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Topic: Key factors for adoption of social media for sharing innovative ideas: through the lens of technology acceptance model

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Abstract

Purpose: The purpose of this study is to find out factors that impact people's idea sharing behaviour on social media. A research framework is proposed and tested using some factors from TAM (ease of use) and IDT (relative advantage) along with added factors of presence of opportunity, easy access, reduced time along with intrinsic and extrinsic motivational factors. Based on the paradigm of stimulus-organism-response by Davis (1985) features and capabilities of social media along with motivational factors were tested together for a holistic understanding of key factors influencing idea sharing behaviour.

Design/methodology/approach: 214 data was obtained from users of social media from across India and analyzed through structure equation modeling using AMOS 24.

Findings: The findings suggest that relative advantage is having highest impact on idea sharing behaviour which in turn is impacted by accessibility, ease of use, opportunity and time. Among motivational factors its playful task, competing and recognition that impacts idea sharing behaviour. Also, not only features and capability factors but individual's motivational factors together impacts idea sharing behaviour.

Orignality/value: the study takes a different perspective of technology acceptance model paradigm and conveys that not only features and capabilities of a system is important but individual's motivational factors together impacts acceptance and use. Both the constructs impacts IT system use such as social media.

Keywords: Social media, open innovation, idea sharing, community of practice, motivations, TAM.

Paper type: research paper

Introduction

In the fast changing environmental dynamics organizations are seeking ideas from anywhere which can help them survive and thrive in the highly competitive environment where social, political, environmental, ecological and technological changes are happening faster than ever. Ideas that can help in the growth of the organization are sought from a diverse range of stakeholders including customers, suppliers, distributors, academia, research institutions, online and offline participants (Chesbrough, 2003; Singaraju et al., 2016) and occasionally from people who may not be connected with the organization at all. Many researchers have found that innovative ideas may be found from outside the firm boundaries (Enkel et al., 2009; Gassman et al., 2010). Organizations seek ideas from outside the firm (Inauen and Schenker-Wicki, 2012; Piligrimiene et al., 2015; Simula et al., 2013), ideas through user communities (Dahlander and Frederiksen, 2012).

Very few studies have been conducted to understand the role social media play in the idea generation phase for the organization and foremost what are those factors that has attracted many people across the globe to share their ideas over social media. The ideas that people wanted to keep to themselves are now available for the

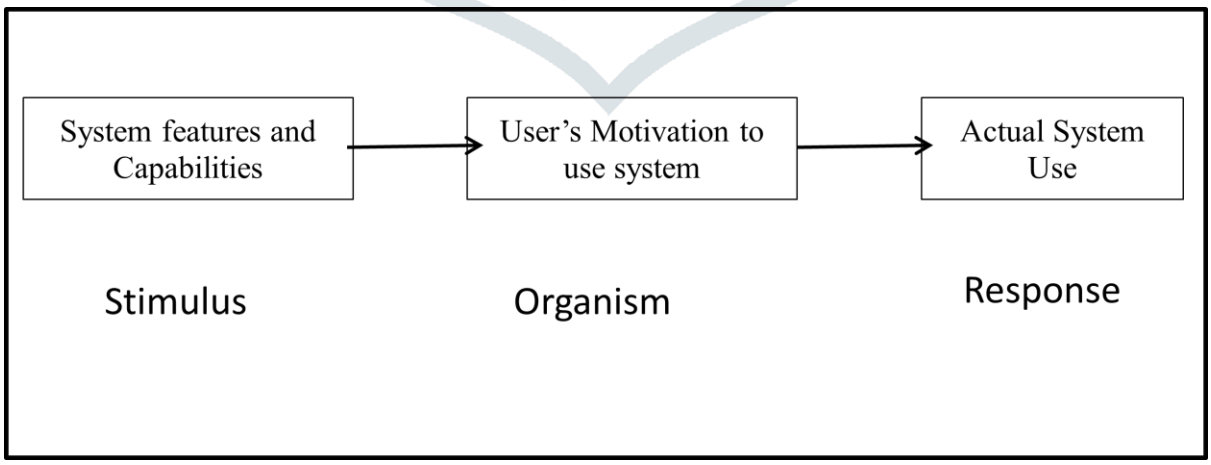
organizations to tap through social media. Social media for innovation falls under the broader umbrella of open innovation for developing radically new products (Iacobucci and Hoeffler, 2015). Studies suggest that whatever be the approach for innovation pursuits be it approach of outside-in approach or inside out approach of open innovation by the firms, it has to be dealt strategically (Brunswicker and Chesbrough, 2018).

This research looks at the technology acceptance model paradigm stimulus-organism- response (Davis, 1985) concept to understand why people share their ideas on social media. Literature review of around 221 peer reviewed articles related to social media and innovation were studied and meta analysis was done to understand in depth how social media impacts innovation front end by impacting idea sharing behaviour of individuals. Around 400 keywords were found that were in the main body of the research papers and 75 different approaches were found to understand the role of social media for innovation. However, there were only a few studies focusing on the relationship between social media, idea sharing behaviour combining features and capabilities of a information technology system such as social media and motivations of individuals together. This study tries to understand these causal relationships.

Most of the approaches taken by the researchers were from the perspective of informal networks, social media as innovation itself (Barnes and Jacobsen, 2013) used by top 500 companies, marketing perspective, crowdsourcing, online communities, collaboration, consumer contests, various customer perspectives like customer co-creation, communications, innovativeness, participant and customers as competitors etc. Very few have focused on why people share their ideas over social media platforms created by the companies itself or over the popular social media sites. The research framework in this study includes social media features and capabilities factors such as presence of opportunity, ease of use, easy access, reduced time and relative advantage and motivational factors such as recognition, monetary reward, competing, playful task, curiosity and learning as factors for understanding actual idea sharing behaviour over social media.

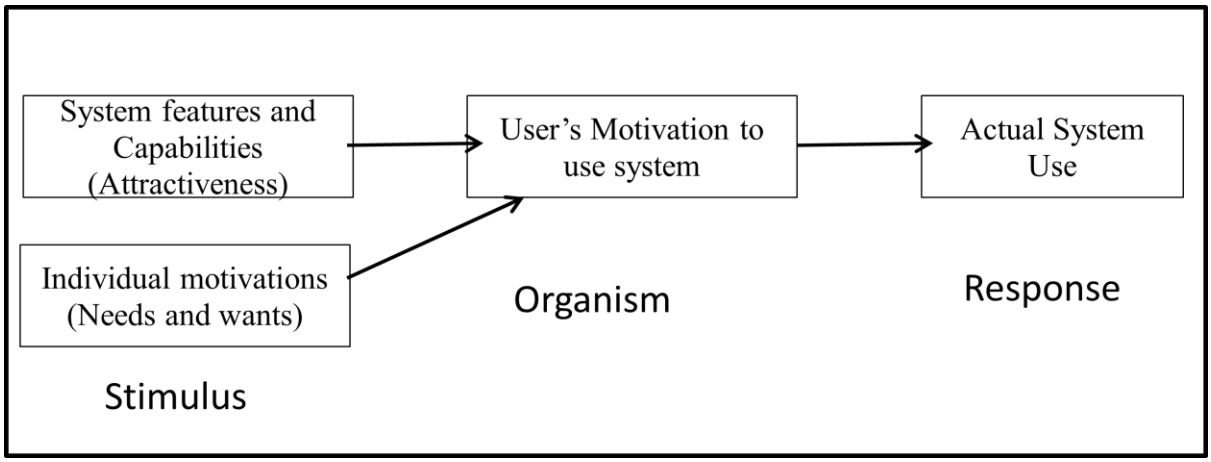
Technology acceptance model (Davis, 1985) deals with only features and capabilities of the system usage which stimulates motivations for behavioural intention and the actual use of the system. However, in real life not only features and capabilities attract users to use a information system such as social media but it is user's intrinsic and extrinsic motivations (the individual stimulators: needs and wants) along with the features and capabilities (system stimulators) of the system that drives individuals to use information system such as social media. Users decide to use a system based on both the constructs and one sided study gives only half understanding of the information system usage such as social media. This study deals with both the constructs in understanding determinants of idea sharing behaviour of the social media users.

Figure 1 below presents the conceptual technology acceptance model



(Source: Davis (1985). A technology acceptance model for empirically testing new end-user information systems: Theory and results. Massachusetts, United States: Sloan School of Management, Massachusetts Institute of Technology).

Figure 2 below brings a new added perspective to the technology acceptance model.

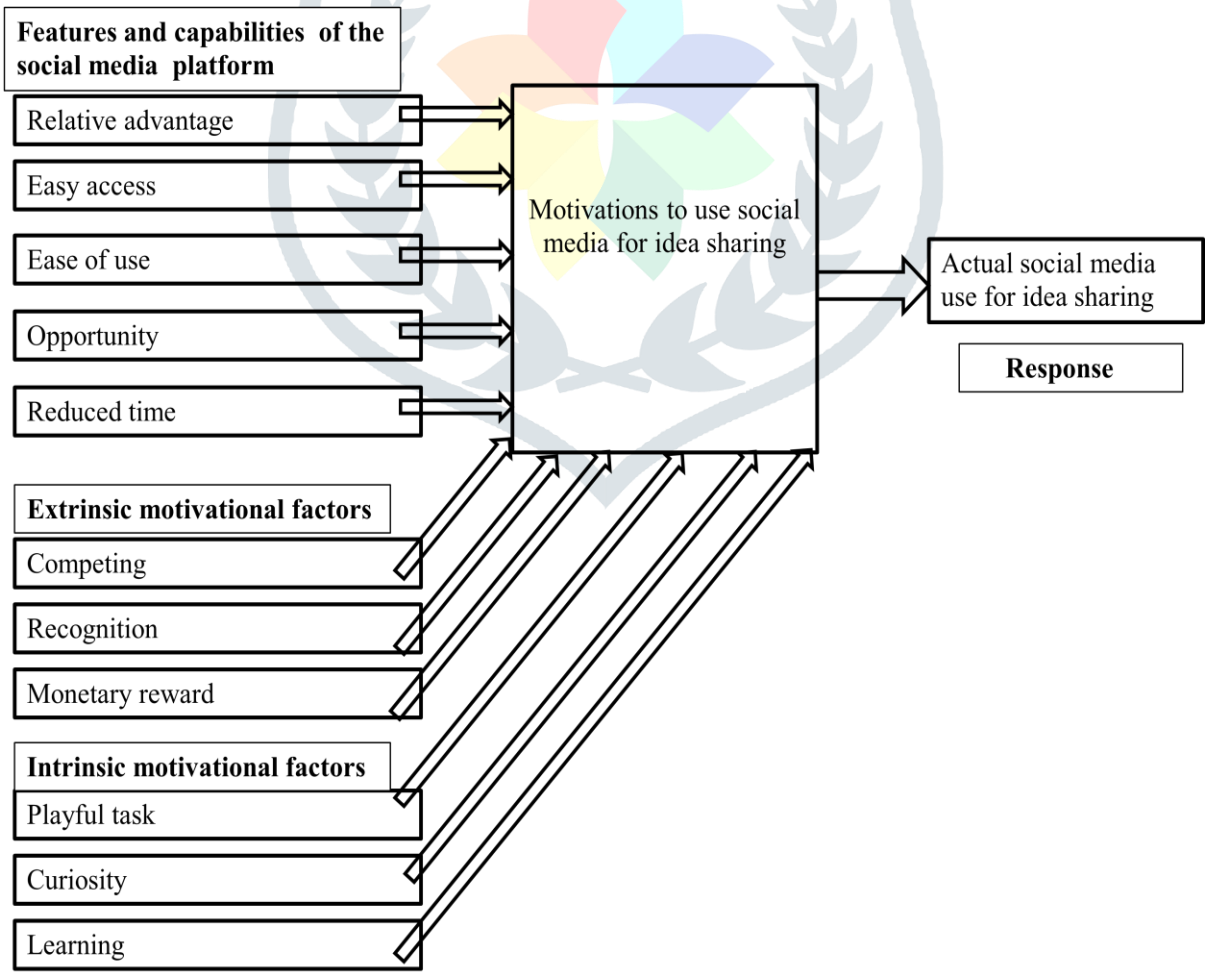


(An added construct of individual motivational stimulators in view of the technology acceptance model)

In real situations people use a new information system or a new technology based on certain attractiveness of the technology features and capabilities and are equally driven by their own intrinsic and extrinsic motivations based on their needs and wants. Both the constructs impacts individual's decision for using or accepting a information system. Use of any of the single construct gives only a part understanding of the technology acceptance and use.

Based on the above construct a research framework is proposed to test the hypotheses on idea sharing behaviour of the individuals.

Below figure 3 proposes a research framework for understanding idea sharing behaviour of individuals.



(Research framework)

Research Questions

Q1 Does social media aid innovative idea sharing behaviour of social media users?

Q2 What are the key features and capabilities of social media that predict innovative idea sharing behaviour?

Q3 What are the key factors of intrinsic motivation of social media users which aid the sharing of ideas among users?

Q4 What are the key factors of extrinsic motivation of social media users which aid the sharing of ideas among users?

Q5 Is it features and capabilities of social media or motivation of social media users which aid the innovative idea sharing behaviour of individuals more than the other among social media users?

Literature review

Social media aids open innovation: the key to organizational growth is in its innovativeness, as consumers are always looking for newer things in a product or a service. Social media is perceived by managers as a potential source of getting newer ideas that they can tap for their innovation purposes. "There is a fundamental change in how companies harness ideas and bring them to the market through open innovation" (Chesbrough, 2003).

Organizations can use social media for their open innovation efforts to build their absorptive capacity (Ooms et al., 2015). Researchers and firms are equally interested in the value created by the external sources of innovation (West and Bogers, 2014). Some believe that online user innovation communities have ideation capability as well as implementation capability (Dong and Wu, 2015).

Innovation through social media in itself is seen as an open innovation, so any innovation through social media is open innovation (Piller et al., 2012). Another view is that open innovation is different from social media since in open innovation the outcome and the process are both open to the public (Huizing, 2011). However, social media can be used to get innovative ideas but once the organizations get the ideas they may not make it public but may use for their product or services launches (Huizing, 2011). This thin line makes innovation through social media a bit different from open innovation. Inspite of this, social media can be used for all types of innovation process and outcomes including open innovation.

Social media can be used for all the innovation processes and stages (Mount and Martinez, 2014), it affects "idea generation, idea selection, idea execution, sustaining ideas and idea diffusion" (Kastelle and Ohr, 2013). Open innovation can also be used for inbound processes and outbound processes (Dahlander and Gann, 2010). It opens up the boundary of organization to the outside stakeholders. A study found that it helps organizations in innovating new products and services resulting in the higher percentage of sales made up of newly developed products and companies that pursue open innovation are likely to produce more radical innovations than companies pursuing closed innovation (Inauen and Schenker-Wicki, 2012).

As explained by Chesbrough (2003), open innovation involves firms to use wide channels of external actors and sources to sustain innovation. Strong association is found in the social media technologies usage in accessing information, interaction for knowledge exchange and innovation performance found in "small and medium enterprises" (Daniel et al., 2017). However, open innovation and outbound open innovation has a saturation point where over-search can have negative effects (Laursen and Salter, 2006).

Informal networks on social media: the very essence of informal networks of innovators is desire to create ideas and innovate (Cockayne, 2004). Studies show that continuous in-depth informal interaction aids innovation (Bowker, 2006). The real work of an organization likely occurs not through the formal hierarchical structure but via informal social networks through which people share knowledge (McNamee et al., 2011). Many researchers have found that innovative ideas gets created in more informal set ups and networks than formal ones. The ideas in informal networks gets created by idea-centric individuals and their contribution in building teams and innovative ideas, which can lead to a new economic activity within new and existing organizations.

Social media is not only important for organizations for innovation purposes but it is also important for knowledge sharing across organization (Gaal et al., 2015). Customers share their ideas over company's own social media sites or social media sites such as Facebook, Youtube, Instagram etc., these online social places where customers interact could be possible sources of innovations for the brands (Carlson et al., 2018).

Co-creation on social media: co-creation is all "about joint creation of value by the company and the customer" (Prahalad & Ramaswamy, 2004). It is also about joint problem definition and problem solving, it is not about the firm trying to woo the customers. Participation and co-creation is seen as a new source of innovation in the age of new media (Cornelio and Gómezz, 2014). Today consumers are the new source of competence for the organization (Prahalad & Ramaswamy, 2004). "Consumer engagement in value co-creation" for organization brings economic, social and functional value (Piligrimiene et al., 2015). Various researchers like (Bilgram et al., 2011; Dodgson et al., 2006; Gebauer et al., 2013; Golooba and Ahlan, 2013; Kastelle and Ohr, 2013; Romero et al., 2014) have dealt with this concept in understanding the various perspectives and role social media plays in creating innovation. Co-creation can be seen as a process and also as an outcome of social media platforms. It helps understand what motivates organizations to go for co-creation outside the boundaries of the firm.

Co-creation happens for many intrinsic and extrinsic reasons. "Consumers have different motivations and expectations for virtual co-creation" and there is strong relationship between their personality and motivations with co-creation (Füller, 2006). Customers are motivated to co-create online and participate in new product development, there are different motivators which impact customers attitude towards co-creation (Romero, 2014).

Users are not only providing creative input in the innovation process but are now becoming equal partners in the co-creation process (Gebauer et al., 2013). Co-creation can be used by the companies at the idea generation and for selecting the ideas for the new product development (Filieri, 2013). Co-creation always carries the risk of conflict but the chances of conflict is less when the members of the community feel that they are treated in a fair manner.

The rise of social media has impacted immensely the relationship between consumers and the focal firm in the co-creation process. It has enhanced the co-creation activities, induced economic activities and brought social exchange among users and the firm. Toolkits on social media provided by the firm, which is used during ideation contests by the users also impacts co-design and ideation (Piller et al., 2012).

Social media is the driver of co-innovation and co-creation. Content analysis of an online innovation community showed that interconnectivity among the members of the online communities produce social capital which aids co-creation and co-innovation (Bugshan, 2015). With customers as co-creators both idea exploitation and idea exploration can be simultaneously achieved (Martini et al., 2014).

Social media in itself cannot create value but it is through the actor to actor interaction that generates information and value during the co-creation process. The Social media acts as a systems resource integrator within business to business and business to consumers usage of social media (Singaraju et al., 2016). Non-intermediary actors are customers and the firm. Social media provides these actors technological platform to realize their value co-creation potential (Singaraju et al., 2016).

In virtual communities, trust plays an important factor in customer generated virtual communities and in firm generated virtual communities. However, the firm's efforts towards creating trust in their sponsored virtual communities have greater value creation capabilities as it has direct and positive effect on member generated information (Porter et al., 2013). Expressions shared over social media such as opinions, expectations and experiences have the potential of co-creating innovation (Kim and Choi, 2019).

Communities of practice on social media

"Community of Practice (CoP) is a term that describes a group of people who share a craft, and/or a profession" (Lave and Wenger, 1991). To facilitate informal interactions through what are usually called communities of practice - groups of individuals with common interests and problems who are dispersed throughout the firm share their knowledge, solutions, opinion and thoughts in the community of practice platform (Birkinshaw and Sheehan, 2003).

Communities of practice members face a worry or an energy for something they do and figure out how to improve as they associate routinely within communities (Dahl et al., 2011; Füller et al., 2014; Gebauer et al., 2013; Hirsch and Greiner, 2013; Wenger et al., 2002).

Innovation communities of practice on social media can be used by the organizations to look for new insights and ideas, save cost of repeating what is already there in the market (Dahl et al., 2011). Communities of practice generates social capital which brings business value and innovation for the firm (Bugshan, 2015). Communities of practice has both positive and significant impact on the firms R&D performance (Füller et al., 2006).

Participant motivations and users motivations for using social media for idea sharing

Participant motivation and user participation has attracted many researchers in understanding why users, consumers, or anyone who is interested in sharing their ideas and insights share their ideas in digital social media platforms. Füller (2010), Füller et al. (2006), and Battistella & Nonino (2005), have researched participant's role and motivations in various innovation contexts such as integrating participants into new product development, linking co-creation from consumer perspective, understanding the impact of participant motivations in open innovation web-based platforms (Battistella and Nonino (2005).

Motivational factors are more effective in retaining users (Wu et al., 2008). When people are both intrinsically and extrinsically motivated then it maximizes the people's performances (Cameron and Pierce, 1994).

In a research when online innovation platforms were studied, it was found that the champions and expert contributions were driven by individual intrinsic and professional extrinsic motivations for gaining knowledge, new knowledge creation and sharing knowledge (Battistella and Nonino, 2005).

Intrinsic motivations like fun factor, showing ideas and curiosity are considered as the main reason for the participants to engage in future product development, but they do not create endurance where as monetary incentives are negatively related to future participation but is positively related to participation frequency (Füller, 2006). Consumers' participation is categorized as "need-driven, curiosity-driven and reward-driven" (Füller, 2010). In another study learning and social engagements were found to be the main motivational factors for information sharing and providing social support to peers using social media (Oh and Syn, 2015).

User motivations

Motivation is very important for the participants to come up with the new ideas (Füller et al., 2012). More than monetary benefits it is the fun-factor and intrinsic stimuli that attracts participants to do development related tasks (Füller et al., 2006).

In a study on twitter a micro blogging site, it was found that non commercial users of twitter post content due to intrinsic utility reasons when their followers are less and are more image utility driven when they have large number of followers, image includes "self worth and social acceptance" (Toubia and Stephen, 2013).

In another study, reward related elements such as monetary and non-monetary rewards were proposed and it was learning that emerged as the motivating factor for participation (Muhdi & Boutellier, 2011). Another research on what motivates user participation on social sites revealed that extrinsic motivation such as "virtual organizational rewards on enjoyment in helping others is contingent whether participations are active or inactive" in social Q & A sites (Zhao et al., 2016). Individual's extrinsic motivation moderates the impact of intrinsic motivation on the knowledge sharing behaviour (Zhao et al., 2016).

It is found in a research that identified, external motivations and interjected motivations has a significant effect on intention (Zhang et al., 2015). Material rewards are not so important rather "it is the soft rewards such as attention, granting time and taking care of other contributor which can be more productive" (Kosonen et al., 2014).

Perceived fairness and strong sense of community are also important triggers for both positive and negative reaction for co-creating activities over social media (Gebauer et al., 2013). Collective truthfulness rating and opinion also affects the quality of information over social media. Participants tend to perceive and share information based on collective opinion shared on the social media. Participants are likely to follow collective truthfulness ratings and show collective sharing likelihood of a statement (Li and Sakamoto, 2014).

Theory of motivation: intrinsic and extrinsic

Among many theories of motivation, the theory of "intrinsic and extrinsic motivation" (Deci and Ryan, 1985), is of greater value for the social media context which is reward driven and considers dynamic changes in human behaviour (Hendricks, 1999), unlike Maslow's hierarchy of needs theory which does not consider social and environmental factors (Mitchell, 1982). This helps in understanding why users, consumers contribute and co-create in an online virtual environment. The various motivations are described in terms of intrinsic in nature and extrinsic in nature. Both internal and external rewards stimulate users willingness to perform actions, intrinsic motivation is about self-desire to meet the new challenges, to observe and to gain knowledge to the fullest capacity (Hendricks, 1999). It is for the enjoyment of the task itself and self satisfaction. Intrinsic motivation is a natural human tendency where one performs for playful and curiosity driven activity, for gaining knowledge. "Intrinsic motivation is found to be a better predictor of knowledge sharing behaviour" (Rajput and Talan, 2017).

Extrinsic motivation is about gaining rewards separate from the task. In extrinsic motivation one performs a task to get certain desired outcomes which are rewarded in monetary and non monetary terms. Rewards can be monetary in terms of winning a prize, financial compensation, giveaways, lottery etc. Non-monetary rewards include, "getting feedback, a thank you, naming as a co-developer", recognition etc. Expectancy theory of motivation is also valuable in understanding why individuals contribute in an online virtual environment and what they expect from online interaction.

Füller (2010), identified many intrinsic and extrinsic motivations which drives individuals to participate in an virtual environment co-creation process. He studied how one's personality and motivation drives expectations. The motives could be curiosity driven, "dissatisfaction with existing products, intrinsic motivation in innovation, gain knowledge, show ideas and to get monetary rewards"(Füller, 2006). Intrinsic motivation, curiosity and showing ideas came as the top motivational factors for engaging in virtual environment.

Battistella and Nonino (2013), also examined the "role of motivation in the attraction of innovation roles" in virtual environment. Another author uses intrinsic and extrinsic motivational factors along with the situational factors impacting innovation support (He & Wang, 2015). Muhdi and Boutellier (2011), examined the motivations affecting participation and contribution of two different innovation communities. Zhang et al. (2015), took the approach of self determination theory in explaining the user extrinsic motivation for evaluating online content quality.

Building on "motivation theories and uses and gratification theory", Kosonen et al. (2015), studied how the propensity to trust, intrinsic as well as extrinsic motivations drive individual intentions to share their knowledge in idea crowdsourcing platforms. When the shared idea gets promoted individual motivation is boosted which in turn enhances willingness to share ideas (Turner and Petrunin, 2015).

Value based motivations such as utilitarian, personal self enhancement, hedonic, social and personal integrative motives promotes the consumer engagement with the firm hosted virtual communities (Claffey and Brady, 2017).

In an online virtual community co-creation participation by consumers was found to be driven by altruism and social reputation where altruism was the top most driver (Bettiga et al., 2017). "The key drivers of consumer participation in online market research communities" was found to be sense of identification with the online community, their feelings heard by the sponsoring community and trust in the sponsoring company (Bang et al., 2018).

When contributors knowledge sharing activity is seen as in-role behaviour their motivations are externally driven whereas when their knowledge sharing activity is seen as extra-role behaviour their motivations are internally driven (Arazy et al., 2016).

Technology acceptance model (TAM)

Technology acceptance model (TAM) is a theory of information system that models
how a user accepts and use a new technology, how various features and capabilities impacts user behavioural intention and then the actual system use by the individuals. This theory was first proposed by Davis (1985), which basically consisted of user motivational factors such as "perceived ease of use (PEOU)", "perceived usefulness (PU) of the technology features and capabilities and attitude towards technology" with outcome

"variables of behavioural intention" and technology use. These are the factors which influence users decision to use or not to use a new technology. Later on extended versions of TAM such as "TAM2 (Venkatesh & Davis, 2000), and unified theory of acceptance and use of technology (UTAUT)" were adopted to explain user motivation, attitude and behavioural "intention to use" a new technology (Venkatesh et al., 2003).

Adoption of social media by using TAM modified model was also examined at the company level (Bogea & Brito, 2018). Social media can foster and promote social innovation and as a "social innovation itself has the characteristics of wide adoption and diffusion". Innovation diffusion theory can "determine the degree of its adoption" (Charalabidis et al., 2014).

Research framework

(Please refer figure 3) Unlike other models which are based on the firm's boundaries (Chesbrough, 2003), innovation outcome and process (Huizingh, 2011) and social collaboration model (De Moor, 2013). This research model is based on the why factor (individual motivational factors) and the how factor (features and capabilities) of social media. This explains why people share their ideas on social media, how social media stimulates ideas sharing behaviour which leads to actual ideas generation for innovation. Which features and capabilities stimulate ideas sharing behaviour and which is most important for people for sharing ideas through social media. Companies spend lot of time and money in gathering new ideas in the innovation process to improve and produce new products and services. Social media has emerged as one of the fastest and low cost gateway for accessing ideas from the larger population.

At the next level it also explains various motivational factors that leads to idea contribution by the individuals, consumers, users and participants that leads to idea generation in the innovation process. This will also help in understanding which motivation has higher impact on ideas sharing behavior than the other.

A few TAM and IDT factors are taken along with added factors of presence of
opportunity and reduced time to investigate the features and capabilities of social media that stimulates ideas sharing behaviour. In addition extrinsic and intrinsic motivational factors are added in the research framework. This explains the relationship between social media and idea sharing behaviour of individuals and their motivations behind idea sharing over social media. Earlier studies have not taken into consideration both features and capabilities (technology system driven) and extrinsic and intrinsic motivational (individual driven) construct together in understanding the behavioral intention of ideas sharing. This framework brings a more holistic approach in understanding behavioural intention.

Methodology

For this research, structured survey was designed from different items from different scales in the related studies and used for social media context. Structured survey is suitable for collecting opinions, attitudes and feelings from large samples (Barnes & Jacobsen, 2013). Data was collected through a survey questionnaire. A structured questionnaire was designed based on the set of identified variables. There were forty six questions based on the identified variables and ten questions were based on the demographics. The questionnaire consisted of fifty six questions in total.

People using social media were contacted randomly using different channels and requested to fill the questionnaire in the Google form. The responses were collected by sending communications through whatsapp, facebook, and gmail. The respondents were social media users from across India.

Likert scale was used for data collection, where 5 indicated highly agree and 1 indicated highly disagree. All other values are quantifying levels in between these two numbers. The variables that were identified served as a guide for the development of a structured questionnaire that comprised primarily of items borrowed from existing scales in the literature. Data was collected through posting survey link on online Mygov forum, which is government of India's largest interaction and idea sharing and connecting platform and used whatsApp, sms and e-mails for data collection.

Out of 214 respondents 168 are those who have already shared innovative idea over social media platform and 46 are those who have intention to use social media for idea sharing. Thus the sample size is unbiased and

contains both views, which is very important in understanding social media usage for idea sharing and generation.

Structural equation modelling was used to analyse the data. Data collected through sample survey was tested through Cronbach's alpha. The data adequacy was tested through Kaiser-Meyer-Olkin measure of sampling adequacy (KMO). Hypotheses testing was done through structural equation modelling (SEM), for the analysis. Analysis was done in IBM SPSS statistics, AMOS 24.

Results and discussion

Below table presents the general demographic details of the respondents. Number of respondents was 214.

Table 1:Demographic details

Demographics	**Demographic Detail**	**Percentage**	**Number of responses**
Gender	Male	66.8 %	143
	Female	32.2 %	69
	Prefer not to say	0.9 %	2
Profession	Student	7 %	15
	Startup entrepreneur	7 %	15
	Unemployed	2.3 %	5
	Retired	2.8 %	6
	Housewife	1 %	2
	Social activist	0.5 %	1
	Employed	58.4 %	125
	Self employed	21 %	45
Age	20-30	39.7 %	85
	31-40	22.9 %	49
	41-50	22.4 %	48
	51-60	11.2 %	24
	61 and above	3.7 %	8
Demographics	**Demographic Detail**	**Percentage**	**Number of responses**
Education qualification	10th or less	0.9 %	2
	10+2	12.1 %	26
	Graduation	37.9 %	81
	Professional	38.8 %	83
	PhD	8.9 %	19
	MSW/MDM	0.5 %	1
	Post graduate in management	0.5 %	1
	MBA	0.5 %	1
Nature of organization	For profit	66.8 %	143
	Non profit	18.1 %	39
	Government	14.9 %	32
	Teaching	0.5 %	1

Reliability and Normality Analysis

To check the reliability of the item scales used in the study, Cronbach's alpha was tested. Cronbach's alpha found was 0.963, this shows high reliability. Below table shows the reliability test showing Cronbach's alpha of each variable and the coded item scales.

Table below presents "Cronbach's Alpha Reliability test" of all the variables and the codes given to the item scales (N = 214).

Table 2: Cronbach's alpha reliability test

Variable Name	Item scale codes	Cronbach's Alpha
Presence of opportunity	O1, O2, O3	0.695
Ease of use	U1, U2, U3	0.802
Easy Access	A1, A2, A3	0.797
Reduced Time	T1, T2, T3	0.782
Relative advantage	RA1, RA2, RA3	0.854
Extrinsic motivation	EM1, EM2, EM3	0.793
Getting Recognition	RG1, RG2, RG3	0.808
Monetary Reward	REW1, REW2, REW3	0.924
Competing	C1, C2, C3	0.775
Intrinsic motivation	IM1, IM2,IM3	0.786
Playful Task	PT1, PT2, PT3	0.817
Curiosity	Cur1, Cur2, Cur3	0.810
Learning	L1, L2, L3	0.787
Dependent variable	D1, D2, D3	0.654

Normality Analysis

Skewness value ranging between -1.96 to 1.96 of data is considered to be Normal (Bulmer, 1979; Chemingui & Ben lallouna, 2013). Normality Analysis of the variables shows that skewness value of all the variables except O1, O2 & U1 is between -1 & 1. However the skewness of O1, O2 & U1 is -1.255, -1.087, -1.057 respectively, which shows that it is in the acceptable range for considering them to be normal, i.e. in the range of -1.96 to 1.96.

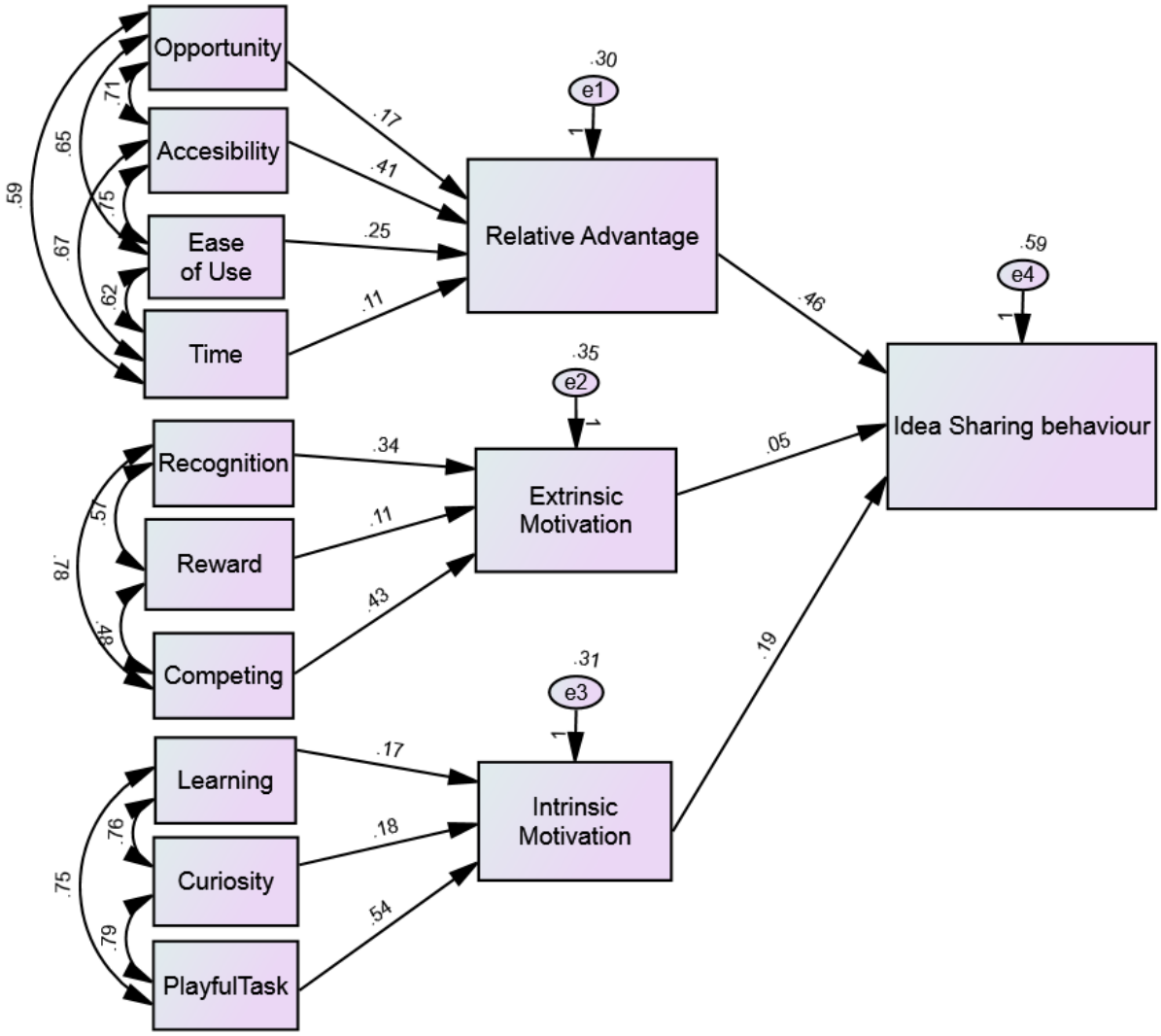
Table 3: Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.936
Bartlett's Test of Sphericity	Approx. Chi-Square	7220.307
	Df	741
	Sig.	0.000

KMO measure of sampling adequacy is found to be more than 0.6 which is found to be good at 0.936. The Bartlett's test of Sphericity was found to be significant (.000), indicating rejection of null hypothesis of variance covariance matrix to be an identity matrix.

Analysis in structural equation model

After checking the reliability of the measures, a structural equation model in AMOS 24 was developed to test the hypotheses. The best fit model with estimated coefficients is depicted in figure below.



Best fit output model of Structural Equation Model in AMOS 24 testing the hypotheses

The model depicted in figure above was found to be the most appropriate model. Out of 5 variables on features & capabilities & 3 variables each on intrinsic motivation & extrinsic motivation each. Parameters of identified models were estimated. Having estimated the parameters of the model, evaluation was carried out, using indices of fit. The model proposed in the figure was found to have the best model fit statistics. The overall indices were found to be within the limits recommended in the literature. In the proposed model all the paths were found to be significant at 0.001 level. P value is significant, and the model fit has been evaluated using CMIN/DF and incremental fit indices, like GFI, NFI, CFI, RMSEA.

CMIN/DF ($CMIN/DF = 1 - \frac{\text{Residual weighted sum of square}}{\text{Total weighted sum of square}}$),

GFI, ($GFI = 1 - \frac{\text{Residual variance in covriance matrix}}{\text{Total variance in covariance matrix}}$) ,

NFI, (Normed Fit index = $NFI = \frac{X_N^2 - X_M^2}{Y_N^2}$),

CFI ($1 - \frac{X_M^2 - 2f_M}{X_N^2 - 2f_N}$) &

RMSEA ($RMSEA = \sqrt{\frac{X_M}{(N-1)2f_M}}$)

NCP (non centrality parameter) = Normal theory weighted least square X^2- df_{model}

The proposed model was selected on the lowest CMIN/DF & RMSEA and highest GFI, NFI & CFI. The values of the computed fit indices of the model are presented below:

CMIN/DF = 12.715, GFI = 0.708, NFI = 0.708, CFI = 0.723, NCP = 870.349 (HI 90), RMSEA = 0.235

Regression equations for the proposed model is as follows
Idea sharing on social media = .46 relative advantage + 0.05 extrinsic motivation + 0.19intrinsic motivation+ e4
Relative advantage= 0.17 opportunity + 0.41 accessibility+ 0.25 ease of use + 0.11 time + e1
Extrinsic motivation = 0.11 reward + .34 recognition + .43 competing + e2
Intrinsic motivation = 0.17 learning + 0.18 curiosity + 0.54 playful task + e3

Table 4 below presents the estimate value for the covariances between the variables.

Table 4: Estimate value of covariances

			Estimate
Recognition	<-->	Reward	0.574
Reward	<-->	Competing	0.478
Recognition	<-->	Competing	0.784
Learning	<-->	Playful task	0.746
Learning	<-->	Curiosity	0.759
Playful task	<-->	Curiosity	0.787
Opportunity	<-->	Time	0.595
Time	<-->	Ease of use	0.625
Ease of use	<-->	Accessibility	0.754
Opportunity	<-->	Ease of use	0.649
Opportunity	<-->	Accessibility	0.709
Time	<-->	Accessibility	0.670

This shows how two variables are related to each other through estimate value of covariances.

Presentation of results in light of hypotheses
The results are presented below in conjunction with the respective hypotheses.

H1. There exists a positive relationship between **social media stimulation** and innovative **idea** sharing behaviour using social media.

The following equation shows that there exists a positive relationship between **social media stimulation** and innovative **idea** sharing behaviour using social media, hence this Hypothesis is tested positive and remains valid.

Idea sharing on social media = .46 relative advantage + 0.05 extrinsic motivation + 0.19intrinsic motivation+ e4
H2. There exists a positive relationship between **presence of opportunity** and innovative idea sharing behaviour using social media.

Presence of opportunity is affecting relative advantage positively by regression weight of +0.17 and relative advantage is further affecting Idea Sharing behaviour positively by regression weight of +0.46. So H2 is also tested positive & found to be valid.

H3. There exists a positive relationship between **ease of use** and innovative idea sharing behaviour using social media.

Ease of use is affecting relative advantage positively by regression weight of +0.25 and Ease of relative advantage affecting Idea Sharing behaviour positively by regression weight of +0.46. So H3 is also tested positive & found to be valid.

H4. There exists a positive relationship between **easy access** and innovative idea sharing behaviour using social media.

Easy access is affecting relative advantage positively by regression weight of +0.41 and relative advantage is further affecting Idea Sharing behaviour positively by regression weight of +0.46. So H4 is also tested positive & found to be valid.

H5. There exists a positive relationship between **reduced time** and innovative ideas sharing behaviour using social media.

Reduced Time is affecting relative advantage positively by regression weight of +0.11 and Relative Advantage is further affecting Idea Sharing behaviour positively by regression weight of +0.46. So H5 is also tested positive & found to be valid.

H6. There exists a positive relationship between **relative advantage** and innovative idea sharing behaviour using social media.

Relative Advantage affecting Idea Sharing behaviour positively by regression weight of +0.46. So H6 is also tested & found to be valid.

H7. There exists a positive relationship between **extrinsic motivation** and innovative idea sharing using social media.

Extrinsic motivation is affecting Idea Sharing behaviour positively by regression weight of +0.05. So H7 is also tested positive & found to be valid.

H8. There exists a positive relationship between extrinsic motivation like **getting recognition** and innovative idea sharing behaviour using social media.

Getting recognition is affecting extrinsic motivation positively by regression weight of +0.34 and extrinsic motivation is further affecting Idea Sharing behaviour positively by regression weight of +0.05. So H8 is also tested positive & found to be valid.

H9. There exists a positive relationship between extrinsic motivation like **monetary reward** and innovative idea sharing behaviour using social media.

Monetary reward is affecting extrinsic motivation positively by regression weight of +0.11 and extrinsic motivation is further affecting Idea Sharing behaviour positively by regression weight of +0.05. So H9 is also tested positive & found to be valid.

H10. There exists a positive relationship between extrinsic motivation like **competing** and innovative idea sharing behaviour using social media.

Competing is affecting extrinsic motivation positively by regression weight of +0.43 and extrinsic motivation is further affecting Idea Sharing behaviour positively by regression weight of +0.05. So H10 is also tested positive& found to be valid.

H11. There exists a positive relationship between **Intrinsic motivation** and innovative idea sharing behavior using social media.
Intrinsic motivation is affecting Idea Sharing behaviour positively by regression weight of +0.19. So H11 is also tested positive & found to be valid.

H12. There exists a positive relationship between **intrinsic** motivation like **playful task (fun factor)** and innovative idea sharing behaviour using social media.
Playful Task is affecting extrinsic motivation positively by regression weight of +0.54 and intrinsic motivation is further affecting Idea Sharing behaviour positively by regression weight of +0.19. So H12 is also tested positive& found to be valid.

H13. There exists a positive relationship between **intrinsic** motivation like **curiosity** and innovative idea sharing behaviour using social media.
Curiosity is affecting extrinsic motivation positively by regression weight of +0.18 and intrinsic motivation is further affecting Idea Sharing behaviour positively by regression weight of +0.19. So H13 is also tested positive & found to be valid.

H14. There exists a positive relationship between **intrinsic** motivation like **learning** and innovative idea sharing behaviour using social media.
Learning is affecting extrinsic motivation positively by regression weight of +0.17 and intrinsic motivation is further affecting Idea Sharing behaviour positively by regression weight of +0.19. So H14 is also tested positive & found to be valid.

Discussion of results

The analysis reveals that relative advantage (RW 0.46) is highly impacting the idea sharing behaviour. Accessibility (RW 0.41) and ease of use (RW 0.25) are impacting the relative advantage to a greater extent. Also opportunity (RW 0.17) and time (RW 0.11) is influencing the relative advantage which in turn effects the idea sharing behaviour. Or in other words the opportunity created by social media clubbed with accessibility and ease of use followed by saving of time creates a huge relative advantage for sharing of ideas, which means social media highly impacts the idea sharing behaviour.

Considering this we can assume that features and capabilities of technology platforms providing accessibility, opportunity, ease of use, saving of time is more important for sharing of ideas. Or in the other words extrinsic motivation effects the idea sharing behaviour very seldomly (RW 0.05) however, competing influences the extrinsic motivation the most (RW 0.43) followed by recognition (RW 0.34) and reward (RW 0.11) which means competition and recognition are the influencing factors for extrinsic motivation. Through competition people want to make their ideas visible quickly. Recognition has also good impact, which means people want to get recognized from their community members. They also wish to get recognition from the companies.

Intrinsic motivation (RW 0.19) has a higher impact on idea sharing behaviour as compared to extrinsic motivation (0.05). Playful task (RW 0.54) effects the intrinsic motivation the most, whereas the impact of curiosity and learning with an (RW 0.18) and (RW 0.17) respectively effects the intrinsic motivation almost equally. People enjoy to solve interesting questions and solving challenging questions is fun for them. Gathering other views and ideas are also important. Curiosity and learning also impacts intrinsic motivation significantly. People are curious to see ideas of their interest and its fun to support producers in innovative new products. Learning is also having good impact showing that learning about new technologies and products are enjoyable.

Relative advantage greatly impacts idea sharing behaviour than intrinsic and extrinsic motivations. In the extrinsic motivation the greatest predictor is competing then recognition and reward. In the intrinsic motivation it is playful task that is the greatest predictor of idea sharing behaviour followed by curiosity and learning. Thus the result shows that the features and capabilities factors are greater predictor of idea sharing behaviour than the motivational factors. The highest predictor is relative advantage next intrinsic motivation and then extrinsic motivation.

The outcome reveals that relative advantage of social media has emerged as the highest predictor of idea sharing behaviour. Social media provides better and faster mode of co creation experience and is better than conventional mode of sitting face to face and sharing ideas. Also more ideas can be generated using social media than conventional mode.
Accessibility has emerged as a major factor impacting relative advantage which means that in today's time people look out for facilitating conditions giving them access to organizational, technical infrastructure that support use of the system. Easy access to specific contact person, access to specific instructions and access to training and guidance on the social media platform attracts people to share ideas over social media. Ease of use has also emerged as the main predictor of relative advantage. People believe that using social media requires less effort and is easy to use. People feel that it is easy to contest ideas over social media and idea sharing is more clear and understandable over social media. Presence of opportunity is also having significant impact showing that social media brings an opportunity for sharing ideas quickly, brings an opportunity to generate new ideas and solutions to problems. Time has lesser impact than others.

From the above SEM analysis the study proves that all the paths to the idea sharing behaviour is found to be positive, all the factors are having positive impact, which proves the first research question - does social media aids idea sharing behaviour. Second research question - what are the key features and capabilities of social media that predict innovative idea sharing behaviour? The analysis demonstrated relative advantage as the best indicator of idea sharing behaviour. Third research question was on identifying the key factors of intrinsic motivation of social media users for idea sharing. The findings suggest it is playful task and curiosity that has emerged as the most elevated predictors of intrinsic motivation.
Fourth research question was, “What are the key factors of extrinsic motivation of social media users which aid the sharing of ideas among users?” The findings show that it is competing followed by recognition that impacts the users’ behaviour. Fifth research question was, “Is it features and capabilities of social media or motivation of social media users which aid in the innovative idea sharing behaviour of individuals? The results revealed that features and capabilities of technology platform impacts idea sharing behaviour more than the extrinsic and intrinsic motivational factors.

Secondly, in this study features and capabilities of social media as well as motivational factors were tested together for a more holistic understanding. Considering motivational factors without considering features and capabilities explains the impact for any information system such as social media only halfway or considering only features and capabilities features without considering motivational factors also explains social media usage halfway. Thus it is very important for any information system to consider both constructs for better understanding of the impact.

Thirdly, this research also proves that it is not only features and capabilities of a system that is responsible for behaviour of individuals and then the actual system use but individual's motivational factors are also equally important for a better understanding of behaviour and a technology platform use such as social media.

Implications of the results

Companies are fast engaging social media technologies for gaining faster access to ideas to beat the competition, gain access to knowledge, reduce communication cost, get closer to customers, partners and co-create and increase number of successful innovative products. For all these and other benefits that they want to realize, one needs to understand the behavioural part that explains why a individual use the social media. Companies must plan accordingly their idea contests and engagement plan, infrastructure, rewards and recognition to tap the best ideas. Organizations need to enhance the features and capabilities of their social media platforms and lift the individuals motivational drivers. In the current COVID-19 pandemic scenario where the whole world is in lock-down and social distancing situation, social media has become the main channel for idea and knowledge sharing. Thus, understanding key features & capabilities plus motivations will help the organizations design best idea seeking programs to attract ideas from social media users to remain relevant in the business and beat the disruptive and life changing situations.

Limitations of the research

There are some limitations of this research. First, the research deals with only first stage of social innovation which is idea generation stage and the results can not be generalized for other stages of innovation such as evaluation, design, development and commercialization stages. Secondly, the survey was done through web survey questionnaire which also faces issues such as non serious responses and dropouts. However, due to number of responses collected and nature of the chosen topic this may have little or no impact on the results. Thirdly, there may be other factors such as culture, social networking, peer pressure which could impact idea sharing behaviour. The survey was not designed to capture these confounding factors. Fourth, although the study has significant implications, the results do not directly convey the viability of the ideas shared or profit realized by the companies.
The study does not include demographics based clustering and research such as which gender share more idea on social media male or female, which age group shares more idea over social media.

Recommendation for future research

Future studies can look at the during and post Covid-19 social media usage for sharing ideas and knowledge within the organization or outside the organization. How it has impacted the usage of social media for capability building and business performance. One can look at what benefits does social media bring for the companies for increasing speed to market, increasing customer satisfaction, increasing satisfaction of partners. Based on the demographics such as gender, age, profession research can be done on these specific angles to understand their behaviour in idea sharing. These demographics can be used to better understand who are the ones actually using social media for ideas sharing and knowledge sharing. Researchers can also look at the next stage of idea generation that is idea selection and development. Further research can be done on which type of organizations are benefiting from social media usage, is it less networked, internally networked or externally networked organizations.

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