

Digitalisation, Competitive Advantage, Benefits And Challenges Faced - A Study W.R.T. Urban Bengaluru

Naveena V¹, Dr E A Parameswara gupta²

¹Research scholar BEST INNOVATION UNIVERSITY, Gownivaripalli, Gorantla Mandal, Sri satya sai District Andhra Pradesh, naveenanji123@gmail.com

²M.com Co-ordinator Dept of PG studies in commerce, A E S National Degree College Gowribidanur 561208, eapgupta.52@gmail.com

Abstract

Purpose: The major purpose of the present study is to probe whether Bengaluru consumers are impacting on digitalisation through their demographics. Further, the study also conducted to know about measuring competitive advantages through the three impact effects and also the study conducted to know about the benefits of digitalisation to the consumers. Online shopping is becoming very popular in Bengaluru and it is a type of electronic commerce that offers customers to buy goods and services directly from the sellers through internet. Further, the digitalisation revolution also facilitating digital companies to face the competition and to derive competitive advantage.

Theoretical framework: The present study extensively reviewed available literature belonging to different theories affecting consumers while purchasing goods online. The study confirms to the existing consumer behaviour models like psycho analytical model mood upliftment, economic model obtaining discounts, offering promotional and Maslow's theory of need hierarchy (Ready to eat) have found most digitally impulsively. The companies also derive the benefit of facing competition through the explained 3 digitally impact affects.

Design / Methodology / Approach: The study belongs to the select location of Bengaluru Metropolis, capital city of Karnataka, which is famous for different types of e-commerce consumers and a large consumer base with different culture, religion and education. A questionnaire in addition to secondary data, which was prior to well known was administered to gather the primary data was used. 100 respondents from select areas of Bengaluru constitute the sample for the study and these respondents were contacted, interviewed and necessary data was gathered.

Findings: The study found that all the demographics except gender showing significant variation with high degree of relationship. Further, the study reveals about the benefits of digitalisation and these benefits include saves paper consumption and eco-friendly, widened public trust and need to handle heavy cash is eliminated. The benefit of competitive advantage has been measured after considering three electronic effects on cost leadership, differentiation and concentration and found all the variables varying significantly since p-value is lower to the threshold level. The study also revealed about the challenges faced which includes, cyber security and data privacy, high costs and limited financial capabilities and low digital literacy.

Keywords: Cyber security, innovation, disruption infrastructure, protection, customer satisfaction discounts, markets, quality distribution cost.

INTRODUCTION:

Technological revolutions are causing tremendous changes in the economic sectors of the 21st century just as the industrial revolution did in the 19th century (XU et al., 2018). Technological progress which opens new economic prospects, gives rise to new products, services and working methods (Song and Wang, 2019). Economic success depend upon the digitalisation which is called as intangible capital as a source of competitive advantage rather than wealth of materials (Tambe et al., 2019). The development of digital technology has allowed the emergence of a new environment of social interaction that facilitates and demands at the same time a profound transformation of the marketing strategy (Alshureideu et al., 2021). The competitive forces and need of the market forced the modern marketers to shift gradually the traditional methods, for performing the business activities (Veleva, V.V., 2020). Digitalisation reduces unit costs, production volumes are increased, aiming to spread fixed costs over a greater number of

produced units (Vadana et al. 2020). Digitalisation impacts on everything to move drastically faster, connection information sharing, massive collection and processing of data, decision among process, collection of feedback, interaction with users etc. (Ben Youssef et al. 2021)

Digital marketing is the latest strategy upon which marketer are readily investing heavily (Lee et al. 2022). It can be used by anyone, anywhere and consequently the modern digitally blessed advertisement makes it possible to reach demographics anywhere on the earth (Somanchi Hari Krishna et al. 2022). Economic changes are volatile in a nature and hence different institution work hard to retain their position, attract more customers, and extent their influence in different markets. Therefore different organisations design different marketing strategies through different plans and programs to ensure quick progress of their products and service ensuring customer satisfaction (Mustafa Naeem Sabeeh et al. 2024). The competing companies in the modern era are constantly designing new technologies, techniques and virtually endless in order to stay in the market and to expand share in the market.

Statement of the problem

Digital transformation has opened up new avenues for organisations to forge closer relations with their customers (Masoud and Basuhel, 2023) and hence it is necessary in these competitive days that every company should design their own strategies to capture the market and digitalisation is one among them. Competitive advantage in the digital era is closely related to organisations ability to effectively embrace new technologies (Farai & Leonard, 2022). Business that excel in designing and creating cutting edge technology and adopting these technologies only makes them to survive in the competitive market. Digital transformation impacted on consumer behaviour. The consumers of present days prefer online purchase likes to compare prices, and follows reviews before buying a product (Chen et al. 2022, Rajal, 2023, Sari, 2023). The main problem of digitalisation is not lack of awareness of digitalisation is not lack of awareness of digitalisation benefits but rather the challenge of identifying and executing the right strategies to raise digital strategies as a dynamic capability for achieving the benefit of competitive advantage rather just short term gains or basic process automation. In this fast changing technology days which is referred to 'constructive disruption' where the new technology replaces the old technology, marketers should be alert to forecast the future changes expected by customers. Amidst innumerable benefits of digitalisation.

REVIEW OF LITERATURE

Dara Matouskova (2025) in their research paper title "digitalisation and its impact on business" stated that the consequences of integration of technologies power give birth to disrupts strategies to the creation of new models. As per the researcher this trend profoundly affect the strategic context, changing the structure of competition, business conduct and ultimately performance across industries. The researcher discussed the impact of digitalisation on the business. The result of pair review is a summary of the advantages and disadvantages that digitalisation brings to the business.

Vadana, I et al., (2020) expressed that the extant literature provides an inconsistent picture of how value chain digitalisation affects companies internationalisation and international marketing, and gives no insights regarding the influence of the degree of value chain digitalisation on the level of internationalisation. The study found ways to classify the internationalisation of companies according to the degree of digitalisation of their value chain. The more these companies use internet hardware infrastructure and web and mobile software technologies, the better they can raise their assets, attainment of higher foreign sales with relatively limited foreign assets.

Mustafa Naeem Sabeeh et al. (2024) probed the role of digital marketing in customer satisfaction at AL-Warith Al-Ambiya University and Al-Zahra University at Karbala. The study focus on the real problem that directly affects the educational sector in the relationship. Data was gathered through administration of questionnaire and random sampling technique was performed. The study ended by stating that there is a positive and significant relationship between the use of digital marketing and customer satisfaction. The researchers suggested for the expanding use of digital marketing as a successful strategy for attaining customer satisfaction and offering training to the staff members. Furthermore the researcher stressed the need for undertaking extensive research to decide marketing tactics and best practices that these colleges might employ to rank the customer satisfaction.

Somanchi Hari Krishna et al. (2022) highlighted that conventional form of doing business has given way to the E-commerce model, which led to the emergence of paradigm change. Marketers and sales people can no longer afford to ignore digital tactics. Further, as per the researchers competition in the industry is heating up as both the number of available items and the number of available market grow. Majority of the business today are actively implementing same sort of digital transformation to avail the benefits. The researchers suggested the businesses to consider the implications of technological developments.

The research by Ptascheuko Olena (2025) examined the link between marketing expenditure and financial performance. The analysis of this objective i.e., comparing the percentage of marketing cost with the revenue growth and net income in different economic sectors. The research employs both methodical approaches to access the effects of digital transformation on business activity in global markets. The study found that digital technology affect marketing approaches and financial outcomes. The research showed useful findings although its effectiveness decreased due to fast technological advances and changing consumer habits that needs regular update data.

Objectives of the study:

1. To study the impact created by demographics on digital marketing.
2. To analyse the benefits of digitalisation.
3. To study and measure the competitive advantage
4. To study the challenges faced

Hypotheses

H₀₁ : There exist no significant variation among the demographics of respondents and hence do not impact on the study.

H₀₂ : There are no benefits of digitalisation

H₀₃ : There is no competitive advantage of digitalisation.

H₀₄ : There are no challenges of digitalisation.

Research questions

1. What are the reasons behind demographics not impacting on the study?
2. What are the benefits of digitalisation?
3. Why competitive advantage is measured?
4. What are the challenges of digitalisation?

Limitation

1. This study is confined only to Bengaluru Urban.
2. A small sample is considered.
3. Faced the problem of transportation, time and money.
4. Respondents gave answer to the question out of their memory and memory may be subjected memory loss.

RESEARCH METHODOLOGY

Data Source : The study depends upon both the primary and secondary data. Primary data collected by administering previously known questionnaire which was designed considering the research objectives. The secondary data compiled by referring to journals, books and internet.

Sample and sampling technique : One hundred sample was considered for this study, using convenient sampling technique interview was conducted with the respondents. Questionnaire was administered as schedule in order to avoid delay, non-response and incompleteness.

Coverage of the study : The sample covered the Bengaluru Urban areas like Jayanagar, Malleshwaram, Rajajinagar, Banashankari and Indiranagar. The respondents include government employees private sector employees, business doing persons, retired, agriculturists and home makers.

Data analysis : In order to analyse the data the same is presented in the form of tables. MS Excel-16, Chi-square, Weighted Arithmetic mean, contingency co-efficient techniques were used. Likert 3 point scale varying with 'strongly agree to somewhat agree' was performed.

Survey Findings

Table 1 - divulge data about demographic profile of respondents. Table reveals that there are 60 males and 40 females, revealing near equal representation, followed by marital status where 88 are married and 12 are single. Further, the age data reveals that 40 belongs to the age group of 40-50, 18 to the 50-60 grows, 15 to the 30-40 years, 12 to the 60-70 years and 10 > 70 years. 45 respondents are degree holders, 22 professionals 18 post graduates 10 passed PUC and 5, 10th standard. 50 respondents employed in the private sector, 14 in government service, 11 doing business, 10 home makers, 8 retired 7 agriculturists. Income monthly wise data reveals that 40 are getting a monthly income in between 51-60K, 28 in between 41-50K, 13 each in between 31-40 and >61 K. 60 are living in developed areas, 30 in developing and 10 in outskirts. 82 respondents are current account holders and 18 current account holders. Chi-square statistical tool reveals about significant variation in the data except gender where there is near equal representation. All the characteristics are revealing high degree of relationship except gender that shows low degree.

Table-2 highlights data about benefits of digitalisation. To measure the benefits derived from digitalisation weighted arithmetic mean was employed. The opinions are defined as 'f' and weights 'w'. The sum of the 'fw' is divided by the sum of 'w'. i.e., $3+2+1 = 6$. Ranking is done on the basis of highest 'WA'. Accordingly the first rank was awarded to saving paper consumption and Eco friendly, the second rank to widened public trust, and the third rank to need to handle heavy cash is eliminated.

Table-3 provides valuable data regarding measuring competitive advantage. Organisations complete to provide goods and services at the lowest cost compared to the units operating in the similar area. This in fact achieved by organisations through economic savings, and use of latest technology further by reducing cost and use of raw materials most effectively. Consequently the ability of organisation is judged by low cost units production and improving production disposal of waste and strict control of cost components (Al-Janabi, 2011). Distinctiveness in product offerings to customers through unique selling suggestions in the target market sector. Further, more distinctiveness is also seen through providing better products than the prevailing competitors and introducing some characteristics to the new products. This is related to the development of awareness of new features and they are valued one. The third most important factor is concentration that refers to the focusing of market and its services. The organisations focuses on cost and excellence.

Further, Table-3 reveals data on measuring. Competitiveness, competitiveness is measured in terms of (1) cost leadership, (2) differentiation, (3) concentration. In case of cost leadership 70 strongly agreed over the variables followed by 21 agree, & 9 somewhat agree 33 respondents strongly agree with derives advantage of economies of scale and use of production optimum capacity and 21 expressed about reduces distribution cost and 17 each about offering discounts and low priced products compared to the rivals. A p-value of 9.55 E-05 indicates strong evidence against null hypotheses. It is highly statistically significant result meaning it is extremely unlikely to have occurred by random chance alone.

As far as differentiation is concerned 80 expressed strongly agree over the factors of differentiation followed by 12 agree and 8 somewhat agree. Out of the 100 respondents 31 expressed about products are qualitative and effective, 18 spoke about as a innovative unit develops quickly new products and 14 felt about carries quality control in all service stages. A p-value of 9.23 E-05 which is 9.3×10^{-5} or 0.0000923 or 0.00923%, which is <1 in 10,000 probability, is extremely unlikely to have occurred by random chance alone. The third factor competitive advantage is about enjoys strong relationship with customers. 79 strongly agree over the variables, 14 agree and 7 somewhat agree. Out of 100, 41 stated about enjoys strong reputation in the market followed by 19 about company looks constantly new markets and 15 about distribution team updates and their knowledge and hence deals with the new customers. A p-value of 0.003198 indicates that there is very strong evidence against the null hypotheses. It is statistically significant result, providing strong evidence reject the null hypotheses. It means there is only 0.32% change of observing the results of there were actually no effect or relationship in the population.

Table-4 reveals data about challenges faced by digital companies. To measure the degree of digital companies facing challenges 'Weighted Arithmetic Mean' was employed. 3 point Likert Scale was used to present the bi-polar opinions of respondents. The opinions are defined as 'f' and weights as 'w'. To derive 'WA', 'fw' is divided by 'w'. Ranking is done on the basis of strength of 'WA'. Accordingly the first rank was awarded to cyber security and data privacy, the second rank was given to lack of digital skills and talent and the third rank was awarded to low digital literacy. The remaining challenge factors awarded rank based on their highness.

a :

Digitalisation is a significant business activity and beneficial to both marketers and consumers. Digitalisation emerged on account of severe changes in the life styles of consumers, demanding more and more innovative ways of fulfilling the needs and to a largest extent digitalisation now-a-days constructive disruption technology application. Companies prefer digitalisation over traditional marketing to build relationship and strong customer base. On account of technology consumers are more aware of products available in the market and can compare these products through the available information. Bengaluru is a fast growing technology hub and popularly nicknamed as "Science city", "Silicon Valley" and famous for coexistence of different cultures. It is further attracting migrants to settle and contribute their might in the development. The study covered all kind of persons involved in different occupations and Bengaluru became a "technology savvy" centre and one can find technology application in all the fields. The study reveals that all demographic factors well supporting study with significant variation with high degree of relationship except gender. Further, the study reveals about benefits of digitalisation which includes saves paper consumption and eco friendly widened public trust, and need to handle heavy cash is eliminated. The study also makes attempt to measure competitive advantage through presenting the data using 3 point Likert scale and applying ANOVA technique to measure the variation. The challenges faced by digital companies include cyber security and data lack of digital skills and talent, and low digital literacy. The data collected was well represented in the form of tables and suitable quantitative techniques were performed to analyse the data.

CONCLUSION:

The customers of Bengaluru are "technology savvy" and are using tablets, Smartphone, electronic devices in their daily life. The advent of technology and latest developments which can be appropriately referred to 'constructive disruption where the new innovations replace the old, playing a major role in the digital marketing in the present competitive days. The effects of digital technology is far reaching and its effects are not linear. Bengaluru customers would like to buy requirements electronically and in some cases customers prefer impulsive digital buying which is the outcome of socio economic factors, behavioural and psychological factors, discounts and combo offers. Digital revolution spreading in Bengaluru so fast and even small buyers are using digital technology. The study found that all demographics are impacting on the study significantly except gender where there is near equal representation. The study found the benefits of digital marketing which includes saves paper consumption and eco friendly, widened public trust and need to handle cash is reduced. The study further reveals about digital effect on cost leadership, differentiation and concentration. The challenges faced by digital companies include, cyber security and data privacy, high cost and limited financial capabilities and low digital literacy.

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Table-1 : Demographic profile of Respondents

Demographic profile of respondents	χ^2	TV @ 0.05	df	Result of χ^2	"c"	Result of c
Gender	4.00	3.841	1	Not Significant	0.19	Low Degree
Marital status	57.76	3.841	1	Significant	0.60	High Degree
Age in years	45.079	11.070	5	Significant	0.55	High Degree
Education	37.90	9.488	4	Significant	0.52	High Degree
Occupation	81.7835	11.070	5	Significant	0.67	High Degree
Monthly income (INR)	38.000	9.488	4	Significant	0.52	High Degree
Living Area	37.7721	5.991	2	Significant	0.52	High Degree
Type of Bank Account	40.96	3.841	1	Significant	0.53	High Degree

Source: Field Survey

Note : χ^2 = Chi-square'c' = $\sqrt{(\chi^2 / \chi^2 + N)}$

Where 'c' = Contingency Co-efficient, N = Number of Observations

When the value 'c' is equal or nearer to 1, it means that there is high degree of association between attributes. Contingency co-efficient will always to be less than 1. High degree is considered here if 'c' is 0.50 and above.

Table - 2 : Benefits of Digitalisation

Benefits of digitalisation	Weight	3	2	1	T	WA
	Likert Scale	SA	A	SWA		
Enhances customer satisfaction and engagement	F	83	6	11	100	IX
	Fw	249	12	11	272	45.33
Increased efficiency and productivity	F	84	5	11	100	VIII
	Fw	252	10	11	273	45.50
Wider market reach	F	83	11	6	100	VI
	Fw	249	22	6	277	46.17

Data driven decision making	F	79	10	11	100	XVII
	Fw	237	20	11	268	44.67
Improved marketing strategies	F	83	10	7	100	VII
	Fw	249	20	7	276	46.00
Space saving	F	80	11	9	100	XII
	Fw	240	22	9	271	45.17
Protection of documents	F	85	10	5	100	IV
	Fw	255	20	5	280	46.67
Speed of consultation	F	81	8	11	100	XV
	Fw	243	16	11	270	45.00
Saving paper consumption and eco friendly	F	93	7	-	100	I
	Fw	279	14	-	293	48.83
Access to information	F	79	14	7	100	IX
	Fw	237	28	7	272	45.33
Widened public trust	F	90	7	3	100	II
	Fw	270	14	3	287	47.83
Increased scalability and flexibility	F	80	10	10	100	XV
	Fw	240	20	10	270	45.00
Enhanced reliability and reduced risk	F	75	21	4	100	XII
	Fw	225	42	4	271	45.17
Encourages collaboration across departments	F	74	20	6	100	XVII
	Fw	222	40	6	268	44.67
Increases agility and innovation	F	76	20	4	100	IX
	Fw	228	40	4	272	45.33
Need to handle heavy cash is eliminated	F	88	9	3	100	III
	Fw	264	18	3	285	47.50
Transactions are mock easy	F	81	9	10	100	XII
	Fw	243	18	10	271	45.17
Mobility of services enhanced	F	69	23	8	100	XIX
	Fw	207	46	8	261	43.50
Number of customers will be amplified	F	80	19	1	100	V
	Fw	240	38	1	279	46.50
Rural and urban gap is eliminated	F	69	18	13	100	XX
	Fw	207	36	13	256	42.67

Source : Field Survey

Likert scale : 3 Point - SA - Strongly Agree, A - Agree, SWA - Somewhat Agree

Weights = 3 + 2 + 1 = 6

WA = fw total / sum of weights, e.g. 265 / 6 = 44.16

Table -3 : Measuring Competitive Advantages

No.	Items	SA	A	SWA	T
Cost Leadership					
1	Derives advantage of economies of scale and use of production optimum capacity	21	9	3	33
2	Offering different types of discounts	12	3	2	17
3	Reduces distribution costs	15	4	2	21
4	Manufacturing internal requirements for production material	9	2	1	12
5	Low priced products compared to rivals	13	3	1	17
	Total	70	21	9	100
Differentiation					
1	As a innovative unit develops quickly new products	14	2	2	18

2	Products are qualitative and effective	26	4	1	31
3	Differ with others in some non-price characteristics	8	2	1	11
4	Strives to reduce defective percentage	9	2	2	13
5	Carries quality control in all service stages	12	1	1	14
6	Regularly goes for product development	11	1	1	13
	Total	80	12	8	100
Concentration					
1	Enjoys strong relationship with customers	10	2	1	13
2	Enjoys strong reputation in the market	33	5	3	41
3	Distribution team updates and their knowledge and hence deals with new customers	12	2	1	15
4	Company targets specific segments of customers	10	2	-	12
5	Company looks constantly new markets	14	3	2	19
	Total	79	14	7	100

Source : Field Survey

Table 3.1 Effect Electronic Marketing and Cost Leadership**Summary**

Groups	Count	Sum	Average	Variation
Column – 1	5	70	14	20.00
Column – 2	5	21	4.2	7.7
Column – 3	5	9	1.8	0.7

ANOVA

Source of variation	SS	df	MS	F	P-value	F-script
Between the groups	417.7333	2	208.8667	22.06338	9.553E-05	3.885294
Within groups	113.6	12	9.466667			
Total	531.3333	14				

Table 3.2 Effect of Electronic Marketing on Differentiation**Summary**

Groups	Count	Sum	Average	Variation
Column – 1	6	80	13.33333	43.06667
Column – 2	6	12	2	0.2
Column – 3	6	8	1.333333	0.266667

ANOVA

Source of variation	SS	df	MS	F	P-value	F-script
Between the groups	545.7778	2	272.8889	18.38323	9.23E-05	3.68232
Within groups	222.6667	15	14.84444			
Total	768.4444	17				

Source : Field Survey

Table 3.3 - Effect of Electronic Marketing on concentration**Summary**

Groups	Count	Sum	Average	Variation
Column - 1	5	79	15.8	95.2
Column - 2	5	14	2.8	1.7
Column - 3	5	7	7	1.3

ANOVA

Source of variation	SS	df	MS	F	P-value	F-script
Between the groups	630.5333	2	315.2667	9.631365	0.003198	3.885294
Within groups	392.333	12	32.7333			
Total	1023.333	14				

Source : Field Survey

Table - 4 : challenges faced by digital companies

Challenges faced	Weight	3	2	1	T	WA
	Likert Scale	SA	A	SWA		
Cyber security and data privacy	F	96	4	-	100	I
	Fw	288	8	-	296	49.33
Lack of digital skills of talent	F	83	14	3	100	IV
	Fw	249	28	3	280	46.67
High costs and limited financial capabilities	F	94	3	3	100	II
	Fw	282	6	3	291	48.50
Difficulties in integrating new and existing systems	F	69	22	9	100	XIV
	Fw	207	44	9	260	43.33
Insufficient infrastructure	F	76	12	12	100	X
	Fw	228	24	12	264	44.00
Slow internet	F	85	10	5	100	XXII
	Fw	165	20	5	190	31.67
Lack of comprehensive planning	F	80	9	11	100	VII
	Fw	240	18	11	269	44.83
Regulating landscape pose obstacles	F	82	9	9	100	V
	Fw	246	18	9	273	45.50
Financial constraints	F	80	11	9	100	XXI
	Fw	210	22	9	241	40.16
Digital divide	F	65	25	10	100	XVIII
	Fw	195	50	10	255	42.50
Low digital literacy	F	90	6	4	100	III
	Fw	270	12	4	286	47.67
Funding constraints	F	70	20	10	100	XIV
	Fw	210	40	10	260	43.33
Managing complex logistics and supply chains	F	69	23	8	100	XIV
	Fw	207	46	8	261	43.50
Returns and regunds	F	59	29	20	100	XVIII
	Fw	177	58	20	255	42.50
Supply chain disruptions	F	62	19	19	100	XX
	Fw	186	38	19	243	40.50
Providing user friendly website	F	72	15	13	100	XVII
	Fw	216	30	13	259	43.17
Customer intention	F	76	13	11	100	VIII
	Fw	228	26	11	265	44.17
Customer acquisition	F	68	25	7	100	XII

	Fw	204	50	7	261	43.50
Marketing and brands	F	70	20	10	100	XIV
	Fw	210	40	10	260	43.33
Technological advancement	F	75	20	5	100	VI
	Fw	225	40	5	270	45.00
Mobile Commence	F	70	22	8	100	XI
	fw	210	44	8	262	43.67
Cross border sales	f	71	23	6	100	VIII
	fw	213	46	6	265	44.17

Source : Field Survey

Likert scale : 3 Point - SA - Strongly Agree, A - Agree, SWA - Somewhat Agree

Weights = 3 + 2 + 1 = 6

WA = fw total / sum of weights, e.g. 265 / 6 = 44.16