



Advance Analytic Techniques and To Optimize Market Analysis Towards Cap Digisoft Solutions Pvt Ltd, Coimbatore

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ABSTRACT

Advanced analytics has the potential to redefine manufacturing. However, practical implementation is in its infancy. One reason is a lack of management tools that enable decision-makers to choose suitable techniques from advanced analytics for domain-specific problems in IT industry. This paper uses a systematic mapping review in order to identify seven application areas to which analytics can add substantial value. Each area is then matched with suitable techniques from the field of advanced analytics. The resulting systematic map provides a novel management tool for the purpose of identifying promising analytics projects in IT industry and thus facilitates decision-making.

Key words: Smart Manufacturing, AI Applications, Advanced Analytics, Systematic Mapping

I. INTRODUCTION

Advanced analytics is a collection of data analytics techniques, such as machine learning and predictive modelling, used by businesses to improve their decision making. Leveraging some of the most complex techniques in the field of data science, advanced analytics is used to do everything from detecting to directing the development of marketing campaigns. Advanced analytics is an umbrella term referring to a range of data analysis techniques used primarily for predictive purposes, such as machine learning, predictive modelling, and neural networks. Businesses employ advanced analytics primarily to forecast future outcomes and to guide their decision-making, not just to gain business insights.

In addition to enabling more efficient use of data assets and providing decision-makers with higher confidence in data accuracy, advanced analytics offers the following benefits: Accurate forecasting: Using advanced analytics can confirm or refute prediction and forecast models with better

accuracy than traditional BI tools, which still carry an element of uncertainty. Faster decision-making: Improving the accuracy of predictions allows executives to act more quickly. They can be confident their quicker business decisions will achieve the desired results and favourable outcomes can be repeated. Deeper insight: Advanced analytics offers a deeper level of actionable insight from data, including customer preference, market trends and key business processes. Better insights empower stakeholders to make data-driven decisions with direct effects on their strategy. Improved risk management: The higher level of accuracy advanced analytics provides predictions can help businesses reduce their risk of costly mistakes. Decrease risk: Risk is an inherent aspect of running a business or starting a new endeavour, whether it be launching a new product or creating a marketing campaign. Advanced analytics can help businesses decrease the risk associated with these undertakings by providing stakeholders with predictive models and prescriptive guidance.

INDUSTRY PROFILE

CAP Digi soft Solutions, Inc. has announced the opening of a new call centre office in El Salvador. The state-of-the-art facility, located in the heart of San Salvador, will serve as a growth solution for companies seeking to expand their market share and improve their customer service operations. The new call centre office is equipped with the latest technology and staffed with a team of highly trained professionals known as the "Growth Team". They are ready to handle a wide range of customer service and sales support inquiries for CAP Digisoft and their clients.



OBJECTIVE OF THE STUDY

- To examine the current state of market analysis processes in the organization.
- To evaluate the awareness and utilization of advanced analytics in market analysis.
- To assess the impact of advanced analytics on market insights and strategy optimization.
- To identify challenges in adopting advanced analytics for market analysis.
- To explore potential improvements and recommendations for optimizing market analysis.

II. REVIEW OF LITERATURE

J. Culliton (2017) discussed the management of marketing costs, to drive away the chances of inflated profits in the research bulletin of Harvard University. This concept gave basis to the concept of marketing. It gave a new pathway for marketing as top management has been declining and the voice of the customer had been given priority than it was done in the past.

P.M. Banting and R.E. Ross (2017) found out the linkages between satisfactions; repurchase decisions and pre and post - purchase behaviour. They found out the strong link between customer behaviour and derived profitability coming out of use or consumption of a product or service.

G. L. Shostack, (2018) worked out a detailed framework of —Designing the Services that really Deliver, in - Harvard Business Review with practical aspects and environmental prospects. He told that, no one systematically quantifies the process or devises tests to ensure that the services which are formulated, are having any impact on the measurement of capacity and productivity in real situation.

M.J. Bitner (2018) worked out on the inception of services marketing mix. She told that there is a positive shift in consumer preferences in relation to services quality. This was a multidisciplinary approach gave birth to a systems approach to the components of marketing mix.

R.P. Fisk, W.Brown, (2019) in their tracking the evolution of services marketing literature, in journal of retailing, drew attention of marketers on development and surfacing of services marketing thought and gave new and varied , innovative ideas of distribution.

III. RESEARCH METHODOLOGY

Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically. In this we not only talk of research methods but also consider the logic

behind the methods or techniques. A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to research purpose with economy in procedure. In this study descriptive type of research design has been used to analyse.

SAMPLING DESIGN

The research design constitutes the blue print for the collection, measurement and analysis of data. There are types of research design; they are exploratory research design, experimental research design and describe and diagnostic research design. The research had adopted descriptive research design for the study.

SAMPLING POPULATION

The aggregate elementary units in the survey are referred to as the population. Here it covers the entire customers of the Cap Digi-soft Solutions Pvt Ltd in Coimbatore. This includes the list of 120 respondents (refer to the analysis of data).

Primary Data

Primary data are those, which are collected for the first time. They are original in character. The data collected by the investigator for the first time for their own use is usually classed as primary data.

Secondary Data

Secondary data are those that have already been collected by others. These are usually available in journals, periodicals, dailies, research publication official records etc., they may either be available in published form. When it is not possible to collect the data by primary method, the investigator may make use of this method.

DATA ANALYSIS AND INTERPRETATION

The results of the finding of the data analyzed from the questionnaire. The data was analyzed on the basis of research objective and questionnaire items using statistical tools, to generate frequency Percentage analysis, Chi square analysis, Correlation analysis.

PERCENTAGE ANALYSIS

Percentage refers to a special kind of ratio. Percentage is used in making comparison between two or more series of data. Percentage can also use to compare the relationship.

$$\frac{\text{No. of respondents}}{\text{Total no. of respondents}} \times 100$$



CHI-SQUARE TEST

Karl Pearson developed a test for testing the significance of discrepancy between experimental values and the theoretical values are obtained under some theory of hypothesis.

$$\chi^2 = \sum(O-E)^2/E$$

CORRELATION

Correlation analysis in research is a statistical method used to measure the strength of the linear

relationship between two variables and compute their association.

$$r = \frac{n \sum X Y - \sum X \sum Y}{\sqrt{(n \sum X^2 - (\sum X)^2) \cdot (n \sum Y^2 - (\sum Y)^2)}}$$

ANOVA

The Anova test is performed by comparing two types of variation, the variation between the sample means, as well as the variation within each of the samples. Below mentioned formula represents one way

$$F = MSB/MSE$$

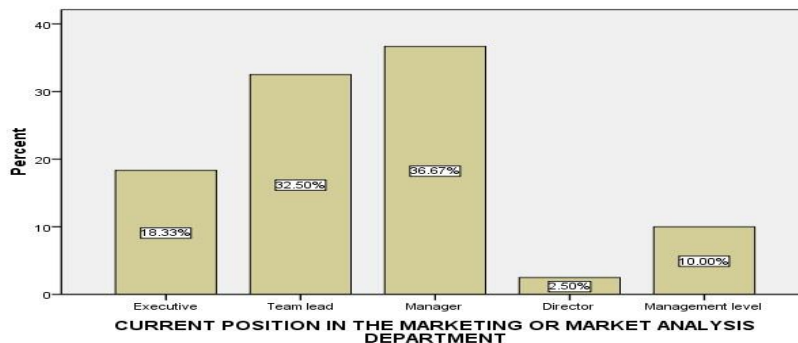
ANALYSIS AND INTERPRETATION

PERCENTAGE ANALYSIS

CURRENT POSITION IN THE MARKETING OR MARKET ANALYSIS DEPARTMENT

CURRENT POSITION	RESPONDENTS	PERCENTAGE
Executive	22	18.3%
Team lead	39	32.5%
Manager	44	36.7%
Director	3	2.5%
Management level	12	10.0%
Total	120	100.0%

Source: primary data



INTERPRETATION

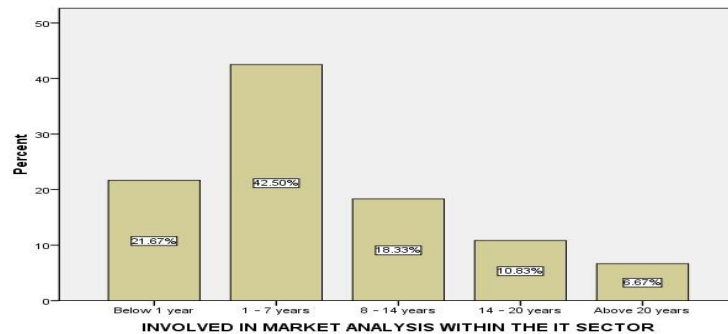
The above table shows that current position in the marketing or market analysis department, 18.3% of the respondents are executive, 32.5% of the respondents are team lead, 36.7% of the respondents are manager, 2.5% of the respondents are director and 10.0% of the respondents are management level

Majority 36.7% of the respondents are manager

INVOLVED IN MARKET ANALYSIS WITHIN THE IT SECTOR

INVOLVED	RESPONDENTS	PERCENTAGE
Below 1 year	26	21.7%
1 – 7 years	51	42.5%
8 – 14 years	22	18.3%
14 – 20 years	13	10.8%
Above 20 years	8	6.7%
TOTAL	120	100.0%

Source: primary data



INTERPRETATION

The above table shows that involved in market analysis within the it sector, 21.7% of the respondents are involved in below 1 year, 42.5% of the respondents are involved in 1 – 7 years, 18.3% of the respondents are involved in 8 – 14 years, 10.8% of the respondents are involved in 14 – 20 years and 6.7% of the respondents are involved in above 20 years Majority 42.5% of the respondents are involved in 1 – 7 years .

CHI-SQUARE ANALYSIS
Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Current position in the marketing or market analysis department *						
Current methods for market analysis within the organization are effective	120	100.0%		.0%	120	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2sided)
Pearson Chi-Square	12.796 ^a	16	.688
Likelihood Ratio	14.948	16	.528
Linear-by-Linear Association	.088	1	.766
N of Valid Cases	120		

a. 17 cells (68.0%) have expected count less than 5. The minimum expected count is .23.

		Value	Asymp. Std. Error ^a	Approx. T ^b	Approx. Sig.
Ordinal by Ordinal	Gamma Kappa	.001	.10	.01	.99
Measure of					



Agreement	.014	.05	.27	.78
N of Valid Cases	120			

RESULT: From the output through the Chi-square text, it is obtained that the asymptotic significance is 0.000 which is less than 0.05 (i.e., $0.00 < 0.05$) describes that there is no relationship between the current position in the marketing or market analysis department and current methods for market analysis within the organization are effective. The value is obtained is less than 0.05 interpreted that null hypothesis (Ho) is accepted.

CORRELATION

Descriptive Statistics

	Mean	Std. Deviation	N
INVOLVED IN MARKET ANALYSIS WITHIN THE IT SECTOR	2.38	1.139	120
AWARE OF THE ADVANCED ANALYTICS TECHNIQUES	2.32	.980	120

Correlations

		INVOLVED IN MARKET ANALYSIS WITHIN THE IT SECTOR	AWARE OF THE ADVANCED ANALYTICS TECHNIQUES
INVOLVED IN MARKET ANALYSIS WITHIN THE IT SECTOR	Pearson Correlation	1	.023
	Sig. (2-tailed)		.803
	N	120	120
AWARE OF THE ADVANCED ANALYTICS TECHNIQUES	Pearson Correlation	.023	1
	Sig. (2-tailed)	.803	
	N	120	120

RESULT

From the output the Correlation test, the value obtained is less than 0.01 interpreted that null hypothesis (Ho) is accepted. Thus the involved in market analysis within the it sector and aware of the advanced analytics techniques.



ANOVA

ADVANCED ANALYTICS TECHNIQUES USED IN MARKET ANALYSIS			Sum of Squares	df	Mean Square	F	Sig.
Between Groups	(Combined)		1.686	4	.422	1.180	.324
	Linear	Unweighted	1.000	1	1.000	2.798	.097
	Term	Weighted Deviation	.852	1	.852	2.384	.125
			.834	3	.278	.778	.508
Within Groups			41.105	115	.357		
Total			42.792	119			

ADVANCED ANALYTICS TECHNIQUES USED IN MARKET ANALYSIS

IMPACT OF ADVANCED ANALYTIC OBTAINING VALUABLE MARKET		N	Subset for alpha = 0.05	
			1	
Student-Newman-Keuls ^a	Agree	41	1.59	
			1.69	
	Strongly Agree	36	1.79	
			2.00	
			2.00	
	Neutral	33		.531
	Disagree	4		
	Strongly Disagree	6		
	Sig.			

RESULT

From the above analysis, we find that calculated value of the F-value is a positive 1.180 value, so H1 accept. Since the P value 0.000 is less than < 0.05 regarding there is a significant relationship between advanced analytics techniques used in market analysis and impact of advanced analytics on obtaining valuable market. The results are significant at 4% level.

IV. FINDINGS

Majority 36.7% of the respondents are neutral with market analysis reports are generated frequently within the department.

Majority 32.5% of the respondents are agree with exploring and learning about new advanced analytics techniques.

Majority 36.7% of the respondents are agree with integrated advanced analytics .

Majority 32.5% of the respondents are neutral with barriers hinder the adoption of advanced analytics in market analysis.



V. SUGGESTIONS

Using augmented analytics, company automates data analysis and generates faster and more accurate insights.

It also uses natural language processing techniques to analyse customer reviews and feedback on its products, allowing them to identify areas for improvement and new product opportunities quickly.

By analysing supplier performance, production processes, and inventory levels, identifies opportunities to reduce costs and improve efficiency.

VI. CONCLUSION

Businesses can gain valuable insights into their operations, customers, and markets by leveraging descriptive modelling, predictive analytics, optimization and simulation, and augmented analytics. Advanced analytics allows businesses to move beyond traditional reporting and analysis and into a more sophisticated approach to data analysis. With the ability to analyse vast amounts of data and uncover hidden insights, organizations can make more informed

decisions that can help them gain a competitive edge.

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