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# Research opportunities through the use of social media?

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## Abstract

The rapid growth of technology, its perceived ease of use and a demanding working environment, has led to the increasing use of social software by businesses. Reported evidence reveals that companies have enhanced their performance through developing social networks; being transparent by sharing information through collaborative communities appears to improve organisational productivity. Limited emphasis has been placed on the use of social media in Operations Management (OM) research and its impact on generating research outcomes. This paper, therefore, aims to explore the factors that inspire or prevent scholars from using social media as a key element within their research projects.

**Keywords:** Social Media, Operations Management, Research Lifecycle

## Introduction

Social networks can play a pivotal role in enhancing organisational performance (Chui et al., 2012) through exchanging information between collaborative communities (Gulati, 2007). The use of social software enables organisations and individuals to productively communicate and collaborate (Bradley, 2010), which became the catalyst for generating and applying innovative ideas and providing solutions (Weinberg et al., 2013). This mass phenomenon has been adopted in many processes carried out by companies, such as: product development, marketing and customer service. More than \$1.54 billion have been invested for the social software implementation and support (Bruhn et al., 2012) within business. Although asynchronous collaboration applications

were introduced as a weapon used by marketers to promote a brand, they are also accepted as a powerful management tool to facilitate and perhaps improve teamwork and workflow (Weinberg et al., 2013).

A number of scholars have focused on exploring the trend of social networks attempting to understand the way that the use of social media impacts upon companies' overall performance (Zheng et al., 2010; Chui et al., 2012). However, there is less evidence regarding the use of these tools throughout an academic research project. Therefore, this paper evaluates to what extent social media is, and potentially could be, employed by researchers in order to facilitate and improve the actions involved within the research lifecycle.

## **Literature review**

### *The use of social media tools*

Various technologies are used by individuals and organisations in order to facilitate and improve the way that they communicate and collaborate. The rationale of this appears to be that firms have moved from 'a production orientation to a networked structure' (DiMaggio, 2003), which means that collaboration and information/knowledge sharing create the value (Vargo & Lusch, 2004). These technologies are formally defined as social media; they are web-based platforms which enable users to share information and contribute to collaborative communities of participants (Pentina et al., 2013); a typical classification of these tools includes social networks, blogs and wikis. Deloitte, the global consulting firm, have stated that "social tools drive collaboration and information sharing across the enterprise and integrate social data into operational processes" (Kiron et al., 2013, p.5).

Literature indicates that social media have been applied to a diverse range of business functions and underlined by a range of models and theories in order to improve team communication and collaboration through sharing important information and knowledge (Levy, 2009; Zheng et al., 2010; Ngai et al., 2015). The consulting firm McKinsey & Company revealed that "69% of executives, that have implemented a social media strategy [...] have gained measurable business benefits, including better access to knowledge and higher revenue" (Henneman, 2010, p. 4). Although social media is initially used as a marketing tool for advertising new products, its use is now extending to other fields, such as Higher Education (Wilson, 2013).

The majority of the studies, analysing on the use of social media in Higher Education, explain how these tools can reinforce the links between teacher and learners. In particular, academics seem to gain from the use of social software as they communicate with the students more effectively; exchanging or disseminating information, assess student learning and also deal with the associated issues, such as discontinuation of universities system (Wilson, 2013). Focusing on the academic research practices, researchers have explored the use of social media as academic research tools from a different point of view. Particularly, Grosbeck and Holotescu (2011) focused on the use of microblogging and how educators exploit this research tool in their research activities. They concluded that there was a tendency to work with colleagues outside of the institution and abroad, and as a result microblogging is a suitable tool for dissemination, learning and participation. In a similar vein, Gruzd et al. (2012) found that 'performance expectancy' is positively linked with the intention to use social media as a research tool, with the primary performance booster that scholars outlined being the ability to find new professional connections. Creating and maintaining contacts, disseminating research outputs and keeping up to date with developments in the field are outlined as being benefits of the use of social media in

research (Branthwaite & Patterson, 2011; Rowlands et al. 2011; Moxham et al., 2014). However, no research appears to exist that provides a systematic analysis of the use of diverse social media tools throughout the research lifecycle in the field of OM research. Before analysing the phenomenon under investigation further, it is first important to briefly introduce and discuss the concept of the research lifecycle.

*The research lifecycle*

A typical research lifecycle consists of four discrete stages, which are presented in Figure 1 (Adams and Barndt, 1978; Radack, 2009; Van den Eynden et al., 2009). It is clear that each of the fundamental phases includes a large set of activities. Although Figure 1 describes a linear model, where the outcomes of one stage become the inputs of the following stage, some activities are much more iterative in nature and are carried out in parallel (Jahnke et al., 2012).

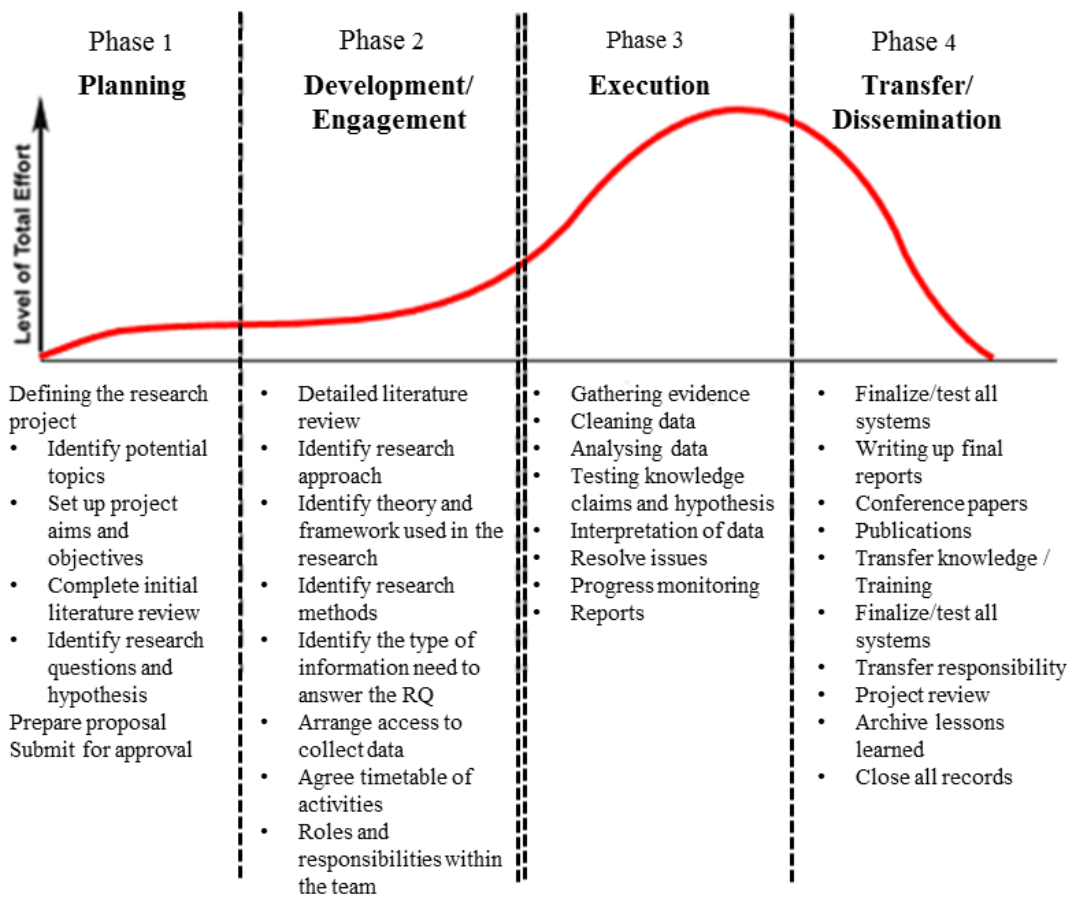


Figure 1 – The Typical Framework of a Research Lifecycle (adapted from Adams and Barndt, 1978)

The reason for adapting this framework is to provide legitimate structure to the investigation of the activities involved into a research lifecycle and assess to what extent the use of social media can actually facilitate them. In particular, the ‘Planning’ phase includes activities, such as: the identification of the topic area and the specification of the project’s aims and purposes. Subsequently, the next phase (Phase 2) involves activities related to the research methodology and approach in order to identify the type of information required to address the research questions. The main actions taken place during the ‘Execution’ phase are the analysis of the data and the development of the

result. Finally, the last phase of the research lifecycles (Phase 4) covers the presentation and dissemination of the research outputs.

*The challenges associated with undertaking actions research in OM*

Producing high quality research outputs could be very challenging as the actions included within the four described phases of a research lifecycle need to be undertaken as effectively as possible. In order for this to be achieved, researchers have to deal with a number of issues observed when research is conducted. At the beginning of the research lifecycle, researchers may be disordered; the project’s aim and objects, the research questions and research approach are still vague (Fisher, 2010). Whyte and Pryor (2011), looking into degrees of openness in research, concluded that social networking has an impact upon the speed and efficiency of the research cycle by identifying new research questions, enhancing the research effectiveness and quality and creating new research capabilities.

In addition, one of the problems has been phased during this stage is the lack of open access to required data or organisations that can offer to researchers some useful information (Whyte and Pryor, 2011). Research cannot be supported and developed if there is insufficient literature available to build an effective literature review (Maylor and Blackmon, 2005). Data access is depended on researchers’ ability to build, develop and sustain their networks, which can become difficult especially when a research project requires data collection from more than one country or sectors (Fry at al., 2008). Gruzd et al. (2012) found that scholars tend to use social media because they are convenient for creating contacts and collaborations. Gibson and Gibbs (2013) highlighted social media value in eroding geographical barriers to academic collaboration and collegiality. Peach and Erskine-Shaw (2015) suggested that there is potential to use a social media presence to invite a greater population to participate in a research project; this could extend participant pool diversity and allows access to the previously inaccessible.

Finally, when a research project reaches its end, there are difficulties in disseminating effectively and efficiently the research outcomes (Harmsworth et al., 2000). Dissemination of the research outputs is crucial as it raises awareness of the research projects and increases the impact factor in the wider community (Harmsworth et al., 2000). A number of articles clearly discuss the impact of the use of social media on research dissemination and awareness (Jeng et al., 2015; Weller, 2015).

The majority of the scholars, interested in the use of social media in research, have focused on how these tools have been applied rather than at which stage of the research lifecycle and for which reason they could be useful. Table 1 summarises the themes identified in the literature and links them to the appropriate stage on the research lifecycle.

*Table 1 - Themes from the use of Social Media in the Research Lifecycle*

<b>Stage of Research Life Cycle</b>	<b>Area</b>	<b>Theme</b>	<b>Author(s)</b>
<b>Planning</b>	Identify potential topics	Identifying research opportunities	Rowlands <i>et al.</i> (2011)
	Identify research questions and hypothesis	Degrees of openness	Whyte & Pryor (2011)
<b>Development / Engagement</b>	Identify research methods	Qualitative research	Branthwaite & Patterson (2011)
	Identify the type of information needed to answer the research	Qualitative research	Branthwaite & Patterson (2011)

	questions		
<b>Execution</b>	Gathering evidence	Degrees of openness Greater access to data Qualitative research Micro blogging Social networking sites Attract respondents Wikipedia as a source for research Data access, Big data Scholarly communication Academic Social Networking Services Ethical issues	Whyte & Pryor (2011) Rowlands <i>et al</i> (2011) Branthwaite & Patterson (2011) Grosseck & Holotescu (2011) Otieno & Matoke (2014) Peach & Erskine-Shaw (2015) Okoli <i>et al</i> (2014)  Weller (2015) Gu & Widen-Wulff (2010) Jeng <i>et al</i> (2015)  Swirsky <i>et al</i> (2014), Weller (2015), Whyte & Pryor (2011)
	Cleaning data	Data Quality Information quality and reliability	Weller (2015) Gu & Widen-Wulff (2010)
	Analysing data	Degrees of openness	Whyte & Pryor (2011)
<b>Transfer / Dissemination</b>	Transfer knowledge / training	Degrees of openness Faster dissemination Micro blogging  Research dissemination	Whyte & Pryor (2011) Rowlands <i>et al</i> (2011) Grosseck & Holotescu (2011), Peach & Erskine-Shaw (2015) Gruzd <i>et al</i> (2012), Peach & Erskine-Shaw (2015) Okoli <i>et al</i> (2014)
		Use of Wikipedia for dissemination Raising awareness of research Scholarly communication	Gibson & Gibbs (2013) Gu & Widen-Wulff (2010)

### *Research question*

Despite the wide spread adoption and use of social media by academics few studies have focused on their use in OM research to support all the phases of the research lifecycle. Although these tools provide a wealth of information for developing a research project, a large portion of researchers avoid using them in the research activities they carry out, even though they have found value in them (Gruzd et al., 2013). Therefore, the aim of this research is to gain a deeper understanding of this phenomenon and examine how best social media can be used for improving research in OM. To structure the paper the following research question was developed:

RQ: To what extent is social media used during research activities in the field of OM?

### **Methodology**

Building on earlier qualitative research on this topic (Papalexi et al., 2014), a quantitative approach was adopted; the aim being to capture academics' opinion in the OM field, as to the use of social media and their potential in the research lifecycle. This was delivered via a survey distributed online through email academic lists from multiple universities and also via social networks (e.g. LinkedIn and Twitter) as a convenience sample. This sampling technique has been used by researchers to approach the potential participants (Moxham et al., 2014). In addition, a snowball sampling approach was adopted to increase the response rate (Bamford, 2008).

Considering that the survey was distributed through email and social networks, the response rate is difficult to be calculated. This is one of the disadvantages of using social networks in order to collect the required data. The number of responses equals 97 for this first wave. The questionnaire includes 13 questions; items were rated on a 5-

point Likert scale (from 1= Never to 5= Always). Data were analysed using SPSS version 20.0. The following section presents the descriptive statistics.

### Findings

The following tables present the descriptive statistics in the form of means and standard deviations. Table 2 indicates that social media is the least resource used by OM researchers when conducting research projects and as expected, journal articles is by large the mostly used. Although the data analysis shows a low use of social media for research purposes, the authors were interested to identify in which research phases these tools have been applied.

*Table 2 - Resource used by OM researchers when conducting research*

	N	Minimum	Maximum	Mean	Std. Deviation
Journals	95	2	5	4.81	0.511
Books	95	2	5	4.12	0.921
Colleagues Opinion	93	1	5	3.38	0.943
Universities' Research Resources	94	1	5	3.34	1.053
<b>Social Media</b>	<b>95</b>	<b>1</b>	<b>5</b>	<b>2.61</b>	<b>1.034</b>

### *The Planning Phase*

Table 3 presents the activities included in the first stage of the research lifecycle, planning. As it can be seen from Table 3, social media have been mostly utilised for identifying research opportunities.

*Table 3 – Activities including in the planning phase of the research lifecycle*

	N	Minimum	Maximum	Mean	Std. Deviation
<b>Identify research opportunities</b>	<b>89</b>	<b>1</b>	<b>5</b>	<b>2.83</b>	<b>0.968</b>
Identify potential research topic	89	1	5	2.62	0.994
Identify research questions/aims/objectives	89	1	5	2.35	0.99

### *The Development Phase*

Similarly, Table 4 shows that respondents have used social media as a research tool for developing networks which is an action included in the development/engagement phase of the research lifecycle.

*Table 4 - Activities including in the development phase of the research lifecycle*

	N	Minimum	Maximum	Mean	Std. Deviation
<b>Develop networks</b>	<b>90</b>	<b>1</b>	<b>5</b>	<b>3.43</b>	<b>1.039</b>
Raise awareness of the project	90	1	5	3.36	1.084
Build literature reviews	89	1	5	2.19	1.043
Increase access to data	89	1	5	2.91	1.104
Increase access to knowledge	89	1	5	2.92	1.1
Identify the research approach	89	1	5	2.15	1.04

### *The Execution Phase*

In the third phase of the research lifecycle, execution, OM researchers tend to most use these tools for providing or receiving quick feedback (M=2.72 and SD=1.075) rather than influencing the research process (M= 2.60 and SD=1.030).

### *The Dissemination Phase*

Finally, Table 5 illustrates the activities included in the dissemination stage of the research lifecycle. Sustaining networks and collaborations seem to be the main reasons that OM researchers use social media. In addition, evidence suggests that these tools have been mostly used during the dissemination phase of the research lifecycle.

*Table 5 - Activities including in the dissemination phase of the research lifecycle*

	N	Minimum	Maximum	Mean	Std. Deviation
<b>Sustain networks and collaborations</b>	<b>88</b>	<b>1</b>	<b>5</b>	<b>3.5</b>	<b>1.028</b>
Disseminate information	89	1	5	3.46	1.098
Disseminate research findings	89	1	5	3.39	1.114
Develop best practices	89	1	5	2.65	1.099

Having identified the research activities, included in each of the phase of the research lifecycle that can be facilitated by using social media, Table 6 answers the question related to why those tools are chosen when a research project is conducted. The respondents expressed their preference to apply social media based on their availability (M=3.15 and SD=1.173) and ease of use (M=3.14 and SD=1.131).

*Table 6 – Reasons of using social media as a research tool*

	N	Minimum	Maximum	Mean	Std. Deviation
<b>Their availability</b>	<b>91</b>	<b>1</b>	<b>5</b>	<b>3.15</b>	<b>1.173</b>
<b>Ease of use</b>	<b>91</b>	<b>1</b>	<b>5</b>	<b>3.14</b>	<b>1.131</b>
Their potential effectiveness	92	1	5	2.91	1.135
Habit	91	1	5	2.64	1.14
Being your preferred way of communication	92	1	5	2.33	1.07

However, as it was clarified from Table 2, social media is the least resource used for research purposes by OM academics; Table 7 provides some explanations. OM researchers appear to have a sceptical view of applying social media during their research projects due to the lack of authority of the sources and the perceived quality of the information. Literature indicates that researchers' main concerns are related to information quality and reliability (Gu & Widen-Wulff, 2010; Otieno and Otieno, 2014).

*Table 7 – Factors preventing the use of social media as a research tool*

	N	Minimum	Maximum	Mean	Std. Deviation
<b>The authority of sources</b>	<b>92</b>	<b>1</b>	<b>5</b>	<b>3.34</b>	<b>1.225</b>



<b>The quality of the information offered</b>	<b>92</b>	<b>1</b>	<b>5</b>	<b>3.29</b>	<b>1.254</b>
The privacy of personal information	92	1	5	3.23	1.319
Influence the research topic	92	1	5	2.83	1.125

## Discussion

To structure the discussion, this section has been arranged around the research question; RQ: To what extent is social media used during research activities in the field of OM? Despite the fact that social media is the least research resource used by OM researchers, the authors were interested in exploring it further to understand how these tools are being useful for research purposes. Based on the analysis of the collected quantitative data, OM researchers appear to apply social media in each of the phases of the research lifecycle. In particular, these tools have been mostly utilised for: i) identifying research opportunities; ii) developing networks; iii) providing or receiving quick feedback; and iv) sustaining networks and collaborations. These outputs are in line with previous research suggesting that social media are convenient for developing and sustaining networks, collaboration, research and dissemination (Rowlands et al., 2011; Gruzd et al., 2012; Peach et al., 2015). Otieno and Matoke (2014) stated that feedback is much more instantaneous though using these tools and as a result the very slow process of research can be improved.

Figure 2 illustrates the use of social media throughout the research lifecycle. As it can be seen, there is a low variation of the use of these tools during a research project; the highest degree of their used has been observed in the dissemination phase of the research lifecycle, which is confirmed by previous studies (Okoli et al., 2014; Jeng et al., 2015). Moreover, Figure 2 presents the type of social media used mostly in each research stage. It has been apparent that ResearchGate is the one that has been applied most of the time in Planning, Development, and Execution phase and on the other hand LinkedIn has been utilised for disseminating purposes.

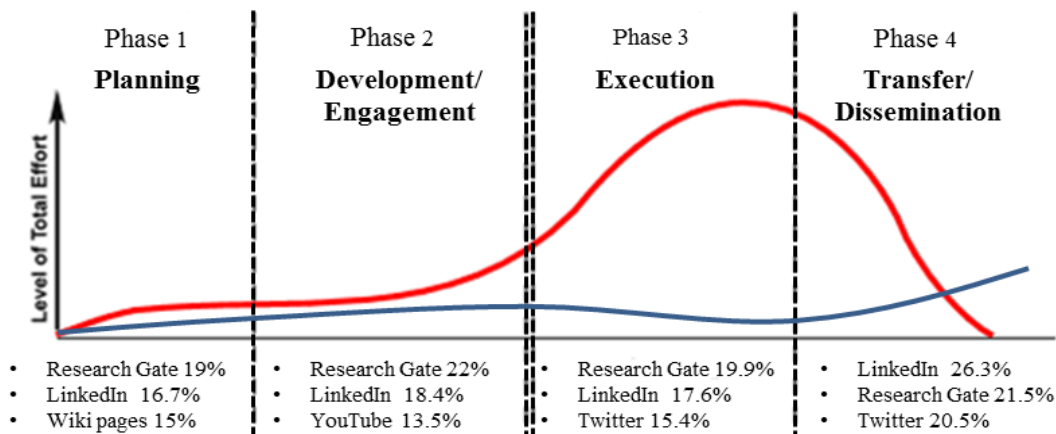


Figure 2 – The use of social media throughout the research lifecycle (adapted from Adams and Barndt, 1978)

Although the adoption of these tools during a research project is considerably low due to the quality of data provided and the authority of sources (Fry et al., 2008; Hansen, 2011), the development of strategies and frameworks related to the optimum use of

social media could be useful. This would raise the opportunities for the research process to be enhanced by developing research strategies to optimise and standardise the use of social media.

## Conclusion

Since their inception, the use of multiple social media has become increasingly integrated into everyday life. In particular, there is evidence revealing that academics have gradually adopted and adapted social media into their professional work (Lin & Lu, 2011; Gruzd, et al., 2013). The objective of the current study was to understand how academics in the field of OM have integrated these tools into their professional lives and identify the benefits and the perceived problems associated with them. The outputs of this research demonstrate how social media are used throughout a whole research cycle; the results could also guide OM researchers to develop their research strategy to enhance the outputs and exploit the available opportunities.

Although the current study presents only the descriptive statistics based on the collected data, the authors are keen to develop this theme further, suggesting a growing formality to research strategies based upon the use of social media. This might provide some solutions to current challenges in gaining access to data sets within the field of Operations Management.

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