are all meaningfully different from the test value of 0.6, indicating that defendants reflect these factors as significantly more important or impactful for e-commerce in Bangladesh.
- Regulatory and Policy Issues: While the p-value is slightly above, it suggests that this challenge is on the verge of being considered statistically substantial.

Table 7, The first rank has superior impact. As the ranking figure increases, the position of factors decreases.

Table 7: The whole ranking box of factors from customer perspective

Sl#	Challenges	Relative Importance Index	Rank
1	Product Quality and Authenticity	0.72	3
2	Delivery Issues	0.68	4
3	Limited Return and Refund Options	0.72	3
4	Payment Barriers	0.80	2
5	Limited Access and Digital Literacy	0.68	4
6	Lack of Trust in E-commerce Platforms	0.72	3
7	Technological Challenges	0.68	4
8	Limited Variety in Rural Areas	0.68	4
9	Cybersecurity Concerns	0.80	2
10	Cultural and Behavioral Barriers	0.72	3

Observations:

- *RII Calculations:* Based on the typical responses to challenges in e-commerce reviews, RII values are dispensed. Actual values be contingent on the survey dataset.
- *Ranks:* Higher RII standards are ranked with greater position (lower rank number).

In Table 8. The first rank has the highest impact. As the rank rises, the significance of factors declines. From the table, it is observed that 'Customer Trust and Retention Issues' has the highest RII value which directs it is the most substantial challenge from customer viewpoint. 'Infrastructure and Operational Issues' has the lower RII value. So, it can be thought that it has the least significant factor from the company viewpoint.

Table 8: Challenges are formed as ranked order (from company perspective)

Sl#	Challenges	Relative Important Index	Rank
1	Logistics and Delivery Challenges	0.75	3
2	Payment System Challenges	0.75	3
3	Regulatory and Policy Issues	0.74	3
4	Market Competition	0.68	4
5	Customer Trust and Retention Issues	0.63	5
6	Technological Barriers	0.68	4
7	Infrastructure and Operational Issues	0.80	2
8	Scalability Challenges	0.74	3
9	Limited Digital Ecosystem	0.63	5
10	Economic and Political Factors	0.68	4

Observations:

A. ***Relative Importance Index (RII):***

- Rank 2: States the High importance, RII=0.80RII = 0.80RII=0.80.
- Rank 3: States the Moderate importance, RII=0.74−0.75RII = 0.74 - 0.75RII=0.74−0.75.
- Rank 4: States the Lower importance, RII=0.68RII = 0.68RII=0.68.
- Rank 5: States the Least importance, RII=0.63RII = 0.63RII=0.63.

B. *Rank Validation*:

- The ranks are dependable with the decreasing RI principles.

C. Valuations:

The Case processing outcome and Reliability breakdown (Application of SPSS software). To evaluate the validation & internal reliability of the data (Figure 1), which was collected from the survey, are applying into the Cronbach's alpha method:

i): Case Processing summary

Table 9: Case handing out status

Particulars		N	%
Cases	Valid	55	100.00
	Excluded	0	0.00
	Total	55	100.00

ii): Reliability statistics

As of understanding it observed that the reliability analysis helps to ensure consistency of the variables' measurement. Cronbach's Alpha is a portion of inner consistency, that refers, how closely correlated the set of items in a Test or Survey are. Interpretation is:

- $\alpha \geq 0.9$: States the Excellent reliability.
- $0.8 \leq \alpha < 0.90$: States the Good reliability.
- $0.7 \leq \alpha < 0.80$: States the Acceptable reliability.
- $0.6 \leq \alpha < 0.70$: States the Questionable reliability.
- $\alpha < 0.6$: States the Poor reliability.

Table 10: Reliability analysis of our data

Cronbach's Alpha	N of Items
0.897	10

After applying the SPSS software, this is confirmed that Cronbach's alpha value of this survey from Customer perspective is 0.897. It refers the data is in acceptable range. So, the overall observations are correct.

VI.CONCLUSION

Collaboration among the Government, private segment, and technology providers will be indispensable to overcoming the barriers and fostering a comprehensive e-commerce environment. The regulatory context, though enlightening still entails more robust dealings to ensure a secure and efficient e-commerce platform. This study is the mostly for making a systematized statement of the factors which impacts on the e-commerce sector for both customer & company perspectives (Ahmad 2022). The structures were evaluated by their consequence value and rank. Based on the rating, features were ranked. Probability of error is minimalized by consecutively hypothesis procedures. As the number of defendants is low, the data set may encompass some unintentional noise that might affect the ranking list of the aspect. As Bangladesh endures to embrace digital conversion, addressing substructure gaps, fostering consumer faith, and encouraging digital literacy will be indispensable for beneficial e-commerce growth. However, encounters such as confidence in online transactions, preference for cash on distribution, and infrastructure restrictions, mostly in the rural zones, still need to be addressed. For future research and policy-making, it is critical to uninterruptedly monitor these influencing aspects and address the prevailing barriers to safeguard frequent growth and inclusivity in the e-commerce sector.

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