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## Sub Theme 33.

# The Contribution of Activity Theory in Studies of Social Media Use in Organisations

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## 1. Introduction

The adoption of social media within organisations is a growing area of research activity (Jarrahi & Sawyer, 2015; Koch et al., 2013; Treem & Leonardi, 2012). As a phenomena, social media can be defined as a “a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and allow the creation and exchange of user generated content” (Kaplan & Haenlein, 2010, p.61). These applications have the potential to change work activity through the way people connect, collaborate, interact and share information. Early

research has focused upon external social media use; a means of mass communication aimed towards an external audience, such as connecting with customers, the public or other companies (Kaplan & Haenlein, 2010; Mangold & Faulds, 2009; Estellés & Guevara, 2012). However, there has also been a rise in internal social media use within organisations, typically for information sharing between employees and creating new connections across organisational boundaries. Treem and Leonardi (2012) conducted an extensive review that charted the rapid proliferation of social media use within organisations, and identified four general affordances (i.e. visibility, persistence, editability, and association) that distinguish social media from more traditional technologies. They highlighted the importance of studying social media within the workplace as a more complex phenomena, yet thus far the possibilities and challenges for organisations have only been vaguely defined in the literature, and there is a need for longer term empirical studies. For instance, Stocker et al. (2012) suggest that the actual benefit of social media, “only manifests itself when people make sense of and incorporate them into their day-to-day work routines” (p. 348). In agreement, Leonardi *et al* (2013, p. 2) calls for further research that explores how social media enables and constrains the accomplishment of activities as the bottom-line of any organisation. Arguably, as social media use matures, there is a demand for research that considers how social media impacts the complex work in which people, tools and practices are interrelated (Nardi & O’Day, 1999).

Augmenting understanding of how social media transforms work activities motivates the need to study them as a collection of technologies more closely through an analytical lens. However, there is a lack of contemporary social theories that are able to account for the fluid, expansive and intangible nature of social media in work activity. In this paper we explore the contribution of activity theory to study the implementation of social media in organisational settings. This is illustrated by two longer empirical case studies conducted in different settings (public and private) where activity theory has been applied to the study of social media and its influence on information sharing in the organisations. The first case study (1) was executed in the UK policing to explore forces use of external social media to engage with the public. The second case study analysed how multiple social media was used internally in knowledge work in a

Scandinavian software consultancy company. Activity theory has been highlighted as a suitable framework to analyse technology in contexts, where social and technical aspects intertwine (Allen et al., 2013). The explicit emphasis on “how people work” (Spinuzzi, 2008), i.e. framing social media as part of human object-oriented tool-mediated activities, contributes to a deeper and contextualised view on social media in the workplace.

## 2. Literature review

Over the last decade or more, social media has become highly integrated in people's' everyday life (boyd & Ellison, 2007). The development is no longer seen as a passing trend, rather social media has become mainstream with apparent social, political, cultural and economic impacts (van Dijk, 2013). Power to publish online has been radically repositioned from a few editors on the web, to many ‘read and write’ consumers and communities who have the desire to produce, publish and share content. A large number of applications and services are used in order to facilitate information sharing, collaboration, and network building interactions between people, such as wikis, blogs, social networking sites amongst others. These applications have been adopted in several novel contexts, such as education, politics, media and entertainment, leisure time, and youth culture. Despite this uptake, much less is known regarding the implementation of social media within a business context. Empirical research on the adoption in work practices is still in its infancy and further empirical studies are needed (Jarrahi & Sawyer, 2013). There is an ongoing debate regarding the affordances (Trem & Leonardo, 2012) and tensions (van Dijck & Nieborg, 2009; Pirkkalainen & Pawlowski, 2014) of social media in the workplace.

According to Leonardi et al. (2013), social media can be divided into two main areas of concern in organisations: 1) external social media and 2) internal social media, as modeled in Figure 1. In the first case, social media platforms (e.g. Facebook and Twitter) are used as a means of engaging with the public, whether they are potential customers or the general public who might be interested in consuming information from an organisation. In the second case, social media platforms (e.g. Yammer) are used by employees, in order to communicate and share information with each other within the organisation that contributes towards work tasks.

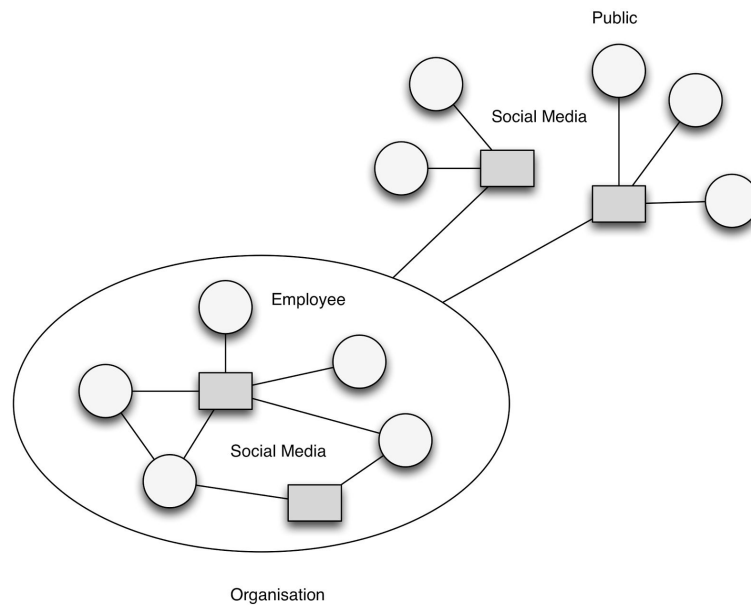


Figure 1: Model of social media use within the organisation

Examining the current literature on external social media, it is clear that a great deal concerns the recognition of social media as a tool for marketing activities (Hanafizadeh, et al. (2012). Marketing oriented studies have looked at social media in relation to customer communication and relationship building aspects (Mangold & Faulds, 2009; Singh et al., 2008) and also the potential for innovation (Estellés & Guevara, 2012). Beyond this, it has also been applied for information sharing in the areas of crisis response and emergency management and health care. For example, studies in crisis response have found that public safety organisations can utilise social media to share information updates with the public in times of crisis and the public can in turn share information with emergency responders by providing situational updates (Bird et al., 2012). In health care, studies learned organisations are starting to use Twitter to share health related information with the public, however these tend to be one way communication i.e. pushing out information rather than engaging in two-way information sharing (Neiger et al., 2013). Social media can raise tensions amongst leaders and executives managing organisational crisis and significantly impact organisations and their strategy (Gruber et al., 2015).

In terms of internal usage, previous research has focused upon different types of social media within the workplace. Wikis have been used in organisations (Stocker et al., 2012; Trkman & Trkman, 2009; Lykourantzou et al., 2011; Hasan & Pfaff, 2006), and are reported as powerful platforms for open and collaborative information management (Majchrzak et al., 2006). However, active participation in wikis has been limited due to lack of trust in the quality and accuracy of information being shared (Paraoutis & Al Saleh, 2009) as well as transparency and openness concerns for the sharing environment (Mansour, 2011). Social networking has also been used in the organisation (e.g., DiMicco et al., 2008; Bennett, 2010; Richter & Koch, 2008). Richter and Riemer (2009) identified three purposes for using social networking sites: identification of experts; creation of common space to make contacts and share interests; and finally, to help foster existing relationships. However, social networking sites at work have also caused tensions. Skeels and Grundin (2009) identified a number of issues in a large, technology-savvy organization: 1) the legitimacy of using social networking software at work, 2) tensions from mixing personal and professional personas, 3) tensions from crossing hierarchy, status, and power boundaries, and 4) the risk of inappropriate communication beyond the boundaries of the organisation. Finally, microblogging within organisations has also been studied (Müller, & Stocker, 2011; Zhao & Rosson, 2009). Microblogs tend to be populated with work-related information, often in the form of status updates from employees, about their daily work, which in turn may facilitate information sharing and communication (Zhang, et al., 2010). Typically, microblogging is often bundled as a feature of larger social networking platforms, e.g. the Yammer (Riemer et al, 2012).

In summary, it is evident that social media has had an impact within organisations for internal and external information sharing. However, the majority of these studies have been driven by novelty and feasibility, rather than from a solid theoretical foundation, nor considering how social media relate to work practices and how they affect employees. In addressing this limitation, we investigate how activity theory can help us understand the complexity of social media and its influences on work activities.

### 3. Activity theory framework

To explore how mixed social media was used for sharing information in the organisation, activity theory was selected as theoretical framework. Activity theory has evolved into a global, cross- disciplinary research approach, and found to be useful in framing and comprehend organisational activities, (Engeström 2008; Blackler et al. 2000, Spinuzzi, 2008; 2014). It provides a holistic lens to capture real-world settings as they evolve over time and makes sense of interactions between individuals/groups, tools [such as social media] and the environment (Nardi, 1996; Kaptelinin & Nardi, 2006). In the context of organisational research rather than the organisation being taken as the unit of analysis and organisational objectives prioritised, activity theory takes the activity system as the core unit and prioritises “objects” of organisational activities (Blackler, 2009). This invites a situated analysis of the activity “which is often overlooked in more abstract studies of organizations” (Blackler, 2009, p. 27). According to Nardi (2006), less can be captured in studies of an “unaided individual with no access to other people or to artifacts for accomplishing the task at hand”.

In modern organisations, information systems are intertwined as essential mediators of work activities (Kuutti, 1999). In activity theory, all human interaction is mediated by material tools or immaterial signs and cannot be understood without them (Korpela et al., 2000). Tools have a fundamental impact on human activities and vice versa. It is a dialectic (social and technical) relationship where activities are influenced by tools as well as the tools being influenced by activities (Barab et al., 2004). Karanasios and Allen (2014) suggest activity systems can be used for “analysing interaction between actors and collective structures and the use of tools, providing an analytical framework for studying the specific activity and practices” (p. 531). This brings together technology (material) and the social into one coherent framework, which alleviates issues that have been raised by some scholars, around the absence of the role of technology, but also without privileging the social over the material (Orlikowski, 2007).

As more social media tools augment the workplace, their interaction and influence becomes more important to study and understand. However, the adoption of social media technologies in

these contexts has been less explored from an activity-based approach with a few expectations (e.g. Heo & Lee, 2013; Stolley, 2009; Hasan & Pfaff, 2012). Engeström (2009, p. 311) calls for “new concept to make sense of Web 2.0 [and by extension social media]”, and our intention is to contribute in that direction. However, Vygotsky, Leont’ev and others were concerned with mediation, however ICT-mediated activities – such as using social media for information sharing – is radically different from the mediation in mind during the early development of activity theory (pre-ICT era). New ICT – such as social media – challenges activity theory in new ways. For instance, a hammer and a computer are both considered tools in activity theory, whereas social media can be thought of as a hybrid between a tool and the community (Shirky, 2008). Therefore social media may be used to act upon an object (e.g. a person). However, the “social” aspects of social media are dependent on a community, whether in the form of contributors (as for a wiki) or followers (for a Twitter account). Activity theory accounts for this within the activity-system structure (Engeström, 2008) (a meeting point between tools and community), however few studies have explored how social media is used as a tool–community hybrid to act upon an object. Furthermore, social media stretches the notion of instrumental mediation (where cause and effects of actions are evident and immediately observable by the subject) to communicative mediation (where there is much greater uncertainty that performing an action will have the intended outcome, or any at all). Whilst this is true of any ICT, social media in particular is characterised by more broadcast-based, asymmetric communication that may get lost in a stream of other content that is also being generated. Using two empirical cases the contribution of the paper is twofold. First, it examines how activity theory can be used to study social media use in work activity. Second, it extends the use of activity theory to an relatively underexplored, emergent and complex area technology use in organisations. While activity theory has proven useful in technology studies (Allen et al., 2013), as observed is application for study social media is less developed.

## 4. Methodology

We present a meta-analysis based upon two distinct case-studies that used activity theory to analyse the influence of social media on information sharing in organisational contexts. The studies differed primarily in organisational scope, where the first case study focused on information sharing *outside* an organisation, for example sharing information with the public, and the second case study investigated information sharing *inside* an organisations, for example information sharing between colleagues. Details of each case study are presented below. Common to both studies was a qualitative research approach that collected rich and diverse data via multiple methods (Eisenhardt, 1989) in naturalistic environments. The multi-method approach is well-established within activity theory, as they provide triangulation and a more holistic perspective (Karanasios et al, 2014).

**Case 1 - Police-public interaction on social media:** Over the last few years, social media has started to be used by neighbourhood policing teams to share information with the public. In regards to this, a longer case study was conducted in a policing organisation in the UK. The study focused on neighbourhood policing where individuals involved in the neighbourhood policing teams were sampled. 32 semi-structured interviews were carried out with a range of staff within in the organisation, for example senior officers, police constables, police and community support officers and support staff such as neighbourhood coordinators. Alongside, policing activities were observed to explore the holistic information practices of policing in operational tasks, observation of teams, and managers. Finally, document analysis was used to help establish the rules and norms of the organisations.

**Case 2 - Information sharing in knowledge work:** Taking inspiration from organisational ethnography (Watson, 2012), an extensive case-study was conducted at a Scandinavian-based software consultancy. The workforce (n=~100) are mostly young and typically early digital adopters. The organisation has a decentralised, project-based structure where highly knowledgeable employees work in teams. The leadership style is coaching-oriented and employees are given lots of autonomy. Within this organisation, multiple social media have been

integrated into the work environment. Data for the case-study was collected via employee interviews, observation (on site and through social media) and document analysis. In total, 21 individuals were interviewed with a mixture of background, duration of employment, gender and work roles/activities. Interviewees were involved in software development, IT, marketing and communication, sales, management, design and research. Throughout the case study, observation was conducted as a means of gathering data; both in the physical office as well as in digital environments. Field notes were taken as interactions and situations unfolded, and analysis of organisational document provided possibilities to learn more about the context, the history, values and norms of the setting.

Across both studies researchers conducted the data collection and analysis. Interviews were undertaken using a common interview schedule scaffolded by activity theory. Where the interviewee gave consent, interviews were digitally recorded and transcribed verbatim (or reconstructed from notes as soon as possible after the interview) and coded in Nvivo/Atlas Ti collectively by the research team (Weber, 1985). Data was initially free coded and axial coded. Through this initial analysis new questions were formulated for further interviews, and identified new subjects and other possible data sources. Data collection methods are presented in Table 1.

<b>Criteria</b>	<b>Case study 1</b>	<b>Case study 2</b>
<b>Number of organisations</b>	Single	Single
<b>Type of organisation</b>	Policing	Software development consultancy (SME)
<b>Study duration</b>	10 months Dec 2014 - Oct 2015	Dec 2012 - Feb 2014
<b>Data collection methods</b>	32 interviews 50 hours of observation Organisational documents	21 interviews ~ 200 hours of observation Organisational documents

Table 1. Data collection methods from both case studies

## 5. Findings and discussion

The findings from both studies reflect on the contribution made by activity theory to the conceptual understanding of social media and information sharing in organisations. In this section, we will give some examples of the activity theory concepts which helped provide a lens for understanding social media. These concepts include the notion of tool, object-orientation, contradictions, congruency and actions/operations. These are summarised in Table 2.

<b>AT contribution</b>	<b>Case 1</b>	<b>Case 2</b>
<b>Tool</b>	Social media influenced activities in policing, but used in a mostly <b>static</b> way	Social media influenced knowledge work, but also shaped by <b>innovative</b> use
<b>Object-orientation</b>	Focus on why social media was adopted or not towards different objectives	Focus on why social media was adopted or not towards different objectives
<b>Contradictions</b>	Revealed issues when <b>strict rules</b> govern social media policing but also potential improvements	Revealed issues when <b>few rules</b> controlled social media usage in knowledge work but also potential improvements
<b>Congruency</b>	The adoption of social media brought the police and the public <b>closer together</b> .	The adoption of social media brought the organisations <b>closer together</b> internally
<b>Actions/Operations</b>	Illuminated the consistent <b>external</b> information sharing actions social media mediated in relation to the wider activity	Illuminated the variety of <b>internal</b> information sharing actions social media mediated in relation to the wider activity

Table 2: Contributions of activity theory between each case study

By engaging with the aforementioned concepts in both cases, it was possible to conduct comparisons and contrasting analysis across the cases. This is an identified strength of activity theory as there are central elements within the framework which can be applied in a structured way. Focusing attention on tool-mediation, the variety of social media uses in activities were captured in the different organisational settings; ranging from static practices in case 1 to more explorative practices in case 2. Linking tool-mediation to the respective rules and norms of policing and knowledge work, it was clear that the strict policing environment prevented individuals to freely explore the tools and “test boundaries”, whereas employees in the agile organisation were less restricted and more creative in their use.

Object-orientation was particularly useful in both cases to analyse the value of social media in different configurations. Taking an example from case study 2, object-orientation allowed the identification of different use patterns of social media in different activities. For instance, the developer and sales activity systems had diverse motivations and objects which could help explain the local, situated behaviors on how social media was adopted in their everyday work. Similar analysis were made within the policing context.

In terms of contradictions related to social media in the two case studies, we conclude that tensions were generated both in the strict, controlled environment as well as the more open and agile setting. For example in case study 1, contradictions emerged from both rules and regulations, and the way social media was accessed. Although there were rules in place, these were mainly about what not to do. Consequently, officers were unsure what was acceptable and this would sometimes manifest in conflicts in the division of labour, as individuals held different positions on what was appropriate content to share. Interviewees would often say “I wouldn’t have put it like that” or “you need to be careful because people often misinterpret what you mean”. Officers had to access social media through an interface (Crowd Control HQ) rather than directly, which was perceived by some as a way of monitoring activity (following numerous police misconduct cases i.e. senior management want to keep an eye on what they are doing).

However, the interface was slow and hindered interaction with the public e.g. it took 35 minutes to upload a photograph - therefore not really in real-time. Engeström (1990) suggests this shift in function of the artifact from tool to rule is usually when the subject perceives it as “administrative demand” (p.90) designed by those in power to satisfy the community members, rather than as an instrument useful for the subject to engage in the object of activity.

For case 2, in contrast, despite there being few rules and regulations and employees having freedom to use the tools as they pleased, contradictions still emerged across the organisation and in specific projects. For instance, in software development multiple social media were used - a forum, a wiki and a social networking site (Yammer) for information sharing. Complexity was created through developers having different preferences, understandings and habits for sharing information in the many tools they used. Within the developer community, there were debates on how to make best use of tools, the main issues being functionality; pace of communication, and expectations of quality. For example, Yammer itself was highlighted as being too slow in situations where there was a need to solve problems quickly together. A group chat would have been preferable, as it facilitates information exchange at a much faster pace than Yammer.

The second area concerns the contradictions around specific social media tools and the existing information systems that had “latent social features”, i.e. tools that possessed social-media characteristics such as support for sharing, conversation, reputation. In a software development project studied, Yammer was adopted to improve communication and information sharing amongst the project team. However, the findings suggested that Yammer, whilst a fully functioning social network platform (Kietzmann et al., 2011), had a fairly limited role and was not critical for achieving the objects of the project activity. The project team were already comfortable with using Yammer (as it is used across the wider organisation), so discomfort was not a valid justification. Instead, on closer inspection of the tools used within the project, it became evident that there was limited opportunity for Yammer to find its niche. Firstly, because the team was small and co-located (presence and conversations are convenient), and secondly because the existing tools were found to have a rich set of latent social features, e.g.

conversations embedded within the issue-tracker in combination with direct interaction through co-location made many features of Yammer redundant.

## 6. Conclusion

This paper has illustrated how activity theory has been used to illuminate and analyse the implementation and usage of social media in two organisations. Although the organisations varied greatly in their characteristics, activity theory has provided a framework to ground comparisons of social media according to tools, object-orientation, contradictions, congruencies and finally operations and actions. Although activity theory has been found to be very flexible and expressive in terms of its analytical power, we have also found several challenges from our own experience of using activity theory with respect to social media in particular. First, social media goes beyond being a simple tool, rather it manifests itself and influences several areas of activity systems. Secondly, it represents communicative mediation that is not so straightforward to capture within activity theory as it stands. These are possible stimulants for future developments in the theory to accommodate such complexity.

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