
Impact of Social Media Expressions on Co-creation of Innovation

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The main purpose of this research article is to substantiate the contribution of social media expressions towards co-creation of innovation in the organizations. This research article has also emphasized the need for organizations to adopt social media in their overall strategic framework for establishing beneficial and responsive bi-directional channels with their customers. As social media expressions encompassing opinions, experiences and expectations of social media users with respect to product/service/brand/organization would enable organizations in partaking customers in co-creation of innovation. The primary data used in this research article has been collected from 239 social media managers who are actively analyzing social media expressions and are collating them to infer opportunities of creation of innovation with their respective customers. The responses, captured on a five- point Likert scale, were subjected to sample non-probabilistic tests conducted for establishing the validity of the parameters considered followed by correlation test to establish the strength of the correlation. Structural Equation Modeling (SEM) was carried out to fit the data in the proposed model. The findings of this research study have established the contribution of social media expressions in creating opportunities of innovation for the organizations in association with their respective customers. These findings will help the organizations in attaching more importance to social media expressions and in establishing practices around analysis of social media expressions for understanding the voice of the customers.

Keywords: Social Media, Social Media Expressions, Customer Orientation, Product Adoption, Innovation, New Product Development

INTRODUCTION

Social media expressions have the capabilities to attract several ideas from existing and prospective customers. Such social media expressions when subjected to contextual filtering can produce valuable insights for the organizations to get inspired for innovation. These social media expressions can not only help an organization in remaining competitive but also provide an anticipation of future requirements of customers.

Organizations need to have a mechanism/system in place to read/listen the expressions of the customers about the products/services. These expressions may have varied dimensions starting from positive/negative usage experience from intended and unintended perspectives, product/service queries, operational issues, access issues, customer support to differentiated offerings of competing products or services from competitors. A detailed categorization of these expressions and assignment of weightages to different categories can also help organizations in identifying pain or gain points. In addition, social media has also helped organizations in establishing bi-directional interactions for involving their customers in innovation and product development process (Kenly & Poston, 2011). Social media promulgated by Social Networking Sites (SNSs) have helped their users in creation and exchange of content in a community setting (Kaplan & Haenlein, 2010). Social media expressions have also helped organizations in engaging customers

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leading to establishments of greater trust with them (Singhal, 2016).

Another research study based on 186 organizations highlighted the dynamics of social media activities on new product development process (Roberts, Piller&Lüttgens, 2016; Rautela&Singhal, 2017). This research study highlighted that the innovation performance of an organization is positively related to social media activities. Further, complementarity of market-related information and technology-related information in the context of open innovation was established leading to significant positive effect on new product development.

Social media has been credited as a resource for innovation and new product development through developing customer insights, accessing knowledge, co-creating ideas and concepts with customers and launch of new products. However, these expectations from social media have remained partially fulfilled. For instance, usage of social media by organizations for new product development has been lagging behind usage of social media by the general users.

There are some organizations, which have able to put social media to use in developing new customer insights leading successfully to new products. For instance, Nivea (the German personal care brand) took its new product development processes beyond traditional market research techniques for unexpected insights. When the unbiased user content spread across various social media forums was analyzed, a totally unexpected concern regarding stains on clothes was zeroed in (ignoring perceptible concerns of length of protection, skin irritations, and scent). This led to formulation of Nivea Invisible for Black & White making it the most successful new product launch in the history of Nivea (Bilgram, Bartl, & Biel, 2011).

On the other side, there are some organizations, which do not even have a knowledge base on how to utilize social media for innovation. A few organizations have even reported negative

performance outcomes with respect to innovation through social media usage. Organizations need to have clear objectives and strategies to achieve them in place in order to utilize the potential of social media in causing innovation. The scenario however doesn't look promising as less than 50% of organizations are utilizing social media during the process of new product development. For a number of organizations, expectations of new product development with the usage of social media were partially fulfilled. Still, social media was credited with generation of customer insights leading to suggestive frameworks. However, the organizations which simply invested in social media infrastructure without clear strategy and desired skillsets failed to achieve the desired results. Some organizations even reported negative performance as they suffered from information overload and subsequent difficulties in processing volumes of information. A few success stories were reported with organization, which were able to integrate social media in almost every stage of new product development process (Roberts & Candi, 2014; Kane et. al 2014).

LITERATURE REVIEW

Innovation as a combination of means and ends (Rickards, 1985), represents a process starting from invention to its exploitation for commercial success (Roberts, 1987). On the basis of the impact caused, innovation has been classified among incremental innovation (representing continuous change) and radical innovation (discontinuous and disruptive change) (Schumpeter, 1934).

Organizations need to have access to technical aspects of innovation to achieve success in competitive markets placing high importance on interactions with external stakeholders influencing the innovation process. Closed innovation (developed within) and open innovation (with external stakeholders) are two categories organizations adopt while approaching innovation. However, closed innovation is deemed outdated now owing to following four factors (Chesbrough,

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2003):

Mobility of workforce is enhancing the rate at which explicit and tacit knowledge is entering and leaving organizations.

The employees are being allowed to innovate on their own independently of the organizations doing away the defined need of having an in house research and development facilities.

Ideas, which are based on shorter product life cycles and are not being pursued by research and development teams can be taken to market on an external path. The capable suppliers of complex products may cause obstacles for the organizations, when they start collaborating with competitors utilizing collectively gained knowledge. All stakeholders (suppliers, customers, research institutions, consultants and competitors) in an organization can contribute as catalysts of open innovation to profit from and to create, interpret and research practices (Chesbrough, Vanhaverbeke, & West, 2006).

Researchers have regarded research and development complementary to openness in ideas and resources from external actors. Closed and open innovations are considered extremely opposite to each other suggesting the organizations to choose the degree of openness based on resources involved and suitability of environment (Dahlander & Gann, 2010).

Different organizations have interpreted open innovation differently as one approach towards open innovation has been through collaborative innovation between organizations (Bossink, 2002) and the other approach has focused on open innovation involving the customers for ideas to discover, develop and refine innovations (Chesbrough et al., 2006).

Social media as a group of internet-based technologies has facilitated its users in creating, editing, evaluating, and/or linking to content or to

other creators of content (Majchrzak, Faraj, Kane, & Azad, 2013). Social media undoubtedly provides connection opportunities to many users with proper two-directional communication channels. The associated advantages like low costs and low usage thresholds are also inherently realized making social media an important medium for organizations in maintaining relationships with customers and employees (Dunn, 2010). This has helped organizations in creating constructive value perceptions leading to greater association of customers and facilitating continuous exchanges of ideas as well as suggestions (Singh & Singhal, 2015).

Organizations have realized the potential of social media in establishing a continuous bi-directional channel with customers and have been increasingly using social media to influence the innovation process in association with their customers. Customers can co create innovation through participation in organization initiated activities and exchanging product ideas (Kietzmann, Hermkens, McCarthy, and Silvestre, 2011; Roberts and Piller, 2016).

Innovation creates new knowledge instrumental in developing new products, processes and services to enhance competitive advantage of the organizations while meeting changing needs of customers (Herkema, 2003). To remain innovative, organizations need to continuously engage their customers in bidirectional communication facilitating smooth exchange of needs and ideas (Vargo & Lusch, 2008). Organizations have increasingly used social media to collect opinions of their customers regarding their products and services. They have also judiciously used social media to collect knowledge about their competitors enabling them to utilize these opinions and knowledge for causing innovation in products and services while designing effective communication strategies (Zhang & Vos, 2014).

Social media expressions are the cumulating representation of opinions, experiences and

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expectations of social media users with respect to product/service/brand/organization encountered by them (Singh & Singhal, 2015). Social media can enable the participant organizations to directly connect with the customers at competitive costs with greater efficiency. As a result, these organizations can achieve benefits of heightened insights into customer behaviors and trends through enhanced interactions with existing customers and greater reach to prospective customers while exchanging ideas for product innovation. Social media facilitates innovation through enablers like Participation, Openness, Conversation, Connectedness and Community (Mayfield, 2008).

A survey of around 90 organizations (manufacturing and services) revealed that organization employing social media for product innovation are getting benefited through better product ideas and faster time to market. Social media is helping organizations in collecting knowledge from both internal as well as external stakeholders and taking full advantage from such knowledge (Kenly & Poston, 2011). Generally, the research conducted till now has rigorously focused on impact of social media on data analysis of marketing initiatives of organizations leading to greater profitability (Kim & Ko, 2012). The research has remained limited in assessing the impact of social media on innovation (Abrahams et al., 2012) whereas comprehensive research on social media can facilitate open innovation and collaborative arrangements with users in different stages of the innovation funnel—ideation, R&D, and commercialization (Ashurst et al., 2012).

Indicators of Innovation

Social media offers the possibilities for its stakeholders such as Participation, Openness, Conversation, Connectedness and Community to support co-creation of innovation (Mayfield, 2008). Social media facilitates the development of market foresight for innovation through Creativity, Expertise, and Collective Intelligence (Cachia et al.,

2007). Creativity is facilitated through numerous interactions on social networks among organizations, consumers, universities and other social entities while engagement with external stakeholders can enable organizations to exploit this valuable knowledge for promoting innovation (Mortara, Ford, and Jaeger, 2013). Incorporating wants and needs of customers at concept phase through their early involvement can help organizations in identification of sources of innovation (Steiber & Alänge, 2013).

Organizations using social media while scanning the environment can also skim through large volumes of content generated by the customers and develop useful insight and market foresight. This can help organizations in remaining competitive and addressing the emerging needs of the customers. For instance, Dell leveraged the ideas expressed on its social media platforms IdeaStorm and Crowdsource as constant sources of ideation and innovation (Bayus, 2013).

Social media provides collective intelligence for collaboration among participants having diverse range of skills, capabilities and knowledge sets to amalgamate incongruent solutions in innovative ways. This has helped in eliminating or reducing bias as different users can concentrate on providing natural solutions for problems experienced. Framework for innovation management has proposed envision, engage, evolve, evaluate and execute as processes for innovation facilitating organizations in learning and sharing best practices while enabling technologies for innovation management (Microsoft, 2013).

Proposed Conceptual Model and Proposition Formulation

Based on the literature review, the researchers have proposed and tested the model as depicted in Figure 1. With the underlying deployment of Social media expressions, the model indicates that organizations that test their product ideas with their customers and

include their feedback on cost quality and timelines in the product development are customer-oriented firms. The impact of being customer oriented assists the firms to increase the product adaption and co-creation of innovation in products and services.

RATIONALE OF THE STUDY

“Digital in 2016”, is a report published on Internet and the social media penetration (Kemp, 2016). The key statistics for digital, social, and mobile media in 2016 are unleashed in this report and reported as below:

- 3.42 billion internet users, equaling 46% global penetration
- 2.31 billion social media users, delivering 31% global penetration;
- 3.79 billion unique mobile users, representing 51% global penetration
- 1.97 billion Mobile social media users, equating to 27% global penetration

Organizations mostly are into a B2B environment where the reach to the customer is through a channel. These predominantly are direct company appointed channels and in some cases, multi franchises who operate for different brands simultaneously. With the above statistics it is evident that social media is proving to be an opportunity to reach the customer short-circuiting the channel to improve agility within the organization. More so there is a collection of diversified views from the social media channel which if leveraged to its potential can prove to be a game changer for an organization. Correspondingly, social media expressions demonstrate to be one of the critical inputs and are an indication of the sentiments possessed by the customers in the market. Social media expressions can be compared to a sentiment spelled out in the voice of the customer. Social networks are the fastest growing industries in the world. The project growth of social media over the next five years is a handsome 25%

and organizations need to realize the potential of social media expressions as soon as possible, (Growthgurus, n.d.). Social media marketing increases your brand’s awareness. 78 % of small businesses use social media to attract new customers. Furthermore, 33% of customers have identified social media as how they identify new brands products and services. 63% of consumers who search for businesses online are more likely to use ones with an informative social media presence. 71% of consumers who received a quick response on social media would recommend the brand to others. With the above startling inputs, the importance of social media expressions is further cemented into the whole growth story of an organization. The researchers through the literature review have arrived at the gaps figuring the areas where social media expressions can turn the tables in the favor of an organization and make it a dominant player in the market leading the competition. The study intends to study the impact of these social media expressions in the co- creation of Innovation in products and services.

METHODOLOGY

This research paper has proposed a system of social media expression indicators, encompassing the constructs of innovation with an intention of accelerating the same to help large and small organizations. The proposed research would empirically validate the proposed Modelbased on data collected from Social Media departments of the surveyed organizations.

Following the frameworks suggested by number of research studies (Idota et al., 2011; Kalypso, 2011; Kärkkäinen et al., 2010),highlighting the benefits such as growth of market share, margins and revenue to be achieved from innovation through social media expressions in the organizations. Following constructs have been proposed for carrying out the research (1) better product ideas, (2) an increase in customer orientation,(3) quality improvements, reduction of time and costs of

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product development time, and (4) improved product adoption. Each construct is linked to various indicators reflecting the nature of social media expressions.

Survey Questionnaire Method for Data Collection:

In order to understand, the types of social media expressions and to associate them with constructs of innovation, the researchers have studied the social media presence points (Facebook, Twitter, YouTube etc) of 18 organizations for 10 continuous days and had observed 744 expressions. Out of these observed expressions, 257 expressions were related to shortcomings in existing products/services and advantages associated with products/services from rivals (better product ideas). 141 expressions were related to changing wants and needs of its customers (customer orientation). 272 expressions were related to quality of the products/services and 74 expressions were related to usage of products/services (product adoption).

To test the various understandings developed on the basis of the conceptual model, data were collected from 239 respondents through a structured questionnaire developed on the basis of previous literature. The first part of the questionnaire is intended to collect data related to the type of respondents. The second part of the questionnaire intended to measure various constructs that are related to the initiatives such as Product idea, Cost quality and Timelines of Product development, Customer orientation, Product Adoption and finally Innovation. Post, which all the statements of the survey were pretested on a sample of 20 Social Media marketing executives of different brands to test the reliability and validity of the statements via a draft questionnaire. Structured questionnaire used five-point Likert scale ranging from Very High (5) to Very Low (1) to obtain the responses from respondents.

Sampling Technique: Purposive Sampling

Technique or also commonly known as “Deliberate Sampling” technique has been used by the researchers to choose the sample for distributing the questionnaire. This sampling technique involves an attempt to deliberately, select the respondents constituting the sample and representing the universe.

Bias Handling: Different types of errors get induced during the data gathering phase and they have to be eradicated before conducting the statistical tests, such as sampling error, non-response error and coverage error. No interviewer was employed for the data collection purpose, which fortified an unbiased response from the respondents, as they were not led to any inferences on their responses. The respondents were contacted at their convenient times and ample time was given for them to respond to the questionnaire, which safeguarded the researchers against a hassled retort. Further, as per the deliberate sampling technique only those respondents were approached who were qualified to respond as per the concept mapping and who were willing to respond closing the doubts of rating scale errors to a large extent.

DATA COLLECTION

In order to explore the significance of the linkages between social media expressions and the proposed four constructs of innovation, a survey-based study, based on the responses from social media departments of the organizations was conducted. The survey instrument was a research questionnaire which requested the social media managers of organizations maintaining social media departments to respond highlighting degree of impact of social media expressions on four constructs of innovation namely, better product ideas, increase in customer orientation, quality improvements, reduction of time and costs of product development time, and improved product adoption.

The survey was mailed to the social media managers

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of 384 organizations in India. The respondents were first explained the purpose of primary data collection through a small introductory note and were then asked to rate the impact of social media expressions on four constructs of innovation. The respondents were also requested to not to answer the survey, if they didn't use social media for the above objectives. Out of 384 surveys issued, 252 filled in responses were received and 239 duly filled in responses were included in data analysis.

DATA ANALYSIS

The Descriptive statistics observed from the data collected is mentioned in table 1

Reliability Testing:

The reliability statistics of the scale predicts the degree of consistency among the variables under test. This consistency of the tool being able to give repetitive reliable results is measured by the reliability tests such as Cronbach's alpha or Split Half analysis. The value of 0.70 or higher represents acceptable reliability (Hair, Black, Babin, Anderson & Tatham, 2007). The results of Cronbach's alpha test, the reliability of the scales for the present study are greater than 0.8 in all the cases thereby indicating an overall higher reliability factor. Table 2 indicates the results of the reliability test by Cronbach's alpha and Split half's method

Table 1: Demographics		
Age- Grp	# of Respondents	Percentage
20 - < 25	2	1%
25 - <30	70	29%
30 - < 35	63	26%
35 - < 40	52	22%
40 - < 45	50	21%
45 - < 50	2	1%
	239	100%
Marital Status	# of Respondents	Percentage
Married	186	78%
Unmarried	53	22%
	239	100%
Nature of Org	# of Respondents	Percentage
Indian	67	28%
MNC	172	72%
	239	100%

Source: Authors' analysis of the data collected

Table 2: Reliability Test results	
Method	Value
Cronbach's Alpha	0.95
Split-Half (odd-even) Correlation	0.97
Split-Half with Spearman-Brown Adjustment	0.98

Source: Authors' analysis with SPSS of the data collected

Data Testing:

The data gathered through the self-administered questionnaire was coded in SPSS 22 and AMOS 21 for further analysis. The statements used in the CFA Analysis were based on the literature review. We therefore conducted Exploratory Factor Analysis (EFA). The objective of EFA is that without imposing any constraint on the outcome; understand the underlying factors' structure (Child, 1990). The Exploratory Factor Analysis was deployed with Principal Component Method with Varimax rotation for extraction of factors. P-Values were calculated for the individual parameters to answer the question of relevancy as the customer. SEM was conducted in two steps to validate the model created. The first step involved statistical validation of the measurement model with the help of confirmatory factor analysis (CFA) and the second stage examined the relationship between various variables considered in the study using AMOS.

Exploratory Factor Analysis

Before we conduct the EFA, it is crucial to test the sampling adequacy of the data. The results reported that Kaiser-Meyer-Olkin's (KMO) value was 0.8540 and even Barlett's test was observed significant at 0.000 level ($p < 0.000$). Basis the calculated values we observed that there are four factors recommended by SPSS which are significant. Total variance explained for these four factors is found to be more than the recommended percentile of 60%.

Measurement Model Analysis:

The items are next subjected to SEM analysis for conducting a CFA to verify the unidimensionality. The relationships as defined in the structural model are analyzed in this step. The model is tested by examining the path coefficients and their significance. The relationships in the proposed model are well supported by the overall model fit indices. The χ^2/df value was also observed to be meeting the recommended value of less than or equal to 3 (McIver & Carmines, 1981). Although, Hair et al. (2013) proposed that a value of model fit indices

between 0.5 and 0.8 is considerably good for social science studies. In this case, we observed the good of fitness to be 0.085 i.e. ~ 0.9 , which ensures that the model fits well with the data. Figure 2 depicts the path diagram with the estimated standardized path coefficients. From the output path diagram, it is evident that all the path coefficients are significant at the level of 0.001.

Analysis of Structural Model:

Casual path analysis was conducted in the second stage of structural equation modeling to test the propositions in the study. Modification indices indicated that most of the pre-defined statements are accepted except the fact that the direct relationship between Product development and customer orientation is found to be weak. Although, Hair et al. (2013) proposed that a value of model fit indices between 0.5 and 0.8 is considerably good for social science studies. In this case, we observed the good of fitness to be 0.9, which ensures that the model fits well with the data. The findings of this study reported that the direct relationship between Customer orientation and Production adoption & Innovation is influenced majorly by involving customers in Product Idea generation and cost & timeliness of product development. The complete model explained more than 60% of variance.

DISCUSSION

The main objective of this article was to assess the impact of social media expression on the co-creation of innovation in products and services. The findings of this study reported empirical evidence to support the proposed model reported in Figure 1. Most of the propositions were supported and the overall prediction of the model is 60 per cent. The findings of this study suggested that inclusion of social media expressions in the domain of Product ideas is a considered to have a strong relationship with the organization to be identified as a customer oriented organization. Further the model provided empirical evidence of the linkages of a customer oriented organization having a better product adoption in the

market and co-creation in the innovation of products. Our study reinforces the statements that were considered as impacts of social media while building the conceptual model and completely concurs with the model linkages.

LIMITATIONS

The researchers during the study have come across the benefits of social media expressions which are sourced from social media. However, certain limitations need to be considered carefully to while attributing co-creation of innovation to social media expressions. While social media turns out to be a platform for like minded people to create share ideas, information online, but there is a caution for the community. There is always a possibility of data leakage and data privacy issues. Moreover social media reduces the face-to-face interactions, which could mislead the understanding of the social media expressions shared by the customers. Lastly, the most crucial threat, which an organization can face, is of identity theft. This is due to the independence than individuals have to create forged identities and submit their social media expressions. This tool can be used by competition to delude the leading organization and take certain steps, which probably are not required. Organizations while considering the social media expressions as one of the streams to gather inputs from the customers have to deep dive and validate a sample of social media expressions to safeguard themselves and save the interests of the organization.

FUTURE RESEARCH DIRECTIONS

In the current research article, the researchers have successfully tested the impact of social media expressions on the co-creation of innovation in products and services. We have touched briefly on how social media expressions affect the new product development process if they are considered as one the input streams. Further deep dive is required in this domain for the organizations to embark the new product development journey. This is also crucial from the organization point of view as the social

media expressions are captured for the product which is not yet offered in the market. It provokes the consumers to express what they desire from the manufacturer in advance and consequently it warrants a higher level of product adoption as customers receive the product which meets their expectations. Therefore the researchers suggest further the development of a conceptual model around the impact of social media expression in new product development and validation of the same through robust statistical techniques/models.

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He is also on the review board of reputed journals such as International Journal of Information Systems and Supply Chain Management (IGI Global) and others. His research interests are in the area of Internet of Things and Supply Chain Management.

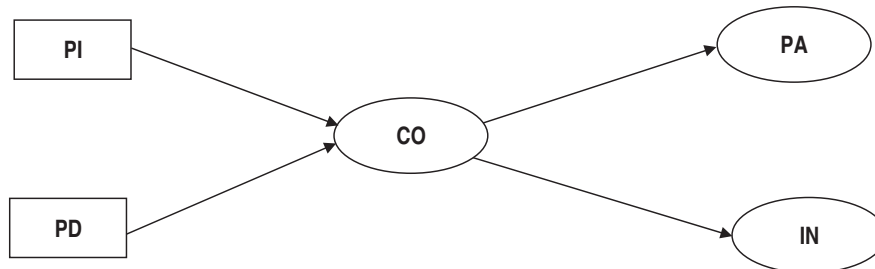


Figure 1. Conceptual Model for the Study (Authors' own.)

Notes: PI—Product Idea; PD—Product Development (Cost & Quality); CO—Customer Oriented; PA—Product Adoption; and IN—Innovation

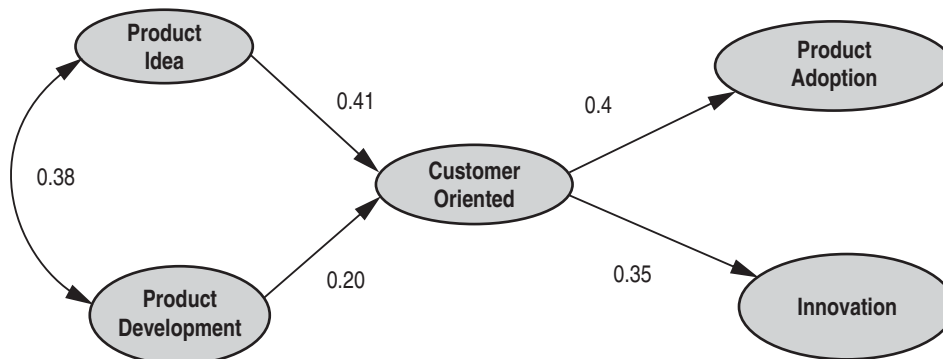


Figure 2. Output Path Diagram (Authors' own based on AMOS output)