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GAUGING CONSUMER BUYING BEHAVIOR USING MARKETING ANALYTICS TO EXAMINE PROFITABILITY THROUGH CONSUMER BEHAVIORAL PATTERN

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Abstract:
Consumer behavior is the important component for measuring the profitability in business. Understanding the consumer buying behavior is the examining the vital firms in the marketplace. The main purpose of this research is to examine use of marketing metrics analytics towards consumer buying behavior of small business unit. The researcher has taken major three hypothesis for key theoretical concept business accounts, finance, and marketing survey. For this study researcher has used analytics to measure the consumer behaviour pattern and customer behaviour. The major marketing analytics done in different phases 1. Consumer behaviour analytics on customer turnover frequency and payment for service, 2. Analytics on market behaviour the potential of product, service providing. 3. Analytics on economic condition of consumer price adjustment and barriers in market situation. A researcher used convenience sampling technique, the sample size of 195 consumers response has been analyzed, the quantitative research method has been used through SPSS Pearson correlation analysis the result has been generated analytics on market behaviour has proved that high significance on predicting consumer behaviour pattern.
Key word: Consumer pattern, Marketing analytics, Business, Management

Introduction:
Marketing analytics has been used for measuring the business performance towards many years in research, mostly analytics can be used for manufacturing and its related industries, by using these analytics measures the small business unit is trending in marketing research. Many researchers have lagging to conduct research on small business unit. The researcher has taken this research as a small opportunity for examining this kind of small firms. Analytics can be derived through strategies and tactics in the various level of the decision support structure. The questionnaire for analytics can be structured or unstructured it may or may not repetitive in nature. This analytics has collected response from multiple respondents touch points it helps the consumer interaction with the small business by collecting unique view of consumer. The researcher has analyzed to measure the small business unit base on the performance. The small lagging is history about this research analytics on small business unit so it's the opportunities for improving business performance there is a possibility of business unit has to take minimum amount of risk for increasing the performance.
The insight from the past use of analytics in manufacturing sector also the other industries, the study focusses on small scale business units with the help of analytic measurements of the business performance in their industries. This research conducive the trending literature on the analytical

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field. This research will help to threefold the study to fill the gap in the previous studies it helps to explore the impact of analytics in small scale business unit performance level. Even though the usage of analytics is common in manufacturing sector. This research will examine the literature of the field entrepreneurship in small business unit and also focused 10 different sectors. It will also evaluate the performance of the different sector and also the utilization of analytics in small business units for better understanding of their business performance and implementations of improving their business performance.

This research is followed by this structure: 1. The first step focused on background of the study 2. The next step gives the information about the review of literature about this research undergoes, 3. Third step represents the theoretical model of the research and the conceptual framework of the survey, 4. The fourth steps describe about the research design and the methodology adopted for conducting this descriptive research 5. The last step has discussion about the findings, results and conclusion of the research work and also gives the suggestions for improvements and recommendations for the research in future.

Review of Literature

The term research is the continuous of previous work with small scale business unit. The researcher wanted to investigate small scale business unit and their consumer buying behavior pattern with marketing analytics. There are four different parts in review of literature. So that it will provide the strong basis of information providing for this research work.

Measuring business performance using marketing analytics

Now a days the data analytics is trending in market such sectors like healthcare, financial services, Retail sectors, HR consultancy's etc. they are using business intelligence for creating the competitive advantage in the execution of developing business strategy. In prior use of analytics with credit score for the medium to large scale lending community like banks is a widespread of business analytics. In added value analytics can be looking forwarded with Customer relationship management strategy. Customer relationship management leverage the customer intelligence created by customer relationship operations and conversely, CRM operation.

For continues assurance the analytics can be used as a methodology for monitoring analytics and corporate business process the continuous monitoring will change the objective, processes tools, timing and outcome of the process unit. In memory analytics uses technology also allows the operational data has to be handled in the single database for monitoring the day-to-day customer transaction, updates in daily basis as well as the request of the analytical virtual real time application. The real data gatherings is the speed of performance offered by the memory analytics and the new system improvement in the quality of customer busine4ss intelligence can be generated. The predictive analytics and statistics is used as the new way for decision thinking on numbers. The analytics in the recent trends is working smart in day-to-day activity.

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The metrics analytics can be used for small scale business units and is also used for researcher and also the entrepreneur. The financial performance of the business is concentration part of the performance metrics. The majority of concentration in financial performance part with survival competitive variable has been used. The scientific methods of can be adopted to revenue driving of merchandise an assortment of pricing promotion and placement for future insights creating more precisely for decision making areas benefited like retail outlet based on data driven analytics. The placement of stores, labour allocation and also including the service option like free shipping, layaways and wrapping services.

Now a days most successful business organizations are growing highly by using the analytical technological development and metrics analytics in the extortionary usage. The recent days the usage of Human resource analytics has been directing for salary they spend for wrong employees' initiatives and high beneficial for initiatives employees. Human resource critical data can be analyzed bottom line with the same way of business product leader for more accountability.

Business analytic process is the advance risk analysis of traditional method has been followed retrospective events like decomposition studies and attribution, forward looking perspective and allow an actionable context. Entrepreneurship will help the analytic on individual intension on entrepreneurship develop more strongly on their self-efficiency, concentration on planning, resource of marshalling, the process of creating the new ventures. The innovation on marketing analytics has been always encouraged for the future development. Marketing department can't be measure effectively in return on investment in the advertising campaigns. In using marketing analytics researcher can measure the return on investment in priority based with many chief marketing officers in the allover the world by knowing whom, where how, when to spend the money, it become a critical aspect.

Implementing analytics in marketing field

Metrics analytics can be used for measuring the market performance for many years. But the researchers feel that measuring the marketing analytics is still relatively new for implementation. Analytics can be a strategic or tactic depending on the supporting decision structure. They also be a real time based on the depending process of data analytics. The queries on data analytics can be repetitive or non-repetitive, unplanned or planned data. Collecting an more data in form of customer touch point towards the product/services it create the optimize interaction on customer by providing a unified view of an customer. The marketing analytics based on the shopping frequency, brand preference through this buying patterns of the brand preference can be effectively captured from the different sources like surveys, web data and retail stores. Data has to be done mining for creating an useful information for creating insight about consumer present, past and future buying behavior of the consumer. In the response for the organization to show their value and create the high profile calls for measuring the market performance.

In different ways to identify the marketing effectiveness is tough to determine the overall business size, 1. The effect of marketing activity would be both tangible and intangible 2. The activity of market has been framed into short term and long term, 3. In marketing it operates volatile uncontrollable environment like customer, legislator and competitors, 4. The marketing internal

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environment contain the constrain and change, 5. In a total business process corporate confusion between marketing and what the marketing department perform, 6.the metrics analysis for measuring marketing performance and its effectiveness and the marketers were spoilt of choice.
The metric analysis of market performance has concern in the study fore more decade4s. to represent the current situation the organization marketing measurement. In this research identified the consumer who are involved in this process. This review has concluded in the study the third party involved in the development for measuring the marketing department very importantly, and also followed by the finance, agencies for marketing, Information technology staff, consultant and external agencies. Infield of metric and analytics in marketing is not utilized in the field like management, finance and accounting.

Metrics analytics in the other fields

The metrics data analytics can be used for market prediction in the four different situations in business i. Prediction in marketing, ii. Segmenting the consumer iii. Analytics focused on needs and opportunity iv. Analytical value of customer argued in analytics can be divided into two types financial metrics and non-financial metrics. Some business use dashboard as the important tool for synthesize for internal and external factors. Organization mostly use financial metrics rather than the non-financial metrics, mostly the marketing metrics were used to identify the marketing performance and marketing investment that takes the center stage.
The finance and marketing take as two different aspects in business, they talk about different languages the are unable to set the common goal. Consumer analytics helps organization to converting data into a knowledge and it provide the meaningful information to the consumers, it molds their buying patterns and camping effectiveness. Using metrics analytics sometimes it creates downsides that leads to the assumptions in the generating results in to over reliance on statistical modeling techniques the simplistic model and the relational situation sometimes its complex spurious precision for search.
To understand the profitability of the organization the marketing analytics can be utilized in different ways 1.Analysis can be used to measure about the lifetime value of the customer becoming popular, 2. For customer relationship management also the analytics can be used, 3. Consumer analytics also used for the customer retention, 4. Customer relationship management also used for cluster analytics measurement, 5. The profitability is related to customer satisfaction and consumer retention measurement it also focus point for taking marketing decisions.

Framework of the research

The theoretical relationship of the marketing metric analytics has been displayed in the different variables. The conceptual framework illustrates the marketing analytics matric; this model represents the detailed view of specified variable for this research. The analytical variable that appropriate and separated by the three different categories.

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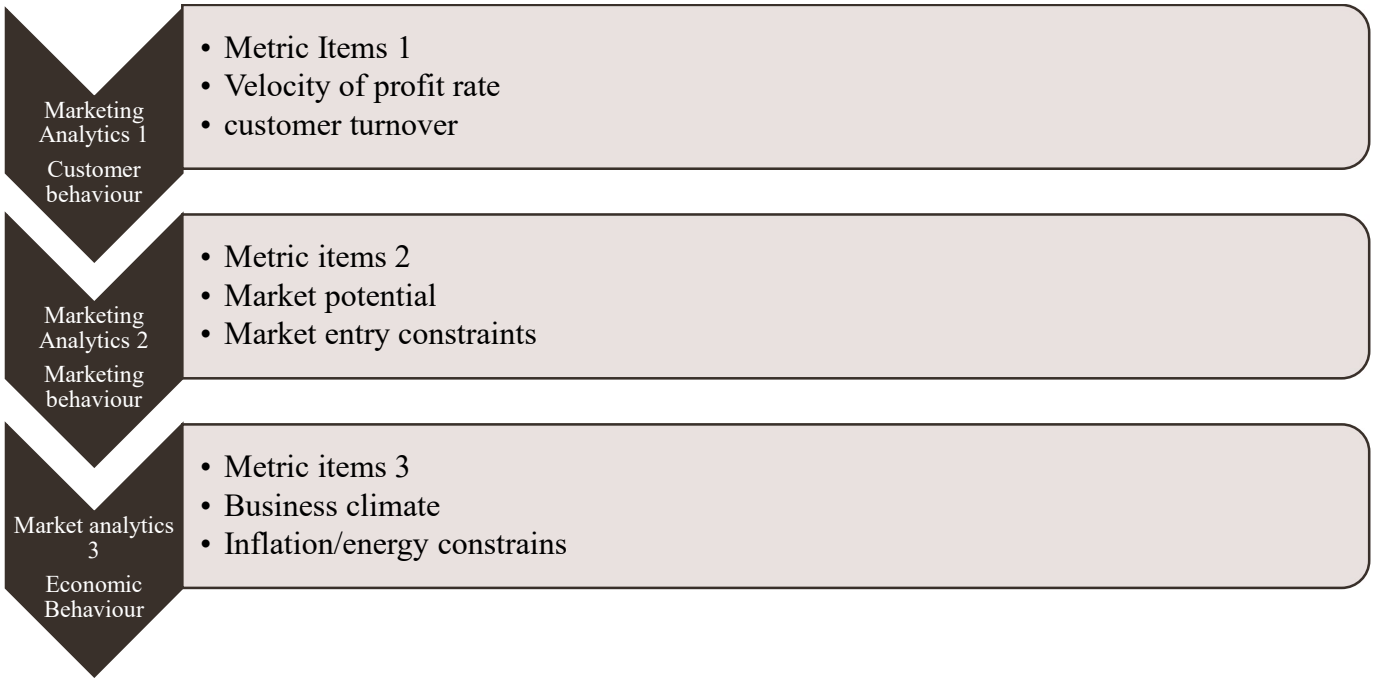
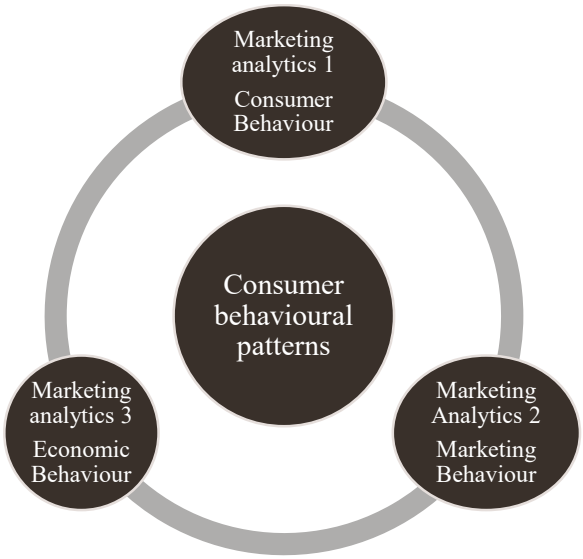
Figure 1: Framework of the research



The conceptual model for the research

This conceptual model of this research in relationship between marketing metric analytics and consumer buying behavior, conceptual model of marketing analytics, the model represents the major three functions to customer behavioral patterns. Analytic concept provides the predictive analysis over customer behavior in small scale business unit. This model represents the detail view of specific variable of this study. 1. This conceptual framework has to be consistent logically, 2. There is an agreement with gained data and information 3. The collected data must be testable data has to be evaluated in the empirical format.

Figure 2 conceptual model for the research



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Concept and Hypotheses of the research

The research hypothesis framed for the consumer buying behavior for small business unit is positively related by three marketing analytics 1. Consumer buying behavior analytics (Velocity of profit rate, Customer turnover) 2. Marketing behavior metric analytics (Market potential, market entry constrains) 3. Economic value behavior analytics (the business climate, inflation energy constrains).

The research has find and suggest the solution for differentiating the consumer buying behavior for small business unit. This has been proposed that some concepts directly influence the consumer buying behavior in small business unit.

The hypothesis framed for the research as follows

H1: consumer buying behavior analytics positively predict the consumer behavior pattern for small business unit.

H2: Marketing metric analytics positively predict the consumer behavior pattern for small business unit

H3: Economic metric analytics positively predict the consumer behavior pattern for small business unit

The conceptual research model consists of the major three marketing factor analytics which create the impact of the consumer buying behavior. The above three hypothesis has highly suggest that all the three relationship are critically examined the consumer behavior in small business unit and also the relationship of the hypothesis were tested.

The research methodology and statistical analysis of data

this research examines the consumer buying behavior pattern with the marketing pattern in small scale business unit. The research used for conducting the survey for the research study. This study utilized in a quantitative approach in research methodology. This research has chosen the research type nonexperimental, exploratory research design. The study also used the cross-sectional design of research strategy has implemented, this helps to collect the response for quantitative and quantifiable data with two or more variable.

The research conducted the survey using the research design for the followings:

1. The survey research for the logical constrains
2. The tendency to deterministic while the researcher attempt to identify the reasons for the source of events has to be observed.
3. The researcher has to be carefully examine the economical relevance of each variable .
4. The survey conducted for the research must be very precise.

Analysis of the research

The first the researcher used discriminant analysis, relationship analysis, regression analysis with the collected data. This test determine most appropriate statistical analysis. The data has been collected and cleaning process has been done before analyzing the data. The SPSS 16.0 version has used for the testing. The errors has been detected and corrected through the original

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source of the data. The following some of the errors are : double entry of data, input errors, spelling errors.

The Descriptive statistical analysis

In this researcher used descriptive statistics for identifying mean median mode standard deviation to show the overall result and the trend analysis. The descriptive analysis used to compute the general consumer pattern of data analytics. The demographic factors were the three analytics group and also find by different industry.

The analysis basis on inferential status

This analytics derive the inference from the data generated from the respondents. The inferential statistics can give the conclusion for the overall population based on the sample taken for the study.

The variable measurement of dependent and independent variable

The empirical research involves 6 variables, that can be measured through the respondent data. For this research Likert scale has been used for the middle variable . A reliability test derived from the Cronbach's alpha value.

The Dependent variable

The dependent variable derived in to 3 categories 1. customer behavior based on the velocity rate, customer turnover, 2. Economic behavior based on the business climate, energy constrains based on the inflation 3. Marketing behavior based on market potential and the entry constrain of new market.

The Independent variable

The Likert scale has been used, multi ranking scale has been used. Likert scale has been used to identify the marketing metric analytics through economic behavior, marketing behavior, customer behavior.

Result generated for the study

The research derived from the findings, descriptive statistics of the study the frequency analysis derived from the table percentage analysis derived from the table the 45.5ppercentage the product type of the business can be derived. The descriptive analysis for the main analytics the result generated for the cross tabulation in the data. A cross tabulation was conducted with marketing metric analytics.

Table 1: Market saturation result industry

Market saturation result industry			
Types of variables	**Marketplace of competitors**	**Frequency analysis**	**Percentage**
Monopoly industry	0-4	40	20.2
Competitive type	5-10	36	19.7

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Semi commodity type	11-20	29	14.6
Commodity type	20 and above	90	45.5
Total		**195**	**100**

Table 2:Marketing metric analytic consumer behavior pattern profit velocity

	Metrics for profit velocity	**Monopoly industry**	**Competitive type**	**Semi commodity type**	**Commodity type**	**Total**	**Percentage**
Velocity of profit	Paid immediately	19	15	11	37	82	42.9
	More than 24 hours	0	2	1	10	13	6.6
	Neutral	3	2	9	5	19	9.6
	More than week	7	6	4	9	26	13.1
	More than month	8	14	4	29	55	27.8
		37	**39**	**29**	**90**	**198**	**100**

Table 3: Marketing behavior patterns customer turnover barriers effect

	Market metric potential	**Monopoly type industry**	**Competitive type industry**	**Semi commodity type**	**commodity type**	**Total**	**Percentage**
Market potential	Immediately paid	6	10	5	12	36	18.2
	More than 24 hours	3	2	2	8	15	7.6
	Neutral	4	11	14	20	49	24.7
	More than week	5	4	2	6	17	8.6
	More than month	19	12	6	44	81	40.0
	Total	**37**	**39**	**29**	**90**	**198**	**100**

Table 4: The economic behavior patterns Climate of business

	Market metric potential	**Monopoly type industry**	**Competitive type industry**	**Semi commodity type**	**commodity type**	**Total**	**Percentage**

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Climate of business	Highly thriving	13	11	9	23	59	29.8
	Somewhat thriving	13	16	6	33	68	34.3
	Neutral	9	9	13	26	57	28.8
	Somewhat declining	2	3	1	7	1	5
	Highly declining	0	0	0	1	1	.5
	Total	**37**	**39**	**29**	**90**	**198**	**100**

Table 5:The economic behavior patterns cost influence on pricing

	Market metric potential	**Monopoly type industry**	**Competitive type industry**	**Semi commodity type**	**commodity type**	**Total**	**Percentage**
influence on pricing	Freely adjusting pricing	25	20	16	45	109	55.1
	Constraints with adjust pricing	9	12	4	30	55	27.8
	Neutral	2	3	5	4	14	7.1
	Somewhat constrain	0	1	4	4	9	4.5
	Adjust pricing	1	3	0	7	11	5.6
	Total	**37**	**39**	**29**	**90**	**198**	**100**

Consumer analysis for discriminant analysis

The discriminant analysis for the metrics procedures. The main aim of this to uncorrelated combination of original variable maximize the association relationship between predicting variable that maximize the cross-product metric analysis. The discriminant analysis of the linear combination that maximize the association by the following equation derived

$DF_1 = A_{10}X_{10} + A_{11}X_{11} + A_{12}X_1 + A_{11}X_2 + A_{13}X_{13} + \ldots\ldots + A_{1P}X_P$

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DF = discrimination function, V = Discrimination coefficient X= Respondents score A= the constant

In the second discrimination it has been derived that 2nd linear combination that uncorrelated with the linear combination that separated as the different group.

$DF_2 = A_{20}X_{20} + A_{21}X_{11} + A_{12}X_1 + A_{11}X_2 + A_{13}X_{13} + \ldots\ldots + A_{1P}X_P$

The third discrimination function is illustrated that uncorrelated with the above 2 functions it serves as the 3rd best separate the groups.

The discrimination analysis is used to conduct the multivariate analyzing the variance of testing the hypothesis. A sample of N=195 small business unit.

Wilk's, ƛ F- ratios, degree of freedom to function. This is to test the level of significance for F ratio 0.800 to 8.560 in 3 degrees of freedom was determination of the market potential F= 8.56, DF=1, p=0.000.

Table 6: Test for Equity group mean

Predicting analytics	**Wilk's ƛ**	**F**	**df 1**	**df 2**	**p**
Consumer buying behavior metrics					
Profit rate of velocity	0.967	0.819	3	194	0.485
Turnover of the customer	0.971	1.911	3	194	0.120
Marketing metric analytics					
Potential of the market	0.883	8.560	3	194	0.000
Constrains of market entry	0.988	0.800	3	194	0.495
Economic metric analytics					
Climate of business	0.985	1.000	3	194	0.394
Energy constrains during inflation	0.975	1.679	3	194	0.173

CI = interval on confidence od ratio

Wilks Lambda test

In the discrimination with the different small scale business unit overall chi square test wilks ƛ=0.817 , chi square= 38.848, df= 19, P= 0.004 2 function accounted nearly 80percent.

Table 7: Wilks Lambda test

Test function	**Wilks lambda**	**Chi square**	**df**	**p**
1 of 3	0.817	39.848	19	0.004
2 of 3	0.942	11.486	10	0.321
3 of 3	0.980	3.792	4	0.435

The eigen value of variance on correlation based on canonical. The result has highly successful 71.6per classified as the original categories.

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Table 8: Eigen value of group equity

Function	Eigen value	Per of variance	Cum per	Canonical correlation
1	0.153a	71.6	71.7	0.364
2	0.041a	19.1	90.7	0.198
3	0.020a	9.3	100	0.140

Metrics result for correlation

the kal-parsons correlation is used to identify the relationship of two variables and measure the interval ratio. In this the regression analysis calculated for different variables for profit rate velocity, turnover of the customer, potential of the market, constrain to enter the market, climate of business, energy constrain on inflation.

$$r = \frac{1}{n-1} \sum \left(\frac{x-\overline{x}}{s_x}\right)\left(\frac{y-\overline{y}}{s_y}\right)$$

The correlation values denoted by XY; the two variables have been significantly correlated with the P value < 0.001. The strong relationship with the climate of business and the turnover of the customer the value 0.009 highly correlated with the above two variable.

Table 9: Metrics correlation means and standard deviations

variable	Mean	SD	1	2	3	4	5	6
profit rate velocity	2.76	1.727	-					
turnover of the customer	3.46	1.524	0.179	-				
potential of the market	1.61	1.199	0.086	0.112	-			
constrain to enter the market	3.26	1.408	0.145	0.067	0.189	-		
climate of business	2.14	0.938	0.045	0.009	0.020	0.066	-	
energy constrain on inflation	1.78	1.123	0.206	0.106	0.038	0.217		-

Discussion of the research

The main objective of the research is to identify the marketing metric analytics creating impact on predictive analytics of consumer buying behavioral pattern in small business unit. The study is to provide evidence for the theoretical support for the research.

The hypothesis has tested through discrimination analytics. The first suggest the consumer behavior model through predictive analytics for small scale business unit. The discriminants analytics profit for velocity and turnover of the customer the significance of influence on consumer buying behavior analytics the analytic strong predictive analysis p=0.582, p=0.323.

The 2nd hypothesis suggests marketing behavior analytics marketing metric analytics through the potential market analysis, constraints of the market entry the predictor market analysis p=0.001, p=0.879.

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The 3rd hypothesis suggests behavior economic analytics the predictor of consumer behavioral pattern. Economic analytics behavior through climate for business, inflation on energy constrain p=0.101, p=0.076.

Conclusion of the research

The goal of the study deterministic the marketing metrics analytics influence the predictive factor for consumer buying behavior pattern. The research focuses on the consumer behavioral pattern of the small business unit, the three main concepts focused for the research is consumer buying behavior pattern, marketing metric analytics, and economical constrain analytics. In first step researcher applied the conceptual framework to examine the development of the above three concept in small business units, second step they elaborated focus on the six areas and concluded the result on discriminant analytics prove that marketing metric analytics proved to be a moderately significant. Third through person correlation identified that three concept need some development to become a better predictor of consumer behavior pattern. The final summery the growing of market metric analytics measure the consumer behavior. The several literature survey conducted for the study added to the marketing theory also used potential analytical tools has been used. Even though the result was not highly anticipated to measure the consumer behavior towards the small-scale business unit. The researcher has to investigation in the marketing metric analytics.

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