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Exploring the industry-level social media practices: toward a theory of association affordance

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Abstract

Social media platforms have been widely adopted by firms. Yet, research has failed to provide an in-depth understanding of social media collective practices in an industry level. This study utilises the case of a well-established hashtag and analyse it in terms of its content and structure. To theorise the collective social media practices, we explore the social media affordance of association in terms of four types or relationships in the networks. The study shows how social media affordances can lead to collaboration and engagement of community of practitioners in co-creation of information.

Introduction

Understanding social media and more broadly Internet as generative artefacts producing “change in the immediate environment of one’s living” (Kallinikos, 2011, p.3) or providing “capacity for leverage across a range of tasks, adaptability to a range of different tasks, ease of mastery, and accessibility” (Zittrain, 2006, p. 1981), brings forth idealistic prospects (Johnson et al., 2013). The use of social media as a new type of information technology has been proliferating in the past decade which according to Forrester Research (2008), 75% of Internet users participate in some form of social media and over half of online adults (52%) are using two or more social media platforms (Pew Research Center, 2015). These technologies that provide communication and interactions among a vast number of individuals blurring the temporal and spatial barriers of communication are essentially transforming and re-defining people’s communication, collaboration, consumption and creation manners (Aral et al., 2013, Aakhus et al., 2014). Social media have revolutionised not only the way that organisations relate to their customers and markets but also to their employees. For instance, social media has been shown to be integral in marketing practices such as customers social media participations and their behavioural outcomes (Rishika et al., 2013, Labrecque, 2014, Goh et al., 2013), social contagion and peer to peer marketing (Aral and Walker, 2011, Peng et al., 2014) and predicting demand (Liu et al., 2015, Bollen et al., 2011).

However, this revolutionising influence of social media is not limited to marketing function of organisations and various aspects of consumer behaviour. Social media is also rapidly changing the ways that organisations relate to their employees. In particular, the role of social media in talent sourcing and recruitment processes (Klier et al., 2015), crowdsourcing new ideas (Bayus, 2013, Sigala, 2012b) and in Human resource profession (Ulrich et al., 2013) has been investigated. Moreover, social media is transforming the communication and knowledge exchange patterns among employees within organisations. The role of social media in communication activities of employees within organisations and its implications has been researched (Leonardi, 2013, Treem and Leonardi, 2012). Treem and Leonardi (2012), in an extensive literature review of organisational social media use, introduced four affordances of social media, namely, visibility, persistence, editability and association. While several studies have also investigated the role of social media in knowledge sharing and exchange among employees and the impact of its visibility on facilitating the interpersonal and knowledge-related interactions (Leonardi and Meyer, 2015) and on creating more innovative products and services (Leonardi, 2014), other studies suggested the negative consequences of these actions (Majchrzak et al., 2013).

In addition to these transforming position of social media in internal or external relationships of organisations, social media has disrupted several industries such as travel and tourism (Scott and Orlikowski, 2012, Orlikowski and Scott, 2011b) (TripAdvisor), retail (Borah and Tellis, 2015) (e-pinion, yelp), news and media (Dellarocas et al., 2013) (Digg) and is reconfiguring others such as education (Otto et al., 2008) (Ratemyprofessor) and healthcare (Kallinikos and Tempini, 2014) (Patientslikeme). Despite the widespread adoption of various types of social media, their organisational implications is still in its infancy (Aral et al., 2013, Kane et al., 2014).

Despite insightful efforts, the use of social media by firms in industry level has been underplayed in the literature, although, the disrupting nature of social media in industry level has been researched extensively by exploring the role of Tripadvisor in redefining the tourism sector. This customer review website has reconfigured the relations of accountability and valuation mechanisms in this

sector (Scott and Orlikowski, 2012, Orlikowski and Scott, 2014) and reorganised the expertise boundary (Jeacle and Carter, 2011). Nonetheless, except a few studies (Mohajerani et al., 2015), the collective use of social media by firms in an industry has not been investigated. Mohajerani et al. (2015) in an exploratory study demonstrated that how IT companies in Iran are using social media to import new logics to socio-cultural context of Iran. Therefore, this firm level use of social media in an industry has not been rigorously studied.

Employing the notion of affordances and focusing on social media affordances (visibility, persistence and association), the aim of this paper, as part of a PhD research, is to contribute to the discussions of social media by exploring the industry level use of social media and theorising the affordance of association.

Theoretical background

Information systems researchers have become increasingly interested in explaining the role of digital technologies in organisational practices by focusing on how technology is entangled (Orlikowski, 2007) or imbricated (Leonardi, 2011a) in practice. To do this and to avoid the former dichotomy of technology determinism or social voluntarism, the notion of 'affordances' has been proposed (Faraj and Azad, 2012, Fayard and Weeks, 2014) as a powerful construct to explain the interplay between the technological artefacts and the users. This concept, initially introduced by Gibson (1977, Gibson, 1979) in the field of ecological psychology to challenge the cognitive explanations of behaviour and the subjective-objective dualism. Although Gibson's view on affordances regards reliance on the relational nature of the concept, whether affordances are relational or dispositional (inherent in the objects) has been a matter of ongoing debate amongst ecological psychologists (Robey et al., 2012).

Norman (1988), a cognitive psychologist, used the concept in discussions of 'technology design' and 'human-computer interaction'. By focusing on the role of designers in the way that designed affordances can be perceived or misinterpreted, Norman defines affordances as "a relationship between the properties of an object and the capabilities of the agent that determine just how the object could possibly be used" (Norman, 2013, p. 11). In sociology of technology, Hutchby (2001) argues that the relational aspect of affordances assists in avoiding the radical position of social constructivism and technological determinism. Moreover, he emphasises the way that affordances function: they enable or constrain actions. Whilst affordances of a technological artefact do not dictate actions, "they do set limits on what it is possible to do with, around, or via the artefact" (p. 553). Within the context of technology use, affordances have presented a way of exploring the material properties of information technologies (Zammuto et al., 2007, Leonardi and Barley, 2008).

Within the field of IS, the concept has witnessed a growing popularity among IS scholars as the relational view of affordances has been proved relevant in bridging the social and the material (Leonardi, 2011b, Leonardi, 2013, Treem and Leonardi, 2012). Despite the insightful efforts, the notion of affordances has been used in such studies mainly focusing on technological affordances (Fayard and Weeks, 2014, Lindberg and Lyytinen, 2013). For instance, in order to understand social media technologies and their organisational implications, several scholars have recently recruited the affordance lens (Gibbs et al., 2013, Majchrzak et al., 2013, Treem and Leonardi, 2012). Treem and Leonardi (2012) in a comprehensive review of social media literature introduced four affordances of these technologies, visibility, editability, persistence and association.

Visibility refers to allowing individual users to reveal “their behaviour, knowledge, preferences, and communication network connections ... visible to others” (Treem and Leonardi, 2012, p. 150)). Persistence refers to permanence of the original communication, if kept by users. Editability means the capability of users in modifying already communicated content and association refers to the relationship between individuals or an individual and content, or between an actor and a presentation. They discussed that these affordances have significant implications for organisational communication processes such as ‘socialisation’, ‘information sharing’ and ‘power relations’ (Treem and Leonardi, 2012). For example, in the context of Twitter, ‘following’ someone or retweeting a tweet are examples of association between individual actors and an individual and content, respectively. With a few exceptions (Gibbs et al., 2013, Leonardi, 2014, Leonardi and Meyer, 2015, Majchrzak et al., 2013), social media affordances and their implications have been unexplored.

Method

This paper is part of a PhD research that aims to investigate the firm and industry level social media practices and the role of socio-cultural community context on such practices. To this end, Tourism sector has been considered as the empirical context for investigation of research questions. First, as one of the largest sectors (Urry, 2003), tourism constitutes 9% of global GDP, 9.1% of employment, 6% of world’s exports and 30% of services exports. In 2014, there were 1133 million tourists worldwide¹. Second, the intangible nature of tourism products promotes dependency on the reported experiences of others (Litvin et al., 2008, Yoo et al., 2007). A number of studies (Crotts, 1999, Pan and Crotts, 2012, Park et al., 2007, Perdue, 1993) report that information from these others or this ‘Interpersonal influence’ (Litvin et al., 2008) is the most recurrently adopted, inspiring, valid, reliable, accurate and authentic reference used by travellers. Since the tourism industry is extremely competitive, ‘interpersonal influence’ may bring about significant competitive advantage for early adoption of social media by tourism product providers (Litvin et al., 2008). This significance has been highlighted in a recent report by Deloitte (2015) emphasising the scope and power of social media for tourism sector:

If travel companies move from “social media” to a more nuanced understanding of digital channels, the possibilities are endless. Digital media isn’t new anymore, but its reach and potential continues to evolve rapidly. The more quickly companies can adapt to these new technologies and integrate them with their core business strategies, the sooner they can transform their digital efforts from an expense to an investment.

Third, information as ‘the lifeblood of tourism industry’ (Sigala, 2012a, p. 7), which is being produced, disseminated and consumed by customers as, for example, electronic word of mouth (eWOM) (Litvin et al., 2008, Rong et al., 2012, Sparks and Browning, 2011). This information ultimately influences all aspects of the travellers' decision making process, from ‘need identification’ to ‘post-purchase support’ (Sigala, 2012a, p. 8) and thus can be viewed as the most significant and influential resource affecting all phases of trip planning (Kim et al., 2004, Yoo and Gretzel, 2008). Information, which is produced and shared through social media platforms, forms a vital asset for tourism companies (Sigala et al., 2012), with social media being considered as a crucial source of travel information. As such, this information has been referred to as ‘social intelligence’ (Sigala et al., 2012) or ‘collective intelligence’ (Litvin et al., 2008, Xiang and Gretzel, 2010).

¹ <http://www.e-unwto.org/doi/pdf/10.18111/9789284416899>

Tourism is one of the sectors that has been largely disrupted with the rise of user-generated review website (as a type of social media), particularly TripAdvisor as the largest travel community. (Orlikowski and Scott, 2011a). Scott and Orlikowski (2009) argue that “social media are not neutral pipes through which knowledge is delivered but integrally and materially part of knowledge production” (p.19). Therefore, the indefinite boundary between customers’ opinions and businesses is no longer the case and TripAdvisor actively reconsiders and reorganises the expertise boundary (Jeacle and Carter, 2011). Finally, tourism comprises a variety of subsectors which makes it an interesting collective of practitioners with various scales and practices to study.

Scotland was recognised an interesting setting for this research, due to significance of the sector for the country’s economy and its strong cultural offering through festivals and events (VisitScotland, 2015). Scotland is the second largest tourism economy in the UK (following London) constituting the 9.6% of the whole UK tourism economy. The significance of tourism sector in Scotland is reflected in its employing 167000 individuals (6.3%) and contributing to the country’s economy £ 5.4bn (4.8 % GDP) directly and 354000 individuals (13.2%) £ 14.7bn (13 % GDP) totally (Deloitte, 2013).

In order to study the affordance of association and its implications, we conduct an exploratory study of a Twitter hashtag focusing both on the structure of it as a network and its content and also an emerging practice of developing social media calendar across the sector. However, the due to the complex nature of the phenomena under study, the research employs a variety of methods including documents, semi-structured interviews and direct/participant observations (Walsham, 2006) and netnography (Kozinets, 2010) in a larger scale as a pluralist methodology in order to present richer and more reliable result (Mingers, 2001).

The empirical context

In order to become familiar with the context of the sector, several documents were analysed including Scotland’s economic strategy 2015, Tourism Scotland 2020, Edinburgh tourism strategy 2020, and VisitScotland Corporate plan. The key theme highlighted in these documents has been the emphasis on the collaboration and partnership, significant role of events for the sector, and provision of support to businesses. Support has been provided by several organisations including Scottish Enterprise, City of Edinburgh Council, VisitScotland, Marketing Edinburgh, Festivals Edinburgh and the Federation of small businesses among all (ETAG, 2015). ETAG (Edinburgh Tourism Action group) constitutes representatives of main agencies and stakeholders across Edinburgh tourism sector and its activities focus on areas of ‘market intelligence’, ‘business development’, ‘networking’, and ‘Edinburgh 2020 Tourism Strategy’. In terms of ‘business development’, ETAG delivers various events including new technology, social media and innovation workshops. Observations of these workshops have been conducted focusing on the content of the workshops, which include training from specific social media platforms (such as Twitter or Instagram) to analytics and measurement of social media ROI.

Throughout this preliminary observations and talking to participants, we became familiar with the context of industry practitioners social media practices. In this regard, the ‘scotlandhour’ hashtag was recognised as one of the most widely used hashtags among them. The hashtag that engages a

wide range tourism firms and organisations in monthly theme-based conversation on Twitter has been drawn to the attention of Scottish Parliament and tourism minister, Fergus Ewing².

Hashtag, signifying with the symbol #, originally introduced by Twitter. According to Twitter, “The # symbol, called a hashtag, is used to mark keywords or topics in a Tweet. It was created organically by Twitter users as a way to categorize messages.” (Twitter, 2015b). Oxford English Dictionary defines hashtag as “a word or phrase preceded by a hash and used to identify messages relating to a specific topic; (also) the hash symbol itself, when used in this way” (OED, 2015).

In order to collect data from this hashtag to generate a dataset of the sector, one year of tweets has been considered for collection. The rationale for this one-year data is the theme-based nature of the monthly chat that provokes diversity of participations in terms of type of businesses/organisations. However, collecting longitudinal search data on Twitter is limited by Twitter API³ that usually render merely one week of data. To overcome this limitation, the tweets of hashtag search result were loaded by scrolling down the page and then saved as a web-page. Subsequently, using the method of ‘webpage scraping’ the data were structured to a dataset of Twitter accounts and their relationship based on the following feature of Twitter and their characteristics such as number of followers and tweets etc. (This dataset included 1636 Twitter accounts). The data spans eight months (November 2014- June 2015) and will be extended to October 2015 to cover 12 months.

In the following stage, ‘data cleaning’ was conducted to exclude the irrelevant tweets and accounts, similar to other studies on Twitter (Risius and Beck, 2015). In order to conduct a systematic data cleaning procedure, several criteria were considered. First, using UCINET (Borgatti et al., 2002), network analysis software, the degree centrality measure was determined the in-degree and out-degree measures for each of Twitter account in the network demonstrating the number of followers and following in the network. Those Tweeter accounts with in-degree and out-degree measures of less than 30 went under further investigation. In the next stage, the associated profiles of those accounts were checked on Twitter based on the presented biography and tweets. If the profile and tweets showed no relevance to the network, in the final stage, the actual tweet in the time length of data was retrieved. Subsequent to this comprehensive scrutiny, 309 accounts were excluded leaving the dataset of 1327 Twitter accounts.

The analysis of the hashtag network is based on four ‘tie types’ shaping associations on Twitter. According to Borgatti et al. (2013), social networks include four fundamental types of ties: proximity or co-occurrence, social relations, interactions, and flows. Proximity or co-occurrence refers to shared presence in physical or social space, co-membership in groups or co-participation in events. ‘Social relations’ represent the social connections between the members of the network which can be kinship, affective or perceptual in essence. ‘Interactions’ refer to relational events such as talking to and discussing with which involves nodes. ‘Flows’ can be considered as the result of interactions which can include physical and non-physical in nature, such as products or information. This type of dyadic tie is more difficult for collection is rarely collected (Borgatti et al., 2013).

² <http://www.bbc.co.uk/democracylive/scotland-21699663>

³ <https://dev.twitter.com/rest/public/search>

The analysis of the hashtag network in terms of these four criteria is based on both quantitative measures of network analysis and qualitative analysis of tweets content and interviews with the hashtag team.

Analysis of Network

The hashtag #scotlandhour which was introduced in August 2011 by a travel writer “as a fun way to tell fellow travellers all about Scotland”, turned to a monthly conversation among Scotland enthusiasts and mainly practitioners and bloggers within the sector which is hosted by a team of seven experienced tourism practitioners in the sector voluntarily. The themes for discussion are originated based on a number of factors such as Visitscotland theme of the year, festivals and events, geographical locations, cultural tourism etc. The host team share several questions related to the theme of the month with the hashtag included in the tweet. The discussion occurs every last Wednesday of the month for one hour. The tweets are then archived into the website for the hashtag.

Association: social relationship

On Twitter, the ‘follower/following’ relationship has been considered as the social relation ties in the networks (Kane et al., 2014). In order to analyse the network in terms of ‘following’ relationship, a procedure was needed to make the network more manageable for more useful results (Borgatti et al., 2013). The original Network included 1327 nodes with 57045 edges (ties). The initial visualisation is illustrated in Figure 1. Following the ‘pruning nodes’ tactic (Borgatti et al., 2013), first, the network was reduced based on the ‘Giant Component’ using Gephi, removing isolated nodes and leading to a network with 1294 nodes and 57045 edges illustrated in Figure 2. Then, the network was further filtered based on K-cores with $k=30$, resulting to a sub-network in which each node has degree of 30 or more with other nodes in the network leading to a network with 806 nodes and 50658 edges. Figure 3 shows the inner core of the network, but no sub-groups is observable revealing the 30-core network is highly cohesive.

Figure 1- #scotlandhour Original Network

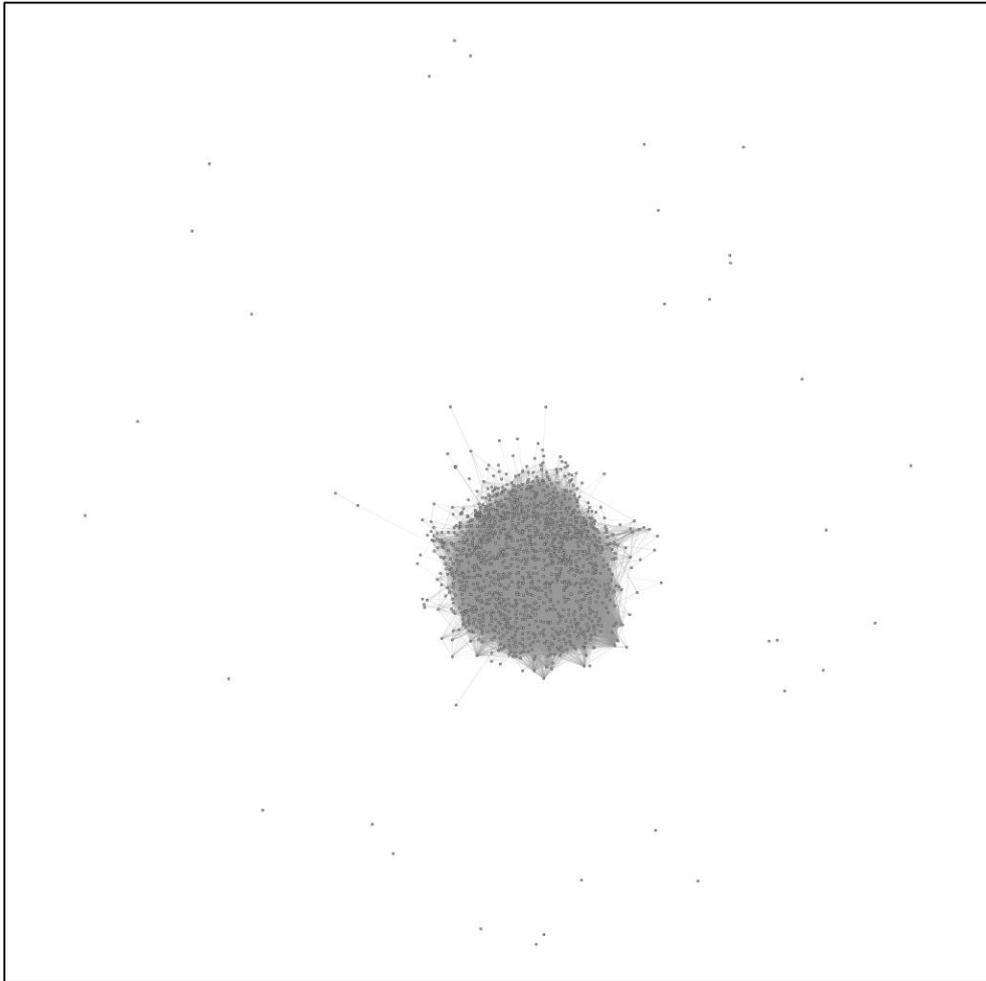


Figure 2- #scotlandhour Giant Component

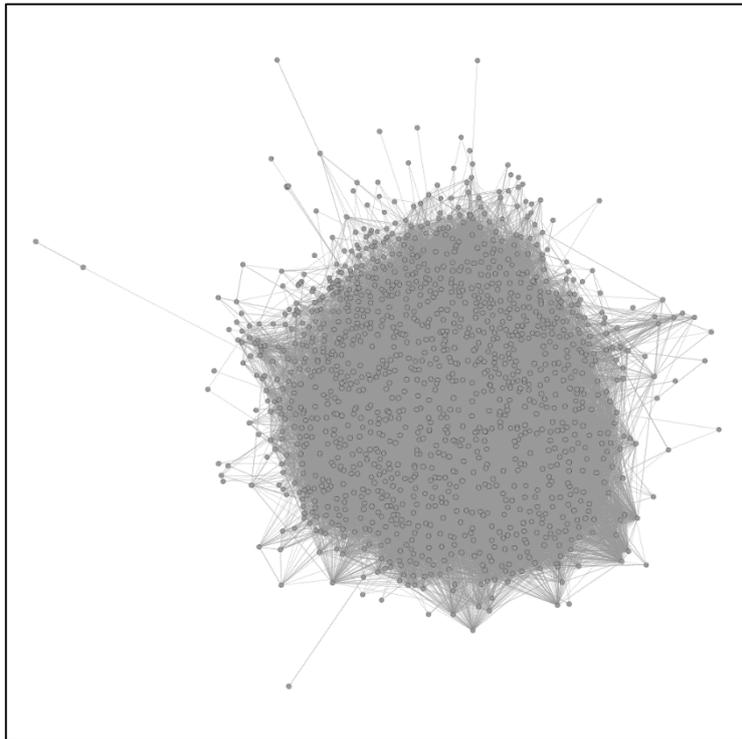
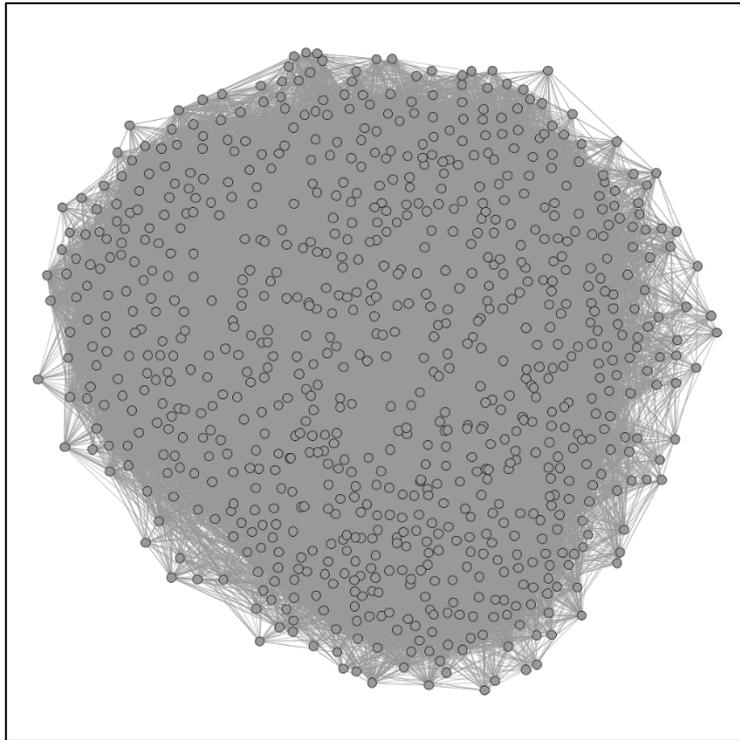


Figure 3-#scotlandhour Network of 30-core or higher



To assess the overall characteristics of this network, several measures have been suggested (Borgatti et al., 2013). Although density (numbers of ties in the network as a proportion of the total possible ties), is a measure of cohesion, it is relatively low in large networks (0.078 for the network in figure 3) and cannot represent the overall cohesion of the network. In this regard, the average degree of the network which is the average number of ties for each node has been suggested. The average degree of the network in Figure 3 is 62.851. This average degree along with the network layout demonstrate a high cohesion in the network (the nodes are highly related). Considering that this network includes the retweets, it shows that not only the nodes are connected to the topics of the talks and the hashtag, rather they are highly connected by the 'following' relationship. Using the modularity class in Gephi, the network categorised into nine classes, representing a network of nine nodes and 72 edges highlighting that all nine groups have a relation (Figure 5).

Association: co-occurrence

Co-occurrence or proximity is one type of tie in networks which is based of spatial or temporal presence of actors. According to Kane et al. (2014), in social media networks membership to the same platform or group can represent the 'proximity tie'. In the case of this study, all the Tweeter accounts who used the hashtag #scotlandhour in their tweets were considered a node in the hashtag network. In this regard, the co-occurrence has been resulted from the 'participation' in conversations by including the hashtag in the tweets, accounting for 1636 Tweeter accounts. However, this participation and the information flow (tweets) are mutually constitutive which lead to a contribution to information generation purpose of the flow or spamming by tweeting irrelevant

Figure 5- #scotlandhour network, grouped into 9 classes according to modularity class

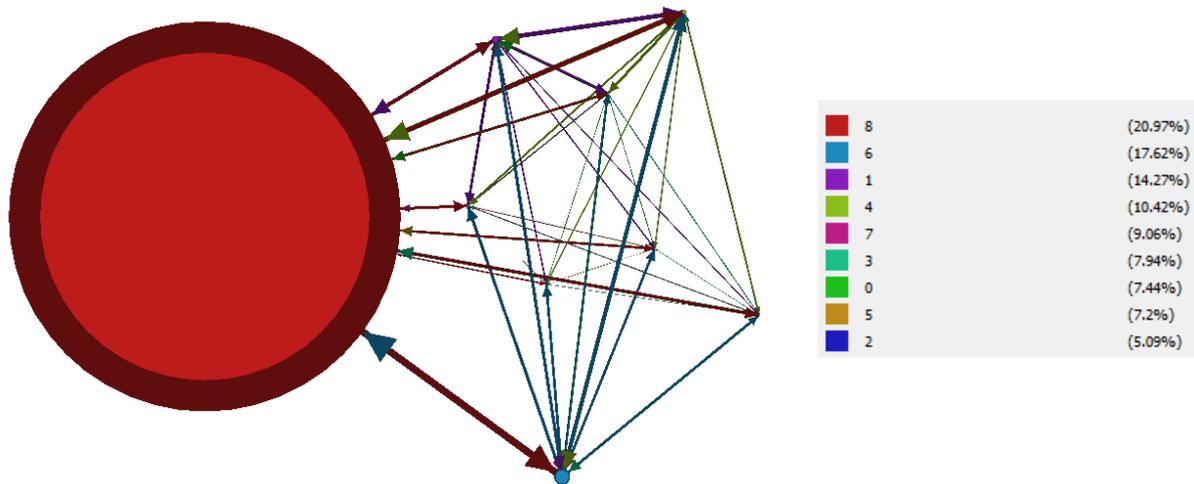
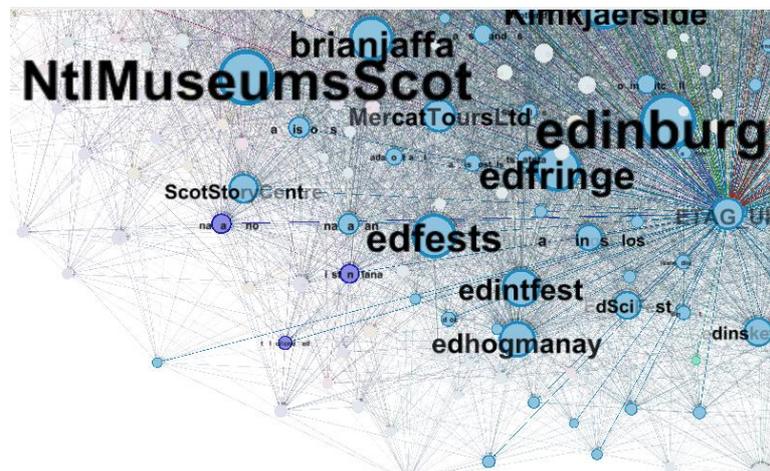


Figure 6- #scotlandhour network, light blue class including Festivals Edinburgh, Fringe, Hogmanay, national Museum Scotland



Association: Flows

The material moving between nodes are considered as flows as a tie type. On social media and Twitter particularly, the existence of a social relation tie is not essential for facilitating the information flow, rather flow is possible among the nodes that are not directly related through the co-presence in the social media platform. As previously mentioned, the co-presence in the network (use of the hashtag) and contribution to information generation (tweeting flow) are mutually constitutive, i.e. the co-presence on twitter and the use of the hashtag in tweets shapes the information flow while the information flow (the tweeting action including the hashtag) shapes the presence of the participants in the network. This information flow is diverse in nature: textual and visual content to hyperlinks, inclusion of other hashtags and other nodes (mentioning function on Twitter).

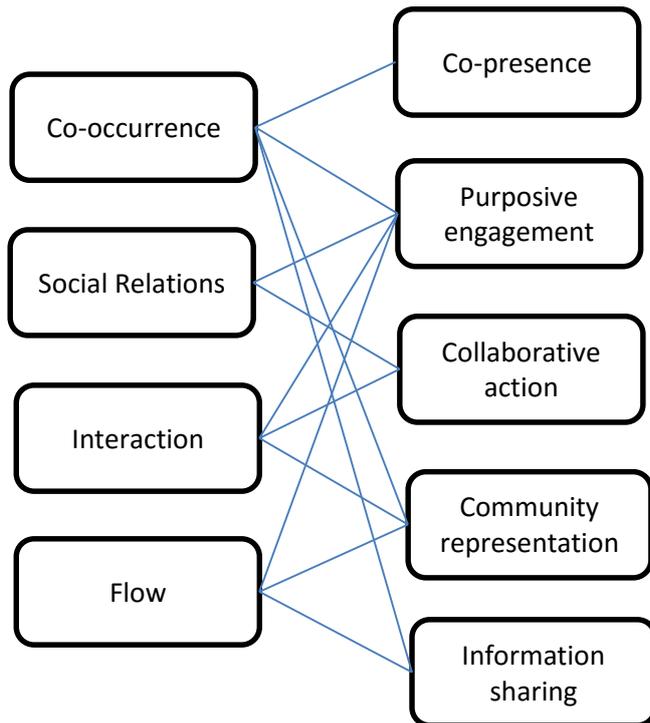
However, the flow is not always along with the purpose of #schotlandhour hashtag. The irrelevant information (tweets) were excluded leading to removal of 309 nodes from the network. Essentially these tweets were advertising messages of products and services around the UK which included the hashtag to make their advertising message visible to the other hashtag participants. According to

one of the team members of the hashtag, this act reveals the high level of engagement that other businesses use the network for advertising.

Overall data analysis and findings

Based on four network tie types as concepts, the content of the tweets and transcripts of interviewees with hashtag team were analysed following established qualitative data analysis methods (Miles and Huberman, 1994). Data was coded into categories (figure 7) through descriptive coding process and then the process of pattern coding is under progress to develop themes.

Figure 7 – The descriptive coding



Discussion and Implications

Twitter emphasises that hashtags are used as key words to classify the content and facilitate their visibility in searches. Despite Twitter’s emphasis on the role of hashtags as meta-data in information archival, the preliminary findings illustrate that hashtags not only can serve as a way to information archival and retrieval, but also beyond this. The empirical findings reveal that how social media (Twitter) afford associations among industry practitioners through shaping four types of ties. In this case the hashtag is not merely showing the contribution of content (information) to the topic or theme of conversations, rather association of tweeters (actors) and the hashtag as a presentation (affordance of association) (Treem and Leonardi, 2012). In this regard, hashtags can be considered as a form of organising not only the information, but also the users and communities.

The affordances of association are constituted by the interplay between the users’ interests and materiality of social media (Twitter) bringing forth the sector’s community of practitioners to collaborate and co-create information. This study will offer two main contributions. First, it shows that collective industry-wide social media practices can represent the community of industry

practitioners and second, it demonstrates how the affordance of association can lead to collaboration in the community and co-creation of information.

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