Transforming Customer Experience in E-Commerce Market Place: A SMACT Approach

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Abstract

Background/Objectives: No organization can succeed if customers are not taken into confidence. The organizations must listen to its customers and stakeholders and adapt to their changing needs and preferences in the modern business practices connected with e-commerce. Social Media, Mobile, Analytics and Cloud Computing collectively referred as SMAC, the new addition suggested by the paper is Internet of Thing that has found to have a strong impact in transforming the customer experience, thus renaming SMAC as SMACT. **Methods/Statistical Analysis:** The paper focuses on impact of SMACT in E-commerce market place. The paper also attempts to analyses the drivers of SMACT that are responsible for transforming customer experience. Further the paper studies the strategies associated with SMACT for development of E-Commerce. An in-depth literature review was carried out to study the SMAC and IOT effect on customer transformation. A structured questionnaire was developed for studying the adoption of SMACT technology for better e-commerce experience. Statistical software package, SPSS 20 was used to analyze the questionnaire. **Findings:** It was found that drivers like Security, reliability, Integration, discoverability and Interoperability are transforming the customer experience through SMACT adoption and organizations also are encouraging their customers to accept these technologies. Organizations are also developing specific business strategies for incorporating these technologies in their business models. **Application\ Improvement:** Internet of Things has found its footholds in modern technologies among customers and they are readily accepting them as a part of their lives. Social Media, Mobile, Analytics and Cloud Computing are, hence incomplete without incorporation of "Internet of Things". The paper hence proposes that the IOT should also be studied along with other SMAC technologies and be called as SMACT.

Keywords: E-Commerce, Internet of Things (IoT), SMAC, Transformation

1. Introduction

With the changing business landscape of the world in the area of information and communication technology, people especially younger one wishes to connect with the entire world in the undisputed mode of 24 * 7 using their laptops, tablets and mobile phones/smart phones. Now a days, Smart phones and Social media are the two burning as well as demanding scenario in the world of IT. No organization can succeed if customers are not taken into confidence. "India had always been a text-heavy market. This legacy, coupled with the attraction of connecting with like-minded people privately, is making the IM platforms perfect tool in our hands," said Parijat Chakraborty, executive director, TNS India. It's a good symbol for those companies who are actually looking for a huge investment based on new mobile internet users which has made India as highest message exchanger in the world.[1]

Most of the internet users are showing their presence on the social network which is todays demand and that's why people are drawing their edges with the essence of Social Media. Buying behavior of customers are now predictable because of the influence with mobile, analytics and artificial intelligence. Customers are now leading to seismic changes in buying behavior. Generally most of the Businesses have to adapt strategies through which it can progress with lots of information through

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different channels and sources which undoubtedly allow users for their future transactions and to enhance their buying decisions. Thus with the leading accessibility of social media management, phones with smart features along with analytics, made an easy option to acquire information over a single touch.

Another key player i.e. Cloud Computing also plays a significant role in understanding buying behavior of Customers as well as their experiences for online businesses. Customers are now finding their purchased related solution using online reviews for product reliability and performances, practical rallies for their uses, issues with sellers, post selling experiences, validity of guarantee / warranty etc. Using analytics, a strong impact can be configured by applying statistical tools and techniques on different anomalies like performances, costs and comparison to competing products may help the consumers for a swift and appropriate judgment. Cloud computing, a totally new concept in technological world, which can lead to an added advantage for price comparison over different cross linkages to maximize the pool of customer experiences, increase in brand value and assimilation of user experiences for the escalating platform of E-Commerce. Thus with the impact of all four, i.e. Social Media, Mobile Computing, Analytics and Cloud Computing – which are together referred as SMAC can entirely change the industry scenario in the coming years with their advance as well as strait approach for enhancing customers experiences regarding online purchasing of goods and services via different channels. Figure 1 highlights the penetration of internet in India and provides an overview of Digital India Environment.

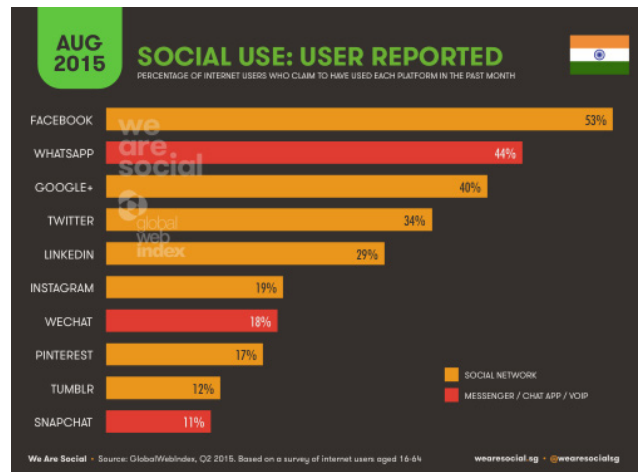
Figure 1. Digital India: User's Penetration.

Figure 2. Usage of Social Media and Messengers.

Figure 2 exhibits social media usage among Indian users. Now SMAC technology can spread faster as few of the specialists from the field have recently forecasted that by the end of year 2020 SMAC will account for $5 trillion of the total spending by customers across the world. Collaborating Social media with mobility can be a new horizon for people interaction and its transformation of knowledge can be well accessed with Analytics and Cloud computing for generating a timed and better result for the customers who are seeking right product on right time.

Adding a new Technology in the same dimension i.e. IoT (Internet of Things) will surely make this approach a totally revolutionized methodology to lure the customers as well as the identification of needs along with their experiences for the product may get an edge with it.

The term IoT, is the network of physical objects—i.e. devices, vehicles, buildings and other items—embedded with electronic devices, synchronous software, sensors and network based connectivity which ultimately allows such things to gather and interchange data amongst them. The IoT allows objects to be sensed and to control remotely across existing network infrastructure, which eventually creates openings for more direct amalgamation of somatic world into computer-based systems thus refining accuracy, effectiveness and financial assistance. "Things," in the IoT sense refer as a complicated combination of hardware, software, data, information and service".[2] With the help of IoT, user can collect beneficial data with the help of various prevailing technologies and maintaining the information flow amongst other devices. It is now anticipated for the generation of large amounts of data

from miscellaneous locations and aggregation of data effectively.

SMACT technology may surely help e-business based organizations to convert their business into high margin businesses because of its absolute productive growth in consumer prospects coz of its worldwide scope, small outflows and high obtainability.

2. Objectives

Three main objectives which are associated with the paper are as follows:

2.1 To understand the concept of SMACT in E-Commerce Market Place

2.1.1 Seller and Buyer Retention

Any organization wants Customer retention as a major activity and ultimately to reduce scarcity of customers. Here SMACT plays a vital role because it customized the audiences using IoT along with analytics so that to improve the organization's capability to attract and hold the customers connected with its product and services.

2.1.2 Mobile Optimization and not Mobile Friendly

Exactly like owing a smart phone and using it smartly are two different aspects from a user prospects, mobile friendly environment and mobile optimization are also two different dimensions.[3] Now a days, Google's search rankings recognizes and rewards mostly mobile-friendly websites as its convenient to open on hand held devices and follows the generally acceptable environment where it works for mobile visitors though it has been initially designed for desktops but the mobile version or optimization is highly solicited because of several factors like:

1. Platform Independency
2. Preferences for User's mobility
3. Any Place anywhere availability
4. Cloud Storage
5. IoT based optimization for better perseverance

2.1.3 Connecting Buyers with Significant Sellers

With the advent of SMAC, i.e. Social, Mobility, Analytics and big data/Cloud, now business networks are reforming the trend of E-Commerce in such a drastic mode that both the buyers and sellers are coming together in all possible manners.

According to Gartner: The concept of searching customers, emerging leads using cloud, using the networked economy and how people connected together are now become a routine manner through which people can be able to be accessed globally.

With the help of search engines, it is very easy and convenient to locate the products and services i.e. available across the world. Irrespective of the locations, it is very easy to find the prospective customers who are determined for the product of their own choice. The major role is been played by Cloud Computing and IoT which are now a days actually accountable for all such searching on wide scale for the benefit of both the buyers and sellers.[4] We can say, IoT is primarily about ambient intelligence and actionable knowledge which is enabled by real world and real time data. It's a win-win situation for both the sides.[5]

2.1.4 Trust is Essential for Buyers from Sellers Prospects

Phishing, IP Spoofing, malware & spyware attacks are several issues which are burning in nature. Now a day, customers are very much attentive and only after examine they click on any content which signifies that trust is the most common phenomenon amongst buyers and sellers. Most important thing is that, when a customer visits an e-store, most of the time they behaves like they are visiting a physical brick and mortar shop where they do exactly the same thing as in physical store. Thus from the sellers prospects, they should be entertained in such a manner so that they start believing that the store is genuine and therefore creating a trust worthy approach.[6]

Here are several things which may protect as well as create a bridge between buyers and sellers which ultimately makes them ready to buy the products online i.e.

• Personal Interface
• Professional Approach
• A trust factor for others
• Secure the website and popularize its security
• Diminish the Risks for Customers
• Creation of Competitive Ambience
• Request for genuine Reviews

Several other factors may also be included like Load time of the web page, FAQ sections, checkout options etc. which makes a better E-commerce user experience.[7]

2.2 To Study the drivers of SMACT in transforming Customer Experience

2.2.1 Setting a SMACT Vision and Strategy
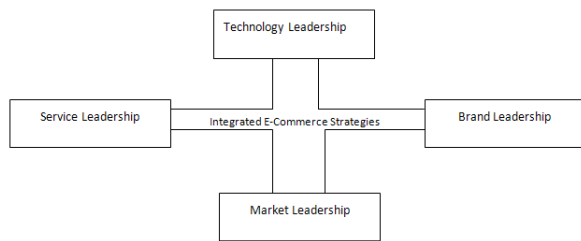
Figure 3. Integration of four E-Commerce leadership's propositions.

Now, Social alliance is strengthening the way people intermingle with one each other and holding businesses as it enhanced customers so as to attain information from various sources. Different applications may enhance the customers reach and thus interacts with them at personal level.[8] Such applications may also collect information regarding customer's reviews and thoughts about the products. SMAC technology may help companies to move into higher margin businesses due to its global reach, low overheads and high availability. Tech Savvy businesses have already recognized the need to recreate their businesses against a backdrop of tremendous economic volatility. Figure 3 shows the integration of E-Commerce leadership's prepositions in market. KPMG India has studied Figure 4 i.e. pre, present and post digital era and has developed a framework that explains the advancements in e-commerce industry.

	Pre-digital era	Digital era	Post-digital era
Organization structure	Highly centralized	Semi-decentralized	Highly decentralized
Decision making process	Management driven	Management driven, with customer input	In collaboration with the customer
Customers	Lack information	More informed	Highly informed
Role of technology	Support function	Strategic function	Business enabler
Disruptive technologies	PC's	Internet, mobility, social media	Artificial intelligence, Robotics, Augmented reality, cloud computing, BYOD

Analysis of pre-digital, digital and post-digital era's, KPMG in india analysis

Figure 4. Analysis of Pre Digital, Digital and Post Digital Era's, Source: KPMG India.

2.2.2 Measuring Digital Success

A development analytical platform is highly required to understand and to measure the digital success. We have to understand the consequences in which such type of development occurs.

Figure 5. Consumer Decision Journey.

Considerations for Digital Success:

- 80% of businesses plan to increase their digital marketing budget by 2016.
- The social reach of e-commerce market is expected to reach USD 50 Billion by 2016.
- Top retailers across the globe have their advertising budget on Social media channels are between 2-25 % of total expenditure.
- Mobile technologies are to be used to scratch down the cost of monetary transactions by upto 80%.
- Approximately 90% of global banks are now started using social networking to achieve customer engagements.
- Figure 5 explains the need of information and influence of digital channels in various stages of consumer decision journey.

Factors responsible for Analytical Revolutions are as follows:

- Online data (social media, social networking linkages, online reviews)
- Primary research (Online surveys & observations)
- Secondary research (Industry reports, online consumer data, online business data)
- Location specific data (GPS based services, mobile device data, geospatial data)
- Images (social images, videos, satellite images, surveillances)
- Supply chain data (vendor catalogs and pricing, quality information)
- Device data (sensors, RF devices)

Most important role is been played by Google Analytics which is easily associated with e-Commerce and user can use to see just how effective the site is which ultimately attracts and converts shoppers.[9]

2.3 To Analyze the Strategies Associated with SMACT for the Development of E-Commerce

2.3.1 Think "Big"

Business intelligence, decision support, and analytics are now core to making business decisions in many organizations. Traditional approaches to using organizational data is now proceeding towards getting obsolete because they fail to answer capacious and high-swift data i.e. now available in different formats which is also termed as "big data". With the increase in cutthroat competitive environment and enhanced efficiency in the industry has leaded the foundation for big data analytics and its technologies. It actually adds new dimensions to analytics by offering improved opportunities for technical resources because of its unique characteristics. However considering big data as a simple data is giant mistake because they are beyond the capabilities of the organizations to accumulate as well as to analyze for accurate and timely decision making; the term has been characterized in the literature as having one or more of four dimensions: volume, velocity, variety, and veracity.

Traditionally, online retailers are now been tracked i.e. what customers purchases, what others like them also bought, similarities between customer purchase behaviors, new offerings to them on the basis of their browsing history Big data presents a potentially transformational opportunity. Beyond transactional data, online businesses can know what customers browsed and how long they stayed, along with their exact click-stream and location. Customers can be tracked with their reactions and suggestions, responses to dynamically generated promotions, contributions to and influences from reviews. In addition, they can access masses of external data from social network interactions, and blog sites where rich sentiments are expressed.

If these things are possible with the help of Big Data, then just imagine the situation between two companies one with the core analysis and support of Big Data and another without it. The answer is very simple, for the survival in e-commerce market, Big Data is a big thing else one can blow with the wind.

2.3.2 Convergence is Needed

Combination of two or more different technologies in a single device is called as Convergence which is progressively more customary in the IT world now a day. Convergence is actually a clear window from where one can observe i.e. from the presentations viewpoint, a single platform can be used for variety of applications so as to provide a sole interpretation of customers.[10]

With the convergence of disruptive technologies, businesses are now become more and more responsive and integration of technologies such as social media, mobility, analytics and cloud computing, unlimited opportunities for everyone has been evolved. Big Data with lesser cost, fast processing capabilities are going to handle this transformation. Now the world is escalating from the term "Traditional" to "Predictive" and now "Prescriptive" analytics. And thus on the basis such proceedings companies can decide "what next best action".

3. Research Design

3.1 Research Objective

The main objective of this study is to study the Transformation in Customer Experience in E-Commerce Market Place through the proposed SMACT Approach. Social media has enabled consumers to actively participate in various online communities and gather information and insight about the product and hence they are no longer dormant recipients of product related information. It helps in locating right information at right time and allows users to access same interest groups.[11] The paper also presents the factors that are driving this change due to confluence of social media mobility and cloud computing (SMAC) and e-commerce. The paper also proposes that Internet of things (IoT) are a major missing link which can further improve the consumers e-commerce experience. There is a lack of academic studies about the SMAC and IoT and its impact on consumer's experience transformation leading to purchase intention but news related to this change is in abundance in the online, print and mass media and the factors defining the change is scarce. In this context it is important to meet the academic need in the field and this is the only limitation of this study.

3.2 Research Methodology

The scope of the research is comprised of adults who have prior experience in using any e-commerce website

or internet. The questionnaire prepared for gathering data was distributed from Jan 2016- March 2016 to the respondents. Respondents belonged to the internet using population and were chosen randomly satisfying the above stated condition.

3.3 Research Sample

Total number of respondents fulfilling the condition was chosen and questionnaire was administered to 251 respondents.

3.4 Data Collection

The first part of questionnaire consist the questions related to demographic information, e-commerce usage pattern and multiple choice questions about use of internet and E-Commerce websites. In the second part, Likert Scale was used to study the factors driving the transformation in consumers experience in E-commerce landscape due to the impact from SMACT. Respondents were asked to indicate their level of agreement with different statements. All constructs were measured using a five-point Likert scale, ranging from 1 = strongly disagree, to 5 = strongly agree.

3.5 Profile of the Respondents

Out of 251 youngsters across the country, 53% were males and 47% were female. Almost 56% population was in the age group of 18-25 years. 35% of the population was in the range of 26-35 years of age. 9% of the population was in the range of 36-45 years of age and 1% of the population was in the range of 46 and above years of age. With respect to educational background 41% of the respondents were bachelor degree holder, 44% were professionals, 12% were PhD's and 3% were only attended high school. With respect to occupation, 40% of the respondents were professionals, 5% were Govt. Employees, 35% were private employees and 20% were self employed. With respect to family income, 18% of respondents were earning between 0 to 1.5 Lac per annum, 26% of respondents were earning between 1.6 to 3.5 Lac per annum, 22% of respondents were earning between 3.6 to 4.5 Lac per annum & 34% of respondents were earning more than 4.6 Lac per annum. With respect of internet usage, 46% of respondents were using light internet, 32% of respondents were using medium internet and 22% of respondents were using heavy internet. Lastly with respect of E-Commerce website usage, 66% of respondents were using light internet, 31% of respondents were using medium internet and 3% of respondents were for heavy internet usage.

4. Result and Discussion

Validity and reliability: First, the items were subjected to an Exploratory Factor Analysis (EFA) with Varimax rotation; items that did not demonstrate high internal validity (acceptable loading) were eliminated. Next, a factor analysis was run using principal component analysis with Varimax rotation, for the remaining items. Security, Reliability, Integration, Discoverability and Interoperability were the five factors extracted that explained 67 % of the variations.

Since this study observes on latent variables such as the Security, reliability, interoperability, discoverability and integration for studying transformation in consumers experience in e-commerce environments, through exploratory factor analysis method. Further Linear Regression was done to ascertain the significance of extracted factors with respect to E-Commerce Usage in the new IoT environment. For reliability test The Cronbach's alpha value was calculated using SPSS 20, the value was found to be 0.856 which is well within the accepted limits. Results of KMO and Bartleltt's test were also significant. Factor analysis was conducted with Extraction Method used was Principal Component Analysis. Varimax rotation Rotation with Kaiser Normalization was used and eigen values were fixed at 1. The factor loading cut off (absolute value point) was set at 0.6.

4.1 Regression Analysis

Based on the multiple regression results, Five factors extracted have significant relationship with e-commerce website usage. However, social influence provided insignificant impact on intention. The total variance (R^2) is recorded at 58% indicating that the factors extracted namely, security, interoperability, reliability, variety and discoverability contribute to the consumers experience I the new SMACT environment. In terms of relationship between e-commerce website usage and variety, discoverability, interoperability and security they were found to have significant relationships. Meanwhile, the respondents feel that reliability is still a major concern as has no relationship with e-commerce website usage.

Table 1. Factor Analysis - Rotated Component Matrixa

	Component				
	1	2	3	4	5
Discoverability					
Manageability- able to manage the entire buying process without any expert help	0.755				
Various search engines help in locating appropriate e-commerce websites	0.710				
I can locate exact product/services based on the keywords	0.660				
Interoperability					
Communication with like minded people is more appealing.		0.742			
Customized services can be delivered to customers due to the service integration		0.711			
Flexibility in using services/products		0.694			
Various platforms allow better interconnection between the services					
Variety					
Choice between various services/products			0.785		
Better product/service recommendations possible in e-commerce websites due to advancements in technology			0.657		
Options to choose from products/services			0.630		
Reliability					
I have no hesitation in sharing sensitive personal information on e-commerce sites.				0.757	
Provision for feedback on these websites help in building trust.				0.713	
Information through e-commerce websites are reliable.				0.672	
Security					
I am aware of the cookies and other GPS based services that may breach my privacy					0.875
Technology has allowed interconnection of various devices (smart phones, tablets, robots, web pages, etc) efficiently					0.61
The E-commerce service provider follows the appropriate measure to secure my transaction information.					0.60

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 8 iterations.

Table 2. Regression Analysis : ANOVAa

	Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	16.193	5	3.239	13.598	0.000b
	Residual	58.349	245	0.238		
	Total	74.542	250			

a. Dependent Variable: E-Commerce Website Usage
b. Predictors: (Constant), Security, Interoperability, Reliability, Variety, Discoverability

Table 3. Hypothesis

		Standardized Coefficients	t	Sig.	Result
		Beta			
Reliability	E-Commerce Website Usage	115	1.567	0.118	Rejected
Variety	E-Commerce Website Usage	-0.239	-3.158	0.002	Accepted
Discoverability	E- Commerce Website Usage	-0.441	-4.983	0.000	Accepted
Interoperability	E-Commerce Website Usage	0.610	6.537	0.000	Accepted
Security	E-Commerce Website Usage	0.164	2.187	0.030	Accepted

Dependent Variable: E-Commerce Website Usage

Table 1 shows the result of Factor Analysis - Rotated Component Matrixa. Table 2 shows summarized results using Regression Analysis. Meanwhile Table 3 illustrates the summarized results of hypotheses in this study.

5. Conclusion

Findings show that the term IoT (Internet of Things) has a major role in association with SMAC. E-Commerce can take a genuine advantage and better opportunity in connection with SMAC and IoT. It has been observed that with the help of IoT, user can be able manage the entire buying process without any expert help and can locate exact product/services based on the keywords thus better product/service recommendations are no in reach.

With the help of IoT, Communication with like-minded people becomes an easy task and can help the customers to get involved in the purchase decision. Another iconic achievement is that, Customized services can be delivered to customers due to the service integration. IoT also provides variety of platforms which allows better interconnection between the available services.

Since all the relevant data are on cloud which is which is presumed to be a safe place, customers must not have any hesitation while sharing their sensitive personal information on e-commerce sites and therefore a genuine feedback mechanism can also be developed using this IoT for the shopping websites which may help in building trust. Overall it's a wise decision to add IoT with SMAC in connection with better customer experiences with E-Commerce websites.

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