

Prioritization of Sectors for Use of Social Media in Delivery of Government Services to Citizens in the State of Punjab

Dr. Lovneesh Chanana¹, Dr. Anuj Kumar Gupta², Sukhwinder Singh³

¹ *SAP India Private Limited*

² *Chandigarh Group of Colleges, Mohali (Punjab)*

³ *IKG Punjab Technical University, Kapurthala (Punjab)*

Abstract: As the concept of electronic service delivery gains maturity, the demand for new and multiple channels for delivery of Government services is increasing. With the experience of successful implementation of a number of e-Governance initiatives and programs in India, the use of social media platform for delivering Government services is emerging as an effective channel. The exponential growth in the number of internet users and the rapid social media penetration are offering the potential for use in delivering Government services. Many Central and State Government departments and organizations in India have already started using social media applications for the delivery of Government-to-citizen (G2C) services. The 'Digital India' programme is likely to propel this further. As the use of social media in e-Governance gains acceptance and popularity, it becomes important to identify and explore the priority sectors (e.g. agriculture, health etc.) in states for using social media platforms for improved effectiveness of delivery of Government services. This paper is an outcome of an exploratory study carried out with the aim to identify and prioritize the sectors for use of social media for Government services in the Indian state of Punjab. Delphi method has been used for the purpose of the study.

Keywords: e-Governance, Social media, sectors, Government services.

I. INTRODUCTION

The Government provides many services to the citizens & business enterprises. In order to provide the services in an efficient, effective and technology-oriented manner, the use information and communication technology (ICT) is being continuously promoted to boost up the activities related to governance, thereby leading to the widely-known concept called as "e-Governance". e-Governance aims at delivering the Government services to doorstep of the citizens on an anywhere-anytime basis. As the notion of e-Governance has now gained acceptability all around and reaching its maturity level in India, there is a need for more advanced channels for service delivery.

In parallel, an exponential increase has been observed in the availability and usage of social media applications. Social media refers to a set of online tools that are basically designed for social interaction. According to Global Web Index[38], 94% of internet users in India are having an account on social media. Typical social media applications include (and not

limited to) Facebook, Twitter, Instagram, LinkedIn, Pinterest, YouTube, Wikipedia and WhatsApp etc.

The core objective of e-Governance cannot be achieved successfully without participation of all the different groups existing in the society. But, it has always been a challenge to involve all the stakeholder groups in e-Governance initiatives by a state or a country. So, there exists a need of a kind of mechanism which can provide the platform for each & every stakeholder to participate, avail the e-Government services and to give feedback or suggestions in a more convenient and timely manner. In order to achieve this, the use of social media is gradually getting introduced for e-Governance services in India. Social media applications provide an advanced gateway for an efficient two-way communication between Government and the citizens in a real-time. The use of social media in e-Governance is expected to contribute to "open governance".

In India, the concept of using social media in e-Governance has recently found acceptance and applicability. According to the Government guidelines issued in August 2012[36] under the heading "Citizen Engagement Framework for e-Governance Projects and Framework & Guidelines for Use of Social Media by Government Agencies" by the Ministry of Electronics and Information Technology (erstwhile Department of Electronics and Information Technology), Government of India, there is an immediate need to create frameworks for using social media to ensure wide spread dissemination of e-Services and service access channels. Use of social media platform in e-Governance will lead to the uptake of service delivery mechanism of e-Services along with effective citizen engagement.

It is important here to mention about Digital India, a holistic programme to transform India into a digitally empowered society and knowledge economy. The Digital India programme (www.digitalindia.gov.in) was formally launched in 2014 and is structured on nine key pillars. "Providing two-way communication between citizens and the Government through social media" under the heading 'INFORMATION FOR ALL' has been one of the nine key pillars for Digital India. The Government initiative of MyGov (www.mygov.in) has taken the lead in establishing a government platform for citizen interaction with Government. In the past, also, Indian Government organizations like the erstwhile Planning Commission of India used Facebook, YouTube, Twitter etc. seeking suggestions and ideas for the country 12th five-year plan for the period 2012 -2017.

Currently, starting with the Prime Minister's office, almost all Indian Government Ministries are on social media today. According to Express Computer-eGovWatch [8], The Ministry of Home Affairs has above 2.5 lakh people following its Twitter handle. Delhi police have started receiving complaints on WhatsApp. Gurugram police has also launched WhatsApp helpline.

Punjab is one of the flourishing states of India having a population of about thirty million. The very first IT policy of Punjab was formulated in 2001. The Department of Information Systems and Administrative Reforms (DISAR) was established in 1998 for the enhancement of ICT in government services. According to Dataquest- IDC e-governance Satisfaction Study [39], the state of Punjab is ranked at 16th position for customer satisfaction levels and 5th as per e-Readiness assessment by Ministry of Electronics and Information Technology.

As the initiatives at the central and state Government levels aim to motivate the use of social media in their service delivery, it is important to identify and prioritize the sectors having potential for using social media in the state of Punjab. 'Identification and Prioritization' here refers to pinpointing the sectors having comparatively more potential for offering improved services using social media based on the specific social, economic, cultural and political conditions in the state of Punjab. The term 'sector' here indicates a unique set/cluster of services in one domain like education, agriculture, employment and health etc.

Such kind of identification and prioritization can facilitate the state Government to design ideal strategies to implement the use of social media in these sectors. The prioritization can also be useful for other states with social, economic and cultural parameters similar to Punjab.

Vinay Kumar Nangia, Devendra Kumar Punia and Lovneesh Chanana (2014) [35] conducted a survey for identification and prioritization of sectors for Mobile Government service delivery in India using Delphi method on a panel of experts from different domains and identified the top priority sectors for mobile Government services.

The current exploratory study has been carried out as an extension to the above study by using Delphi method to identify and prioritize G2C sectors for use of social media in service delivery mechanism in Punjab. In addition to identification and prioritization, a list of reasons/factors as the basis of determining the priority of concerned sectors has also been identified.

The paper has been organized as follows: next section covers the literature review on use of social media in e-Governance applications for different sectors globally and also specifically for India and the state of Punjab; the section on literature review is followed by a section highlighting the motivation for research; the next section presents the methodology followed by results, findings and conclusions of the study. The last section highlights the scope for future research based on this study.

II. REVIEW OF LITERATURE

A. Literature on use of social media for e-governance services globally:

Many scholars and researchers in different parts of the world have studied use of social media in various Government initiatives of their respective countries. United Nations e-Government Survey (2012)[34] elaborated that using social media for enhancement of e-service has been an area where a greater effort is required since only fifty per cent of member states have been using social media.

Chuqing Dong (2015)[5] conducted a study to know the status of using social media in two sectors: Minnesota Department of Health and Minnesota Department of Human Services. The author investigated various factors which affect the social media strategies in these two departments. David Landsbergen (2010)[13] highlighted use of social media in the city of Columbus in five departments named Columbus City Council, Department of Health, Department of Development, Department of Public Service, Columbus Police Department and highlighted various issues that hinders the successful implementation of social media in the services offered by these departments.

Gustavo Henrique, Olivera M. and Eric W. Welch (2013)[7] conducted a survey in local Governments in United States to study the use and management of social media in five sectors: City Administration, Community and Economic Development, Finance, Parks & Recreation and Department of Police for the following tasks:

- to disseminate information externally.
- to get feedback & suggestions on service quality.
- to enhance & facilitate participation of citizens and stakeholders.
- to collaborate work tasks internally.

Enrique Bonson, Lourdes Torres, Sonia Royo and Francisco Flores (2012)[4] conducted a survey in Department of Municipalities in EU local Governments to study the adoption of social media in their governance related activities and various social media platforms being used by municipalities. The authors elaborated the need to explore latest techniques for governance to encourage higher levels of transparency and the engagement of citizens. Nada Dabbagh and Anastasia Kitsantas (2012)[20] reviewed the use of social media in education sector particularly in higher education and proposed a framework for the same. Linna Li and Michael F Goodchild (2010)[14] discussed the benefits of using social media in emergency management as social media could play a crucial role in crowdsourcing geospatial information. Michael J. Magro (2012)[15] highlighted the use of social media in the field of disaster management.

Social media has emerged as a major communication medium directly with people. Companies and Governments have been very keen to invest in social media and planning social media as a part of their IT strategy (Mohammad Dadashzadeh, 2010)[19]. The use of social media in e-Governance provides a two-way communication between people and Government which will lead to uplift the concept of "open government" and "democratic society" (Debjani Roy

(2014)[6]. Governments have been increasing the use of social media for serving the citizens. However, using social media in e-Governance introduces new challenges and issues like privacy, security, data management, accessibility, social inclusion etc. (John Carlo Bertot, Paul T. Jaeger, Derek Hansen,2012)[3].

Sergio Picazo-Vela, Isis Gutierrez-Martinez and Luna Reyes (2012)[22] presented social media as a powerful tool having the potential to reinvent the Government-Citizen relationship. The paper concluded that the use of social media in e-governance could result in improved communication, citizen participation, and more transparency etc. Ines Mergel (2012)[9] discussed the effective use of social media technologies in the public sector. It was highlighted as to how a social media application 'Twitter' has been widely adopted by news organizations, corporations and U.S government as an innovative form of interaction with their stakeholders. Jooho Lee and Soonhee Kim (2012)[12] talked about the interest of researchers in e-Governance programs that utilized social media platform for enabling citizens to participate in local governance activities. Ranjni S., Mei Hua and Ezmieralda Melissa (2012)[24] articulated the importance for understanding the citizens' needs and priorities in the application of e-Governance. John C. Bertot, Paul T. Jaeger and Justin M. Grimes (2010)[2] discussed that in recent years most of the Governments motivated the openness and transparency in their governance activities. The paper suggested that the existing e-Governance systems would be evaluated for "portability and expansion".

TM Stevens, N Aarts, Cjam Termeer and A Dewulf (2016)[32] highlighted that the use of social media may strengthen publicity on agro-food sustainability issues along with providing opportunities for the self-organization of food movements. Social media helps in generating data used for new forms of agro-food governance. Social media may form a new force and resource in the governance of agro-food. Social media bring various stakeholders of the agro-food system together into a new playing field

Qingguo Meng, Nan Zhang, Xuejiao Zhao, Fangling Li and Xin Guan (2016)[23] discussed social media as an important platform for communication between citizens and the Government in China. Many researchers have explored the use of social media in e-government to strengthen interactivity between Government and the general public. They have analyzed the use of micro-blogs by the local governments as a communication channel to interact with the public (Xiaoling Hao, Daqing Zheng, Qingfeng Zeng and Weiguo Fan, 2016)[37].

B. Use of social media in e-Governance in different states of India:

According to National e-Governance Division, Ministry of Electronics and Information Technology, Government of India (www.negd.gov.in/social-media)[40], social media has been the only tool having the potential of changing the relationship between Government and the citizens, enabling greater citizen engagement, elevating & improving the quality of public services at a very low cost. 'e-Governance & Digital

India: Empowering Indian citizens through technology'(Sep,2015)[1] elaborates that Social Media will help to enable the Digital India vision of providing "governance and services on demand" and support to the social inclusion schemes being launched by the government. Social media engagement would mostly utilize the pre-existing infrastructure and would not require any additional resources.

H. Patel and D. Jacobson (2008)[21] have suggested that since the size of the population has been continuously increasing in India, it is important to refine the existing e-services delivery channels for the betterment of citizens. The authors have examined the influence of individual characteristics of citizens on adoption of e-Government services. T. Sargunam and Viji Vinod (2014)[25] have discussed the use of social media by different arms of Government like Planning Commission, Ministry of External Affairs and Ministry of Road Transport and Highways etc. The authors have surveyed the use of social media in various sectors and departments in all the states of India and have conducted a study to analyze the use of Facebook in a Government organization in the state of Tamil Nadu. The authors have discussed that social media and social networking sites have been rapidly changing the style of governance in the present era. Citizens being the primary customers of Government, it would be beneficial if Government departments start using social media to reach out to more and more citizens. ICT has been used by governments in India to inform, engage and serve people and different Governments worldwide have been using the platform of social media in their governing models (Srivastava Meetika, 2013)[31]. The social media in e-Governance has been a new gateway for the effective two-way communication between Government and citizens (Shirish Kumar Tiwari, 2013)[26]. The author has identified the importance of social networking sites as an effective tool for second generation of e-governance.

C. e-Governance in Punjab:

e-Governance has changed and improved the lives of the citizens in urban as well as in rural areas of Punjab, but the level of harassment and corruption has not declined to such an extent as it could be (Vikram Singh & Subhash Chander,2012)[27]. The authors have proposed an impact assessment framework (Impact Assessment of e-Governance in Punjab) to evaluate the outputs and outcomes of e-Governance initiatives in Punjab on the basis of a survey of seeking the opinion of 256 experts/departmental heads and suggested the need for an advanced service delivery channel. Sushil Kumar Singla & Himanshu Aggarwal (2012)[30] have discussed various factors due to which the e-Governance initiatives have not been optimally implemented in rural areas and highlighted the importance of these factors for the impact evaluation study of the projects. Vikram Singh, Subhash Chander and Amit Kumar (2011)[29] have studied a large sample of respondents in rural areas of Punjab for the evaluation of e-Governance initiatives and concluded that there has been a direct relation between e-Governance

initiatives and rural development. Preeti Mahajan (2009)[16] has discussed that during the last few years, many e-Governance initiatives have been offered by the State Government of Punjab. Jaspreet Kaur, Neeraj Sharma and Harpreet Kaur (2016)[11] have conducted a study to assess the success of e-governance initiatives in the state of the Punjab. The study has been conducted on the employees of Suwidha centers providing e-services to the customers with the objective of identification of challenges and problems faced by the employees in providing the e-services to the people. The study has helped to understand how much we have succeeded in implementing e-governance in the state and how much more we need to do to make e-governance as a successful endeavor. e-Governance ensures the availability of Government services in a more convenient, efficient and transparent manner to the common people (Manjit Singh, 2016)[17]. The author has discussed the advantages as well as success factors of e-Governance. The “Digital India” programme will help in the integration of Government departments and the common citizens of India and will ensure the availability of Government services to citizens electronically by improving online infrastructure, reducing paperwork and by increasing Internet connectivity. Manjot Kaur and Amitoj Singh (2015)[18] have overviewed the status of ICT and e-governance initiatives in the state of Punjab. The authors have disclosed the major challenges for acceptance and adoption of e-government services in state of Punjab.

III. MOTIVATION FOR RESEARCH

After reviewing the existing literature, it is apparent that the research on prioritization of sectors (like Health, Agriculture etc.) for social media based service delivery is non-existent. Also, there is very little research on the factors that determine the priority of a particular sector. The research on use of social media for government services delivery is also non-existent. Accordingly, the following important questions emerge:

- What should be the basis of determining the feasibility of Government to citizen (G2C) service to be delivered through social media?
- Are G2C services in all sectors feasible to be offered through social media?
- How should we prioritize the sectors for offering social media based delivery of G2C services?

Given the above questions, this calls for an exploratory study to:

- Identify the priority sectors where social media based G2C services can offer the potential for maximum improvement in service quality.
- Identify and list the factors determining the priority of sectors for offering government services over social media.

This study focuses to find answers to the above research questions.

IV. METHODOLOGY

The Government to citizen Services in India are categorized as per their type and sector like health, social

welfare, employment etc. As the research in this field is presently non-existent, this exploratory study proposes to use Delphi method to identify priority of sectors for offering social media based G2C services in Punjab. Questionnaire is used as a key tool to gather responses from the identified experts. Delphi technique may be defined as a systematic, interactive forecasting method which depends upon a group of experts. Each concerned expert responds to questions in two or more rounds. At the end of each round, the organizer illustrates an unspecified summary of the experts’ responses from the previous round as well as the reasons for the same. Thus, the concerned experts are motivated to review or revise their earlier responses in light of judgments of other experts in the panel. It is assumed that during this process the collection of different answers will be shortlisted and ultimately converge to the correct answers. At last, the process is terminated according to a predefined criterion like stability of results as per consent of experts & number of rounds etc. and the average scores of the concluding round finalize the outcomes.

Following is the sequence of steps used in methodology:

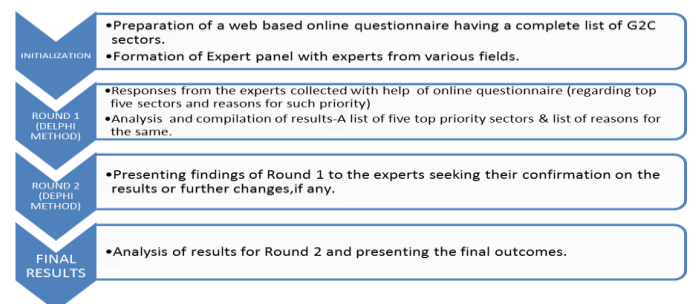


Fig. 1: Methodology for the study

Step 1: List of sectors offering Government services to the citizens- As a preliminary step, the list of sectors & services defined for common services centers by Ministry of Communications & Information Technology, India (www.csc.gov.in) has been used to identify the broad sectors.

Step 2: Selection of Expert panel to execute Delphi Method-Based on a similar study conducted by Vinay Nangia, Devendra Kumar Punia and Lovneesh Chanana (2014)[35], the experts fulfilling following conditions have been identified the purpose of Delphi Study:

- Should have worked in e-Governance/social media.
- Having an experience of more than ten years.
- Directly involved in application of ICT in Government.
- Involved in academia/ consulting/ implementation/ research or training.

A panel of ten experts was created to conduct the Delphi study. The expert panel comprised of representatives from different domains like Government(2), IT Companies(2), Telecom(2), Consultancy(2), NGO(1) and Academia(1).

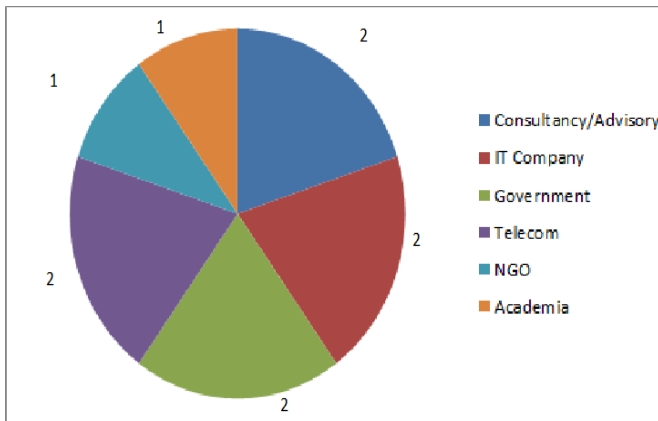


Fig. 2: Sector-wise distribution of Panel Experts

Step 3: First Round (Delphi Method)- A questionnaire was designed to collect responses from the expert panel to select top priority sectors as well as reasons/factors for their priority. An online web based questionnaire survey having a web link at www.surveymonkey.com was used as an instrument for the same. An online survey was preferred due to the constraints of geographical locations of the experts.

The questionnaire for the first round comprised of 14 questions in total. The first two questions collected basic information like name and domain of the expert. The third question focused on the various tasks for which social media can be used. The fourth question had a list of twenty-seven sectors where G2C services are typically offered. The experts were requested to choose top priority sector having potential for offering services using social media as identified by him/her.

The fifth question was to define reason/factor for choosing the sector as top priority sector. Likewise, questions six to thirteen were repeated for sectors having second, third, fourth & fifth priority respectively along with the reason/factor for choosing the corresponding sectors in order of their priority. At last, question 14 was an open-ended question to collect any comments or suggestions from the experts.

Step 4: Analysis of collected responses- The questionnaire based responses collected in first round were analyzed for the following:

- a. Sectors with top priority having potential for offering social media based G2C services among all the sectors (on the basis of frequency of choice as identified by the experts).
- b. Compiling & ranking the reasons/factors as specified by the experts for choosing a particular sector with the respective priority (on the basis of frequency of use by the experts).

Step 5: Demonstration of outcomes of Round 1 to experts- A compiled summary/report of the findings of Round 1 sent through the experts in the form of Power Point Presentation. The presentation covered the following points from Round 1:

- a. Sector with top most priority based on distribution of experts' choice.
- b. Average ranking of all sectors.

- c. Compiled list of factors/reasons specified by experts for choosing respective sectors.
- d. Ranking of factors/reasons based on frequency of use by experts.

Step 6: Round Two (Delphi Method)- Another online questionnaire was designed seeking confirmation of experts regarding their preferences for respective sectors, factors/reasons and for other suggestions or updations, if any. Likewise, the questionnaire having a web link on www.surveymonkey.com was sent through all the experts for their final responses.

Step 7: Final Analysis- As a last step, the final responses from experts were analyzed and the findings were compiled and summarized.

V. RESULTS

The Delphi Method helped to conclude the following points:

- a. Top sectors having highest priority among all the sectors based on potential for social media based delivery of Government services in Punjab.
- b. Most important reasons & factors for determining the priority of sectors for use of social media for government services in the state of Punjab.

A. Analysis of Results (Round 1):

As discussed above, as the first step, the experts were given a list of twenty-seven G2C service sectors with the help of web based online questionnaire. The experts were requested to choose five sectors having higher priority for use of social media in service delivery mechanism among all the sectors and to specify the reasons/factors for their respective priority.

1) Sectors having top priority among all the sectors.

According to the experts' opinion, following are the top priority G2C service sectors in which social media can be used for service delivery as identified by the experts:

- Agriculture
- Employment
- Education
- Public Works Department
- Health & Family Welfare
- Police
- Information & Public Relations
- Social Welfare
- Municipalities

Frequency of G2C sectors for the use of social media as chosen by experts is depicted in the following diagram:

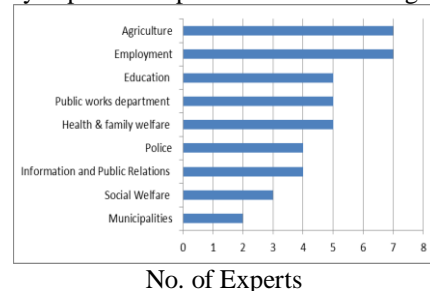


Fig.3: Frequency of priority sectors as identified by experts.

2) The reasons/factors specified by experts for identifying the respective sectors as top priority sectors for using social media in service delivery mechanism in Punjab (as per the frequency of use by the expert panel) are as follows:

- Majority of the population impacted by the services being offered in the sector.
- Sectors having potential for improvements like better service quality, better infrastructure etc.
- Socio-economic culture & profile of the state (Punjab)
- More citizen participation/direct involvement/ interaction with Government (real time feedback & suggestions)
- More transparency (more information dissemination, less corruption, more revenue)
- More benefits for lower strata of the society (more awareness, more opportunities)
- Easy to implement (quick implementation, no need of high security parameters)
- Ease of use of the services (Easy access to the services, more reliable services)

3) Average ranking of all the sectors:

Table: The average ranking of all the sectors as identified by the experts is as follows:

Sector	Average Rank
Education	2
Information & Public Relations	2.25
Police	2.5
Public Works Department	2.6
Agriculture	3
Health & Family Welfare	3
Employment	3
Social Welfare	3.6
Municipalities	4
Judiciary	4
Company Affairs	4
Excise & Custom	5
Land Records	5
Transport	5

Table 1: Average Ranking of Sectors

B. Analysis of Results (Round 2):

As mentioned above, the experts were presented with a summary of the results of Round 1 seeking further changes or suggestions, if any. All the experts suggested that results and findings of Round 1 can be assumed as final for identifying the top five sectors having potential for delivering services using social media and the top five factors/reasons for their respective priority.

VI. CONCLUSION

This exploratory study used Delphi method to conclude the following:

1) The five sectors with top most priority among all the G2C sectors having potential for delivering services using social media in Punjab (in order of priority) are:

- Agriculture
- Employment
- Education
- Public Works Department
- Health & Family Welfare

2) The main reasons/factors influencing the priority of the concerned sectors according to social, economic and political conditions in the state of Punjab are:

- Majority of the population impacted by the services being offered in the sector.
- Sectors having potential for improvements like better service quality, better infrastructure etc.
- Socio-economic culture & profile of the state(Punjab)
- More citizen participation/direct involvement / interaction with Government (real time feedback & suggestions etc.)
- More transparency (more information dissemination, less corruption, more revenue etc.)

Moreover, the experts have suggested that use of social media in e-Governance may be suitable for the following tasks in the state of Punjab:

- For dissemination of the information.
- For getting feedback & suggestions on service quality.
- For enhancing the participation of citizens & stakeholders.

VII. FUTURE SCOPE

The findings of this exploratory study can be taken for a research at the next level like identification & prioritization of the services under each of the defined sector. Moreover, relationship between the priority of services and the factors/reasons can be considered too.

VIII. REFERENCES

- [1] ASSOCHAM INDIA, "e- Governance & Digital India: Empowering Indian citizens through technology" Sep,2015 (www.deloitte.com)
- [2] Bertot J.C, Jaeger P.T & Grimes J.M(2010), "Using ICTs to create a culture of transparency: E-government and social media as openness and anti-corruption tools for societies" Government Information Quarterly 27 (2010) 264–271
- [3] Bertot J.C, Jaeger P.T & Hansen D. (2012), "The impact of polices on government social media usage: Issues, challenges, and recommendations" Government Information Quarterly29(2012) 30-40
- [4] Bonson E., Torres L.& Royo S. Flores F. (2012)," Local e-government 2.0: Social media and corporate transparency in municipalities" Government Information Quarterly29 (2012) 123-132
- [5] Chuqing Dong (2015), "Social Media Use in State Government: Understanding the Factors Affecting Social Media Strategies in the Minnesota State Departments"
- [6] Debjani Roy (2014), "Role of Social Media In E-Government" New Man International Journal of Multidisciplinary Studies (Issn: 2348-1390) Vol. 1 Issue 4 April, 2014
- [7] Henrique G., Oliveria M.& Welch E.W(2013), "Social media use in local government: Linkage of technology, task, and organizational context" Elsevier - Government Information Quarterly

- [8] <http://computer.financialexpress.com/egov-watch>
- [9] Ines Mergel (2012), "The Public Manager 2.0: Preparing the Social Media Generation for a Networked Workplace" *Journal of Public Affairs Education JPAE* 18(3), 467-492
- [10] Ines Mergel (2012), "Working the Network: A Manager's Guide for Using Twitter in Government" *Using Technology Series (IBM Center for The Business of Government)*
- [11] Jaspreet Kaur, Neeraj Sharma, Harpreet Kaur (2016), "e-Governance: A Study of Challenges Faced by The Employees of Suwidha Centers of Punjab". 12th National Conference on 'Digital India: Key Essentials to Drive Vision into Reality'. *Gian Jyoti e-journal*, Volume 6, Issue 1, ISSN 2250-348X
- [12] Jooho Lee & Soonhee kim (2012), "Active e-Participation in local Government: Citizen participation values and social networks" *EGPA Conference (Sep 5-8, 2012): Information and Communications Technologies in Public Administration, Bergen, Norway*
- [13] Landsbergen, D (2010), "Government as Part of the Revolution: Using Social Media to Achieve Public Goals", *Electronic Journal of e-Government* Volume 8 Issue 2, 2010, (pp135-147)
- [14] Linna Li, Michael F. Goodchild (2010), "The Role of Social Networks in Emergency Management: A Research Agenda", *International Journal of Information Systems for Crisis Response and Management*, 2(4), 49-59, October-December 2010
- [15] Magro M.J(2012), "A review of social media in e-Government" *Administrative Sciences* ISSN 2076-3387 www.mdpi.com/journal/admsci
- [16] Mahajan Preeti (2009), "e-Governance in India with special reference to Punjab" *Asia Pacific Journal of Social Science*, Vol-I (1), Jan-June,2009, PP.142-155, ISSN 0975-5942
- [17] Manjit Singh (2016), "Role of E-Governance and E-Government in Improving the Society to drive Vision into Reality" 12th National Conference on 'Digital India: Key Essentials to Drive Vision into Reality'. *Gian Jyoti e-journal*, Volume 6, Issue 1.
- [18] Manjot kaur and Amitoj singh (2015), "E-Government: Challenges for Acceptance and Adoption in State of Punjab", *International Journal of Computer Applications (0975 – 8887)* Volume 109 – No. 15.
- [19] Mohammad Dadashzadeh (2010), "Social Media in Government: From e-Government To e-Governance", *Journal of Business & Economic Research* ISSN 1542-4448, Vol. 8,2010, p.81-86
- [20] Nada Dabbagh, Anastasia Kitsantas (2012), "Personal Learning Environments, social media, and self-regulated learning: A natural formula for connecting formal and informal learning" *Elsevier-Internet & Higher Education* 15(2012) 3-8.
- [21] Patel H., Jacobson D. (2008), "Factors Influencing Citizen Adoption Of E-government: A Review and Critical Assessment", *European conference on information system ECIS Proceedings* paper 176
- [22] Picazo S., Gutierrez I.& Luna L.F(2012), "Understanding risks, benefits, and strategic alternatives of social media applications in the public sector", *Elsevier-Government Information Quarterly*29(2012)504-51
- [23] Qingguo Meng, Nan Zhang, Xuejiao Zhao, Fangling Li, Xin Guan (2016), "The governance strategies for public emergencies on social media and their effects: a case study based on the microblog data", *Electron Markets* (2016) Volume 26, Issue 1, pp 15-29
- [24] Ranjini S., Hua M. &Melissa E. (2012), "Investigating the potential of mobile phones for e-governance in Indonesia", *CPR-Africa 2012/CPR-South7 Conference*, Port Louis, Mauritius, September 5-7, 2012
- [25] Sargunam T, Vinod V. (2014), "Use of Social Media in Effective Implementation of E-Governance in India", *International Journal of Communication and Networking System, Integrated Intelligent Research (IIR)* ISSN: 2278-2427 Volume: 03, June 2014, Pages: 267-278
- [26] Shirish Kumar Tiwari (2013), "Social networking site: An effective tool for second generation of e-Governance", *International Journal of Humanities & Social Sciences* Vol. 1(01) August 2013, [ISBN 978-93-83006-16-8] page 17-23
- [27] Singh & Chander (2012) 'e-Governance in Punjab: A SWOT Analysis' *International Journal of Management, IT and Engineering* Volume 2, Issue 6 ISSN: 2249-0558
- [28] Singh & Chander (2012), "On the Role of e-Governance in Economic Development: An impact study of rural and semi-urban Punjab", *International journal of computing and business research(IJCBR)*ISSN(online):2229-6166 Volume 3 Issue 1 January, 2012
- [29] Singh V., Chander S.& Kumar A. (2011), "e- Governance in development of rural economy " *International Journal of Computer Science and Technology IJCST* Vol. 2, Issue 4, Oct. - Dec. 2011, ISSN: 0976-8491
- [30] Singla & Aggarwal (2012), "Impact and Scope of e-Governance initiatives in state of Punjab" *International Journal of Computer Applications (0975 – 8887)* Volume 44– No14, April 2012
- [31] Srivastava, Meetika (2013), "Social Media & its use by the government", *Journal of Public Administration & Governance*, Vol. 3 Issue 2, p161
- [32] TM Stevens, N Aarts, CJAM Termeer, A Dewulf (2016), "Social media as a new playing field for the governance of agro-food sustainability", *Sustainability governance and transformation. Current opinion in environmental sustainability* Elsevier. Volume 18 pages 99-106
- [33] Tobias Lehmkuhl, Ulrike Baumöl, Reinhard Jung (2013)," Towards a Maturity Model for the Adoption of Social Media", 46th Hawaii International Conference on System Sciences (IEEE 2012)
- [34] United Nations e-Government Survey (2012), Newyork (www.unpan.org/egovgovernment).
- [35] Vinay Kumar Nangia, Devendra Kumar Punia, Lovneesh Chanana (2014)," Prioritization of sectors for Mobile Government Service Delivery in India", *International Journal of Management, MIT College of Management* ISSN 2321-6700, Vol.2, No.1, January 2014, pp 1-8
- [36] Framework for Citizen Engagement in e-Government, Deity, India. (www.archive.india.gov.in/allimpfrms/alldocs/16485.pdf)
- [37] Xiaoling Hao, Daqing Zheng, Qingfeng Zeng, Weiguo Fan (2016), "How to strengthen the social media interactivity of e-government: Evidence from China", *Online Information Review*, Vol. 40 Issue: 1, pp.79 – 96
- [38] Web-blog: "Simon Kemp –We are social:Digital in India" <https://wearesocial.com/uk/blog/2014/07/social-digital-mobile-india-2014>
- [39] Weblink :Dataquest – IDC e-governance Satisfaction Study <http://www.dqindia.com/india-governs/>
- [40] Weblink : National e-Governance Division, India (www.negd.gov.in/social-media)



Dr. Lovneesh Chanana is responsible for the Digital Government function at SAP India Private Limited. His domain expertise includes policies on ICT in Government. His experience profile covers a variety of e-governance consulting engagements with Indian Government. He is engaged with leading management institutes as faculty and curriculum design expert.



Dr. Anuj Kumar Gupta has been serving as Professor in Chandigarh Group of Colleges, Mohali (Punjab) and guiding many Ph.D. Scholars. His Area of Specialization is Wireless Networks. He has many National and International Publications.



Sukhwinder Singh has been serving as Head, Department of Computer Science in Guru Hargobind Sahib Khalsa Girls College, Karhali Sahib, Patiala (Punjab) and is a Research Scholar in IKGPTU Kapurthala.