Exploring the Affordances of Social Media Platforms in Supporting Emerging Public Service Paradigms

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ABSTRACT
Governments are increasing reaching out beyond their organizational boundaries to engage citizens in policy design, co-created and co-delivered public services. While social media platforms have been largely used by government entities for communicating with and obtaining feedbacks on programs and services from citizens; traditional websites remain the primary interaction channel for emerging co-delivered services involving Citizen-to-Government (C2G) interactions. This work explores the affordances of the social media platform as a more natural platform to support not only C2G, but also Citizen-to-Citizen services (C2C) and Intermediary-to-Government (I2G) services. By considering a set of concrete C2C and C2G initiatives, we determine 1) the extent to which social media platform affordances support these initiatives, 2) the relative advantage of using these social media platforms over traditional government websites. Insights from this work should help in moving Government Social Media policies to cover the use of social media channels for C2C, C2G and I2G services.

CCS Concepts
• **Human-centered computing~Social media** • **Applied computing~Computing in government**

Keywords
Social Media in Government; Social Media Platform Affordances; Citizen-to-Citizen Service; Citizen-to-Government Service; Intermediary-to-Government; C2C; C2G and I2G

1. INTRODUCTION
Social media platform has grown from being a communication tool enabling people to interconnect and share information among people to becoming an important engagement infrastructure for organizations and government agencies. With the enormous popularity of social media (used by more than 2 billion of people around all over the world in 2015), there is ample opportunity for government agencies to build greater trust with citizens through increased social-media based "collaboration" and "participatory" decision, policy making and service delivery.

Social media provides an open and collaborative environment where citizens and intermediaries take on more important roles in responding directly to societal needs and challenges traditionally left to the government. This development has led to the emergence of new forms of service interactions such as citizen-to-citizen interaction (C2C) in which citizens respond to other citizens' service request; Citizen-to-Government interaction (C2G) where a citizen or community of citizens provide services to the government. Typical C2G services include citizen crowdsourcing and citizen service co-execution for instance in crisis and emergency management. Another class of emerging service interaction is Intermediary-to-Government (I2G) services where Non-Governmental/Non-Profit Organizations or third-party organizations coordinate and collaborate with government in delivering services (i.e. Disasters situations' management, reporting etc.). These forms of interactions create new service categories; e.g. "Co-production": citizens create and design services and policies collaborating with government, "Co-delivery": Intermediaries and/or citizens help government to execute and deliver some services to citizens, and; "Peer" or "End-user" service: citizen provides services to another citizen. We argue that given that these new service forms are inherently social, a study to determine the adequacy of existing social media platforms in implementing these services is imperative. However, there are very few studies (i.e. [1]–[3]) that have investigated the affordances of social media platforms with respect to public services delivery. The paper attempts to address this knowledge gap.

2. SOCIAL MEDIA IN GOVERNMENT: LITERATURE REVIEW
2.1 Social Media as an Efficient Communicative and Interactive Tool
Social media as a powerful, easily accessible and user-friendly communication and information technology (ICT) applications [2], has been studied from different perspectives including technology, impacts and more perspectives [4]. Kaplan and Haenlein in [5] defined social media as *"a social structure in which technology puts power in communities, not institutions, as well as a set of open, web-based and user-friendly applications that enable users to network, share data collaborate and co-produce content"*. Social media relies on mobile and web technologies to create highly "interactive platforms" through which individuals and communities can share, co-create, discuss, and modify user-generated content underpinning collaboration and innovation. L. Zheng and T. Zheng in [4] outlined five characteristics of social media platforms: 1) Participation: social media encourages contributions and feedbacks from interested individuals, blurring the line between media and audience; 2) Openness: social media services are open to participation, encouraging voting, commenting and sharing information with no barriers to accessing and using contents; 3)

Conversation: whilst traditional media is about broadcast, content transmitted or distributed to an audience, social media are better seen as conversational, two-way interaction channels; 4) Community: social media allows communities to be formed quickly and communicate effectively around common interests; and 5) Connectedness: the fact that social media exploit hyperlinks and combine different kinds of media in one place. Kotler and his colleagues in [6] classified social media into two groups based on its main purpose: The first one is Expressive social media, which enables people to express themselves by sharing with others text, picture, video, and music. Social media platforms falling in this category are mainly Facebook, Twitter, YouTube, Flickr, and Foursquare. The second group is Collaborative social media, which provides users the opportunity to work together to achieve common goals through interactive and social processes. Wiki and Google Docs are the top examples of platforms in this type of social media. Treem and Leonardi in [3] defined four affordances on social media: Visibility; Persistence; Editability; and Association. The term visibility refers on the fact that social media afford users the ability to make their behaviors, knowledge, preferences, and communication network connections visible, through posts, comments, status updates, votes, and friending to all who have access to the system. Persistence (also referred to as recordability and permanence) is when a post to a blog or any social networking system remains available to users and does not expire or disappear after the user logs out. As Erikson and Kellog in [7] noted, persistent conversations may be searched, browsed, replayed, annotated, visualized, restructured, and recontextualized with what is likely to have profound impacts on personal, social, and institutional practices. Editability refers to the ability of individuals to spend a good deal of time and effort in designing a communicative act before it is viewed by others. It also refers also to the ability of an individual to modify or revise content already communicated. Association is about establishing connections between individuals and content, or between an actor and a presentation. Associations in social media exist in two forms; the first is of a person and another individual, is most commonly referred to a social tie. The second form of association is between an individual and a piece of information (Table 1 summarizes the characteristics and the affordances defined in literature). Social media is associated with several types of platforms with different features. First is blog (Web Log), which is a Web-based interactive application in which content (text, images, videos music, and/or audios) is dispatched in a structured format via a series of postings usually focused on a particular subject or event or to express opinions and make commentaries [8]. Second type is Social Network, which is a set of interactive sites and /or web-based services that allow users to meet and form communities through socializing via different relationships, such as friendships and professional relationships, where they can connect and interact with other users sharing connection or similar interests, and view connections made by other users in the network [9]. Another type of social media platforms is Multimedia-sharing, it is media-sharing (photo, video, image and audio) services/platforms that allow users to view; discuss; upload; distribute and store rich multimedia content in a social environment; allow individuals sharing and propagating multi-media information; and exchange interests and communicating.

Typical examples include YouTube, Flickr, etc. [8]. The last type is Microblogs, web-based platforms that allow users to broadcast small messages or updates to a select group or community, usually combining features and aspects of both social networking and blogging technologies to share information about personal opinion

or current event. The most popular example of microblogging platforms is Twitter [8].

Table 1. Social media affordances and characteristics in literature

Characteristics	Participation Openness Conversation Community Connectedness	L. and T. Zheng Zheng [4]
Affordances	Visibility	Treem & Leonardi [3]
	Persistence	Erickson & Kellogg, [3][7]
	Editiability	Treem & Leonardi [3]
	Association	

2.2 Adoption of Social Media on Open and Collaborative Government Context

2.2.1 Concept of Open Government: Aspects and Principles

The concept of Open Government dates back to the 70s, when the British government promoted initiatives aiming for greater freedom of information and more access to the activities of the government [10]. These initiatives are seen to support several benefits for government and societies such as improving the policy making, increasing integrity, decreasing corruption and building trust in government agencies. Scholars have considered the openness of a given administration from two perspectives: transparency and participation [10]; transparency is enabling the public to have a look into "how the government is doing" by publishing results and opening the data; participation refers to interactive policy-making, consultations, dialogue and stakeholder involvement. A third perspective is "collaboration" which is an advanced form of democratic participation bringing individuals with knowledge, impartiality, expertise and discipline with government decision makers together to create and implement solutions for the government challenges and problems. These perspectives recognize that citizens possess complementary knowledge that can be used to solve public problems [11], [12]. As a result, an Open and Collaborative Government can be summarized as in [13]: 1) a transparent government, that is accountable and that delivers information to citizens about its strategies, plans, and performance; 2) a government that involves citizens and other external and internal actors in the design, delivery, and evaluation of public services; 3) a participative government, that promotes citizen engagement in political processes and, particularly, in the design of public policies and services; 4) a government that prioritizes the use of two key tools: open data (which is a set of data that are available in standardized and structured formats, that are machine-readable, and that are guaranteed to be freely available over time) and open action (the use of web 2.0 tools and, particularly, of social media).

2.2.2 Emerging Service Interactions

There is a growing body of scholarly works on collaboration frameworks between citizens and government and even between citizens themselves. Collaboration between Citizens and Government (C2G) in the form of citizen ideation and consultation is a defining characteristic of many Open Government initiatives [13], [14]. The government actively solicits citizens' views on public policy, law making, and democratic participatory decision making. Implicit is the integration of public sector agencies with

full cooperation and understanding of the concept of collective decision-making, participatory democracy and citizen empowerment as a democratic right through interactive features such as the web comment form, and innovative online consultation mechanisms [15]. *Citizen-to-Government service* is also identified as "Citizen sourcing" [16], [17], where the citizens help the government to improve public performance and to better satisfy public needs. This concept is similar to Crowdsourcing, in which the capability of a network or community of people are termed as "crowd" [19]. It's emerging as a new and powerful problem-solving mechanism, tapping into the ideas and expertise of the public (ideation). That brings more innovation and an increased sense of community centered around government to solve government challenges [18], [20]. Another new way of collaboration is co-delivering the government services by citizens for a more engaging democratic process, involving citizens directly in government [21], to help public agencies in delivering and executing services on a day-per-day basis [17]. *Citizen to Citizen (C2C)* service is a more recent service paradigm than C2G. The idea behind C2C or peer-to-peer services or "We government" or "Do it yourself Government" [16], [17], [22], is that citizens or communities of citizens can self-organize to present a substitute for traditional government responsibilities, when a citizen respond to a requested service from another citizen. The third form of collaborative service is *Intermediary-to-Government (I2G) services* in which Intermediary such as Non-Governmental in which non-profit organizations (NGOs) collaborate with government to deliver public services. NGOs can help the government in delivering services to citizens and can do so even more effectively than government. Activities of NGOs are based on voluntary associations and they carry out actions that improve the government capacity by extending public services to sectors or communities for which public agencies do not have adequate resources.

2.2.3 Social Media Platforms Adoption for an Open and Collaborative Government

In general, social media tools are expected to increase and boost transparency and accountability in the public sector to enhance the delivery of public services. Social media tools are also expected to improve policy-making by enabling the public to take part in decision-making processes and encourage the cross-agency cooperation and co-production among partners. Social media platforms are associated with a new stage of government-citizen interaction in which there are more actively participating citizens [23]. Scholars believe that because of its collaborative and participatory nature, social media can be instrumental in promoting open governance and foster transparency in the public sector by giving citizens a voice [24]. Its adoption by the public can play an important role in the government by enabling a more accessible platform for public participation and collaboration [18] and citizens being able to solve themselves problems affecting them locally. For the public sector, the use of social media practices as social networking services as Facebook, YouTube and Twitter (which are the most used social platforms [1], [25]) and other digital media sharing services support and provide organization's information, missions, and services to citizens where and when they need them and to establish direct contact with the public [26]. Linders [16] and Benkler [27] argue that social media is not only about mass dissemination but may also be for mass production and collaboration. Citizens are empowered to spark the innovation that will result in an improved approach to governance [28]. Government agencies are using social media to improve the quality of their services and to enable better citizen engagement [1].

According to Bertot and his colleagues [29], the combination of e-government, social media, the web-enabled technologies, mobile technologies, transparency policy initiatives, and citizen desire for open and transparent government is fomenting a great potential for social media to extend government services, solicit new ideas, and improve decision-making and problem-solving. Almazan and Gil-Garcia [30] also posit that social media has the potential to allow greater communication, participation, and collaboration with citizens. Wigand [31] suggests that Twitter can help organizations to share essential information with the public and induce the ultimate beneficiaries to participate in new projects. Governments adopt social media with several purposes such as recruiting, sharing information within and across government agencies; disseminating information to the public [32], enhancing community participation in decision making or voting [8], achieving transparency [29] enhancing collaboration and public safety, and improving training capability etc. However, according to Mergel [33], the government is currently focusing on using social media channels to push out information recycled from other government communication channels, rather than using it for engagement activities. The most known types of social media are: Blogs, Social networks, Multimedia-sharing, and Microblogging. The advent of social media has opened up unprecedented new possibilities of engaging the public in government work and has changed the public's expectations about how government work should be done [18]. Governments in their new governance, are relying on social media channels to engage citizens and intermediaries for creating opportunities for cooperation and collaboration [34] with less bureaucracy and improved service provision. In the next section, we will explore the social media features as a basis for eliciting the affordances of the platforms, and how these platforms support and respond to today's requirements for an Open and Collaborative Government.

3. SOCIAL MEDIA PLATFORMS: EXPLORING THE AFFORDANCES

Social media platforms such as Facebook, Twitter, Google+ and Youtube could be classified by their purpose. In this section, we describe a set of the most popular platforms and explore their features and affordances with respect to harnessing the new service interaction forms i.e. C2G, C2C and I2G.

3.1 Identifying Social Media Platforms Features and Affordances

3.1.1 Identifying the Social Media Platforms

Twitter, launched in July 2006, having about 302 million monthly active users in 2015, is a real-time information network and a microblogging tool that allows users to connect and send updates about several interests and topics (tweets) to networks of associates (followers). Each user has a twitter page where all updates are aggregated into a list. Twitter also allows users to create connection based communities through which users can share interests and ties to create their community, e.g. community of pop music.

Facebook, founded in 2004, with 1.44 billion monthly active users in 2015, is a free social networking environment (including website and the web and mobile applications) allowing members to create and manage profiles and publish posts and synchronous messages to share with their "Facebook relations". It also gives the possibility of creating and managing groups, pages, and events for communities [35]–[38] and/or individuals.

YouTube , is a video-sharing platform on which users can upload, view, share and interact with videos by "comments", "likes" ,"unlikes" and sharing. YouTube also allows the uploaders to classify their videos into "channels", which is very useful for communities. Also, recently YouTube shows to users "recommendations of videos " that are similar to those that the users watch [23].

LinkedIn, is a platform in the form of a professional network for connecting with colleagues and classmates, identifying new job opportunities and tapping into existing networks [39].

Instagram, is a free platform acquired by Facebook in 2012 , that enables users to take, edit and share photos with other users via Instagram's own platform, email, and social media sites including Twitter, Facebook, FourSquare and Flickr [46].

Google+ is a service launched by Google in June 2011, integrating several Google programs including the Facebook-like feature "circle", that its purpose is to afford sharing and communication within the various circles of people, and allows users to organize contacts into groups to targeted information related on particular group/community [37].

FourSquare, is a platform that allows users to "check-in" to their location and alert to their friends and followers of their whereabouts, receives mixed reviews with regard to application in city government. By utilizing FourSquare, the city is able to promote the event by offering discounts and deals to those that checked in [37], [40], [42].

3.1.2 Social Media Platforms Features
Social media platforms are different in terms of use and technologies. In this subsection, we identify the different features of the social media platforms identified in the previous section. We also examine the differences in their characteristics and elicit functions that each platform can support. Similar functions are assigned the same name. For example, "tweet" and "post" are functionally equivalent and could thus be assigned function label like "share". The set of features identified from the review of the above social media platforms is presented in Table 2).

3.1.3 Generating the Affordances from Features
By affordance, we understand the high-level features enabled by the platform or tool with respect to its users. In this section, we abstract the characteristic features of each platform (see Figure 2) to generate nine affordances of the Social Media platforms described in Table 3. These nine affordances are: 1) Manage user profile: Platforms provide profiles created by users and members of their networks. Then, users can provide and manage their information (e.g. contact, age, etc.) and set its visibility; 2) Manage relations: Users may use social media to establish new social relations/connections (virtual) or to maintain existing social relationship (real), these ties reflect social connection between users such as friend, family etc. that users can manage through the platforms; 3) Specify and share opinions on content: Uploaded media in the platforms associated with interactions with the content or between users that show their opinions, satisfaction, dissatisfactions by commenting, liking or un-liking, and also by sharing the content to increase reach and its dissemination; 4) Upload and broadcast media: Users can upload media content in social media platforms such as videos, text, sounds and images, to be broadcasted and propagated in the network, seen and interacted by the users; 5) Reveal social media attributes: Users can know about content metadata, profiles and status information and statistics (e.g. number of likes of a Facebook post, the number of

followers of a tweet, etc.); 6) Manage community: In general, communities are groups of people who feel connected, and share same or similar interests or topics [43]. People interact through communities to exchange and share information, data or knowledge and to engage collective actions and activities; 7) Organize event: Through social media platforms especially Facebook, users can organize an event. It allows users to create events such as voting, advocacy, volunteering etc. and to organize it using its page, in addition, to inviting users to join it. That allows users or page operators to create a calendar-based invitation to a selected group of people or friend list for an event, allowing them to accept or decline it; 8) Converse and chat with network: It refers to the possibility of discussion between persons through instant or non-instant messages that allow them to share private interest; and 9) Location based networking, as social media make proximity explicit to users through location-based services (e.g. FourSquare). The nine affordances are also mapped to the social media characteristics identified in Table 1.
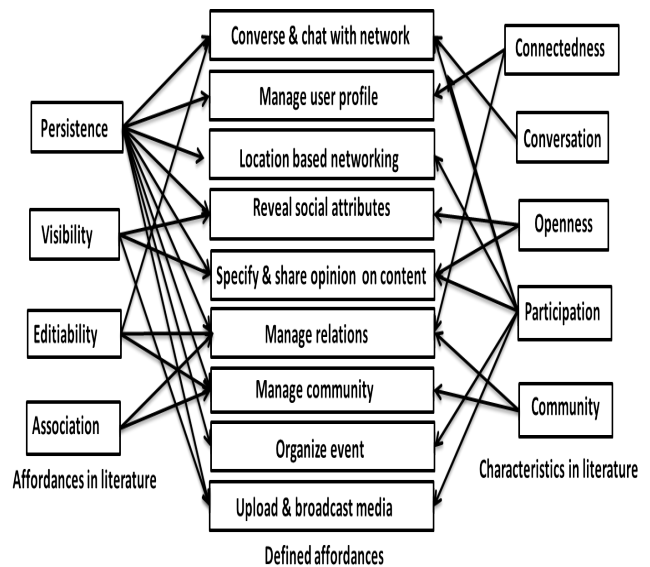

Figure 1. Linking the defined affordances to literature

3.1.4 Identification of Possible Activities
By focusing on the affordances (abstract platform features), we could define the possible user activities that social media platforms may support. We identified the following set of basic activities that users may wish to perform on social media platforms: 1) Connection, refers to that users to interact directly with the shared data on the platform; 2) Interconnection, is the interactivity between users (e.g. discussing, becoming friends etc.); 3) Sharing knowledge, is to share new idea or visions with connections to let them know about; 4) Sharing data, is to exchange data between users for interaction among the network and/or the platform; 5) Sharing location, is to tell to users "where is the user in". By checking-in, the user allows the platform to access its location and several applications can use the information to update its status and his profile, enabling users to look for friends in proximity;6) Building communities refers to creating groups that share similar visions or orientations;7) Event organization, is to organize a set of activities in a certain period of time in a certain place to share all about the organized event and inviting users to it; 8) Collective actions, is to arrange for an action that the platform users want to collaborate on, like sharing the same profile picture, or publishing the some post; 9) Campaign is to raise awareness about an issue that users want to interact about.

Table 2. Features of social media platforms

	Facebook	Twitter	Foursquare	LinkedIn	Flickr	Google+	YouTube	Instagram
Edit user informations	X	X	X	X	X	X	X	X
Edit user activities	X	X	X	X	X	X	X	X
Set Visibility and privacy	X	X	X		X	X		X
Profile and contact synchronization	X	X	X	X		X		X
Add friend	X		X		X			
Add connection				X		X		X
Add network				X		X		
Add to circle						X		
Follow	X	X	X	X	X	X	X	X
Subscribe	X					X	X	X
Like	X	X	X	X	X	X	X	X
Unlike	X	X	X	X	X	X	X	X
Comment	X	X	X	X	X	X	X	X
Share	X	X	X			X	X	X
Download content	X	X			X	X	X	X
Rate and review	X	X		X		X	X	
Upload media	X	X	X	X	X	X	X	X
Post text	X	X	X	X	X	X	X	
Set content informations	X	X	X	X	X	X	X	X
Send messages	X	X		X		X		X
Chat	X	X		X		X		
Create group/community	X	X			X			
Edit group	X	X			X			
Edit group membership	X	X			X			
Create event	X	X				X		
Edit event	X	X				X		
Invite members to the event	X	X				X		
Create page	X							
Edit page	X							
Create circle						X		
Edit circle						X		
	Facebook	Twitter	Foursquare	LinkedIn	Flickr	Google+	YouTube	Instagram
Tag	X	X				X	X	
Hashtag	X	X						X
Search	X	X	X	X	X	X	X	X
Tell about relationship	X	X				X		
Display number of interactions	X	X	X				X	X
Display related content	X	X		X		X	X	
Add channels							X	
Check location	X	X	X		X	X		X

4. REALIZING NEW SERVICE INTERACTIONS ON SOCIAL MEDIA PLATFORMS

4.1 Emerging Service Interactions

Collaboration between citizen and government is transforming public services with both citizens and government becoming « actors » (C2G). In fact, citizens also are starting to lead and/or drive service delivery to other citizens (C2C). In addition, actors called "intermediaries" are also leading service provision in collaboration with Government (I2G). These intermediaries are mainly NGOS or Private Companies. The participation of citizens and intermediaries have lowered many technical barriers to widespread citizen involvement in co-producing and co-delivering public services [44]. We explore these newly emerging service paradigms below.

4.1.1 Co-production

Co-production is the process of active dialogue and engagement between service stakeholders and its providers. This process puts them equally at the same level, aiming to adopt participatory approaches to public challenges and improving public service design. Co-production creates dynamism between individuals and communities within a more collaborative relationship [45]. Social media channels allow responsiveness and representation of both citizens and government through social media platforms by looking on the government activities published in their social profiles. The government is able to publish its challenges and issues, and "call for crowds". Citizens will be able to create communities (e.g. Facebook groups, Google+ circles, etc.) to collaborate in resolving the published government requests. Users can interact with the propagated content, by commenting or discussing. Governments can monitor crowds' proposals by looking at the number of likes, comments, and sharing. The government can also ask citizens about the best service design alternatives and see which services are most preferred through their comments and likes. In addition, the strength of social ties is that the platforms may show the recent activities of citizens which will inform others that certain users are providing "proposals" or "improvements" to the government public services and take a look on feedbacks of users.

4.1.2 Peer Services

Recent studies in government public services aimed to look for reforms in the philosophy of service provision, to improve service quality, reliability, trust and effectiveness [46] have identified new service type led by citizens to other citizens. In this interaction, citizens communicate each with the other to provide service effectively through self-organization. That opens up more opportunities for "citizen-to-citizen co-production", where the government plays no main role in day-to-day activities, but may provide some facilities and play other supporting roles [17]. This leads to an improved public service paradigm with greater trust between stakeholders and the service providers. Users at the end of the day will be able to interact or discuss the service quality by giving feedbacks or suggesting improvements among comments and likes. They can receive notifications about the provision and the opinions.

Social media platforms give the possibility of publishing service requests as a post. Another possibility is that citizen providers (volunteers) can create communities or develop application through which requesters can ask for services. With the geolocation technology, the citizens can look who is the nearer than them to provide them and can prefer if they want someone closer as proximity or someone that have direct or common relations.

4.1.3 Co-delivery Service

Governments aim to improve the efficiency and the effectiveness of service delivery through collaboration with citizens to co-deliver public services. The co-delivery of government services by citizens makes for a more engaging democratic process by involving citizens and NGOs directly in the execution of public services. Social media platforms enable the possibility of collaborating with the government in delivering their services. Government through the community of intermediaries or citizens volunteers can request for information or services by posting their requests. Stakeholders may interconnect and interact with government entities to share information related to the service. It is an extension of the service execution or delivery task of government. The government can also share or request for knowledge and data about service interests, or determine which intermediary or citizen can best deliver a certain service. Satisfaction and opinions can be reviewed by looking at the interaction of social media platform users with the service. There is a possibility of direct communication and discussion among the service providers and stakeholders. Relations can improve the trust and the quality of exchanged information through the platform or the network.

5. CASE STUDIES

This section describes three case studies that exemplify these service paradigms and demonstrates how social media platform based activities could support these services. The first case examines a C2G (Co-production) service involving Campus Rain Challenge. The second looks at I2G (co-delivery) service involving the MyGov initiative and the third initiative is about New York State citizen volunteering service.

Table 3. Abstraction of features and generating affordances

Manage user profile	Manage relations	Specify and share opinion on content	Upload and broadcast media	Reveal social attributes	Manage community	Organize event	Converse and chat with network	Location based networking
Edit user informations	Add friend	Like	Upload photo	Tell about relationship	Create group/ community	Create event	Send messages	Check location
Set Visibility and privacy parameters	Add connection	Dislike	Upload video	Display number of likes	Edit group /community	Edit event	Chat	

Profile and contact synchronization	Add network	Comment	Upload audio	Display number of dislikes	Edit group /community membership	Invite members to the event	Search	
	Add to circle	Share	Post text	Display number of sharing	Create circle	Search		
	Follow	Download content	Set content information	Display number of relations	Edit circle			
	Subscribe	Rate and review	Tag	Display number of views	Search			
	Search	Tag	Hashtag	Display related content	Create page			
		Hashtag	Add channels	Display connected users	Edit page			

5.1 Case 1: Co-production (C2G)

Campus Rain Work Challenge[1] is a set of competitions aiming to resolve several issues related to the echo-system of the government. The competition that we are studying has as objective the innovation in water infrastructure to resolve the problem of "stormwater"[2]. The scenario of submitting the solutions is:

1. Government agency (EPA's Office of Water) announces to graduate and undergraduate students the challenge about « innovative green infrastructure » (fourth annual Campus Rain Works), showing how managing stormwater at its source can benefit the campus community and the environment.
2. EPA opens the registration
3. Students create teams/communities
4. Student teams registers
5. Student teams compete in one of two design categories: the Master Plan category or the Demonstration Project category.
6. Student teams submit the entries (project narrative, letter of support, design boards) via mail
7. EPA collects submissions via mail
8. EPA judges (by specialists) and select the first and the second winner
9. ENA gives the prices to students and their faculties

Social media platforms can be used in this case as a channel for proposals dissemination. Facebook and Twitter and Google+ can support the activity through affordances including: "community management", "media uploading", and "media content interaction". As a result, possible scenario could be:

1. Government agency (EPA's Office of Water) announces to students the challenge about « innovative green infrastructure » (fourth annual Campus RainWorks), showing how managing stormwater at its source can benefit the campus community and the environment through Facebook
2. EPA opens the registration via Facebook by **<uploading>** the call for participation
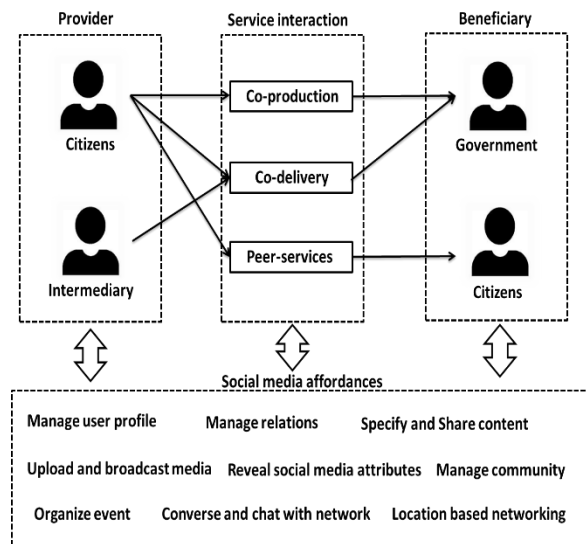3. EPA **<creates a community>** in form of **<Facebook page>** where teams will submit their entries

Figure 2. General model of social media affordances in service interactions

4. Students form teams and create **<Groups>** to **<Discuss**> and **<Share>** ideas and **<Data>**
5. Teams submit by :
5.1. **<Connecting>** on **<The Facebook page>**
5.2. **<Uploading>** narrative **< Video>**and narrative **<Text>** support **<Video>**
5.3. **<uploading>** design board **<Photo>**
6. EPA collects submissions via the **<Facebook page>**
7. EPA analysis the proposed solutions of with every solution
8. EPA selects the best submission
9. EPA **<posts>** the best submission

5.2 Case 2: Co-delivery (I2G)

MyGov, a new non-profit Irish organization, made two projects[3]: The first is "kildarestreet.com" with which users can track debates

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[1] Campus Rain Walk Challenge is a crowdsourcing challenge for students, designed to engage them for reinventing innovative solutions

[2] Campus Rain Works Challenge: A Green Infrastructure Design Challenge for Colleges and Universities, 2015

[3] My GOV-INITIATIVE, 2013 (http://fixmystreet.ie/)

and questions and members of the Irish parliament. The second is "FixMyStreet.ie" through which the NGO collects citizen reports about urgent or emergency problems (e.g. noise pollution, barking dogs etc.) in a form of uploads. The NGO will transmit the reported problems to the council by email, and then they can resolve them the way they normally would. Alternatively, citizens can discuss the problem on the website with others, and move together to lobby the council to fix it. There is a possibility also for citizens to resolve the problem by themselves. The scenario for using the website is:

1. Citizens connect to website fixmystreet.ie
2. Citizens locate the problem by entering the area name to see the local issues or to create a new report, or by locating the area automatically
3. Citizens enter the problem (subject, category, details, mail and/or phone number), having the possibility of uploading photo of the problem
4. The NGO sends the report to the council on behalf of citizens
5. If the council resolves the problem:
   5.1 Citizens verify the resolution
   Else

   5.2 Citizens lobby the council

By creating reporting communities, interactions around problems are raised. And so far, while this interaction with one problem is higher while the council understands that the situation is urgent, and need to be resolved quickly. Authorities too will have also the possibilities to determine the level of citizens' satisfaction of their work. The best platforms for this case are those which allows mainly: "media and text uploading and broadcasting", "community management", "location-based networking", "interactions with contents" and "event organization" According to the section 3, Facebook, Google+ and Twitter have these affordances. A possible scenario could be:

1. The N.G.O **<creates>** a **Facebook page** "fixmystreet"
2. Citizens **<follows>** or **<like>s** the **Facebook page**
3. Citizens report the problem by <**posting text>** and **<uploading photos and videos**> related to the problem
4. Citizens **<interact with the posted contents>**
5. The N.G.O receives **the streams** and <**send**>the reports to the council
6. If the council resolves the problem:
   6.1 Citizens <**interact>** with the resolution by **comments, likes** and **rankings**
   Else

   6.2 Citizens <**create lobbying community>** and create **advocacy event** to the council.

5.3 Case 3: Peer-services (C2C)

The New York Service Network [4]gave an opportunity for citizens volunteers to provide services for citizens within a website or a web application, through which citizen can request for services. The actual scenario is:

1. Volunteers subscribe on a web-based application
2. Uses request for volunteers' service
3. Users post the service requests
4. Volunteers receive the posted requests via their applications

The best platforms for this case are those which allow mainly "media and text uploading and broadcasting", "community management", "location-based networking", as the volunteers can create community and receive requests through it. There are criteria and preferences for volunteers to provide the services such as "social tie" "skills", "location", and those can be deducted from the profiles of requesters and volunteers. A possible scenario via the same platform (Twitter) can be like the following:

1. **Twitter users <connect to the Mayor's Office profile>**
2. **Twitter users <follow>** or **<subscribe>** it
3. **Users** (including the mayors, citizens…) ask for informations
4. Volunteers **<post>** their interest
5. Volunteers **<create community of volunteers>** and **<synchronize their personal profiles**> on the community of volunteers
6. Users request for volunteers
7. Users **<post>** the service requests
8. Volunteers receive **<posted>** requests via their **community of volunteers**

6. DISCUSSIONS

The widespread adoption of social media opened new possibilities in engaging both of citizens to collaborate with government in new ways. Social media enables government and citizen to work together, in a more social and less bureaucratic creating services that better responds to public needs. In crowdsourcing, social media platforms can be a channel for disseminating proposals or patents, considering opinions of citizens through their interactions with the suggestion. In co-delivery, communities will be able to provide real-time services and information to the government. In peer services, citizens can request services from other citizens through social media applications like Facebook, Twitter or Google+. Volunteers respond to their requests, and citizens evaluate them in terms of skills and service quality. The use of social media platforms as a channel of service provision is still only emerging. Traditionally, these social channels have been used for communication and dissemination. While few past works have attempted to explore the affordances of social media platforms, no attempt has been made to date on how these features could be harnessed for service delivery. Therefore, our synthesis of these affordances and the development of scenarios to illustrate their applicability in new forms of service delivery is novel. We believe that we have also implicitly raised many questions for future investigations on the practicability and implementation of these social-media based services. For instance, how will liabilities be appropriated when third-parties or citizen have involved in delivery a service on behalf of the government? Another question is how to set minimum standards in service provided by citizens. Despite these issues, we argue that social media platforms are most suited for these inherently social services.

7. CONCLUSION

Our goal in this work is to demonstrate the applicability of Social Media platforms in enabling emerging forms of service delivery. By focusing on the affordances of these platforms and developing scenarios for their use in concrete C2G, I2G and C2C services, we have shown that social media platforms are viable channels for these services. In fact, our argument is that they are more natural channels for delivering these emerging service forms than

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[4] The website (nycservice.org) and its web application allows for coordination between citizens in a new volunteers-to-citizens based services such as Communities and neighbors; Education;

Economic and workforce development; health and well-being; environment and; emergency preparedness and response.

traditional websites. We advocate for pilots to further investigate the viability and possible challenges to realizing fully harnessing the affordances of these platforms. In fact, our ongoing work includes developing concrete implementation models for C2C services as a basis for studying barriers (including ethical and legal) to deploying these inherently social services.

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