The Impact of Social media On Innovation in Small and Medium-Sized Businesses

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Abstract

This research explores the impact of social media on innovation in small and medium-sized businesses. Research during the recent years suggest that information systems in general and social media platforms in particular play a significant role in empowering open innovation networks, which involve a diverse set of partners, and have been known a key driver for the sustainable development of new products and services in organizations. Social media platforms present an opportunity for firms to create online communities where users engage in collaborative practices to create value by submitting product reviews, providing feedback, generating ideas, suggesting new solutions to the problems, and identifying new sources of innovation.

There is a growing body of literature suggesting SMEs can reap significant benefits if they use social media to collaborate with their external partners, suppliers, customers, and other stakeholders, and to engage in open innovation activities with them, perhaps because they lack sufficient resources such as time, budget, and expertise, to innovate on their own. These benefits can be co-creation of new solutions, increased efficiency saving and economies of scale, improved metadata (knowledge of who knows what and who knows whom), and enhanced individual and organizational learning.

However, previous studies have rarely examined the complexity of actual implementation of open innovation in the context of SMEs. Particularly, there have been few empirical studies to examine how social media can be integrated into the innovation process of SMEs.

To examine the entire process of social media-enabled innovation in SMEs, this research has set out to address a main research question by exploring two sub-research questions as follow:

How do social media-based interactions influence the innovation practices of small and medium-sized businesses?

     I.   How does social media influence information sharing between small and medium-sized businesses and their external stakeholders?

    II.   How is information from social media used internally by small and medium-sized businesses to support their innovation practices?

The research focuses on two qualitative case studies of UK-based SMEs active in the education resources development, and legal aid services sectors. Netnography and semi-structured interviews were selected as the main methods for developing the case studies. In each case study, netnographic data was collected from the company's social media interactions with external stakeholders. This was followed by semi-structured interviews with the key informants from each organization. The case studies were guided by the grounded theory principles, which also informed the assessment and analysis of the collected data to develop a new theoretical model that conceptualizes the social media-enabled innovation in the context of case studies. Hence, the newly-developed model has emerged from the empirical data and has been verified against the identified concepts from the literature review.

The new model includes four main stages which are: Branding and socialization, information sharing, information use, and maturity. Each stage consists of two key components contributing to the fulfilment of the objectives set out for that stage. The research also identified two contextual factors that are likely to impact the successful adoption of the model in organizations. These two factors are: community culture and company size.

This research is among the few empirical studies which have attempted to examine the end-to-end process of social media-enabled innovation in the context of SMEs and the methodological approach is novel in research into education resources development and legal aid services sectors.

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List of Abbreviations

AT	Activity Theory
ANT	Actor Network Theory
CPDO	Chief Product Development Officer
EYFS	Early Years Foundation Stage
IPT	Innovation Procedure Toolkit
IS	Information Systems
KS1/KS2	Key Stage 1/ Key Stage 2
KS3/KS4	Key Stage 3/ Key Stage 4
MFBP	Main Facebook Page
RCG	Resource Creation Guide
RCP	Resource Creation Process
SME	Small and Medium Enterprises
TAM	Technology Acceptance Model
TCAs	Teaching Content Advisors

Chapter 1: Introduction

Open innovation networks, which involve a diverse set of partners, have been known to be essential for the sustainable development of new products and services in organizations (Rehm et al., 2015; Chesbrough et al., 2013), and therefore have been a topic of interest among researchers during the recent years. Information systems, and in particular social media platforms play a significant role in empowering such networks throughout the open innovation process (Rehm et al., 2015; Boon et al, 2015; Schlagwein and Bjorn-Andersen, 2014; Majchrzak and Malhotra, 2013; Chesbrough et al., 2013). Social media platforms allow firms to create online communities where users engage in collaborative approaches to create value by submitting product reviews, providing feedback, generating ideas, suggesting new solutions to the problems, and identifying new sources of innovation (Di Gangi et al., 2010).

While most literature has focused on large firms, the academic literature also suggests that small and medium sized enterprises (SMEs) can reap significant benefits if they use social media to collaborate with their external partners, suppliers, customers, and other stakeholders, and to engage in open innovation activities with them, perhaps because they lack sufficient resources such as time, budget, and expertise, to innovate on their own (Rehm et al., 2015; Burgess et al., 2014; Kane, 2014, Chesbrough et al., 2013). These benefits can be co-creation of new solutions, increased efficiency saving and economies of scale, improved metadata (knowledge of who knows what and who knows whom), and enhanced individual and organizational learning.

The literature has predominantly focused on the impact of open innovation on SMEs' performance and neglected the complexity of actual implementation of open innovation and 'how' SMEs 'do' open innovation. In particular, there have been few in-depth empirical studies that examine how social media can be integrated into the innovation process of SMEs. Studies claiming to have explored the use of social media by SMEs for collaborative purposes, have also tended to emphasize the marketing aspects of social media initiatives rather than its role in open innovation.

Motivated by this lack of research, this thesis sets out to examine the impact of social media on innovation in SMEs by addressing the research question: How do social media-based interactions influence the innovation practices of small and medium-sized businesses?

To appropriately examine the entire process of social media-enabled innovation in SMEs, this research has set out to address the main research question in two parts:

1.1. How does social media influence information sharing between small and medium-sized businesses and their external stakeholders?

1.2. How is information from social media used internally by small and medium-sized businesses to support their innovation practices?

Hence, this research is among the few empirical studies which have attempted to examine the complexities and impact of using social media to inform the end-to-end process of open innovation in SMEs. And this is done by exploring how social media can influence people's participation in open innovation networks and encourage effective conversations and information sharing practices among them, and also by investigating the challenges regarding the effective exploitation of external information inside the firm to inform new innovation initiatives.

The remainder of the thesis is structured as follows. Chapter 2 is the literature review. It starts by introducing the literature review methodology and the process followed, and then examines literature in terms of (i) innovation and its impact on SMEs, (ii) open innovation and the enabling role of social media, and (iii) the challenges of social media-enabled open innovation.

Chapter 3 describes the research design and methodology. It outlines the subjective-interpretive philosophy that guides the research, stressing the importance of understanding the reality as "historically, socially, and/or linguistically situated experience; as culturally situated understanding relative to particular contexts, times, places, individuals, and/or groups of people; where there are truths rather than one truth" (Cunliffe, 2011 p. 656). Hence, this study takes a perspective in which the knowledge that is obtained from exploring individuals' day-to-day interactions and practices is embedded in particular contexts and therefore, is not generalizable (Cunliffe, 2011; Benton and Craib, 2011; Easterby Smith et al., 2008).

To answer the research questions, the research draws on two case studies of UK-based SMEs active in the education resources development, and legal aid services sectors. The case studies provide an opportunity for in-depth understanding of the research topic in two specific contexts with different structures, and varied online communities. Netnography and semi-structured interviews were selected as the main methods for developing the case studies. In each case study, netnographic data was

collected from the company's social media interactions with external stakeholders to address the first sub-research question of the study. This was followed by semi-structured interviews with the key informants from each organization to address both the first and the second sub-research questions of the study. The qualitative interpretive case studies of this research were guided by the grounded theory principles, which also informed the assessment and analysis of the collected data to develop a new theoretical model that conceptualizes the social media-enabled innovation in the context of case studies.

Though pre-existing theoretical frameworks are appropriate for use in many other types of qualitative research, grounded theoretical scholars do not encourage their use in grounded theory studies from the outset. Instead, they encourage researchers to keep in mind that the whole purpose of doing a grounded theory is to develop a theoretical explanatory framework which is grounded in empirical data (Corbin and Strauss, 2015). However, the majority of grounded theory researchers argue that once a new theoretical framework started to emerge from the analysis, it makes sense for researchers to compare their newly-developed theories to established theories for similarities and differences to be able to locate their theories within a larger body of professional theoretical knowledge (Vaast and Walsham, 2013; Charmaz, 2006).

As such, this research adopted a flexible version of grounded theory (Charmaz, 2006) which enabled the researcher to also make use of the literature and established theories to develop a more comprehensive theory which gives a rounded view to the research topic (Kozinets, 2010; Charmaz, 2006). For example, while the analysis of empirical data for this research was in progress, the researcher also considered alternative theoretical frameworks used in the field of information systems management such as Technology Acceptance Model (TAM), Actor Network Theory (ANT), Structuration Theory, and Activity Theory as overarching frameworks that could potentially add new insights to the emerging model from the grounded theory analysis. As a result, activity theory was selected to be included in the original research design to further complete the emerging model. However, this theoretical framework was eliminated from the research later when the emerging model from the grounded theoretical analysis completed, because the author felt that activity theory did not provide new insight to the newly-developed model beyond the main open innovation and social media frameworks. The qualitative data was analysed using NVIVO.

Chapter 4 consists of two parts, each containing the case narrative of one of the two case studies referred to here as UKEducation and UKLegal.

Chapter 5 discusses the research findings, and the newly-developed model of social media-enabled innovation that emerged from the empirical data and was verified against the concepts identified from the literature review. The model was developed based on four key themes which are: branding and socialization, information sharing, information use, and maturity. The two case studies are examined against this model.

Chapter 6 describes a brief summary of the research, sets out the academic contributions and outlines some implications for policy and practice. Finally, it concludes with a summary of the research limitations, and some implications for future research.

Chapter 2: Literature Review

2.1. Introduction

A critical review of the literature in relevant areas of study will demonstrate the current state of knowledge in the subject area, its limitations, and the way the research fits within the wider context (Gill and Johnson, 2002). It can also provide a basis from which the design and execution of the field research elements of the PhD take shape. According to Jankowicz (2005):

> *"There is little point in reinventing the wheel… The work that you do, is not done in a vacuum, but builds on the ideas of other people who have studied the field before you. This requires you describe what has been published, and to marshal the information in a relevant and critical way" (p. 161).*

The literature review addresses the research question:

1- How do social media-based interactions influence the innovation practices of small and medium-sized businesses?

    1.1.   How does social media influence information sharing between small and medium-sized businesses and their external stakeholders?

    1.2.   How is information from social media used internally by small and medium-sized businesses to support their innovation practices?

The objectives of the review were to:

1. Understand what innovation is and how it is essential for survival and growth of SMEs.
2. Examine the traditional models of innovation in organizations and their limitations.
3. Examine the changing nature of innovation and the shift toward more open innovation models.
4. Explore the use of social media by organizations to co-create solutions that are aligned with both company and customer needs.

The first objective provides an overview of the innovation process and its importance in today's knowledge-intensive economy, and illustrates innovation strategy as a framework that can inform a wide range of organizational activities. As such, it

provides a critical understanding of the key elements of innovation and their impact on leveraging productivity in SMEs.

The second objective explores traditional innovation models and their limitations such as their focus on the internal development and implementation of creative ideas by employees and often independent of IT. It also shows the need for more sophisticated approaches that could address critical changes in the markets.

The third objective explores the shift in traditional innovation processes that relied on collective efforts inside an organization, or on collaboration between pre-selected companies with a set of complementary skills. Hence open innovation literature provides insight into new ways of innovation that integrate external and internal knowledge, ideas and distributed talent into innovation processes.

The fourth objective illustrates the impact of new information and communication technologies especially social media platforms on leveraging and enhancing collaborative approaches between individuals and companies. It also reviews case studies of firms that have successfully used social media to establish online communities where customers and other community members co-create new solutions that are aligned with both company and customer needs. Hence, it explores the new ways of information sharing and information use through which new ideas are co-created, selected, and converted into actual products and services.

The literature review, which built the foundation for this thesis, was undertaken between January 2014 and January 2015. However, during the following years to completion of the PhD, many other articles, books and reports have been studied and included in the literature review. Therefore, the literature review presented here contains a wider range of texts than those studied for the preliminary review. Appendix 1 provides a summary of the literature searches and results, and appendix 2 provides a summary of some of the most relevant and significant articles reviewed for this thesis.

This chapter first describes the literature review methodology, which was followed for the research, and then examines literature in terms of (i) innovation and its impact on SMEs, (ii) open innovation and the enabling role of social media, and (iii) the challenges of social media-enabled open innovation.

2.2. Literature Review Methodology

2.2.1. Critically Reviewing the Literature

Reviews have long been included in social science research. There are two major reasons for reviewing the literature. The first reason, the "preliminary search" helps researchers to generate and refine research ideas and turn them into clear research questions and objectives. The second reason refers to "critical literature review" in relevant areas of study to demonstrate the current state of knowledge in the subject area, its limitations, and the way the research fits within the wider context (Gill and Johnson, 2002).

The originality and significance of any research and its findings will inevitably be assessed by comparing it with other people's research and their findings. A researcher therefore, need to explore, map and assess what others have written on the topic at the early stages of his/her work. Critically reviewing the literature and noting down its important aspects also helps the researcher to improve their research questions and objectives (Tranfield et al., 2003).

Although literature search is an early activity in conducting most research projects, it is also necessary to continue updating literature with high quality texts during the whole research project's life. This process was illustrated by Saunders et al. (2009 p.60) as an upward spiral that is incrementally refined and improved over time and finally culminates in the final draft of a written critical literature review (Figure 1). Having adopted this approach, the initial stage of the present literature review started with defining the parameters of the research questions and objectives (section 2.3.1). After generating the key words and conducting the first search (sections 2.3.2 and 2.3.3), a list of references to authors, and high quality journal articles that were published on the topic, was obtained. Then the obtained literature from this initial stage, were read and evaluated (section 2.3.4) and the ideas identified from them were recorded.
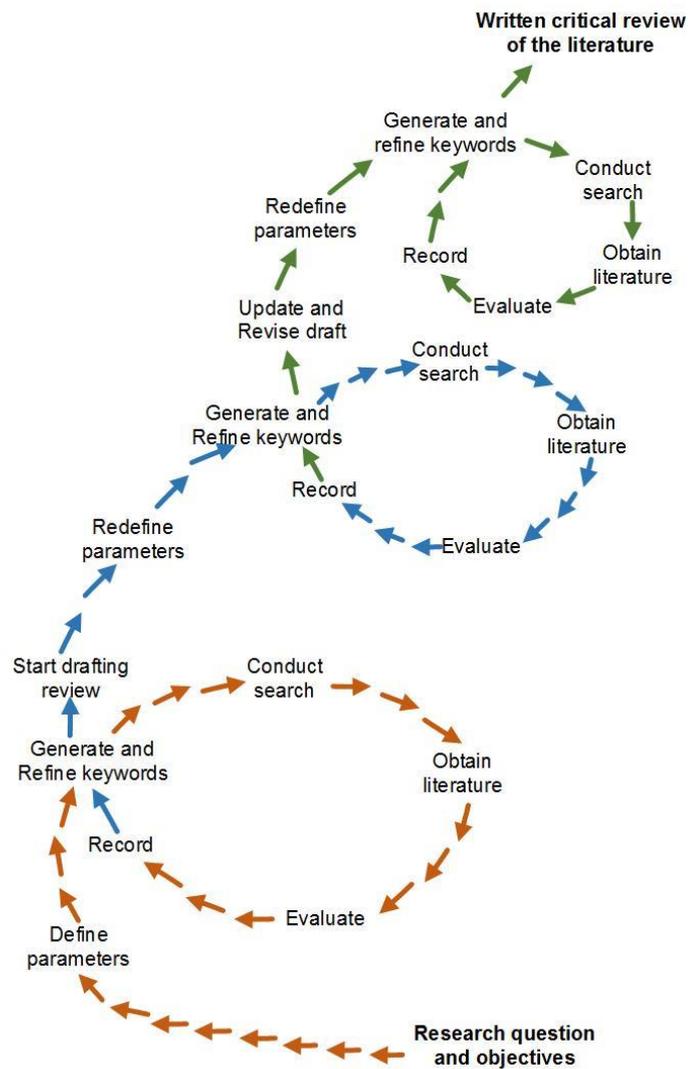
Figure 1. The literature review process (Saunders et al., 2009 p.60)

An early version of the review was then drafted. The initial search phase not only enabled the researcher to redefine the parameters more precisely and undertake further searches, but also helped to refine and narrow the research questions and objectives. As the research idea developed, each subsequent search was focused more precisely on the material that was likely to be relevant to the two subsequent research questions (Jankowicz, 2005).

2.2.2. The Purpose of Critical Review

Critical review of the literature helps to understand previous studies published around the topic, and identify emerging patterns, to build up future researches more precisely. The critical review also reveals the potential approaches for conducting a research.

For example, it could help to identify established theories in the research field, and ideas that should be tested using data. These new ideas are turned into theory-derived hypotheses that are then tested in the context of the research project (McLure Wasco and Faraj, 2005; Constant et al., 1996). For some other research projects, including this one, the literature review may help the researcher to decide not to use a pre-determined conceptual framework from the literature, and let the theory emerge from the research and then relate it to the literature (Glaser and Strauss, 1967). This approach is known as an inductive approach (See Chapter 3). Although inductive research has a clearly defined purpose with research questions and objective, it does not start with any predetermined theories or conceptual frameworks. However, this approach cannot be taken without a competent knowledge of the subject area (Saunders et al., 2009). Glaser and Strauss (1967) have made it clear that adopting an inductive approach should not be used as an excuse to forgo examining the extant literature. Instead, this approach involves a highly recursive process whereby the researcher gradually refines his analyses and builds theory by going back and forth between literature and empirical observations, and emerging conceptualization (Gasson, 2003). However, due to the strict deadlines for completion of research projects, it is impossible to review the whole literature before collecting data. Therefore the process of literature review needs to be purposive and specific enough to ensure it covers the most relevant and significant research about the topic (Saunders et al., 2009).

Gall et al. (2006) have highlighted a number of general purposes for conducting a literature review in multiple areas of business and management research:

- To further refine research questions and objectives;
- To identify the gaps and research possibilities that are remained unnoticed by other researchers to date;
- To discover useful recommendations for further research, which can also inform new research questions and objectives;
- To avoid repeating researches that already have been done by others;
- To gain practical and professional insight about the topic by reading reports and professional and trade journals;
- To obtain an insight into research approaches, theories, strategies and methods that may be appropriate to address the research questions and objectives.

Social science in general, and business and management research in particular benefit from a wide range of literature. The present research for example, includes information systems and innovation management as multiple disciplines. Therefore, to conduct an interdisciplinary research project it is important to have an appropriate literature review that pulls together a wide range of literature available in multiple disciplines and use them effectively to better understand the topic. This issue is further discussed in sections 2.2.3 and 2.2.4.

2.2.3. Adopting a Critical Perspective in Reading and Writing

To critically discuss the reviewed literature, this research adopted a number of recommendations have been made by scholars of social science and by academic institutes. As a general guideline, it adopted the Harvard College Library's (2006) recommendations for effective reading and writing as follow:

> *Previewing,* which requires the researcher to look around the text, and pay a specific attention to its title and its abstract before reading the whole text. This helps to identify how the text may help the research.

> *Annotating,* which is adding further information or critiques about the issues and ideas discussed in the text. This could add further insight into how the text can inform and address parts of the research questions and objectives.

> *Summarising,* this was done informally. Notes were taken in the margins of the texts about arguments and methodologies used by authors. This was helpful for referring to the texts later on during the writing stage.

> *Comparing and contrasting,* after reading each text, the researcher asked himself how the text has altered his thinking and how has it affected his response to the research questions and the issues associated with them.

This research also adopted Wallace and Wray's (2006) specific approach in using **review questions** to ensure that the most significant and relevant literature with high quality content are included in the review.

Since the word "critical" has appeared in this chapter several times so far, it is essential to understand what critical reading and writing means and why a critical stance should be taken in reading and writing. Wallace and Wray (2006) have addressed these questions by summing up all the necessary skills for critical reading and writing into

one sentence: "the ability to evaluate what you read and the ability to relate what you read to one another and to other information in your writing".

To do so, Wallace and Wray (2006, pp.54-66) suggest evaluating the reviewed literature against five critical questions and using the answers to create a comparative critical summary that can then be used in drafting the final literature review. These questions are:

1. Why am I reading this? (To ensure that the researcher has not lost his focus on the purpose of the reading and on the research question.)
2. What are the authors trying to do in writing this? (To help the researcher deciding whether or not the text is valuable.)
3. What are the authors saying that is relevant to what I want to find out?
4. How convincing is what the authors are saying? (To ensure that the argument is backed by convincing evidence.)
5. In conclusion, what use can I make of this?

In considering the content of the review for this research, it also tried to:

- Include the key academic theories within the research area;
- Show the reader that the research is built upon an up-to-date and complete knowledge of the area;
- Enable the readers of the thesis to find the original publications that are cited in the text, through clear referencing (Mingers, 2000).

Hence, critical analysis of what other authors have written will help to identify the extent to which the existing published papers could contribute to address the research questions. The shortfall in the literature then would create an opportunity for the research project to make its contributions by addressing at least part of the existing gaps (Jankowicz, 2005). In all research projects therefore, the researcher should return to the key issues from the literature in discussion and conclusion chapters (Saunders et al., 2009). As such, in the literature review chapter of this thesis, the key issues that are discussed in each section, have been summarized at the end of the section and are further investigated in the context of the project within the discussion and conclusion chapters.

2.3. Planning the Literature Search Strategy

Social science literature suggest that to ensure the transparency of the review process, researchers should explain how the selected literature was searched and accessed, outlining the choice of keywords, databases, and adopted selection criteria (Tranfield et al., 2003). This section will address these issues in relation to the thesis.

The preliminary stage of the literature review included identifying the research questions and objectives, learning about the critical review approach and developing parameters to be used in guiding the main review stage.

Stage 2 focused on conducting the main literature search for the critical review and included the detailed steps below:

- Revising the search parameters
- Identification of keywords and search terms
- Selecting electronic databases and search engines
- Determining the inclusion and exclusion criteria to select the relevant and useful studies from all the items found.

2.3.1. Determining and Refining the Search Parameters

Once the research questions and objectives were defined in the preliminary stage, the researcher also determined the parameters through which the search needs to be conducted. These parameters (Bell, 2005) were:

- Language of publication: English
- Subject area: Information systems management, IT management, social media adoption, and innovation and entrepreneurship in the context of SMEs
- Geographical area: worldwide
- Publication period: the last 10 years
- Literature type: refereed journals, books, professional journals, reports

The parameters were defined and re-examined during the preliminary search by reading key articles and textbooks in the area of research questions and through brainstorming with the supervisors. While re-examining the parameters, the researcher made a list of subjects that appeared most relevant to the research questions and a list of key authors in the subject area. To avoid information overload on one hand or the danger of excluding some important literature on the other hand, the parameters

were defined broad enough to include most of the relevant and significant resources, yet narrow to ensure specificity.

2.3.2. Identification of Key Words

The identification of keywords and search terms is the most important part of planning the literature search strategy. Keywords are actually the basic terms that best describe the research questions and objectives, and are used to search the literature within electronic databases and search engines (Bell, 2005).

For the purpose of the present literature review, keywords were identified for the main research question as well as the two subsequent research questions and each of the objectives of the review. The first keywords were identified and located by reading a sample of key articles and books by key authors and recent review articles in relevant research fields. Recent review articles relevant to the research topic are important as they discuss the current state of knowledge and research for the topic and help to identify and refine the keywords. Moreover, they often provide references to other key articles that are relevant to the research questions and objectives (Jancowicz, 2005).

The initial keywords were entered into the Web of Science Social Citation Index to identify more articles, and thereby find other related keywords. The identified keywords were discussed with the supervisors resulting in some refinements and some additional terms being added. The final keyword list included the following terms:

> Social media*, social network*, social networking*, web 2.0, enterprise 2.0, enterprise social network*, enterprise social networking sites, online communities, crowdsourcing, Facebook, Twitter, information systems, innovation, open innovation, innovation strategy, co-creation, innovation*, open innovation*, small and medium-sized business*, SMEs, SME

Figure 2 illustrates the relevance tree, which provided structure to the literature search and guided the search process (Sharp et al., 2002).
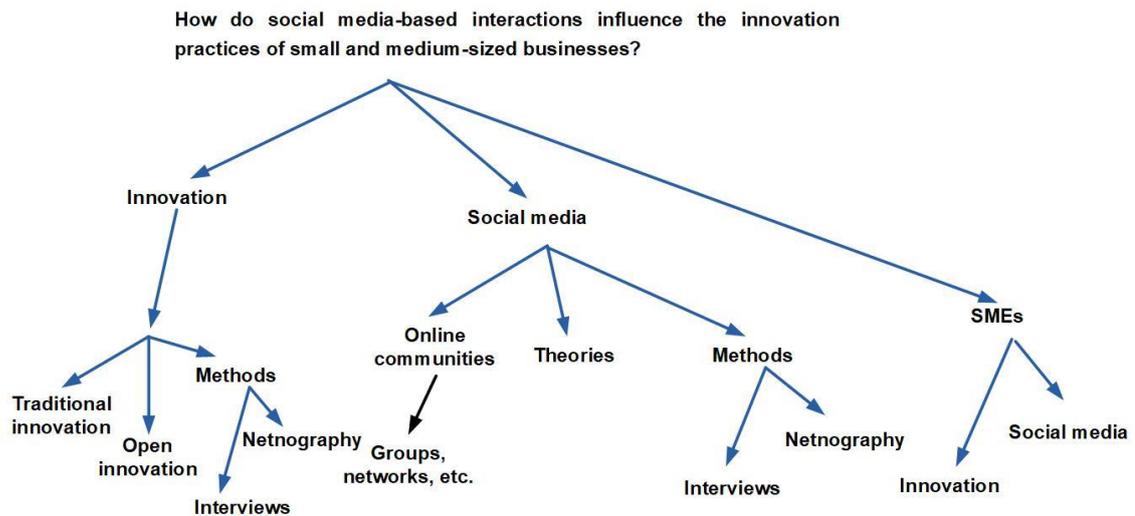
Figure 2: The relevance tree of the literature search

2.3.3. Electronic Databases and Search Strategy

A search string was constructed using a combination of the keywords and the automatic inclusion/exclusion criteria (see the parameters above) to find the most relevant and significant literature to address the main and subsequent research questions and objectives. The search string was:

(Social media* OR social network* OR social networking site OR social networking web site OR social networking website OR web 2.0 OR enterprise 2.0 OR online communities OR enterprise social network* OR online community OR Facebook OR Twitter OR crowdsourcing) AND (Innovation OR open innovation* OR innovation strategy OR innovation process OR innovation model* OR innovation framework OR co-creation) AND ("SME" OR "SMEs" OR small and medium sized business* OR small and medium-sized enterprise*)

The search string was entered into three databases; Web of Science (Social science Citation Index), Business Source Premier, and Proquest ABI/INFORM global. These three databases were identified as the most appropriate for this review with the highest volume of citations in the subject area. The databases were selected following discussions with the supervisors, academic fellows and the business librarian at the University of Leeds Library. The databases and the number of articles found using the search string are shown in table 1. However, the exploratory searches revealed that there was an extensive duplication between the articles found from the three databases. Therefore, the duplicated articles were not included in the results.

Table 1: Databases and the identified articles to be used in the review

Database	Number of articles found using the search strings
Web of Science (Social Science Citation Index)	1213
Business Source Premier	2719
Proquest ABI/INFORM global	3859

2.3.4. Inclusion and Exclusion Criteria

Evaluating the relevance of the collected literature depends on the research questions and objectives. At this stage, it is important to distinguish between the relevance of literature and critically assessing the ideas discussed within them. The relevance of the literature is assessed based on the criteria for inclusion and exclusion, which is determined prior to assessing each item of the literature. In contrast, the value of the literature depends on the quality of the research that has been undertaken and is assessed against issues such as methodological rigor, theory robustness, and the quality of the arguments (Saunders et al., 2009).

As such, the collected articles from the previous stage were examined by the researcher, through application of the inclusion and exclusion criteria manually. This was done in two stages. During the first stage, the identified articles from each database were scanned quickly by title and abstract to exclude any articles that were clearly irrelevant to the research questions or objectives.

Then, the remaining articles were downloaded and imported into Mendeley bibliographic software. The imported articles were grouped together in Mendeley based on different themes to reflect the research questions and objectives. In the second stage of evaluation, a thorough examination of the titles and abstracts was undertaken and the articles were divided into three lists. The list A, included articles that were closely related to the research questions and objectives and had to be read first. The list B included those articles that were less closely related to the research questions and objectives, and therefore should be considered as complementary resources. This list might be reviewed selectively during the project's life based on emerging needs. The list C contained articles that should be definitely excluded. Some examples of the articles that were located in list B or C could be those of managerial autobiographies or some articles in trade magazines where managing directors'

experiences or the story of their success are presented in a subjective way rather than presenting a well-developed knowledge based on systematic research (Fisher, 2007).

It is important to note that for some research questions, including the ones suggested for this thesis, that are interdisciplinary or investigating new research areas, it is unlikely for the collected literature to be much closely related to the research questions. In such cases therefore, the researcher should define the inclusion and exclusion criteria more broadly (Gall et al., 2006).

The list A was completed over time by a number of additional key articles, books and reports suggested by the supervisors, the researcher, and other academics in the field. Table 2 shows a summary of the process to include the articles in the review. The table does not show the additional resources that were added to the list during the later stages of the research.

Table 2: A summary of the inclusion and exclusion process to include the most relevant and significant articles in the review

Stage	included	Excluded
Database searches	739	
Title and abstract analysis stage 1 (brief)	393	346
Title and abstract analysis stage 2 (full)	304	89
A ranked	107	
B ranked		67
C ranked		130
Applying the quality assessment criteria	91	
Total	91	

For each reviewed article, a brief summary record has been maintained (Appendix 2) that allows tracking the research pattern over the time and easier comparison of the research, and allows keeping an on-going record of the study.

2.4. Innovation and its Impact on SMEs

2.4.1. Introduction

Innovation is seen as one of the main drivers to create and nurture today's knowledge-intensive economies that can deliver multiple socio-economic benefits to organizations and the wider society. The economist William Baumol (2002) has argued that "virtually all of the economic growth that has occurred since the eighteen century is ultimately attributable to innovation" (p. 13). However, innovation is not easy and has not always been beneficial to all firms. As such, it is not surprising that recent years have seen an increasing research about new innovation models and the way that they can help businesses to create value.

As mentioned earlier in this chapter, this thesis addresses the research question:

1- How do social media-based interactions influence the innovation practices of small and medium-sized businesses?

    1.1.   How does social media influence information sharing between small and medium-sized businesses and their external stakeholders?

    1.2.   How is information from social media used internally by small and medium-sized businesses to support their innovation practices?

To appropriately address the research questions, it is necessary to first describe the innovation concept and its impact on SMEs. Therefore, this section starts with describing what innovation is and why does it matter, especially with reference to its impact on SMEs and their performance. It then describes the innovation strategy as a framework that guides multiple processes in organizations. Finally, it describes the evolution of innovation process models to date, with reference to an example of traditional employee-based innovation model, its strengths and weaknesses, and the need for developing more sophisticated and modern innovation models. Hence, this section paves the way for the later sections to develop discussion about the shift toward open innovation models, and the use of social media platforms to build proactive links across organizational boundaries and integrating different groups of individuals inside and outside the firm to improve the innovation practices.

2.4.2. What is Innovation and Why Does it Matter?

The extant innovation literature includes a diversity in using the term "innovation". The literature review identified three main characteristics; *person, product (or service), and process*; that have been used for defining the term "innovation". Some researchers and theorists like Findlay and Lumsden (1990), and Amabile (1988) define innovation according to characteristics of the person (individuals) and their inherent creativity. According to Amabile (1988) *"creativity is the production of novel and useful ideas by an individual or small group of individuals working together"* (p.126). She argues that innovation is built upon individuals' creative ideas as the basic element and defines innovation as *"the successful implementation of creative ideas within an organization"* (p.126). There are some other theorists who define innovation with a focus on the product or service. For example, according to Stein (1974) innovation is "novelty in products (or services) that is useful".

The studies conducted by Amabile and other innovation theorists (Van de ven, 1986; Kanter, 1984; Zaltman et al., 1973; Myers and Marquis, 1969) show that the role of individuals and experts in enabling innovation activities have long been understood. However, the early days' models have seen innovation as being relied mainly on the efforts of individuals inside an organization rather than being distributed among individuals inside and outside the firm.

However, the most recent definitions of innovation are more process-oriented and consider innovation as a "process". This process is the central unit of analysis in studying recent innovation activities. One of the best definitions in this respect is provided by Tidd and Bessant (2014) who pointed out: Innovation is *"the process of creating value from new ideas which results in a series of changes in an organization"* (pp.3-5). This definition places the innovation into a wider context in which people (persons), their creativity, and the innovation outcomes are integrated into a collective and purposive process. Ford et al (2012) argue that value is determined by the experiences that the products and services provide to the consumers and not by what they are. Tidd and Bessant's definition provides a wider context in which external experts, scientists, suppliers, customers, competitors, and other stakeholders as well as the internal organizational members can contribute towards creation of this experience by involving in different stages of the innovation process from idea generation, to idea evaluation and improvement, and implementations. Therefore, in this view, value is not only achieved by the end product or service experience, but

through every single experience that is achieved during the whole process such as collaborations for idea generation, implementation and etc. As such, Tidd and Bessant's definition is adopted for the purpose of this study which enables the researcher to analyse and understand the different stages of innovation process in an organization and the experience and value which is co-created by different groups of stakeholders within each stage.

As has been argued by Tidd and Bessant (2014), innovation creates value through series of specific changes in an organization. These changes can be summarised in four dimensions which are so called the 4Ps of innovation (Francis and Bessant, 2006 pp.171-183). The 4Ps are:

- Products and services: Changes or improvements in the products and services which an organization offers;
- Process: Changes in the ways an organization creates and delivers its offerings;
- Position: Repositioning the perception of an established product/service or process by introducing it into a new user context;
- Paradigm: Changes in the underlying business models which frame what the organization does.

Table 3 provides some examples from the literature about the four types of innovation in different business sectors. The degree of novelty and changes in the four dimensions of innovation differs, running from minor, incremental improvements to radical changes, which transform the whole product, process, context, or business model. Figure 3 demonstrates the potential innovation space in which an organization can operate by applying a range of incremental to radical changes along the 4Ps' dimensions (Tidd, and Bessant, 2014). In this model, incremental improvements are more related to changing things at the components level, whereas radical changes affect the whole system. As such, the model provides a wide range of innovation possibilities at different levels. However, changes in the level of whole system often affect components at the lower down levels. Figure 4 compares a range of incremental to radical changes across the whole system and sub-system levels.

Table 3: some examples of innovations mapped on the 4Ps' model

Products/services innovation

- New software (e.g. the first speech recognition program)
- Toyota Prius - bringing a new concept: hybrid engines. Tesla - high - performance electric car
- Improved performance incandescent light bulbs

Process innovation

- Toyota Production System and other 'lean' approaches
- Skype and other VOIP systems
- Improved fixed-line telephone services

Position innovation

- Online banking and mobile banking - using phones as an alternative to banking systems
- Banking services targeted at specific segments such as students, retired people, etc.
- Addressing underserved markets (e.g. Tata Nano aimed to target relatively poor indian market by producing cars prices around £1200).

Paradigm innovation

- Amazon, Google, Skype - redefining industries like retailing, advertising and telecom through online models.
- Ford's company and the changes it made in its underlying business model from one which offered hand-made specialist cars to a few rich customers to one which offered a car for everyone at an affordable price.
- Linux, Mozilla, and Apache - moving from passive users to active communities of members co-creating their new products and services.
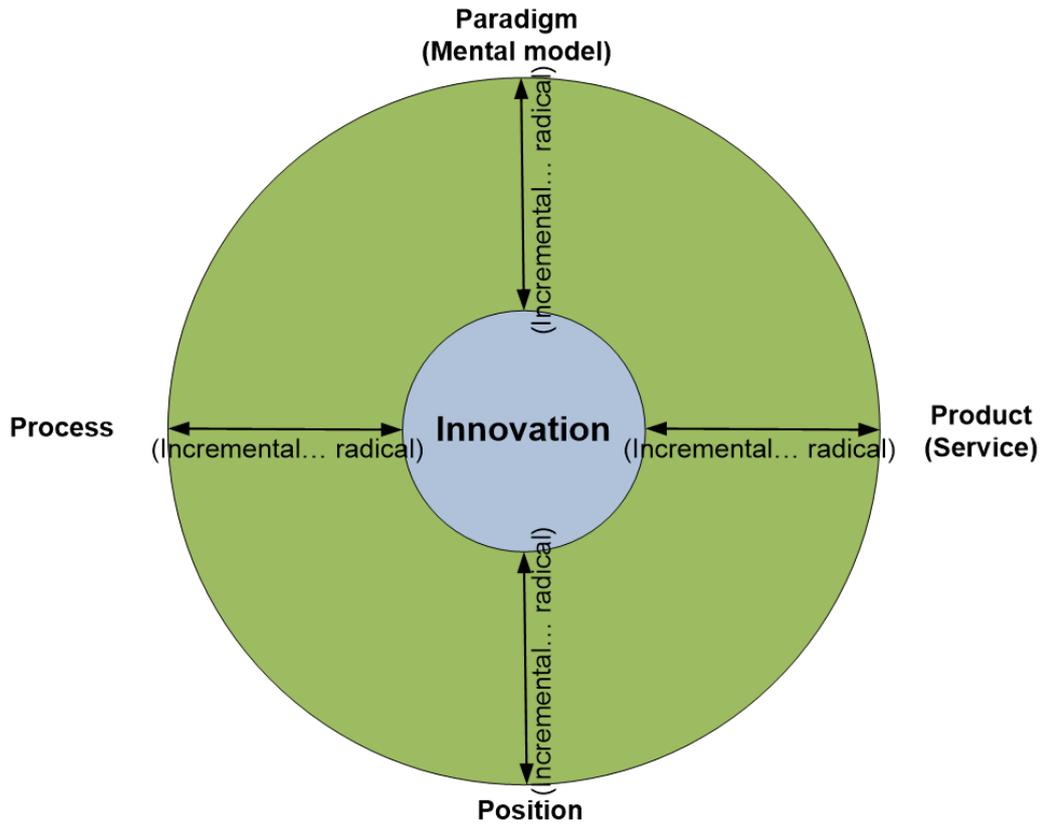
Figure 3: The 4Ps innovation space (Tidd and Bessant 2014 p.27)
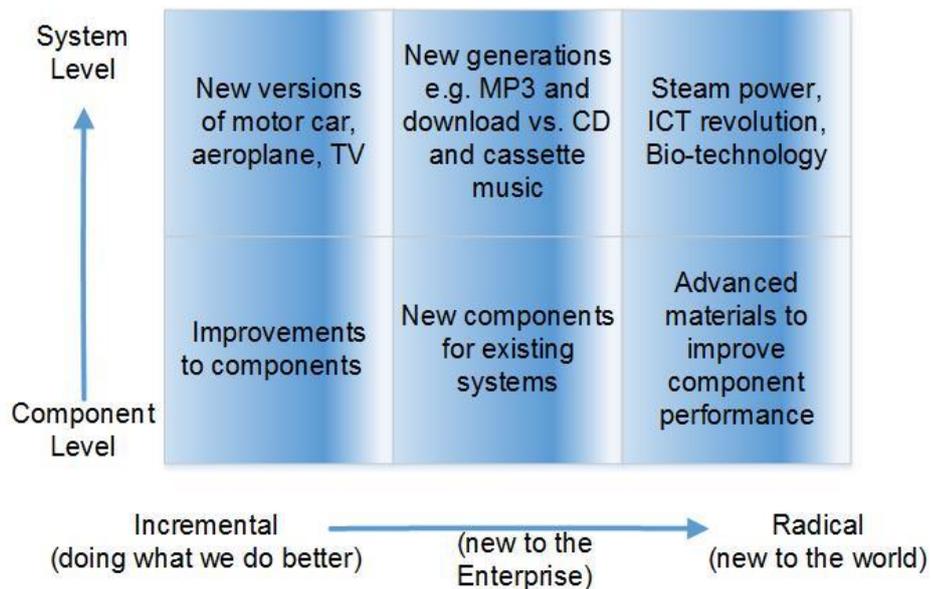
Figure 4: comparing examples of radical and incremental innovation (Tidd and Bessant 2014 p.6)

The literature review suggests that innovation practices could create two types of values for organizations. These two types are commercial and social values.

Commercial value for example, is created by developing new products and services that people find useful and therefore pay for them to acquire them. It can also be created through new ideas that are shortening time to market, ensuring higher quality, or supporting emergent collaborations between customers and other stakeholders across time and space (Nambisan, 2013). An example of social value could be medical doctors and surgeons who try to find new ways to bring specific and high quality medical services such as eye care and cataract surgery to the millions of people who live in poor areas of the world. (Kane et al., 2014).

Innovation therefore, can be driven by a possible opportunity to make a difference, or an emerging need or threat that should be addressed. As such, innovation is often seen as an approach for survival and growth, because if an organization doesn't have a clear strategy for change, competitive forces may threaten its future (Teece, 2009). But the problem is that innovation has a dynamic nature. This means that having an effective innovation strategy today will not guarantee the organization's long term success, because technologies, markets, regulations, and other environmental factors are constantly changing. Moreover, the increasing mobility of knowledge workers and employees between firms and geographical locations cause new challenges for organizations in terms of access to reliable sources of knowledge and protecting them against imitation (Chesbrough, 2003). So, successful innovators try to not only generate new ideas, but also sustain their innovation activities over a prolonged period of time and under changing conditions (Von Hippel, 2005; Chesbrough, 2003). Therefore, an appropriate innovation model empowers a firm to *"appropriately adapting, integrating and reconfiguring internal and external organizational skills, resources, and functional competencies towards changing environment"* (Teece, 2009 p.537).

2.4.3. The Impact of Innovation on SMEs

SMEs in most developed countries are known as dynamic businesses contributing to economic growth and increased employment opportunities (Love and Roper, 2015). For example, in Europe, SMEs are increasingly contributing in creation of emerging markets and job creation, with two-thirds of all Europeans being employed by these businesses (Watson, 2011). Recent reports also show that Australian SMEs contributed around 57% of industry value in 2009-2010 which is significantly higher than the 42% contribution associated with large businesses (Burgess et al., 2014). The recent OECD report (Criscuolo and Menon, 2014) also shows that in UK, the high

growth SMEs that are in existence for more than three years have generated more than 20% of all job growth in the UK market. According to Goldman Sachs' (2016) report, these firms have demonstrated above average levels of productivity enabled by high levels of innovation and export orientation. The OECD (2015) defines high growth businesses as the firms with ten employees or more at the beginning of the period which record an annual average growth of 20% in employment over a three-year period.

Despite their importance, there is no universally applied definition of SMEs (Watson, 2011). The European Commission (2005) for example, has defined SMEs based on the employee numbers, annual turnover, and balance sheet total. According to Ward and Rhodes' (2014 p.3) report on the performance of UK SMEs, all UK firms are classified into four categories:

- Micro (0-9 employees)
- Small (10-49 employees)
- Medium (50-249 employees)
- Large (250+ employees)

This research also follows the Ward and Rhodes' (2014) classification. So, for the purpose of this research, an SME is defined as having 1-249 employees.

The literature review suggests those SMEs that have adopted a clear and appropriate innovation strategy and have scaled up their innovation activities, have been able to improve their productivity significantly, and contribute to the economic growth of their society (Burgess et al., 2014; Goldman Sachs, 2016). For instance, the tourism sector represents an important part of many countries' economies and is seen as a major source of economic growth around the world (Dritsakis, 2012). This sector is dominated by SMEs that make substantial contribution to the sector. For example, over 88% of hospitality enterprises, cafes and restaurants, and over 96% of the cultural and recreational services in the sector are SMEs (Breen et al., 2005). These tourism SMEs tend to be entrepreneurs, and due to the low barriers for entry to the sector they also have to be innovative to survive in the market. Therefore, many of them are adopting new forms of information and communication technologies (ICT) to promote their services and also to obtain new ideas for new service initiatives. Although small businesses do so at a lesser rate than large businesses (Burgess et al., 2009), a study of over 3000 US and European SMEs confirms that around 61% of SMEs are using

social media platforms for their business purposes (Aaltonen et al., 2013). This study shows that 27% of SMEs have used these platforms to enhance their innovation activities by generating new ideas to improve their current products and services or developing new ones. This strategy has helped these firms to facilitate the flow of diverse information inside and outside the firm, and access to it by building global networks and integrating different groups of people into the innovation and co-creation of new solutions (Majchrzak and Malhotra, 2013).

However, research shows that SMEs often have less clear and long term innovation strategy, and therefore have difficulty to continually develop new ideas and turn them into real products and services (Goldman Sachs, 2013). The European Union Innovation Scoreboard (Hollanders et al., 2016) suggests that those European countries like Germany, Belgium, Netherlands, Finland, and Luxemburg that have leveraged innovation among their SMEs (with more than 40% of their SMEs being successful in products, services and processes innovation), have also experienced a high rate of exports, and therefore, have shown a higher economic growth than other European countries with less innovative SMEs. This report indicates that on average 30% of EU SMEs have been successful in products, services or process innovation. This rate for UK has remained below the EU average at 28%. The Goldman Sachs' (2016) research that has been conducted with the collaboration of British Business Bank and Enterprise Research Centre has estimated that by adopting effective innovation strategies, between 9 to 12% of low productivity firms within the UK can increase their performance to an above average level within a year, and over half productive firms can become highly productive. Together these two groups include more than 110,000 SMEs in the UK economy. If these firms also engage persistently in export activities, they can add an extra £1.15 billion Gross Value Added (GVA) to the UK economy within the first year (Goldman Sachs, 2016).

Despite the reports' analyses and statistics that emphasize SMEs' contribution to economic growth, yet most of research into innovation management in both manufacturing and services sectors has focused on large organizations (Terziovski, 2010). In his empirical research, Terziovski (2010) has gathered survey data from a sample of 600 SMEs to identify the innovation drivers and their performance implications in these firms. The results suggest that although SMEs and large firms both require a clear and formal innovation strategy to success, with respect to the

implementation of this strategy, SMEs tend to be more influenced by an informal and less structured innovation culture. Hence, interpersonal ties and informal networks of contributors have been known as key drivers of innovation in SMEs. For example, Lasagni (2012) has investigated the role of external relationships as key drivers for SMEs' innovation, by conducting an empirical study on 500 small and medium-sized enterprises in six European countries. The results indicate that innovation performance is higher in SMEs that are proactive in strengthening their relationships with innovative suppliers, users, and customers. Moreover, the results of this research support the view that SMEs will be able to develop better products and services if they improve their relationships with laboratories and research institutes (Lasagni, 2012).

Hence, although SMEs are characterised with limited resources (like time, budget, and skills), they also have some characteristics that empower them to be successful innovators. These firms demonstrate high potential for creating communication and cohesion between their internal and external stakeholders. A longitudinal study of 1,435 SMEs by Gronum et al. (2012) shows the significant contribution of internal and external networks with diverse set of partners who have strong heterogeneous ties, to innovation and performance of SMEs. Successful SMEs use this potential to build a network which helps them to obtain the key resources that they need. Proactive links between employees and external stakeholders such as suppliers, customers, experts, and sources of finance, blur the firm's formal boundaries and integrate the distributed talent, knowledge and ideas into their entire innovation process (Chesbrough, 2003).

However, building innovation networks around SMEs to increase their performance is not easy. While previous studies have mainly focused on the impact of innovation networks on SMEs' performance, they have rarely examined the complexity of building such networks in the context of SMEs by conducting empirical studies. Particularly, there have been few studies conducting in-depth empirical studies to examine how social media can be integrated into the innovation process of SMEs. Therefore, one of the limitations of this study is the limited use of examples from SMEs in the literature review chapter. Due to the interdisciplinary nature of the present study, the literature review included articles from a wide range of fields and perspectives such as traditional innovation, open innovation, social media adoption, crowdsourcing and co-creation, and etc. However, the reviewed literature lacked critical examples, and sufficient empirical case studies exploring social media-enabled innovation in SMEs. Therefore,

sometimes the researcher had to draw on valuable case studies and examples of large businesses and the lessons learned from their web-enabled innovation activities to illustrate the concept. Although this can be considered as a limitation, it also provided valuable insight to the topic, particularly for a new researcher coming to some of these areas of literature for the first time.

2.4.4. Innovation Strategy

Before discussing the literature about the impact of social media-based interactions on the innovation practices of SMEs, it is important to describe the innovation strategy itself as a framework that guides the whole innovation process in an organization. This helps to better understand the role of social media-based interactions to facilitate or inhibit Innovation strategy in the later sections. As such, this section briefly describes the key steps of innovation strategy which are *strategic analysis, strategic selection, and strategic implementation* (Rehm et al., 2015; Tidd and Bessant, 2014, Blohm, 2013).

2.4.4.1. Strategic Analysis

Strategic analysis includes an exploration of potential innovation opportunities (product, process, position, and paradigm) and overall business environment through the analysis of new ideas and information that are obtained from the internal and external information channels. At this stage, the firm's innovation officers investigate technologies, markets, emerging trends and the important players such as customers, suppliers, competitors, and other stakeholders that could affect the organization and the business environment today and in the future. They also explore the required resources to accomplish potential innovation opportunities. In other word, strategic analysis reveals the strengths, weaknesses and uniqueness of the firm and the way these can be turned into a sustainable source of competitive advantage (Keupp et al., 2012).

2.4.4.2. Strategic Selection

Business environment includes a wide range of opportunities and threats to organizations that could also lead to different types of innovations. These opportunities and threats require strategic analysis and relevant actions of companies' managers in a timely manner. However, all businesses in general, and SMEs in particular have scarce resources, and therefore should carefully decide about the new ideas that should be implemented. So, they need to balance the risks and rewards across a

portfolio of potential innovation options (du Preez and Louw, 2008). Table 4 gives an overview of different approaches for selecting a potential innovation project to be implemented.

Table 4: Approaches for selecting innovation projects		
Selection approach	**Advantages**	**Disadvantages**
Personal or collective experience	Fast	Lacks evidence and analysis, may be risky
Financial measures (e.g. payback time or return on investment)	Relatively easy to do and fast	Does not include other benefits of the potential project, like learning about new markets, technologies, and etc.
Multidimensional measures (e.g. decision matrix)	Compares on several dimensions of the project like, popularity, demand, feasibility, time and resources required, etc.	Whereas different dimensions are considered, the level of analysis may be limited.
Portfolio methods and business cases	Compares on several dimensions of different projects and provides detailed evidence around core themes.	Takes long time

In addition to the selection approaches mentioned in table 4, a firm also needs to identify and consider its strategic capabilities when it decides to implement an innovation project initiative. Innovative ideas should be aligned with the firm's long term vision and strategies and should be built upon its existing knowledge, skills and resources to be successfully implemented (Wang and Han, 2011). Strategic capabilities of a firm are determined by a range of resources that are more firm-specific, difficult to imitate, and less tradable in the market (Goffin and Mitchell, 2016). These capabilities enable the firm to carry out several tasks such as design, manufacturing and sales or other operational activities more creatively. As such organizational capabilities depend to a great extent to the people (inside and outside the firm) and their skills, and tacit and implicit knowledge they possess (Wang and Ahmed, 2007).

Therefore, strategic selection involves filtering of the firm's available innovation options based on its strategic capabilities. These capabilities could be in the form of specific technological knowledge, like 3M (specialist in coating surfaces with different materials), or a rich and detailed understanding of customers and their behaviour, like major retailers (e.g. Tesco and Walmart) (Prahalad, 2006).

Strategic positioning of the firm; *where and how the firm positions itself in the market*; is also an important factor in strategic selection, because it helps the organization to understand where and how it could create competitive advantage through innovation, what are the competitive forces, or barriers to entry, who are the key players, and what are the threats from substitute products (Francis and Bessant, 2006).

2.4.4.3. Strategic Implementation

This stage involves the actual implementation of selected innovative ideas from the previous stage. So, it includes the prioritisation, scheduling and alignment of the innovation project initiatives, and also the allocation of resources and assignment of responsibilities to implement each idea. It also entails the continuous monitoring of the implementation steps to ensure that strategic objectives of the firm are achieved (Teece, 2009; Du Preez and Louw, 2008).Figure 5 shows the key steps of innovation strategy that create the basic foundation for development of innovation models.

Search – how can we find opportunities for innovation?

Select- what are we going to do and why?

Implement – how are we going to make it happen

Capture – how are we going to get the benefits from it?
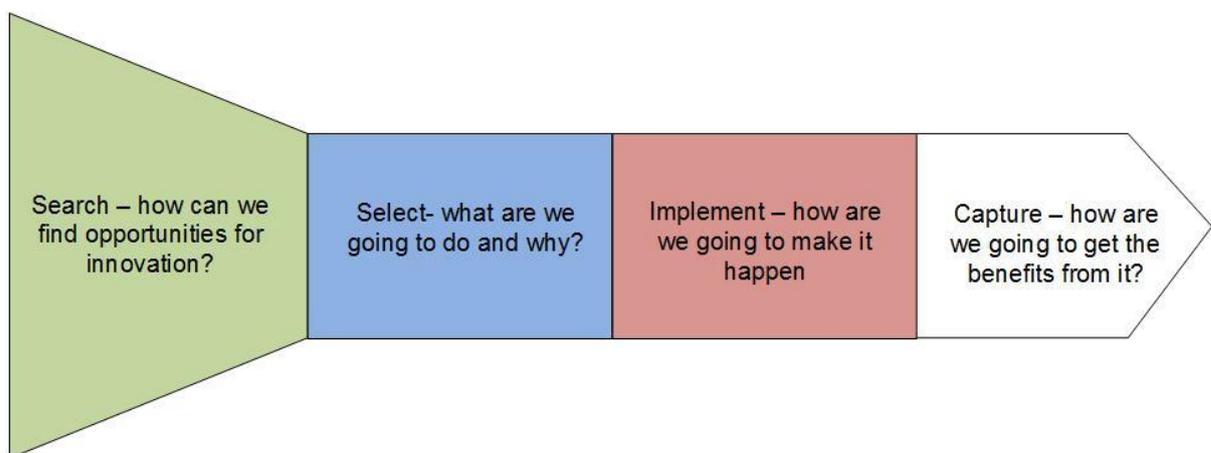
Figure 5: The key steps of innovation strategy (Tidd and Bessant, 2014 p.83)

To summarise what has been discussed so far about the different types of innovation (product, process, position, and paradigm), the degree of novelty of innovative ideas

(incremental to radical), and innovation strategy, a comparative example of managing innovation co-creation process in Disney and IKEA is described below. Figure 6 shows a 2x2 matrix model that is used by Ford et al (2012) to describe four types of collaborative innovations between the two companies and their customers. This model takes customers and the companies as two co-creating partners performing different roles in innovating new products or services. The matrix shows that an innovation for the company may be an incremental change over its existing products and services, or it might be radically different from the company's previous offerings. Likewise, the innovation for customers might be classified as incremental or radical change (Ford et al., 2012).

Cell 1 illustrates a radical innovation for the company which is regarded as an incremental innovation by customers. For example, IKEA decided to create a food division after the analysis of customers' feedback about their perception of the value of offering food products at IKEA stores. This was a radical change for IKEA, as it required not only creating a new supply chain, inventory system, purchasing unit, and retail strategy, but it also required considerable amount of training at the organizational and employee level. For customers however, this innovation seems as an incremental change, even though it was new and different. Likewise, Disney invested $1 billion to create EPCOT, an innovative concept theme park which was a radical innovation for the company, but for customers it seemed to be an extension of the company's previous familiar theme park.

Cell 2 illustrates an incremental innovation for the company and its customers. For example, when IKEA decided to enter into new geographical markets with different cultural traditions such as Japan, it conducted an extensive research with collaboration of the local people to understand their needs, wants, behaviour and expectations. The company then used this information to plan its offerings for different markets and to set up its individual stores to reflect that country's cultural traditions and values. However, this was an incremental innovation for both customers and IKEA, because the company co-creates and adjusts its strategy with customers' expectations in each market incrementally. Likewise, Disney introduced the Wild Africa Trek at Walt Disney World's Animal Kingdom, which was an extra-free three hour tour of the Kilimanjaro Safari Expedition in its Animal Kingdom. This idea was developed through focus groups and customer surveys and turned out to be very successful. This was an

incremental innovation for Disney, and also for customers that could get a more personalized exposure to some of the most popular attractions in Animal Kingdom.

Cell 3 represents an incremental innovation for the company, and a radical innovation for customers. Introducing "experience rooms" in IKEA's stores, where customers could experience in a store how the offered furniture would fit in their own home, is an example of such innovation. Although this was a radical innovation for customers, for IKEA it was only rearranging its store furniture. Disney also analysed the information of customer behaviour and customer feedback to introduce an incremental innovation which was replacing traditional ticket books with E-tickets. While digitizing the attractions' tickets was a radical change for customers, for Disney it only required some changes in the company's operations.

Cell 4 represents a radical innovation for both the company and its customers. In responding to SMEs' demand for better services, IKEA created a social network platform, where SMEs and entrepreneurs could collaborate with one another and with IKEA to co-create new solutions for their business problems such as office space layout. This radical innovation enabled customers to co-produce new solutions with other customers and empowered IKEA to develop new ideas suggested by real customers. Disney also developed an RFID (radio frequency id)-enabled wristband, that enabled identifying a guest at all places within the Disney property in Orlando, Florida. These wristbands were designed to be used by guests when an identification required for their entry into a hotel room or different attractions as well as for their payments across Walt Disney World. This was a radical innovation both for customers and for the company that required an integration in all Disney's information systems.

Figure 6: Disney's and IKEA's innovation model (Ford et al., 2012 p.282)

2.4.5. The Evolution of Innovation Process Models

The literature review suggest six generations in the evolution of innovation process models, each describing the management and several phases of the process from idea generation to commercialization of products and services Rothwell (1992). Table 5 shows the development of these six generations from the early years' linear models to more contemporary interactive ones.

Table 5: The evolution of innovation process models (Rothwell, 1992 pp.221-239)

Model	Generation	Key features
Technology push	First	Simple linear and sequential models, emphasizing internal R&D efforts, technology and science
Market pull	Second	Simple linear and sequential models, emphasizing marketing. The market demand is the source of new ideas for the internal R&D

Coupling model	Third	Recognizing interaction between different elements and feedback loops between them, emphasizing the integration of R&D and marketing.
Interactive model	Fourth	Combination of push and pull models, integration within the company, emphasizing external links with customers and suppliers.
Network model	Fifth	Emphasizing knowledge accumulation and system integration, extensive networking, and external linkages.
Open innovation	Sixth	Internal and external ideas as well as internal and external paths to market can be combined to advance the development of new technologies.

2.4.5.1. An Internal Employee-Based Innovation Process Model

Traditional innovation process models have conceptualized innovation as an internal employee-based process which was often independent of IT. Recent models however, have involved internal and external individuals in the firm's innovation process. For example, crowdsourcing platforms enabled by IT technologies have led to a form of open innovation in which different groups of people contribute in co-creation of new solutions with the firm (see the next section) (Schlagwein and Bjorn-Andersen, 2014). This section describes a traditional innovation model that was developed by Amabile (1988), and illustrates innovation as a phenomenon that is built upon employees' creativity inside the firm. Amabile has written extensively on innovation practices in firms, and her work is particularly important as she has investigated various environmental factors and also individuals' characteristics that could motivate, promote, or inhibit innovation in organizations. However, she has not included IT-enabled technologies and the creative potential of external individuals in her models. Therefore, by describing her model, this section will explore the individual and environmental factors that influence innovation practices in firms and also provides an insight into common issues of traditional innovation models and pave the way for the introduction of open innovation models in the next section.

According to Amabile (2012), there are a number of individual characteristics that could promote or inhibit creativity among individuals in an organization. The individual creativity characteristics can be categorised into three groups which are *domain-relevant skills, creativity-relevant skills, and task motivation*:

Domain-relevant skills

These skills are considered as individuals' raw materials for developing a creative performance, and include factual knowledge, technical skills, and special talents to fulfil the tasks in the domain in question. For example expertise in the area, and special cognitive abilities are part of domain-relevant skills (Amabile, 1988).

Creativity-relevant skills

Whereas domain-relevant skills provide the basis for undertaking a task in an adequate, and technically-acceptable manner, creativity-relevant skills provoke the exploration of new cognitive pathways to solve the problem. In fact, these skills lead to new ways of thinking and to perform the task creatively and taking new perspective on problems. For example, various personality traits, risk orientation, quality of employees' groups, social skills, and cognitive abilities are elements that can be classified as creativity-relevant skills (Amabile, 2012).

Task motivation

Innovation is intrinsically a social process, because it often takes place through the collaboration of a group of people inside or outside an organization (Jenkins, 2006). Therefore, it is important to motivate and sustain individuals' participation and knowledge sharing in different stages of this social activity (Boon et al., 2015; Battistella and Nonino, 2012).

The innovation literature suggest that there are two types of motivation that influence individuals' creativity and innovation in an organization. These two types *are intrinsic and extrinsic* motivations (Boon et al., 2015; Battistella and Nonino, 2012; Amabile, 1988). Intrinsic motivations include the individual's baseline attitudes and natural inclinations (like or dislike) towards a particular task (Amabile, 1988). Possibly the most important driver of intrinsic motivation is "trust" (Gezelius, 2007). The second important driver of intrinsic motivation is the "norm of reciprocity" that is defined as "the social norm that people should help those who help them, and should not injure those who helped them" (Boon et al., 20015 p.349). Intrinsic motivations in an organization could

increase cooperation and self-motivation among the members of innovation community (inside and outside the firm) and help them being self-driven, and excited by the work itself, and being attracted to solve new problems (McLure Wasko and Faraj, 2005).

Extrinsic motivations are the individuals' perception of external social and environmental factors that could influence their attitude and performance on the task in a particular instance. These motivations include all elements that lead directly or indirectly to economic and professional advantages and career benefits of contributors such as monetary rewards, greater visibility, and enhanced reputation in the group (Anderson, 2009).

Research shows that intrinsic motivations are necessary to stimulate individuals' participation particularly during the early stages of innovation process (knowledge sharing and idea generation) (Battistella and Nonino, 2012). However, the more the innovation stages become concrete (idea selection, and implementation stages) the more extrinsic motivations become important (Ariely et al., 2009). Hence, Amabile (1988) suggests that intrinsic motivations during the early stages of innovation should be accompanied by some forms of extrinsic motivations during the later stages to continue and sustain the whole innovation process over a prolonged period of time.

Apart from the three components of individual creativity discussed above, there are also three components at the organizational level that could promote or inhibit innovation in an organization. These components that are so called environmental factors are: *resources in the task domain, skills in innovation management, and motivation to innovate*. The environmental factors also have a direct impact on the individual creativity components (Amabile, 1988).

Resources in the task domain: This component includes everything an organization has available from technological and managerial facilities and knowledge to human resources, skills and experiences, to fulfill the work in the task domain.

Skills in innovation management: This component includes the managerial skills to facilitate and provoke creativity and innovation within an organization and among its employees in different departments and projects. For example the ability to promote collaborative approaches among individuals, and to create a balance between freedom and constraints in their activities (Chesbrough, 2008).

Motivation to innovate: This component indicates the basic orientation of the organization and its management toward innovation, which can promote or inhibit intrinsic and extrinsic motivations to innovate among individuals. In fact, the innovation orientation must flow directly from the highest managerial levels down to the lower levels. The most important elements of this component are: to place value on innovation in general, an orientation toward risk, a sense of pride among employees and what they are capable of doing, and having a clear and long term innovation strategy (Porter et al., 2011).

Figure 7 links the individual creativity components to environmental components and illustrates the process of idea generation by individuals and development of these ideas at organizational level. The bottom section of the model represents the process of individual creativity in organization which is influenced by three components of *domain-relevant skills, creativity-relevant skills, and task motivation*. As illustrated in figure 7, the individual creativity process begins with the presentation of task or identification of the problem. The task or problem can be self-presented by individuals who are intrinsically interested in the task or can be externally presented by organization. In the second stage, individuals build up, prepare and reactivate the required information, knowledge and algorithms to solve the presented problem or task. The individuals' domain-relevant skills play an important role in the fulfilment of this stage. In the third stage, individuals use the acquired knowledge from the previous stage to solve the problem while exploring different innovation opportunities and environmental features. Creativity-relevant skills and task motivation at this stage help individuals to explore unconventional methods and previously unexplored pathways to find a solution. In the fourth stage individuals utilise their domain-relevant skills to validate the emerging ideas and to measure their appropriateness against pre-determined criteria for accepting potential ideas. The fifth stage involves making decision about the emergent ideas or concepts based on validation tests performed in stage 4. So, the successful ideas will be selected at this stage to be further investigated at the organizational level in the next phase. If the idea was unable to pass the validation tests, then the process returns to the first stage, where the problem will be re-defined to undertake the tasks once again. However, the acquired information from the trial activities will add to the existing capabilities of domain-relevant skills.

The initial ideas generated by individuals in the previous phase, provide the basis for organizational innovation. Figure 7 shows that the outcome of individual creativity

process (discussed above) is directly used by the organization to inform its innovation project initiatives (see the heavy arrow that connects the bottom half to the top). The three components of organizational environment in the centre of the figure also impose influential forces towards different stages of the innovation process.

The innovation process at organizational level begins with "setting the agenda" in which the overall business strategy and directions and innovation objectives are presented. This stage represents the organizational orientation and the management commitments towards innovation at the highest level, and therefore it is influenced by the motivation to innovate component. The second stage of the innovation process clarifies the specific goals for the proposed innovation project. For example, if the proposed agenda in stage 1 is "to become the market leader of the next generation of semiconductors", then the project goals in stage 2 might be "to develop a prototype of the next generation of semiconductors within a year". In stage 3, the creative ideas and solutions that are already produced by individuals or project teams (via the bottom half process of the model) are collected and discussed by the organization's expert groups. This stage therefore, is influenced by the all three components of individual creativity.
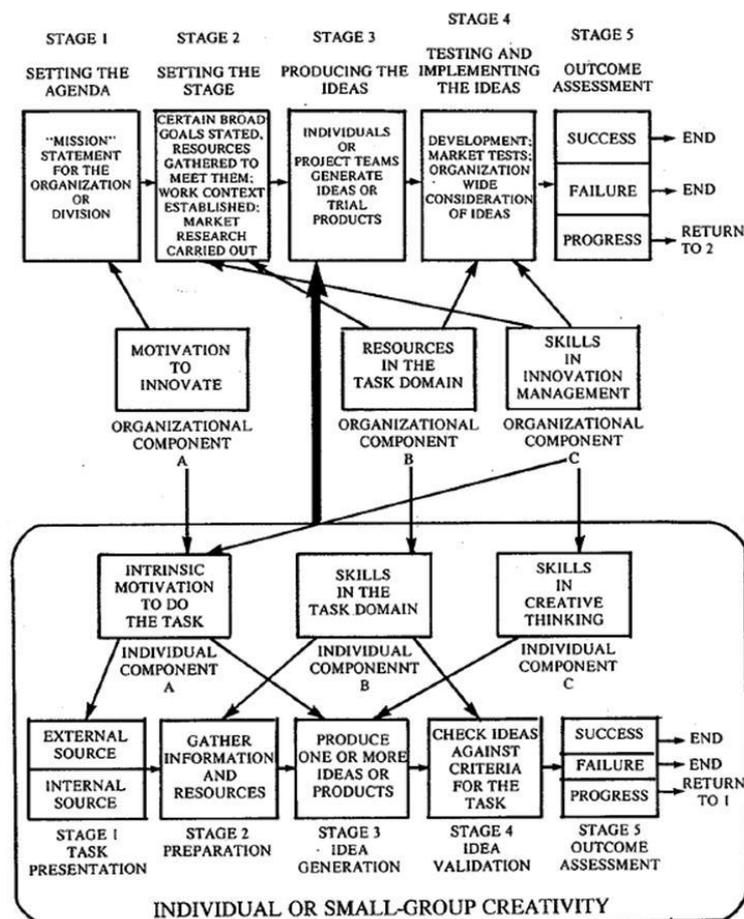
Figure 7: A model of organizational innovation (Amabile, 1988 p.152)

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Stage 4 involves testing and implementation of potential innovation project initiatives throughout the organization and beyond the initial groups of individuals who proposed the ideas. This stage includes the development of prototypes, technical and market tests and considering all feedback from every single group involved in the process. Resources in the task domain and innovation management skills are essential at this stage to support good ideas and protect them from biased decisions that could cause a project failure. The final decision about the implementation of innovation projects is made in stage 5. As such those projects that have successfully met the acceptance criteria will be scheduled for the full implementation.

Amabile's model describes how the innovation process can emerge as a result of individual creativity in organization. It also provides an in-depth understanding of the components that could promote and inhibit individual creativity among employees as well as the environmental factors that influence the whole innovation process at organizational level. However, the model represents a traditional, linear and sequential innovation process with limited functional integration between its different stages. Moreover, the model conceptualizes organizational innovation as an internal, employee-based process that is independent of new technological advancements like IT. The next section will discuss the shift toward open innovation models, and the use of social media platforms to build proactive links across organizational boundaries and integrating different groups of individuals inside and outside the firm to improve the innovation practices.

2.4.6. Summary: Innovation and its Impact on SMEs

Innovation is seen as one of the main drivers to create and nurture today's knowledge-intensive economies that can deliver multiple socio-economic benefits to organizations and the wider society. Innovation is often defined based on three main characteristics that are: *person, product (or service), and process.* However, the most recent definitions of innovation have focused on "process" as the central unit of analysis in studying innovation activities. This thesis has adopted Tidd and Bessant's (2014) definition that describes Innovation as *"the process of creating value from new ideas which results in a series of changes in an organization"* (pp.3-5). These changes can be summarised in four dimensions which are so called the 4Ps of innovation and include changes in *products and services, processes, position, and paradigm*. The degree of novelty in the 4Ps' dimensions of innovation can differ, running from minor,

incremental improvements to radical changes. These changes can result in two types of value for organization which are commercial and social values.

Having a clear and long term innovation strategy helps SMEs to improve their productivity, and contribute to the job creation and economic growth of their society. Research shows that SMEs have begun to adopt new information and communication technologies such as social media platforms to enhance their innovation activities. Successful SMEs use these platforms to create proactive links between their employees and external stakeholders such as suppliers, customers, and other experts. This blurs SMEs' formal boundaries and integrates the distributed talent, knowledge and ideas into their innovation processes.

However, innovation is characterised with uncertainty and risk, and it also requires organizations' commitment to devote their scarce resources. Therefore, organizations have to adopt an appropriate innovation strategy that guides and sustain their innovation activities over a prolonged period of time. The three key elements of innovation strategy are:

- o Strategic analysis: exploring where an organization could innovate?
- o Strategic selection: choosing between different options
- o Strategic implementation: planning to make innovation happen

Over time, Innovation strategies have resulted in different generations of innovation process models. Traditional innovation models conceptualized innovation as an internal employee-based process which was often independent of IT. Recent models however, have involved internal and external individuals in the firm's innovation process through the adoption of IT technologies such as social media platforms.

2.5. Open Innovation and the Enabling Role of Social Media

2.5.1. Introduction

Innovation as was discussed in the previous section involves generating creative ideas and transforming them into new products, services, and processes. These initiatives are then implemented and diffused to the market to create value for the innovators, and end users (Marjanovic et al., 2012). The traditional and vertically integrated innovation models (discussed in the previous section) relied on internal research and development (R&D) activities, or on collaborations between pre-selected companies with known complementary skills. These efforts led to new offerings that were then distributed to the market by the firm itself (Chesbrough, 2011).

However, the advent of open innovation models during the recent years is seen as a paradigmatic shift that has improved innovation performance by integrating the knowledge, ideas, distributed talent, and other resources of internal and external groups of stakeholders into the innovation process (Chesbrough, 2006). "Open innovation is the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and to expand the markets for external use of innovation, respectively" (Chesbrough, 2013 et al., p.1). As such "open innovation is a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as they look to advance their technology" (Chesbrough, 2003 p.24). The adoption of open innovation by SMEs is also driven by their characteristics such as limited time, funds and skills that cause them difficulty to innovate on their own (Rehm e al., 2015). The increase of labour mobility and the intensive competition between SMEs, have motivated these firms to find, form, and deploy innovation networks as an effective approach to outpace larger competitors (Von Hippel, 2005).

Web-enabled technologies such as public and private social media platforms have also enabled companies to leverage and enhance collaboration and information sharing between their employees and external stakeholders (Jarvenpaa and Tuunainen, 2013). These firms utilise the acquired information from social media to customize and differentiate their products and services and to offer greater variety and specialization (Chesbrough, 2011). As such, innovative companies are fostering their competitiveness and their innovation potential by adopting more open and user-driven innovation systems that promote different collaborative approaches with the network

of external experts, suppliers, knowledge workers, customers, competitors, and other stakeholders (Battistella and Nonino, 2013; Nonino and Panizzolo, 2007). These companies are also using social media to establish online communities where users submit product reviews, provide feedback, suggest creative ideas, and co-create new solutions that are aligned with both company and customer needs (Boon et al., 2015; Jarvenpaa and Tuunainen, 2013). In fact, online social media platforms have increased the quality, amount, and pace of collaboration for idea generation (Brabham, 2011) by aggregating and integrating different groups of individuals and companies in innovation communities (Battistella and Nonino, 2012).

However, although the concept of open innovation has gained an increased attention in research and practice, it has been argued that the IS literature to date has taken a narrow perspective towards this phenomenon. For example, IS literature has less investigated the impact of social media interactions on information sharing between firms and their external stakeholders, and the challenges that firms are facing in terms of capturing and exploiting information from social media to inform their innovation practices (Majchrzak and Malhotra, 2013).

This section first looks at the open innovation concept, and then explores the use of social media to facilitate open innovation and to improve its performance, and finally describes two mini cases of a large and a medium-sized enterprises that have successfully adopted open innovation social media platforms.

2.5.2. The Open Innovation Paradigm

In his book *Open Innovation*, Chesbrough (2003) describes a paradigmatic shift from a closed to an open innovation model. Figure 8 shows a representation of the traditional closed innovation model in which innovation projects are launched and developed from the internal science and technology base of the firm. These projects progress through the development and implementation process, where some of them are stopped, while some others are selected for further work. The process outcome is then introduced to the market (Chesbrough et al., 2013). This process is called "closed innovation" as the projects can only enter into the innovation funnel in one way (from the internal R&D) and they can only exit in one way, by being introduced to the market by the firm itself (Carbone et al., 2012). In contrast, Figure 9 shows an open innovation model in which creative ideas can be contributed from both internal and external knowledge and technology sources, and new sources of knowledge (individuals and

companies) can enter into the process at various stages. Moreover, the innovation outcome can go to the market in several ways, such as out-licensing, or a spin-off venture company, or through the firm's marketing and sales channels. So, the open innovation model provides several ways for the creation and flow of new ideas, and for transferring the final products and services to the market (Chesbrough et al., 2013). Lego, Dell, IBM, and Procter and Gamble (P&G) are all exemplars of this innovation model.
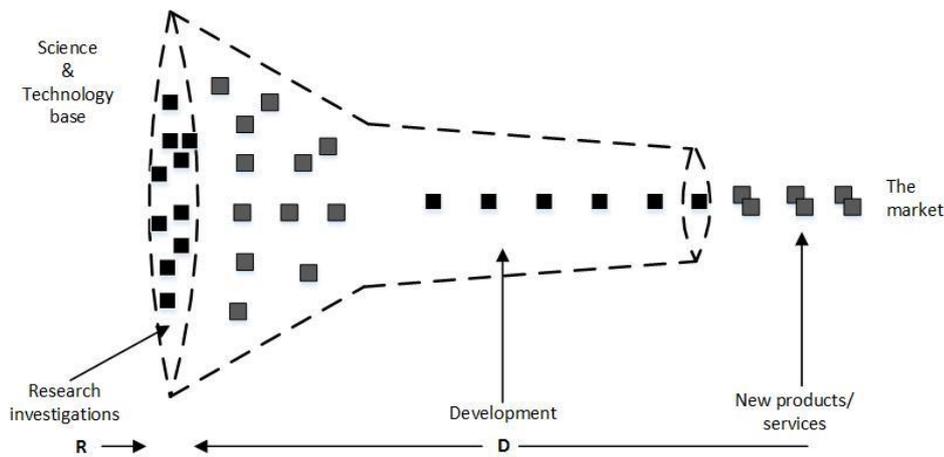
Figure 8: a closed innovation model
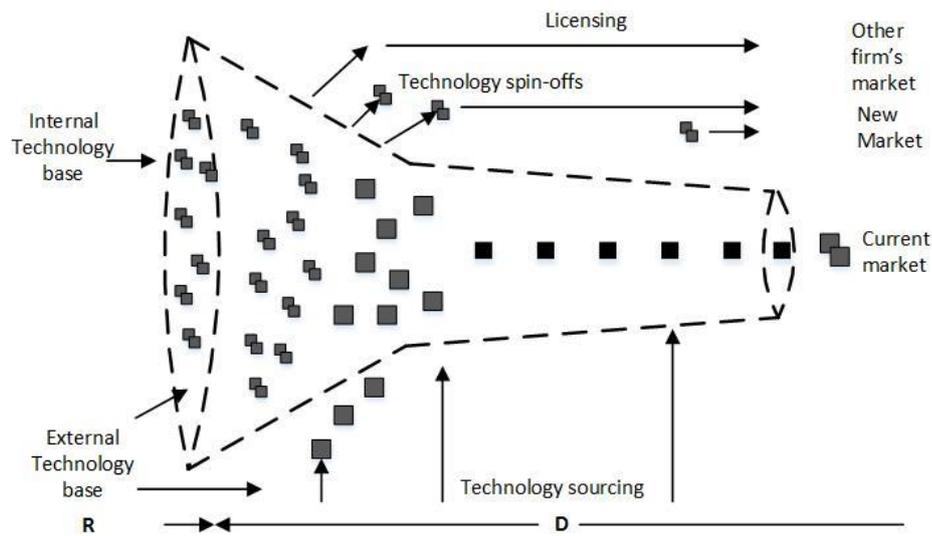
Figure 9: An open innovation model

However, external sourcing of innovative ideas requires the firm to build an absorptive capacity to capture these ideas and transform them into valuable knowledge that could then be used to develop innovation project initiatives (Blohm et al., 2013; Lopez and Esteves, 2013). As such, the successful utilization of external knowledge within the

firm depends on two features. First, the transferability of both tacit and explicit knowledge across individuals (internal and external), time and space. And second, the capacity for aggregation of internal and external knowledge that is transferred from multiple locations, and consolidate it at a single location (Grant, 1996b; Cohen and Levinthal, 1990).

Therefore, it can be argued that open innovation is not a replacement for in-house R&D. Instead, organizations with higher internal R&D capabilities also demonstrate higher absorptive capacity and are able to better capture and combine external ideas and information into their internal knowledge repositories (Dahlander and Gann, 2010; Cohen and Levinthal, 1990). In fact, the internal knowledge of the firm (often harnessed by R&D units) helps to better identify and absorb valuable external ideas, and opportunities. To emphasize the critical role of internal R&D in enabling open innovation, Lenox and King (2004) argue that the best location for acquiring information (e.g. external sources) differs from the best location for harnessing it (e.g. internal repositories of the firm). So, organizational units like R&D departments with a high level of absorptive capacity are also likely to better harness the acquired knowledge from external and internal sources and to utilize it more effectively for innovation practices (Chesbrough et al., 2013; Lopez and Esteves, 2013).

In closed innovation, a single firm carries out the majority of innovation activities to develop and improve its products and services. Such firms often focus on developing firm-specific R&D capabilities to preserve their competitive advantage, and to better exploit their accumulated knowledge inside the firm for developing new offerings (Chandler, 1990). As such, these firms tend to pay particular attention to economies of scale and scope as critical approaches that help them to create more value from their investment in internal R&D capabilities. The notion of scale and scope benefits of internal R&D, between 1940 until 1990, encouraged many large organizations to internalize firm-specific R&D capabilities by emphasizing internal development, manufacturing and distribution of innovation processes (Conant, 2002). This view also resulted in two important syndromes: "not invented here" (NIH) syndrome and "not sold here" (NSH) syndrome (Chesbrough, 2008). According to NIH syndrome, knowledge only had to be initiated within the internal boundaries of the firm and moreover, potential ideas that fall beyond the firm's current business model should be ignored. The NSH syndrome implies that the company's initiatives must be commercialized by

the company itself and no one else. Therefore licensing and spin-offs were ignored in this model (Carbone et al., 2012; Chesbrough, 2003a).

As such, the firms that adopted closed innovation, usually confronted difficulties when their internal research generated spillovers that could not be completed and commercialized internally by them. In such cases, the under developed initiatives had to sit on the shelf waiting for internal development, or they might be taken outside by the firms' employees who leave the company and therefore be developed by competitors who were able to capture the benefit of the innovation (Chesbrough and Rosenbloom, 2002).

In contrast, open innovation enables organizations and particularly SMEs to search for new ideas, and their execution outside the firm boundaries, for example through collaboration with suppliers, customers and sometimes even with competitors (Rehm et al., 2015). Cohen and Levinthal (1990) also emphasize the importance of investing in internal research that could empower a firm to identify, capture and utilize external knowledge. They call this "*absorptive capacity*" – "the capability to transform crowdsourced data into knowledge and business value" (Blohm et al., 2013 p. 203). Eric Von Hippel (1988) argues that firms that fail to exploit external knowledge effectively may be at a severe competitive disadvantage. He suggests firms that lack sufficient resources to build absorptive capacity, may develop social networks and collaborate with external stakeholders to gain and exploit such knowledge. However, open innovation, and collaboration through establishing online social networks has been more developed among technology intensive and internet driven companies such as software, biotechnology, and medical enterprises.

2.5.3. The Enabling Role of Social Media

Social media is referred to as "*the technological enablement and enhancement of human interaction in society and organizations*" (Mandviwalla and Watson, 2014 p. 99). Facebook for example has over 1.3 billion users worldwide, while the number of Twitter and LinkedIn users is more than hundreds of million (Kane, 2015). New social media platforms like Snapchat and Pinterest are also growing rapidly in size and scope to make the competition even more intensive (Kane, 2015; Kane et al., 2014). Firms have also begun to recognize the potential of using social media platforms to establish online communities of customers, employees, partners and other stakeholders as a source of information and innovation and tap into the creative potential, knowledge,

and broad-based experience of their members (Battistella and Nonino; 2012). Such communities are so called communities of practice (CoP) that refer to groups of people who share a craft and/or a profession in a process of collective learning in a shared domain of human endeavour (Lave and Wenger, 1991).

The literature review suggest that the majority of firms especially SMEs use social media primarily for marketing purposes, to keep customers engaged, gather consumer data, and sell more advertising. However, companies with more advance social media focus are moving beyond marketing to infuse their social media activities into other areas of their business as well (Leidner et al., 2010). According to Kane et al. (2014) companies often begin with using social media for marketing, to understand consumer behaviour, and market trends, and to sell their products and services. However, as they establish their social media web presence, they try to use this potential for enhancing activities in other areas of business such as internal and external collaboration, innovation, leadership, and operations management. Table 6 shows the use of social media to manage multiple functions across businesses with maturing social media strategy.

Table 6: the use of social media by maturing firms to manage their multiple functions beyond marketing – source: Kane et al (2014)	
Percentage (%)	Function
87%	Using social media to spur innovation
83%	Using social media to improve leadership performance and manage talent
60%	Integrate social business into operations

For instance, InnoCentive is an intermediary company that has provided a public online platform to connect firms with engineering problems to a community of hobby scientists. Firms are able to present their engineering problems that they are unable to solve in-house, and find multiple solutions for them through collaboration with external scientists. InnoCentive's community of scientists solves on average 30% of these problems (Jeppesen and Lakhani, 2010). The gold producer, GoldCorp, is another example of a company that made its geographical database publically available on the internet and offered reward for anyone who could help the company by telling where to find gold. As a result the company increased its gold production from 53,000 to

504,000 ounces a year while it reduced the production costs from $360 to $59 per ounce. This increased the value of GoldCorp from $100 million to $9 billion (Blohm et al., 2013).

As such online communities amplify open innovation by enabling stakeholders to contribute to and collaborate on developing new ideas, identify trends, and formulate new concepts and solutions that are aligned with both company and customer needs (Brabham, 2011). Social media platforms facilitate collaboration and participation of stakeholders in innovation practices in three ways; *crowdsourcing, peer production (open source innovation), and outsourcing*. These three forms are described and compared below (Figure 10).
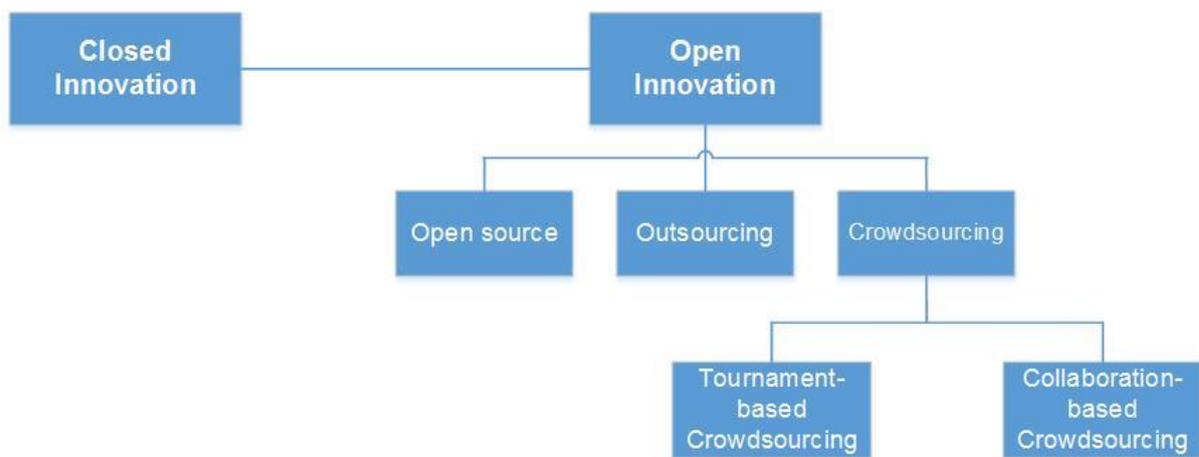
Figure 10: Different types of social media-enabled open innovation

Crowdsourcing was first defined by Howe (2008) as the act of a company in taking a function once performed by employees, and outsourcing it to an undefined network of people in the form of an open call. As such crowdsourcing is a type of participative online activity in which a complex problem is posed by the company to a network of individuals and firms with varying knowledge, and they are invited to solve the problem respectively (Estelles-Arolas and Gonzalez-Ladron-de-Guerva, 2012). There are two types of crowdsourcing; *tournament* and *collaboration*. In collaborative crowdsourcing, a large number of people make many small contributions that individually may have minimal value, but collectively can create a common solution (e.g. an entry in Wikipedia). In contrast, tournament crowdsourcing involves the submission of independent solutions such as ideas, prototypes, or business plans. The contributions are then evaluated and selected by the crowdsourcer, who selects one or a few best solutions in exchange for financial or non-financial compensation (e.g. GoldCorp, and InnoCentive) (Zhao and Zhu, 2012). Tournament and collaboration-based

crowdsourcing can also be used mutually, for example by collaborative evaluation and improvement of independent solutions submitted in tournament-based crowdsourcing. As such a variety of players may involve in a crowdsourcing process for commercial or non-commercial purposes where a variation of IP agreements, and reward and incentive structures exist.

Peer production (also called open source innovation) refers to collaborative and co-creation activities generally enabled by online communities, where a problem or a task is frequently presented and voluntarily undertaken by independent individuals, and often without attribution of traditional ownership and IP to a specific body (Marjanovic et al., 2012). For example open source software that are collaboratively developed by independent and geographically distant developers. A key difference between crowdsourcing and open source innovation is that open source problem solvers and seekers are not necessarily separated, and there is no hierarchical structure of control to govern their activities, and there is also no ownership and IP to the problem solvers in an open source approach (Benkler, 2002). However, in return for their participation, open source contributors are often allowed to freely use the product, or receive special training and rewards programs, or be rewarded by making them known to others, but often without a financial reward for ownership of the product (Boon et al., 2015). However, in crowdsourcing and outsourcing, the innovation seeker defines the problem, and determines the reward and the format of compensation, and also clarifies many other conditions such as the ownership of the product. In both crowdsourcing and open source (peer production) approaches the task is outsourced to a much wider group of problem solvers compared to those of traditional outsourcing. (Brabham, 2008; Lakhani et al., 2006; Surioweski, 2004).

Figure 11 shows a simplified conceptual framework by Marjanovic et al. (2012) for sourcing, filtering and managing crowdsourced innovation activities. In this model, the innovation seeker company first defines the task and its specifications, and advertises the challenge conditions such as criteria to win the contest, reward and compensation structure, and identifies the potential solution providers (Input). The second stage involves managing the innovation process and multiple stakeholders' relationships (Process). In the third stage potential solutions are developed by problem solvers who receive the pre-determined rewards in turn for their contribution (Output). The output may also generate wider economic and social benefits such as increased productivity, improved quality of life, and so forth (Outcome). Figure 11 also shows that

crowdsourcing can be carried out directly by the solution seeker company, or via a broker organization (Marjanovic et al., 2012). One important limitation of this model is its linearity. For example the iterative activities such as feedback loops between the Input and the Process stages, as the crowdsourcing evolves, are omitted. Another limitation of the model is that it has not clarified how are people motivated to contribute in the process and how are their contributions evaluated and used internally by the company. Section 2.4.4.1 describes a more comprehensive crowdsourcing innovation model adopted by Lego.
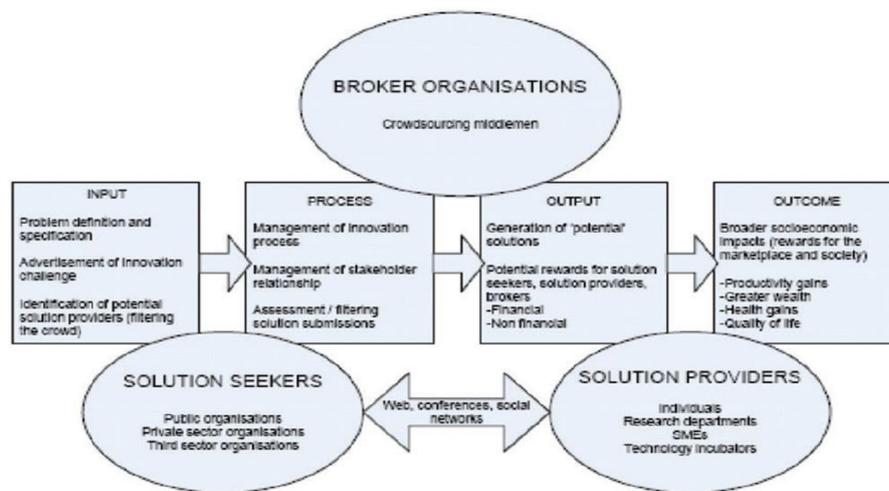
Figure 11: Stages in crowdsourcing process and key players, adopted from Marjanovic et al (2012 p.325)

2.5.3.1. Social Media, Communication Visibility, and Improved Metaknowledge

One of the important ways through which social media interactions facilitate information sharing and innovation between a firm and external stakeholders is the communication visibility (Leonardi, 2014). According to the theory of communication visibility developed by Leonardi (2014), the implementation of social networking sites helps invisible communication and workflow occurring between external individuals and organizational employees become visible to others. Traditionally, most of the internal work and decision making processes in organizations as well as communications between employees and customers remain invisible to others (Suchman, 2007). The main tasks in organizations are often divided into smaller tasks that are allocated to employees in various groups and departments, or even in different geographic locations. The employees are performing their tasks, making decisions and communicating with customers while sitting at their computers and have little

communication with others (Nardi and Engestrom, 1999). Therefore, there is less transparency and manifestations of employees' routine activities for others to observe. The lack of transparency in the workflow and decision making processes in an organization can affect interpersonal trust between customers and employees and decrease their willingness to share information with one another and with the firm (Cramton et al., 2007). Work invisibility can also increase work duplications and coordination problems inside the firm (Lapre and Van Wassenhove, 2001) and result in limited product and process innovation (Majchrzak et al., 2004).

However, information and communication technologies have made work communications more visible than ever before. Communication tools such as emails and instant messaging, worker databases, collaboration tools and most importantly, social media platforms such as social networking sites, blogs, micro blogs and wikis have increasingly made workplace communications visible to others (Leonardi and Treem, 2012). Leonardi's (2014) research suggests the visibility of work-related communications between the firm and external stakeholders increases trust and willingness to share information among external individuals and also improves the company's *"metaknowledge"*. He defines *"metaknowledge"* as the knowledge of *who knows what* and *who knows whom (p. 796)*. Seeing the content of others' posts and comments help people to identify other users' knowledge. This mechanism is referred to as "message transparency" which improves the knowledge of who knows what. Likewise, seeing the structure of other users' communication network, helps observers to identify those with whom their colleagues regularly communicate. This is referred to as "network translucence" which improves knowledge of who knows whom. Message transparency and network translucence help people to decide to whom they should go for advice or whom they can ask for transfer of their knowledge and experience when is necessary. As such, social media also reshapes information sharing between organizations and their stakeholders through increasing communication visibility (Gibbs et al., 2013; Leonardi et al., 2013; Leonardi and Treem, 2012).

The improved metaknowledge resulted from communication visibility has at least two important consequences for a firm. First, it reduces work duplication by avoiding the network members to spend their time to learn or to do something that other co-workers have already learned or have already done and could share their knowledge. Second, the enhanced metaknowledge through web-enabled platforms allows members to effectively engage in a process of "*recombinant innovation*" (Hargadon, 2002).

Recombinant innovation is defined as innovations that result from generating new associations between different parts of existing knowledge in an organization to develop novel and useful changes in products, services or processes (Majchrzak et al., 2004).

However, Leonardi's (2014) analyses suggest that the improved metaknowledge resulted from social media adoption leads to duplication avoidance and recombinant innovations, only when a company adopts two important behavioural changes in its ways of working. These changes are: *a shift in the company's learning approach*, and *a change in the company's search behaviour for innovative solutions*.

According to Kim and Miner (2007) and Gioia and Manz (1985), there are two important ways through which people and organizations can learn and improve their metaknowledge. These two modes are *experiential* and *vicarious* learning. In experiential learning an individual can learn by direct communication with others, and asking them questions and listening to answers (March, 1991). In contrast, in vicarious learning people are either consciously or unconsciously exposed to communications between others, and watch others' interactions even when they are not focused on trying to learn anything (Liebeskind, 1996). Vicarious learning therefore, enables people and organizations to not only find an answer to their current problems, but also to learn without context and storing the acquired knowledge to solve their future problems (Weick, 1995).

Leonardi (2014) argues that work invisibility in today's organizations makes it difficult for innovators to only rely on experiential learning through active and direct communications. Instead, he suggests that organizations can and should adopt social media, and establish online communities, to leverage vicarious learning and to make a balance between vicarious and experiential learnings. This enables them to move quickly between experiential and vicarious learning to maximize the accuracy of their metaknowledge by direct and indirect engagement in other members' communications. Leonardi (2014) also argues that experiential and vicarious observations provide small bits of information that can be turned to a promising solution only if they are combined with other bits of information acquired from different communications.

The second behavioural change that organizations need to adopt to maximize the benefits of communication visibility is a shift in their approach to find innovative solutions for their problems. This behavioural change can be particularly important for

SMEs, because due to limited resources, SMEs often look for new knowledge reactively, when they are trying to solve a newly encountered problem (Roy and Dionne, 2014; Sigala 2012; Cunningham et al., 2010). Therefore, they rarely think about being proactive and acquire new knowledge in advance and store it for the future use. However, vicarious learning which is enabled by observing online communities can help SMEs to collect and aggregate new knowledge on the daily basis and without a specific context. Although the acquired metaknowledge may not be used at that moment, it can be stored along with other pieces of information for future use. Scholars believe that this is a profound behavioral change in information use for innovation (Leonardi, 2014; Roy and Dionne, 2014; Sigala 2012).

2.5.3.2. Social media Features that Influence Information Sharing and Information Use

Social media platforms enable firms to develop various features that could influence information sharing and information use in virtual environment, and therefore can improve the whole process of innovation (Kane, 2015). Some of these features are briefly described here:

Multiple connection types: Social media platforms facilitate different types of interpersonal connections, and enable users to subscribe and receive information updates from other users (e.g. Facebook friends and Twitter followers). This allows greater communication, since the information originator doesn't have to directly target others, and individuals can also reduce information overload, because they can only subscribe to people with whom they want to connect, and connect only when they have time to interact with them (Kane, 2015). There are three common connection types supported by social media platforms which are: *discrete interactions* such as email or private messaging, *proximities* that connects users who are close to one another in geographic or electronic spaces (e.g. discussion boards or chatrooms that support digital proximities, and location-aware apps that support geographic proximities), and *flows* that captures the movement of information between users through for example Twitter hashtags that enable people to exchange content about their shared interests (Kane, 2014).

However, making decision about the network boundaries --- who is allowed to join the network and what privileges they should possess --- is also important. For example

Yammer allows its members to only add those users to their network with whom they share the same corporate email domain. In contrast, MITRE which is a leading research and development organization allows its employees to cooperate with external business partners to solve shared problems via its social media platform (Jarvenpaa and Lang, 2011).

Content support: Social media platforms often support a wide range of content from text to multimedia (video, image and hypermedia inks), and meta-content (rating and feedback mechanisms). The type of content supported by a platform determines the information contributed by members. For example, the "Liking" function enables people to only express affirmation, whereas "voting" and "commenting" allow them to deeply engage in debates (Mandviwalla and Watson, 2014).

Digital trace: Social media platforms and several analytical tools that are developed during the recent years help companies to capture users' behaviour on the platforms such as their membership status and duration, their activities, how often they post ideas or make comments, and what content they share, comment upon, or like (Majchrzak and Malhotra, 2013). Digital traces enable firms to analyse and interpret data generated by social media platforms. Information systems literature suggest a successful adoption of social media for innovation and other business purposes depends on the firm's ability to analyse social media data. For example, the healthcare company Kaiser analysed customers' posts on its platform and identified that its inadequate parking space caused many problems for the customers. The company then solved the issue by removing facilities that caused the most acute problems (Kane et al., 2014).

Profile authenticity: The extent to which a social media platform can reveal the users' real-world (i.e., offline) identity is an important determinant that influences individuals' participation and information sharing on the platform. An important issue that makes it difficult to build trust in online communities is that there is no face-to-face interaction in virtual space, and identities are masked (Ridings et al., 2002). Therefore, many companies such as Facebook or Twitter, try to maximize the connection between users' online profile with their real-world identity. However, some other platforms such as Ask.fm or Google's prediction market, allow users to remain anonymous or permit "pseudonymity" to increase their employees' willingness to express honest feedback without being worried to be identified by their senior managers (Koch et al., 2013).

Network transparency: is "the ability to visualise the entire social network and one's place in it" (Kane, 2015 p. 10). Network transparency enables people to see other users' connections, mutual friends, and their relationships (Knowledge of who knows whom). It can also show similar types of relationships to the users and facilitate connections between different parts of an organization or between internal and external stakeholders (Kane and Alavi, 2007). Having a transparent social network enables companies to adopt a wide range of metrics from simple to complex algorithms to quantify the number of friends and followers or to measure the influence of different users and their contributions in the network (Kane and Alavi, 2007). Hence, the company can identify influential participants and involve them in its strategic activities.

Recommendation engines: These features enable users to find people with whom they may want to connect. They help users to find like-mined people and connect with them (homophilous connections), or to connect with mutual friends (closure connections). Research however, shows that greater homophily and closure in an online community could reduce its diversity, and could reinforce key biases in the group (Janis, 1972). Therefore, while these connections motivate users to more actively engage in the network, they could reduce the opportunities for having access to diverse information. However, recommendation engines can be designed to keep a balance between the homophilous and closure connections, and connections with dissimilar people who are different from the current users in important ways. This strategy will include people with complementary skills and knowledge in the network and leads to more valuable information sharing (Xiao and Benbasat, 2007).

Content aggregation: This capability helps users to find and access to relevant content that is archived in a social media platform. For example several newsfeed mechanisms collect and share information based on the most popular content, or based on the information that is reviewed by the user in the past. By classifying relevant information for different groups of users, these mechanisms reduce the time and costs of search for valuable content (Von Krogh et al., 2012).

Privacy: Social media platforms often enable users to determine which part of their personal information or their shared content other users can access. Privacy settings have a paradoxical effect on the overall amount of information available on the network. On the one hand, these settings limit access to some parts of information across a network. On the other hand privacy settings may increase users' willingness to share

information, because they can partly control the way their shared information is used (Kane, 2015).

2.5.4. Examples of Social Media-Enabled Open Innovation

As was described in the introduction chapter, data collection and analysis for this research and updating the literature review chapter were conducted concurrently. During the empirical field study for the research, a new model of social media-enabled innovation gradually emerged from the research case studies (See the research design and methodology chapter). At this point particularly, the focus switched back to the literature which was being reviewed progressively and interwoven with data collection and analysis, to examine and refine the emergent concepts and thematic structure in the light of the literature (Corbin and Strauss, 2015). Therefore, at this point the researcher brought together common issues and important concepts from the literature, to further complete the empirical findings, and to develop a revised set of key themes.

Evaluations and refinements of the final concepts and themes emergent from the empirical data, and combining them into the emergent model was also significantly influenced by a re-reading of some of the most influential articles in the literature review, in particular Jarvenpaa and Tuunainen (2013) who link customers' socialization to open innovation with social media in Finnair company, Schlagwein and Bjorn-Andersen (2014) who formulated the use of social media for idea generation and co-creation in Lego, and Rehm et al. (2015) and Blohm et al, (2013) who investigated the SMEs' absorption capacity of crowdsourcing data (e.g. MedCorp which is a medium-sized medical device producer). As such, the newly-developed model emerged iteratively from the consideration of the literature review and the themes which emerged from the research case studies. However, although the newly-developed model explores a number of similar broad themes to those identified in the literature (see Figure 25 in the research design and methodology chapter), it adds new insights by exploring further sub-themes within each broad theme, integrating the themes together, and exploring different issues from those investigated in the literature, reflecting differences in the context of the research case studies. This will be discussed in detail in the research design and methodology, as well as the discussion chapters.

As such, due to the importance of the above mentioned published case studies (Lego, MedCorp, and Finnair) in development of the emergent model for this research, these

cases will be briefly described in the following sections, and will later be inked to the newly-developed model of the research in the discussion chapter.

The following sub-section describes the application of open innovation model through social media platforms in Lego as a large B-to-C (business-to-consumer) toy manufacturing organization, and Medcorp; a medium-sized B-to-B (business-to-business) medical device producer; and the way they collaborate with their suppliers, customers, and partners to co-create new ideas and turn them into real-world products.

2.5.4.1 Mini Case 1: Crowdsourcing Innovation – The Case of LEGO

LEGO is a family-owned Danish toy manufacturer headquartered in Billund, Denmark. The company is one of the most popular toy manufacturers worldwide that is well-known for its LEGO bricks which have been produced by the firm since the 1950s. However, the company faced a severe financial crisis in the early 2000s as a result of global changes in the toy market, and also failure of some of its new projects (Robertson and Breen, 2013).

While LEGO had motivated, creative and brand-loyal customers and fans who submitted new design ideas for the company's future products, it had a policy of not accepting external ideas until the early-2000s crisis. By the time the crisis began, the LEGO fans had already created many communication and collaboration channels on social media (e.g. You Tube) through which they presented massive LEGO-related ideas. They were also trying several ways to show their interest to be actively involved in co-creation of LEGO products. For example, in 1998, a group of fans coordinated over the internet and hacked the programming of a chipset of LEGO's robotic set called "LEGO Mindstorm" to improve its functionality. The result of this attack was unexpected for the company, as it improved the entire LEGO Mindstorm functionality, and the change was therefore endorsed by LEGO (Schlagwein and Bjorn-Anderson, 2014).

Hence, LEGO's management gradually recognized the strategic potential of user involvement as an untapped resource for the co-creation of its products. After establishing an exclusive business group to explore the potential of this new opportunity, the company formally developed and presented its crowdsourcing and open innovation strategy. As a result the company introduced its crowdsourcing social media platform, LEGO Cuusoo, in 2011 with partnership of Cuusoo's technology. The platform allowed users to submit LEGO-related ideas which are then evaluated by the crowd and considered by the company for actual implementation (Kiron et al., 2012).

LEGO Cuusoo enabled fans and other users to create a community of practice around users' ideas to turn them into real products. Once a design idea was posted by an individual, other users evaluated the idea using the platform's various options to discuss, comment, and vote on the idea. Thus, the initial idea could be refined and re-submitted several times to receive more support. Each design idea could remain on the platform only for one year during which it can be further revised and receive supports from users via votes. Those ideas that receive 10,000 votes or more from users, are collected and passed to LEGO on a quarterly basis by a team of moderators and community managers that are allocated by the firm to manage the community. The high number of votes for the selected ideas is considered as a market test and an indication of high customer interest in potential products before they are actually developed (Schlagwein and Bjorn-Anderson, 2014).

A panel of internal experts in LEGO including product designers, artwork designers, and finance experts review all new ideas that have met the crowd voting threshold. They look at different aspects of ideas as potential innovation projects and look at the positioning of products in the US, Europe, and Asia. LEGO designers may also refine users' initial ideas to be fitted with their internal capabilities. LEGO then makes its final decision about the winning ideas that should be implemented, and communicates its decision via the Cuusoo community (O'Connell, 2009).

The winning ideas are then listed by the firm as new models and are often developed and introduced to the market in less than six months. This is while the development of internally designed models sometimes took more than two years. The time saved for the co-created products is attributed to the availability of a complete design, market test, and analyses before actual product development. To motivate and recognize creative users, the owners of successful ideas will also receive 1% of the product's revenue and will be recognized by the Cuusoo community (Majchrzak and Malhotra, 2013; Kiron et al., 2012).

There are also some popular crowdsourced ideas that require LEGO to engage in some forms of partnerships with other organizations to be able to turn them into real-world products. For example, the 2012 best-seller crowdsourced LEGO Minecraft product, resulted from the combination of a popular online game (Minecraft) idea with the LEGO bricks. Therefore LEGO had to sign a partnership contract with the Minecraft producer, Mojang, to establish the LEGO Minecraft product line. This partnership later resulted in development of a full range of LEGO Minecraft products. However, LEGO

was not initially even familiar with the Mojang products before reviewing the crowdsourced idea of LEGO Minecraft (Schlagwein and Bjorn-Anderson, 2014).

Schlagwein and Bjorn-Anderson (2014) built on Crossan et al.'s (1999) famous model of organizational learning to explain the innovation process in LEGO. Their model describes crowdsourcing as a learning process that begins from the individual level and then transitions to the group level and the organizational level respectively (Figure 12). Crossan et al.'s (1999) general framework has four stages all of which are undertaken by internal organizational members. However, in Schlagwein and Bjorn-Anderson (2014) version of organizational learning that was conducted based on the LEGO Cuusoo case, the first two stages are crowdsourced via social media. The upward arrows in Figure 12 indicate the flow of ideas from the individual level to the group level and the organizational level, and the downward arrows indicate reactions and feedback attributed to organizational learning and their implications to the lower down levels. The four stages of organizational learning with crowdsourcing are briefly explained bellow.
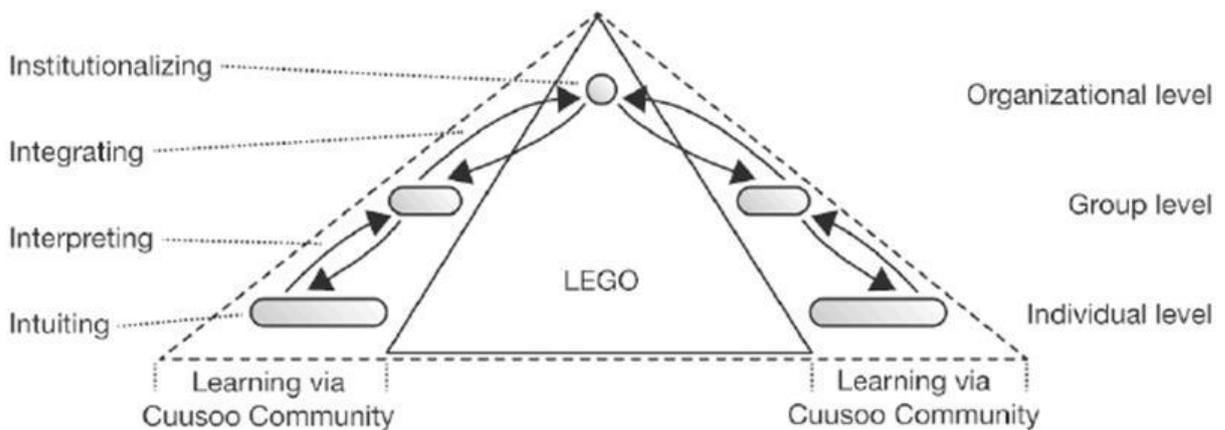
Figure 12: Organizational learning with crowdsourcing at LEGO (Schlagwein and Bjorn-Anderson, 2014 p. 768)

Intuiting in organizational learning: At this stage, individuals propose new ideas based on their personal experience that allow them to recognize new opportunities and patterns (Weick, 1995). This stage includes a divergent process in which individuals with different backgrounds and various knowledge create new ideas through unconventional combinations between previously unrelated contexts and areas of knowledge (Amabile, 1988). Social media helps LEGO to gather more individuals with broader range of backgrounds that results in more combinations of ideas. For example,

LEGO Minecraft idea was proposed by an individual who combined the idea of the Minecraft online game with the traditional LEGO bricks.

Interpreting in organizational learning: Once new ideas were proposed by individuals in the form of texts, photos, and drawings, the community members collectively evaluate, and discuss the ideas. They collaborate with the original submitters to refine their ideas, consolidate different ideas, and finally select the best ones (Whelan et al., 2011; Cropley, 2006). This convergent process is not effectively possible without the use of online tools such as rating scales, votes, comments, and public transparency which are incorporated in social media platforms (Whelan et al., 2011). For example, LEGO Minecraft idea received more than 10,000 votes in only 48 hours after it was uploaded, because users were able to identify its best-seller potential.

Integrating in organizational learning: This step links the external group-level collaborations to the internal, organizational-level implementation. So, the outside ideas and interpretations are reviewed by the internal panel of experts against certain criteria, to decide which idea should be implemented (Whelan et al., 2013). All the required facilities for implementation of the selected idea are planned, and the project is rolled up. LEGO also communicates the outcomes of internal reviews, and its decision making process to the public.

Institutionalizing in organizational learning: Institutionalization in the case of LEGO refers to the knowledge and experience that the organization has gained from engaging in the different stages of crowdsourcing process such as intuiting, interpreting, and integrating (Crossan et al., 1999). This knowledge is institutionalized and stored in the organization's knowledge repositories to leverage LEGO's capabilities for future projects. For example, after the first LEGO Minecraft model, LEGO engaged in long term business partnership with Mojang to develop a full range of products (Schlagwein and Bjorn-Anderson, 2014).

2.5.4.2. Mini Case 2: Open Innovation Network – The Case of Medcorp

Medcorp is an established medium-sized medical device producer based in Czech Republic with customers in over 50 countries. The company's specific expertise is developing therapeutic treatment devices such as several types of stent grafts (e.g. biodegradable stents, gastrointestinal stents, etc.). Medcorp has also a close relationship with important players in the medical device market such as doctors,

surgeons, researchers in the fields of medicine, physics, and material science, and research institutions around the world (Rehm et al., 2015). Large firms in medical device market usually have competitive advantage over their SME competitors, because the process of developing a new medical device is lengthy and requires rigorous examinations, clinical trials, several organizations' approvals, and intellectual property rights protection. Therefore, larger firms with more resources are better able to invest in relatively disruptive and risky medical innovation projects (Bessant et al., 2012).

To compensate for its limited resources and capabilities, Medcorp as a medium-sized enterprise, decided to adopt an open innovation approach and create a medical device innovation network for development of its latest innovation project that was a new generation of stent grafts – "a tube-like product consisting of a textile mesh (graft) stabilized through a metallic wire grid (stent) and used in endovascular surgery to repair aneurysms" (Rehm et al., 2015 p.90) (Figure 13). Medcorp decided to use a new composite consisting of Nitinol, and nickel-titanium in producing the wire grid that gives a significant lifespan and a superior functionality to the product compared to the existing stent grafts in the market (Rehm et al., 2015).
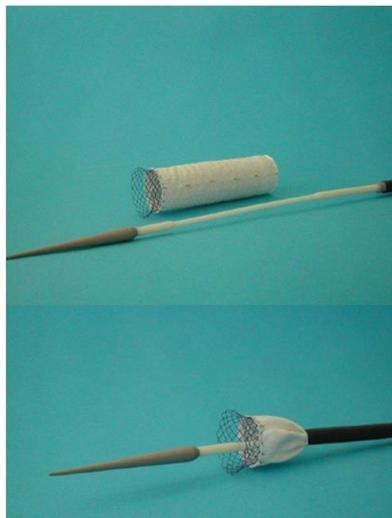
Figure 13: Cardiovascular stent graft with its arrow-shaped delivery system (Rehm et al., 2015 p. 90)

However, given the complexity of cardiovascular stent grafts, multiple specialized firms were required to collaborate with Medcorp to manufacture the different parts of the product. The inter-organizational collaboration was particularly important as the innovative idea in producing the stent graft required massive changes in stent production and machinery process. According to Medcorp's CEO "To make these stent

grafts possible, we had to involve the whole supply chain from raw material to the final product. This is where the innovation network project comes in" (Rehm et al., 2015 p.90). Table 7 shows multiple firms involved in manufacturing of the new stent graft.

Table 7: The medical innovation network (Rehm et al., 2015 p.91)

Player	Core Competency	Contribution to R&D
Medcorp	Medical device manufacturing	Managed the assembly and marketing of the final product and delivery system
Textile manufacturer	Technical textiles	Provided graft manufacturing
Textile processing provider	Textile processing	Provided textile covering for the wire
Processing service provider	Textile machinery	Developed machinery for graft manufacturing
Research service provider	Physics Research (University institute)	Conducted research on the wire base material and functionality of the final product
Consulting service provider	Consulting	Provided technical consulting services
Engineering service provider	Engineering	Provided consulting on innovation management and IT

As such, Medcorp and its partners set up their innovation network with the help of a consulting service provider and an engineering service provider. The consulting firms advised the other firms in the network to adopt an online collaborative work environment (CWE) to facilitate their communication, collaboration and information sharing. CWE was a wiki-based platform that enabled the workflow and project management and could be extended to incorporate other IS tools for supporting specialized practices. Rehm et al (2015) spent three years to study the role of information systems in creating and managing the innovation network between Medcorp and its partners to co-create the new stent graft. They identified three phases in applying the open innovation model. These phases are: *forming the innovation*

network, collaborating in the innovation network, and learning and preparing for the future projects. These are briefly described below.

Phase 1: Forming the innovation network

The forming phase involved identifying the new business opportunity, and systematically identify, and select partners to form the innovation network and to determine the participants' contributions towards the new project (Chesbrough et al., 2013). Due to the complexity of the new stent graft and uncertainties in terms of the new materials, and machinery processes required for the product development, the partners should collaboratively develop ideas and find solutions that integrate their resources and enable them to cooperate as a network to create value and satisfy emerging customer needs (Bullinger et al., 2012).

The use of Nitinol as the base material in producing the wire grid required the collaboration of other partners from the textile industry to develop a specific polyester material that could effectively cover the wire for medical purposes. Having a group of partners with a wide range of backgrounds involved in the project, required them to learn how to speak the same language to fully understand each other and anticipate the complexity of the different aspects of the new project (Rehm et al., 2015).

To address this issue, the partners used an open source software to generate a knowledge map which illustrated the position of each partner in the innovation network. The knowledge map also entailed the type of services and manufacturing capacities that each partner could deliver to successfully develop the new product (Figure 14). The map was then made available to the partners through CWE platform (Rehm et al., 2015).

Since the partners were selected on the basis of their complementary skills and expertise and their capabilities in relevant technologies, they had to adapt to the network and become aware of each other's competencies to be able to collaborate effectively. Therefore the knowledge maps were further completed by adding detail information about partners' expertise and competencies and a set of services that each partner could deliver to the innovation network (Figure 15) (Pavlou and El Sawy, 2006).

Hence, the maps helped to identify knowledge overlaps between partners, and knowledge gaps that may require the involvement of new partners in the project. They also led to identifying the role of each partner in the project development. To expand the influence of knowledge maps, they were also equipped with a shared knowledge

space that was implemented within the CWE. The knowledge space enabled partners to share technical content and other information relevant to the project, and to collaborate on developing ideas and solutions to problems. The space also helped to keep a record of each partner's contributions, and therefore made intellectual property protection easier, and helped in assessing the role of each partner in the entire project (Rehm et al., 2015; Westerman and Curley, 2008).
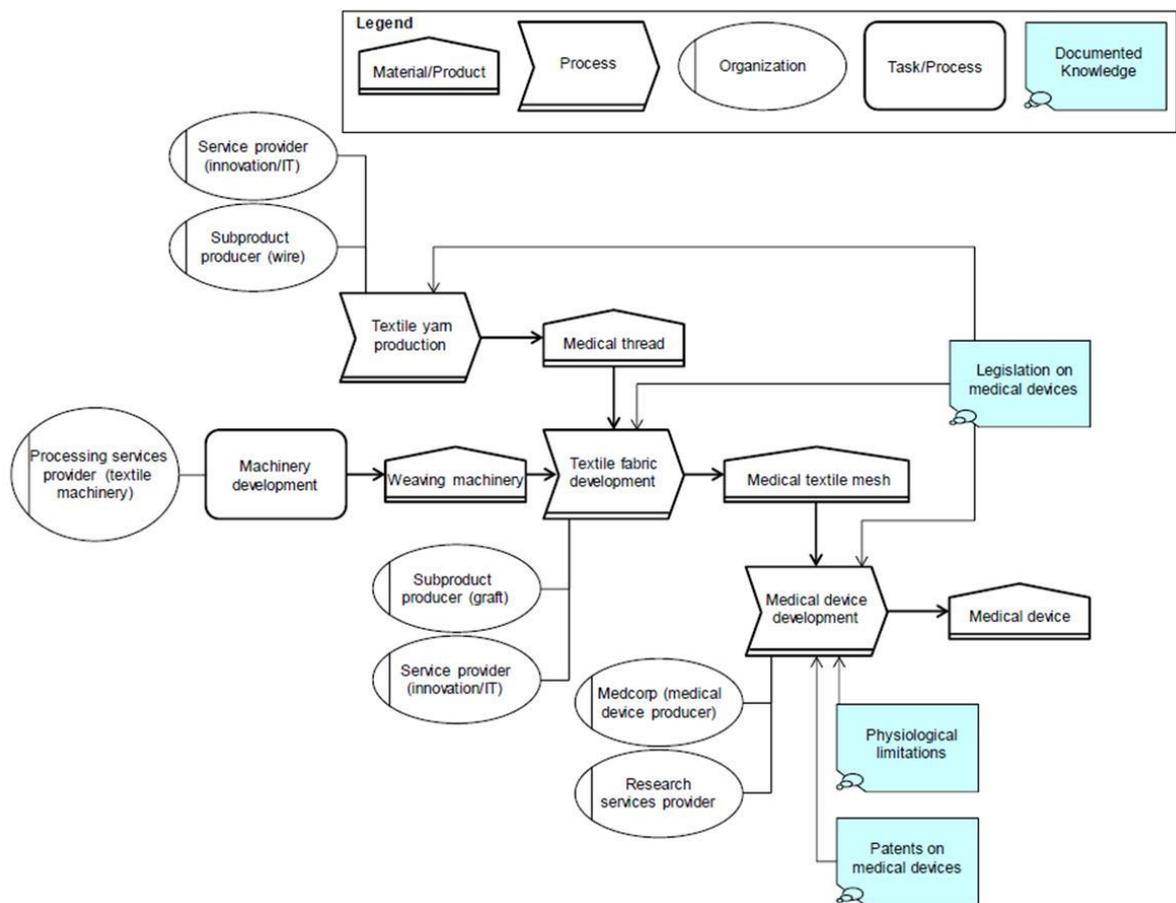
Figure 14: a simplified knowledge map of the medical device innovation network (Rehm et al., 2015 p. 92)
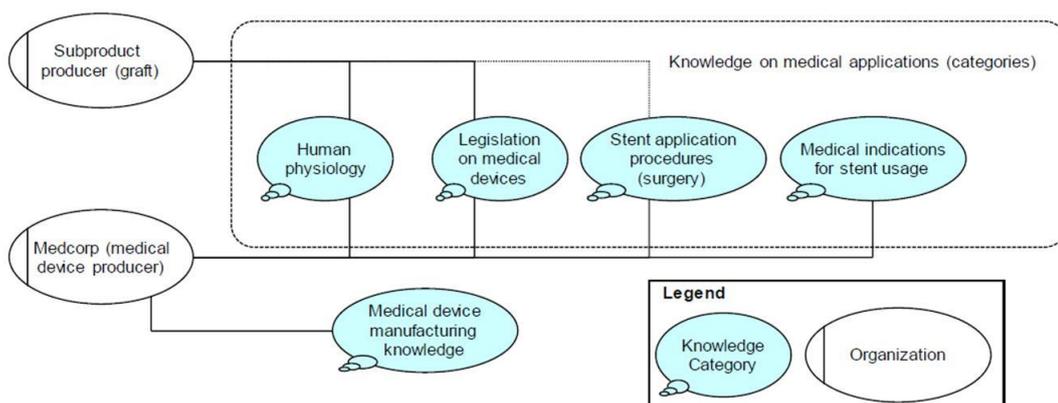
Figure 15: an example of a detailed knowledge map from the medical device innovation network (Rehm et al., 2015 p. 93)

Phase 2: Collaborating in the innovation network

After forming the innovation network, the partners were allocated to several tasks based on their expertise. For example, three SMEs were tasked to provide subparts of graft, wire, and machinery processes. A textile firm was allocated to the overall graft development. Another SME with textile processing expertise was tasked to find a solution for covering the wire. And finally a process engineering company was asked to manage the system engineering. However, managing the collaboration between partners and aligning their contributions with the project's entire objectives was an important challenge. To address this challenge a different set of IS tools was decided to be implemented (Rehm et al., 2015).

First, the partners used the knowledge space and the CWE functionalities to develop a collaborative project management environment. This enabled the participants to jointly manage and align the activities of 15 subprojects, each dedicated to the development of a specific product element. Second, to better harmonize and orchestrate the innovation activities, a new component called "innovation procedure toolkit" (IPT) was added as an extension to the CWE (Ahmed and Shepherd, 2010). The IPT helped to monitor and manage the different stages of product, process and service development, and facilitated the allocation of tasks and deliverables in each stage. The IPT contained several methodologies and reference models that reoriented the project in difficult situations and standardized problem solving and decision making for the network members even in unexpected situations (Figure 16) (Hidalgo and Albors, 2008). This created new collaboration structure between members of the innovation network and further aligned their activities with the progressing project (Evesheim, 2009).

	Encouragement and Creation of Ideas	Product, Process and Service Development			Production and Marketing
	I Creation of Ideas	**II Development First Cycle**	**III Development Second Cycle**	**IV Development Third Cycle**	**V Production and Marketing**
Planning	M1 Encouragement/ Promotion of Ideas Process Step 1.1 Process Step 1.2 Process Step 1.3	M4 Conceptualization Process Step 4.1 (4.2 in progress) (4.3 drafted)	M7 Drafting (7.1 in progress) (7.2 drafted) (7.3 drafted)	M10 Product Planning (10.1 drafted)	M13 Continuous Planning n.n.
Execution	M2 Invention of Ideas Process Step 2.1 Process Step 2.2	M5 Concept Validation Process Step 5.1 (5.2 in progress) (5.3 drafted)	M8 Prototyping (8.1 in progress) (8.2 drafted)	M11 Sample Processing (11.1 drafted) n.n. n.n.	M14 Market Introduction/ NPI (14.1 drafted) n.n.
Control	M3 Ideas Monitoring Process Step 3.1 Process Step 3.2 Process Step 3.3	M6 Concept Evaluation Process Step 6.1 (6.1 in progress)	M9 Prototype Evaluation (9.1 drafted) (9.2 drafted) (9.3 drafted)	M12 Product Test n.n.	M15 Product Success Control (15.1 drafted) n.n.

Figure 16: IPT screenshot (Rehm et al., 2015 p. 95)

Phase 3: Learning and preparing for future projects

The final phase began in the third year after project initiation, when the innovation network had produced a prototype of the new stent graft with acceptable functionality. At this stage the clinical trials for product accreditation was about to begin. However, collaboration for developing the new stent graft leveraged learning and alignment among partners, and encouraged them to form long term partnerships that enabled them to co-create future innovations and open new markets.

2.5.5. Summary: Open Innovation and the Enabling Role of Social Media

Traditional innovation models relied on internal research and development activities, or on collaborations between pre-selected companies with known complementary skills. In contrast, open innovation is a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as they look to advance their technology. This has turned innovation to a user-driven approach that promotes different collaborative activities with the network of external experts, suppliers, knowledge workers, customers, competitors, and other stakeholders. However, open innovation is not a replacement for in-house R&D. Instead, organizations with higher internal R&D capabilities also demonstrate higher

absorptive capacity and are able to better capture the external knowledge and utilize it more effectively for innovation practices.

Web-enabled technologies such as social media platforms have also enabled companies to leverage and enhance collaboration and information sharing between their employees and external stakeholders. Online communities enable stakeholders to contribute to and collaborate on developing new ideas, identify trends, and formulate new concepts and solutions that are aligned with both company and customer needs. Although the majority of firms especially SMEs use social media primarily for marketing purposes, companies with more advance social media focus are moving beyond marketing to use this potential for enhancing activities in other areas of business such as innovation, leadership, and operations management. Social media platforms facilitate collaboration and participation of stakeholders in innovation practices in three ways which are: *crowdsourcing, peer production (open source innovation), and outsourcing.*

The use of social media by organizations also results in communication visibility that improves the metaknowledge (*knowledge of who knows what*, and *who knows whom*) among participants. The improved metaknowledge can increase open innovation and decrease work duplication in organizations. However, companies need to change their ways of working to take the advantage of communication visibility. Hence, they should make a balance between the experiential and vicarious modes of learning in their organization, and also move from the reactive problem solving approach to the proactive aggregation of knowledge that enables them to solve future problems.

Social media platforms enable firms to develop various features that could influence information sharing and information use in virtual environment, and therefore improve the whole process of innovation. Some of these features are: Multiple connection types, content support, digital trace, profile authenticity, network transparency, recommendation engines, content aggregation, and privacy.

Lego has leveraged and enhanced its innovation process through the adoption of a crowdsourcing model that constantly generates many ideas at the individual level, and transfers them to the group level for further refinement, consolidation and evaluation, and finally implement the selected ideas at the organizational level. This model is referred to as the model of organizational learning with crowdsourcing and has four key stages. These stages are: Intuiting in organizational learning, Interpreting in

organizational learning, Integrating in organizational learning, and Institutionalizing in organizational learning**.**

2.6. The Challenges of Social Media-Enabled Open Innovation

2.6.1. Introduction

Companies are adopting open innovation to generate and exploit new ideas beyond their boundaries, and to continually develop customized and differentiated products and services. The use of social media platforms has also enabled firms to improve and enhance their open innovation performance by facilitating access to a wide range of stakeholders with different backgrounds and various knowledge. Social media interactions can also increase the transparency of organizational activities and decision making processes, and therefore can build trust among external stakeholders and encourage them to more actively engage in collaborative activities with the firm. However, despite the companies' interest around using social media, most firms especially SMEs have limited their use of social media to marketing activities, rather than benefit from advance social media capacities to improve the other areas of their business such as innovation, leadership and operations management (Kane, 2015; Burgess et al., 2014; Sigala, 2012). Mandviwalla and Watson (2014) have emphasized that by adopting a clear vision and a long terms social media strategy, firms can also build and improve five types of capital which are: human, social, organizational, economic and symbolic capital. The authors suggest that creating these capitals can ultimately lead to the improvement of open innovation process in an organization.

However, the literature review suggest that firms are facing several challenges for the effective adoption and exploitation of social media platforms to build and leverage the different types of capital, and to improve their strategic activities such as open innovation practices. These challenges are: the lack of an appropriate and long term social media strategy (kane et al., 2014; Jarvenpaa and Tuunainen, 2013), inability to motivate individuals and engage them in effective online conversations and information sharing practices (Jarvenpaa and Tuunainen, 2013; Nambisan and Baron, 2010), and difficulty in the effective exploitation of the acquired data from social media (DiGangi et al., 2015; Blohm et al., 2013). Inability to address these issues not only can affect the firm's efforts to improve its innovation practices, but also could have other negative consequences such as limited individuals' participation and their negative behaviour. Customers who spend time and effort to collaborate with the firm, could also

demonstrate negative behaviour by criticizing the firm and posting unjustified negative comments online, if they are not responded effectively. The viral aspect of online communities means that an organization can easily lose control of negative comments which can cause damage to its brand (DiGangi et al., 2015).

Therefore, this section brings together a variety of literature relevant to the above challenges and their possible solutions. Firstly, having an appropriate strategy for generating capital from social media and for leveraging and sustaining the firm's innovation activities is discussed. Secondly, the literature on individuals' socialization, and engagement in information sharing and idea generation practices is explored. Thirdly, the challenges of absorbing information from social media and its effective utilisation for innovation purposes are reviewed.

2.6.2. Strategy for Generating Capital from Social Media, and Sustaining Innovation Practices

According to Mandviwalla and Watson (2014) organizations can be seen as capital creation and conversion systems that are creating and transforming five basic types of capital. These five types are: human, social, organizational, economic and symbolic capitals (Figure 17). A company may start with a creative idea of a few entrepreneurs (human capital) who have connections with other experts in the field (social capital) and are funded by a group of venture capitalists (economic capital). The entrepreneurs will begin collaboration with other stakeholders to generate efficient operations and inform their innovation practices (organizational capital). They also use their initial capital to build a brand reputation and to market their invented products and services (symbolic capital) (Table 8) (Dean and Kretschmer, 2007). For example, Apple was founded in 1976 by Jobs, Wozniak, and Wayne who had the basic knowledge of developing circuit boards and simple computers (human capital). However, they had valuable connections with experts in the electronics sector (social capital) that could help them to develop their new products. The initial economic and organizational capital for Apple was provided by a venture capitalist who also had enough business experience in the field (Linzmayer, 2004). Finally, the company was able to establish its brand (symbolic capital) and market its products that led to a massive turnover (economic capital). Today, Apple is known as a key generator of economic capital.
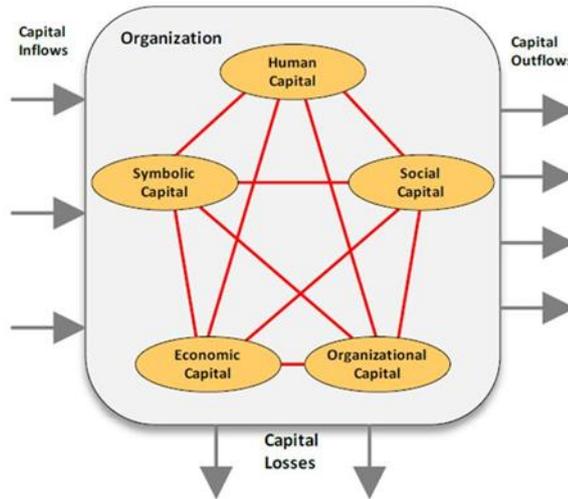
Figure 17: Organization as a capital creation and conversion system (Mandviwalla and Watson, 2014 p.98)

Table 8: Capital Typology (Mandviwalla and Watson, 2014 p. 98)

Type of capital	Definition
Economic	Includes financial, physical and manufactured capital resources
Social	The ability of an individual or group to capitalize on social connections
Symbolic	The amount of honour or prestige possessed within a given social structure
Human	Skills, knowledge and abilities that individuals use to generate income or other useful outputs
Organizational	Institutionalized knowledge stored in databases, routines, patents, manuals and structures

The capital creation and conversion process can also be seen as the organizational value creation cycle that absorbs different types of capital from internal and external sources, and adds to them or convert them from one form to another which finally results in development of new products and services that create value for the firm. For example, a firm receives fund (economic capital) and develops its internal and external innovation network (human and social capitals) to innovate a new product and generate intellectual property (organizational capital). Mandviwalla and Watson (2014)

argue that social media platforms have the sufficient capacity to facilitate capital creation and conversion process in organization, by integrating various internal and external sources of capital creation and by enabling the firm to use this potential for sustaining its innovation process and creating value from the newly developed products and services. In fact, it is argued that social media facilitates four types of relationships or "social flows" inside and outside the firm which leads to capital creation and sustainable innovation. Figure 18 shows that social media channels can create mutual direct communications between organization and external environment (Branding and marketing channel, which creates symbolic and economic capital) and they can also create collaborative approaches through external communities and forums (innovation network, which creates human, social, and organizational capital). The channels can then take the obtained knowledge inside the firm to be evaluated and assembled through the internal community. By doing so, social media can leverage and improve all types of capital in organization, which can ultimately improve and sustain innovation and value creation in organization (Mandviwalla and Watson, 2014).
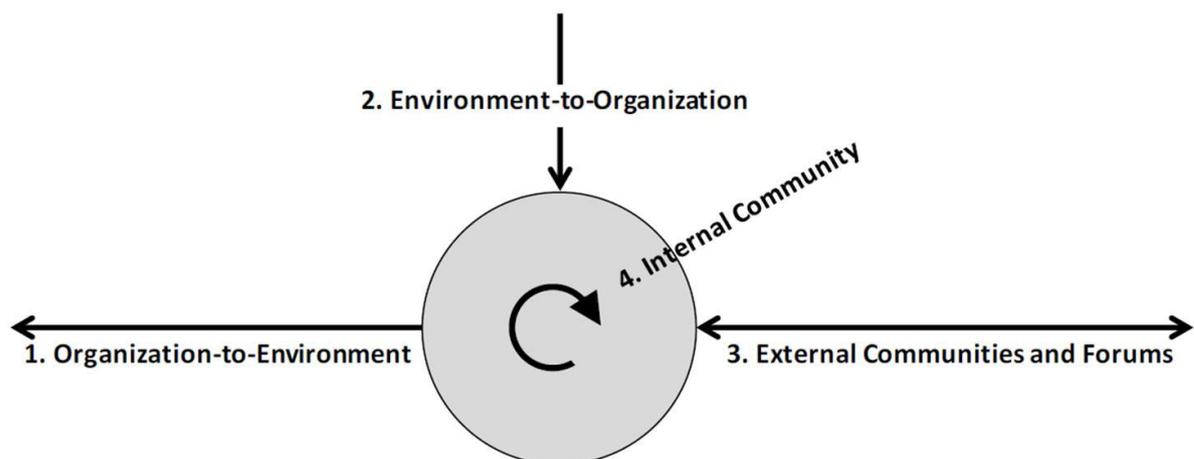
Figure 18: Four types of social flow (Mandviwalla and Watson, 2014 p.99)

For example, social media interactions can internally increase employees' competencies (human capital) by connecting them to one another (social capital) and enable them to become aware of the internal and external knowledge in the field. The knowledge gained from external collaborations also improves internal processes and generates innovations (organizational capital). Externally, social media helps enterprises to widen their network (social capital) by strengthening relationships with key stakeholders, and increase their brand reputation (symbolic capital). Finally the innovation of new products and services can stimulate more sales (economic capital)

which leverages and sustains the innovation process (Mandviwalla and Watson, 2014; Dean and Kretschmer, 2007).

However, to successfully generate different types of capital from social media and to sustain the innovation and value creation process of the firm, an appropriate organizational strategy including clearly-defined capital creation goals and the required social media strategy to reach these goals is necessary. Mandviwalla and Watson (2014) suggest that the overall organizational strategy shapes capital creation goals which in turn drive social media strategy (Figure 19).

Figure 19: Determinants of social media strategy

So, if social media is supposed to inform the overall innovation process of a firm, then it needs to be considered as a substantial tool for capital creation, and therefore it should be incorporated at the heart of the firm's overall strategy. But if social media is only to support basic communications with customers with no intention to support the innovation process, then it can only be part of operational tactics or marketing strategy. The degree of social media importance in the overall organizational strategy and its innovation process, have a significant impact on the way that social media platforms are implemented and managed (Mandviwalla and Watson, 2014; Whelan et al., 2014). This will be further discussed in the subsequent sections of this chapter.

2.6.3. Socializing Individuals for Open Innovation Practices with Social Media

The literature review suggest that most papers that have explored the use of social media by SMEs, have taken individuals' participation in online communities as given, and therefore, have rarely investigated the challenges of socializing individuals in online communities and preparing them for open innovation activities (Lisen and Jarvenpaa, 2016; Burgess et al., 2014; Sigala, 2012). Nambisan and Baron (2010) suggest that to engage individuals in open innovation practices through social media, they need to be socialized and recognized by their peers and feel a sense of

community, understand their role as collaborators, and gain the necessary level and form of engagement. A successful socialization strategy can link personal identities to the company's brand and motivate people to willingly spend their time to collaborate with the firm and its online communities (Porter et al., 2011).

Additionally, an appropriate socialization strategy leads to generating more relevant and meaningful online conversations that could leverage the quality of external contributions (Alexy et al., 2012). It can also mitigate the negative behaviour of unsatisfied customers such as "flaming" and criticizing that can cause irrevocable damage to brands. For example, many of hospitality enterprises have experienced severe problems as a result of receiving negative comments from unsatisfied customers online (Scott and Orlikowski, 2012). To avoid these issues and to promote and sustain online information sharing and idea generation practices, Jarvenpaa and Tuunainen (2013) have suggested a socialization strategy framework including two types of tactics which are: institutionalized and individualized socialization tactics. It is argued that these two tactics together can build and protect individuals' identification and their sense of partnership with the company (Figure 20).
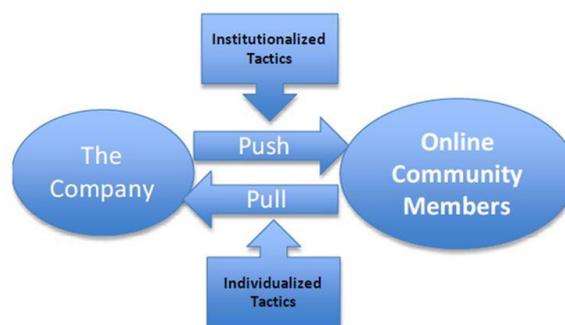
Figure 20: Push of institutionalized and pull of individualized socialization tactics
(Jarvenpaa and Tuunainen, 2013 p.126)

Institutionalized (also known as structured and collective) tactics flow from the company to the online community in a push mode manner and communicate the company's values and goals, the roles of online community members and what is expected of them. These tactics promote direct interaction between the firm and online members through the company's web site or other online platforms (Gilpin, 2010). For example, the firm can communicate directly with members by asking questions and listening to their answers to address its newly encountered problems. As such institutionalized tactics can also lead to experiential learning in organization (Leonardi, 2014). These tactics are more useful when a company creates a new online community

or adopts a new social media platform and therefore, tries to establish its online presence by engaging people in mutual conversations. Hence, the company may peruse more formal relationships and apply a fixed sequence of activities with a defined timetable (e.g. marketing campaigns with start and end dates). At this stage, the community's content are mainly distributed and controlled by the company in predetermined intervals. The company may also involve third-party agents such as salespeople, community managers, or brand ambassadors to create uniform and standardized experiences for individuals that are understood and interpreted by them in the same ways (Jarvenpaa and Tuunainen, 2013). Institutionalized tactics prepare the online members for more informal, unstructured and differentiated activities which are so called individualized tactics.

Individualized tactics operate in a pull mode, and include online tools and management techniques that help the company to gradually relinquish control over the online community and its content to the members. These tactics promote peer-to-peer interactions and information sharing among members, and foster diversity in stakeholders' views about the company and the company's expectations (Jarvenpaa and Tuunainen, 2013). As such, individualized tactics also facilitate vicarious learning by enabling the firm to improve its metaknowledge through watching the members' conversations and store the acquired knowledge for the future use (Leonardi, 2014). This approach allows collaboration in an informal environment (e.g. the company's Facebook page) in which members can play varied roles and can cooperatively address their unique and specific needs without being restricted by predefined time tables or sequences (Treem and Leonardi, 2012). Table 9 summarises the differences between institutionalized and individualized socialization tactics.

Table 9: Socialization tactics to facilitate open innovation (Jarvenpaa and Tuunainen, 2013 p.127)

Dimension	Institutionalized tactics	Individualized tactics
Orientation	Formal, structured, collective, uniform	Informal, unstructured, individually, differentiated, varied
Interaction direction	Direct with the firm	Individual or peer form

Timescale	Known timetable, fixed in sequence	Open timetable, no pre-specified sequence
Boundary-spanning	Socialization agent	(Not applicable)

The literature suggest that a firm can successfully engage people in effective information sharing and idea generation practices, and sustain their contributions, when it adopts both institutionalized and individualized socialization tactics together and integrate them effectively to manage the online community (Jarvenpaa and Tuunainen, 2013; Treem and Leonardi, 2012; Gallaugher and Ransbotham, 2010). The use of institutionalized tactics per se can only increase the reach of the company in the market and initiate basic communications with customers, but could rarely result in collaborative activities. And also using individualized tactics alone without some means of coordination and control could lead to innovative activities that may not appropriately address the company's issues (Jarvenpaa and Tuunainen, 2013).

This thesis emphasizes the importance of having an appropriate socialization strategy for establishing online communities. Next, a mini case about Finnair, a national airline, will be described to illustrate how the two types of socialization tactics can be mixed to motivate online community members to actively engage in innovation of new services that are aligned with both company and customer needs.

2.6.3.1. Mini Case 3: Finnair's Socialization Strategy for Service Innovation

Finnair is the largest airline of Finland and is headquartered in Vantaa with the main hub at Helsinki Airport which provides one of the fastest routes between Europe and Asia. By 2009, the high fixed costs and rigid organizational structures had reduced the company's ability to be agile in responding to the market trends. Moreover, the increased financial pressures and scares resources, and the emergence of low-cost short haul competitors had threatened Finnair's future. As such the company decided to focus its long-term survival strategy on long haul Asian routes, to develop a stronger global presence. However, the Finnair brand was largely unknown in many European and Asian markets such as India, Korea, China, and Japan. Therefore, Finnair's strategic goal was set to renew the brand and systematically co-create its new services with customers. The company adopted a socialization strategy including multiple and repetitive implementations of institutionalized and individualized tactics to achieve its

strategic objectives (Jarvenpaa and Tuunainen, 2013). The social media platforms and socialization initiatives undertaken by Finnair are described below and are also summarised in Figure 21.

Figure 21: Timeline of Finnair's socialization initiatives (Jarvenpaa and Tuunainen, 2013 p.128)

	2009	2010	2011	2012	2013
SMTs Employed	Blogs	Facebook	Blogs, Facebook (Twitter)	Blogs, Twitter, Facebook YouTube, Pinterest	Twitter, Blogs, Facebook
Initiative	Finnair Runway Departure 2093	Support of Customer Interaction	First Quality Hunters Campaign	Quality Hunters Season 2	Quality Hunters 2013
Socialization Tactic	Institutionalized	Institutionalized in structured firm uses; otherwise individualized	Institutionalized	Institutionalized and individualized	Institutionalized and individualized

In the first step, in 2009, Finnair started an online quality campaign by establishing two weblogs to re-new its global brand image. The company adopted institutionalized tactics in managing the blogs, and began with communicating Finnair's high quality values and goals with customers at pre-specified intervals, and through informative content that were contributed from the company towards the community. The main goal of the campaign was to encourage discussion among current and potential customers about the quality of air travel services, and through this, familiarize people with Finnair's new offerings and involve them in the innovation of new services. As a result, more than a million people visited the blogs, and Finnair could renew its brand and create a positive word of mouth and digital footprint in the market (Sandstorm and Russo, 2013). However, the Finnair blogs did not allow users to edit the contributed information and to personally connect and communicate with other members and with Finnair employees. Therefore, these blogs did not generate a sense of community among members and did not lead to mutual conversations and idea generations that could be used in new service innovations (Scott and Orlikowsky, 2012).

In the second step, Finnair launched its official Facebook page and Twitter account in early 2010, through which it relinquished some control to the customers to facilitate customers' interactions with one another and with the firm. Having adopted a mixed institutionalized/individualized tactic, Finnair set up 24/7 hour Facebook services to rapidly answer customers' queries about the flight-relevant issues such as delayed and cancelled flights. It also encouraged employees to engage in informal conversations with users on Facebook and Twitter without a pre-determined timetable and motivate

people to engage in conversations and to support each other. The Facebook page allowed users to share their individualized experiences about travel with Finnair, and at the same time enabled the firm to implement some institutionalized tactics. For example posting product/service development surveys on Facebook, or running idea generation contests relating to the company's new offerings, where the winners could win an airline ticket to their preferred destinations. The real-time communications between customers and the company in an informal and unstructured environment created a sense of community among users and led them to identify themselves with the company. However, although the adoption of both institutionalized and individualized tactics for managing the social media platforms generated more discussions on air travel quality, it didn't lead to innovation of new services, and in many cases it even generated more "likes" on others' posts than contributing actual comments (Jarvenpaa and Tuunainen, 2013).

The company's third social media attempt was called "Quality Hunters" (QH) campaign and was implemented by Finnair in two stages; "Quality Hunters 1" (QH1) and "Quality Hunters 2" (QH2). These two campaigns deployed a more integrated institutionalized/ individualized socialization tactic to span the boundary between the company and online community members, stimulate discussions about the air travel quality and encourage collaborations for generating new service ideas. The QH1 and QH2 were implemented in 2011 and 2012 respectively and each last for a few months. For QH1, four individual applicants, and for QH2 seven individual applicants were hired by the company as socialization agents and were called "independent advisors". These QHs were selected from over 7,300 applicants from 90 countries. They traveled with Finnair to several destinations and shared their thoughts and their air travel experiences with the public through the company's blogs, Facebook page and Twitter account. As such they generated useful conversations with customers about the quality of Finnair services. The discussions addressed several aspects of air travel services such as planning to board, in-flight services, and experiences.

During QH2, some opinion leaders with wide Twitter networks of their own were added to the campaign to more stimulate conversations and idea generation among users. Moreover a social media manager was appointed by the company to encourage the online members and followers, to participate in QH2 discussions. She was also responsible for managing the timetable and sequence of Twitter messages and invited blogs. The QHs campaign significantly increased the level of interactivity among

community members, where they reflected to, and reacted upon discussions and commented on the experiences of both the QHs and their peers. During the campaign, both QHs and community members submitted several new service ideas from which many of them were accepted by Finnair and were decided to be implemented. By the end of QH2, the firm's social media platforms had received 243,000 visits from 190,000 unique visitors and more than 9 million comments and posts about the improvement of air travel services (Jarvenpaa and Tuunainen, 2013).

To sum up, Finnair adopted a combination of institutionalized and individualized socialization tactics, as it examined the use of multiple social media platforms to promote open innovation activities for developing its new services. Whereas the company stayed focus on its long-term goals, it took smaller and more specific steps at a time to reach its ultimate objective. Further, to achieve each business objective, a particular social media platform with certain functionalities was adopted that could best address the company's specific needs. However, building customer identification and sense of community among members, took considerable amount of time and repeated experiments. To build customer identification, Finnair tried to connect members to one another and to the firm by creating a sense of community among members and creating interpersonal relationships between members and employees. The firms' external collaborative activities were also accompanied by internal changes, particularly in terms of having a more open and outward looking culture.

2.6.4. Challenges of Absorbing Data from Social Media

Having built up a successful online community (e.g. LEGO Cuusoo crowdsourcing platform, or Finnair open innovation campaign), and having appropriately socialized online members to participate in open innovation activities with the firm, effectively collecting and exploiting crowdsourced data will be the next important challenge that needs to be addressed (Afuah and Tucci, 2012; Zhao and Zhu, 2012). In particular, the enormous *volume* and *variety* of crowdsourced data, affects appropriate data evaluation, dissemination, and assimilation inside the firm (Blohm et al., 2013) (Figure 22).

Figure 22: Challenges of data absorption from social media (Blohm et al., 2013 p.202)

Volume of data

Various groups of stakeholders and participants in social media interactions can collaboratively generate a large number of data including:

- *Contributions*: ideas, porotypes, business plans, and solutions suggested for the posted tasks or problems.
- *Collaborations*: collective efforts of participants for the evaluation and improvement of individual contributions, including comments, likes, shares and tags (Afuah and Tucci, 2012).
- *Metadata:* This includes the knowledge of who knows what and who knows whom in the network as well as a wide range of data about contributors, such as their personal characteristics, activities, preferences, evolving social networks on the platform, and the quality of their contributions based on their peers' feedback (Treem and leonardi, 2012).

An important challenge of established online communities and crowdsourcing platforms is the enormous volume and significant rate of data generated in them. For example, research shows that the open source software community of an established software development company; AlphaCorp (Pseudonym); generated 8000 contributions during the first weekend after its roll-out (Blohm et al., 2013). Or the Dell's user innovation community (IdeaStorm); generated 6,200 ideas within the first five months of its roll-out (Di Gangi et al., 2010).

Variety of data

To maximize participants' collaboration in open innovation activities, and to stimulate their creativity, firms rarely put a rigid format or structure constraints on people's contributions. Further, the technological limits and inappropriate design or selection of social media platform by the firm, may affect the employees' and users' mutual understanding of shared information and contributed ideas (Denyer et al., 2011). This

may cause posting many ideas and comments that lack enough details and focus, or specificity. In such conditions, many ideas that are based on personal experiences and therefore may include a tacit knowledge dimension are more difficult to express through the online platform (Di Gangi and Wasko, 2009). These issues can result in posting several contributions for a same task or problem with different formats, ranging from text-based solutions to graphic visualizations, and fully developed prototypes (Zhao and Zhu, 2012). This leads to variety of contributions which differ in quality, some of which may be of high value, while others represent average or law value (Jeppesen and Lakhani, 2010). The volume and variety of crowdsourced data cause several challenges for the firm in terms of the effective use of the acquired data from social media for innovation purposes. These challenges are described in the following sections of this chapter.

2.6.4.1. Data Evaluation

For SMEs with scarce resources (e.g. time, budget, and skills), the high volume and variety of data obtained from their online communities complicate idea evaluation. On the one hand, the high volume of data makes its manual evaluation and analyses impossible. On the other hand, variety of data, and limited resources prevent SMEs from automating the evaluation process (Riedl et al., 2013). Moreover, since the evaluation of contributed ideas is mainly based on text mining and other qualitative techniques, the high volume and variety of contributions may further complicate the evaluation process and increase the ambiguity of results especially when contributions are low in quality (Mandviwalla and Watson, 2014). Due to the limited expertise and insufficient background knowledge of SMEs, the evaluation process in these enterprises is often very time-consuming and may fail to evaluate the data in all its richness (Jeppesen and Lakhani, 2010). However, successful SMEs try to overcome these challenges, in part by adopting collaborative evaluation mechanisms, such as asking online members to rate the quality of others' contributions.

While collaborative evaluation has some advantages, it has its own limits as well. First, it requires to incorporate appropriate evaluation tools such as rating scales within the platform. Second, due to the limited time and also random presence of participants (they spend time on social media when they are free), only small number of contributions may be evaluated by them and this can produce highly ambiguous and uncertain results which cannot be relied upon and interpreted clearly (Blohm et al., 2013).

Di Gangi et al. (2010) suggest there are two important challenges in managing users' expectations and realizing value from their contributions. These two challenges that directly result from the high volume and variety of crowdsourced data are: *understanding the ideas posted by users*, and *identifying the best ideas*. These challenges occur when the users' activities exceed the firm's capacity to respond, given the huge number and variety of contributions.

Failing to *understand the ideas posted by users*, can lead to misinterpretation of users' intention and the scope of implementation. This can result in implementing the wrong idea that will not be successful in the market. There are two important factors that influence a firm's ability to understand ideas when the volume and variety of contributions are high. These two factors are *lack of idea detail*, and *communication medium* (Di Gangi et al., 2010).

As discussed earlier in this section, crowdsourcing platforms such as IdeaStorm and LEGO Cuusoo are based on the voluntary time commitment of users to contribute and collaborate on ideas. Many of these ideas result from experiencing problems in the firm's products and services. Therefore, many times users post ideas quickly without supporting them with sufficient details to be understandable by the firm and also by other users (Di Gangi and Wasko, 2009). Moreover, the technological limits or poor platform design related to the communication medium or selecting a wrong social media platform by the firm can further limit an appropriate presentation of ideas and therefore make them difficult to understand and interpret (Denyer et al., 2011).

The second evaluation challenge caused by high volume and variety of contributions is to develop strategies for identifying and selecting the best ideas. Mass collaboration in online communities makes it difficult for companies to absorb all the information contributed by users and to identify the best ideas among thousands of contributions. SMEs in particular have more difficulty to develop capabilities that empower them to analyse and prioritize crowdsourced ideas (e.g. these capabilities should address their historical poverty of the resources required for such analyses), (Blohm et al., 2013). While there is a strong belief that the best ideas will "float to the top" by the community, there are also evidence suggesting that good ideas may remain unnoticed, especially in SMEs, due to their limited resources to review each idea in real time. Three factors can influence a firm's ability to identify the best ideas when the volume and variety of contributions are high. These factors are *idea duplication, minority opinion influence*, and *urgency to respond* (Di Gangi et al., 2010).

Idea duplication: Members of online communities donate their time, energy, and intellectual capital when they collaborate in open innovation activities. However, they cannot be expected to involve in a time-consuming search process to determine whether or not another user has already submitted a similar idea before they submit their own ideas. Moreover, there are users who prefer to post their own ideas rather than to collaborate for improving similar or slightly different ideas that already exist on the platform (Majchrzak and Malhotra, 2013). As a result, duplicate ideas are created which divides the users' votes across similar ideas and make it difficult for a single idea to achieve enough votes to capture attention. This requires the company to continually monitor new posts to make sure duplicate ideas are not created. This takes a lot of time and effort and detracts the firm's attention from identifying and selecting good ideas for implementation (Di Gangi et al., 2010).

 Minority opinion influence: An important issue in online communities is that a small group of participants who share a similar interest could amplify a minority opinion by coordinating with each other and supporting their interest against other individual ideas. These individual biases can influence an idea's outcome by providing the company with false impression which detracts its ability to appropriately assess truly popular ideas that would be successful in the market and should be adopted (Di Gangi and Wasko, 2016).

Urgency to respond: Another factor that influences decision making about the best ideas is the firm's intention to demonstrate that it is listening to online contributors and adopts their proposed ideas. The pressure to give quick respond to users' ideas leads the firm to initially focus on easy and incremental innovation ideas that could be immediately implemented such as minor changes in products and services, rather than adopting radical innovation ideas that are difficult to implement and require more time and resources. This approach can potentially inhibit the firm's ability to stay ahead of market, because it limits the R&D's time and resources for exploring radical innovation ideas that can totally change the firm's products and services (Di Gangi et al., 2010).

2.6.4.2. Data Dissemination and Assimilation

Data dissemination involves transferring external data (including all types of data such as contributions, collaborations and metadata) inside the firm and allocate it to appropriate employees and business units that can harness the acquired data and integrate it with existing knowledge of the firm (Blohm et al., 2013). As mentioned earlier in this chapter, organizational units like R&D department with a high level of absorptive capacity, are likely to better assimilate and integrate the acquired knowledge and use it more effectively for innovating new products and services (Lopez and Esteves, 2013). This is an important step in the absorption of crowdsourced dada, since inappropriate employees or business units may not understand the importance of the data and may simply ignore it. Moreover, due to the variety of crowdsourced data, it might be important for several business units. However, the high volume of the data makes it difficult to allocate it to the business unit that is likely to make the best use of it. Information overload in one specific department can also make employees overwhelmed and reluctant to use the crowdsourced data (Jansen et al., 2005).

Data assimilation refers to the actual transformation of data into valuable information and integrating it with the existing knowledge of the firm. As such, the process transforms crowdsourced data into concepts and business cases that could be commercialized in the market. The promising concepts will then be analysed in terms of technical and economic feasibility, and potential revenue that they can gain for the firm. However, the high volume and variety of online contributions can make the assimilation process lengthy and inaccurate (Von Hippel, 2005).

To deal with online contributions and the associated absorption challenges discussed in this section, firms need to build an absorptive capacity; "the capability to transform crowdsourced data into knowledge and business value" (Blohm et al., 2013 p. 203). As such, absorptive capacity relates to the company's capabilities for evaluating (understanding the posted ideas, and identifying the best ideas), disseminating, and assimilating of crowdsourced data with the purpose of developing new products and services to create business value. The findings chapter shows how the research case studies for this thesis have adopted social media platforms, established online communities, and socialized online members to participate in open innovation practices with the firm. The chapter also shows the way that the case study firms have developed absorptive capacity to collect and exploit information from social media for their innovation practices.

2.6.5. Summary: The Challenges of Social Media-Enabled Open Innovation

Despite the companies' interest around using social media, most firms especially SMEs have limited their use of social media to marketing activities, rather than benefit from advance social media capacities to improve the other areas of their business such as innovation, leadership and operations management. This is due to several challenges that firms are facing for the effective adoption and exploitation of social media platforms for different business purposes. These challenges are: the lack of an appropriate and long term social media strategy, inability to motivate individuals and engage them in effective online conversations and information sharing practices, and difficulty in the effective exploitation of the acquired data from social media.

Organizations can be seen as capital creation and conversion systems that continuously create and transform five basic types of capital. These five types are human, social, organizational, economic and symbolic capitals. Social media interactions can facilitate four types of relationships or "social flows" inside and outside the firm that ultimately improve the capital creation and conversion process, and leverage and sustain the open innovation practices in organization. However, to successfully adopt social media platforms, an appropriate organizational strategy with clearly-defined capital creation goals is required that could determine the role of social media to reach these goals. So, if social media is supposed to inform the overall innovation process of a firm, then it needs to be considered as a substantial tool for capital creation, and therefore it should be incorporated at the heart of the firm's overall strategy. But if social media is only to support basic communications with customers with no intention to support the innovation process, then it can only be part of operational tactics or marketing strategy.

The research suggest that to engage people in ongoing online interactions and idea generation practices, an appropriate socialization strategy including institutionalized and individualized socialization tactics should be adopted. Institutionalized tactics are more structured, formal, and collective approaches that flow from the company toward the online community based on pre-determined activities and timetable to promote direct interactions between the firm and online community members. In contrast, individualized tactics are more informal, unstructured, and user-driven approaches that relinquish control over online interactions to the members, and promote more peer-to-peer interactions and information sharing practices. Lessons learned from large firms such as Finnair suggest that to motivate and sustain information sharing and idea

generation practices with social media, firms should adopt a combination of institutionalized and individualized socialization tactics, and experiment with multiple social media platforms. However, socializing individuals takes repeated experiments, and should be accompanied by internal changes, particularly in terms of having a more open and outward looking culture.

Having built up a successful online community, effectively exploiting crowdsourced data for innovation practices remains a challenge. In particular, the high volume and variety of data acquired from social media inhibit the ability of companies to appropriately understand and evaluate all the ideas posted by users, and to identify the best ideas, which could also affect the dissemination and assimilation of ideas inside the firms. To deal with these issues, firms in general and SMEs in particular need to develop an absorptive capacity; "the capability to transform crowdsourced data into knowledge and business value" which empowers them to evaluate, disseminate, and assimilate crowdsourced data with the purpose of developing new products and services to create business value.

Chapter 3: Research Design and Methodology

3.1. Introduction

This chapter describes the philosophical approach, research design and methodology that have been adopted to address the research questions.

The research questions set for the study are:

How do social media-based interactions influence the innovation practices of small and medium-sized businesses?

> 1.1.   How does social media influence information sharing between small and medium-sized businesses and their external stakeholders?

> 1.2.   How is information from social media used internally by small and medium-sized businesses to support their innovation practices?

Section two describes the researcher's philosophical assumptions about the nature of social reality (ontology) and the nature and purpose of knowledge through which the reality can be known (epistemology) (Burrell and Morgan, 1979). The philosophical assumptions of the research have practical implications for the way the research is undertaken, and guides the choice of research strategy, research design and methods (Morgan and Smircich, 1980). Section three describes the research strategy. It explains the decision to adopt two case studies of UK SMEs active in the fields of education resources development, and legal aid services to conceptualize social media adoption and innovation in organizations. Section four describes the research methods for data collection and analysis used for this thesis. Semi-structured interviews, and netnographic method were used for data collection, and grounded theory approach was adopted for the analysis of data. Section five outlines how the research was done, and data was collected and analyzed based on the grounded theory approach to develop a new theoretical model. Section six then discusses strategies used to ensure the validity and reliability of the research findings as well as to handle ethical issues arising from the research.

3.2. Research Philosophy

Research philosophy reflects the researcher's view about the nature of social reality and how it can be known (Saunders et al., 2009 p. 152). Philosophical assumptions serve as a guide to decide the most appropriate research strategy and methods for conducting a good piece of research. They provide a "rough typology for thinking about

the various views that different social scientists hold about human beings and their world" (Burrell and Morgan, 1980 p.492) that determine different forms of knowledge and theory building (Cunliffe, 2016). The philosophical stance also have a direct impact on the quality criteria for evaluating research, such as its generalizability, credibility, validity, accuracy, reliability, rigor, resonance, and the research contributions (Tracy, 2013; Benton and Craib, 2011; Easterby-Smith et al., 2008).

In general, the ontological position (the nature of reality) of a piece of research can be based upon two major school of thought, objectivism and subjectivism (Benton and Craib, 2011; Easterby Smith et al., 2008; Morgan and Smircich, 1980). In objectivist view, reality is seen as something that is external to individuals, but imposing itself on individuals' behaviour and even determining it. As such, reality is independent from individuals' interactions and presents itself as a phenomenon or entity with concrete structures, events and entities and researchers can study the relationships between these structures, mechanisms and network elements (Cunliffe, 2011; Guba and Lincoln, 1994; Morgan and Smircich; 1980). Such phenomena and objects are observable and durable as they exist over time, and therefore have measurable regularities, patterns and laws that can be studied out of any specific context. These attributes result in generating a knowledge that is generalizable and replicable to various systems, mechanisms, processes, and patterns of behavior (Cunliffe, 2011). As such, objectivist view enables the researcher to improve knowledge by identifying causal mechanisms between variables, meanings and structures in a linear process which is built on past accomplishments and emphasizes accuracy, explanation and prediction. Objectivist research takes a macro-level perspective that enables studying organizations at societal/environmental or structural level and consequently replicating the results to the world to improve it (Pettigrew, 1997).

In contrast, subjectivism has been interpreted by scholars of social science as a "historically, socially, and/or linguistically situated experience; as culturally situated understanding relative to particular contexts, times, places, individuals, and/or groups of people (relationality and durability); where there are truths rather than one truth" (Cunliffe, 2011 p. 656). In fact, the acquired knowledge, understandings, and meanings in this view are constructed through the everyday interactions of people and depend to the time, place and manner in which they are shaped (Cunliffe, 2008). According to the subjectivist assumptions, individuals are autonomous and creative, and give meanings to their surroundings through personal interactions with others and therefore

represent knowledge that is personal and experiential. Hence, research methods in this view, need to explore individual understandings and subjective experiences of the world (Easterby Smith et al., 2008; Morgan and Smircich, 1980).

Therefore, researchers who take a subjective position for their study, try to understand how people experience time, place, and progress through different ways in their day-to-day interactions and practices. The broader view of subjectivism challenges the concrete view of objectivism that leads to generalizability. In fact, subjectivism promotes pluralism in which knowledge is embedded in particular contexts and emphasis is thus placed on situated forms of knowledge and validity (Cunliffe, 2011). Subjectivists justify their view by arguing that individuals constitute and are constituted by their social environment, and each have their own subjective experiences of reality which are situated in a particular context. This influences researchers' observations, interpretations, and research accounts, because they cannot capture all the experiences and stories that are shaped by people in an organization at any one time (Boje, 1995). As such, social realities, knowledge and entities in this approach are not durable, generalizable, replicable, and predictive, but instead they offer contextualized understandings (Benton and Craib, 2011; Easterby Smith et al., 2008).

In sum, by choosing an objectivist approach, researchers mainly focus on structures, actions, behaviors, systems, or processes per se, whereas by choosing a subjectivist approach they focus on how people give meaning to, interact with, and construct their world. Such choices influence the decision on whether to take a quantitative or qualitative methodology, and positivist or interpretive epistemology to structure the research project (Benton and Craib, 2011; Easterby Smith et al., 2008). Epistemology addresses broader and more philosophical issues relating to the nature of knowledge, whereas methodology more considers the method of data collection and analysis used to generate knowledge (Cunliffe, 2002; Boje, 1991).

In general, the epistemological position of a research can be based upon two major approaches, positivism and interpretivism (or social constructionism) (Easterby Smith et al., 2008; Benton and Craib, 2011). Positivism was originated from the natural science field and relies on objectivist ontology and often uses scientific and naturalistic methods to accurately describe and predict the behavior of phenomena (Peter and Olson, 1989). Believing in objectivist assumptions, positivists try to directly measure and observe reality by using data collection methods such as surveys, structured interviews, focus groups, and observations. Thus, they attempt to discover facts and

to code and categorize data to form the basis for generalization and prediction. They often adopt multiple methods of data collection, triangulation, and also member checking to increase the validity and accuracy of their findings (Cunliffe, 2011). Theory building in objectivist-positivist approach takes place through development of testable hypotheses that examine an established theoretical framework under new conditions with the purpose of improving or extending the theory. In positivism, the researcher plays the role of an independent observer, theorizer and predictor of behavior who tries to look at the phenomena from an outside perspective and avoid his or her bias influence the interpretations and findings (Czarniawska, 2009).

In contrast, interpretive (social constructionist) epistemology which relies on subjectivist ontology, explores how people make sense of, interpret, experience, and manage their roles in their social interactions. In other words, social constructionism explores the way people interact creatively and routinely, to shape and enact social realities, actions, and identities in their everyday conversations and actions (Watson, 2001). Therefore, subjectivist-interpretive approach uses methods such as ethnography (observing, participating, listening, asking questions); netnography (ethnography of an online community and culture); unstructured or semi-structured interviews; autobiography; document and content analysis; narrative analysis of talk, media, and texts; and so on; to capture and analyze participants' multiple interpretations and reflections (Charmaz, 2006; Cunliffe, 2002). This approach mainly focuses on people and their multiple perspectives and interpretations of reality such as participants' stories incorporating their feelings and reactions, and similarities and differences, rather than variables and mechanisms, because meanings are contextual, situated and negotiated (Cunliffe, 2011; Charmaz, 2006). Unlike positivist approach, in interpretive studies, it is typical for researchers to position themselves as another interpreting actor who are involved in interpretation and social construction of reality than being only an objective observer. Therefore, subjectivist-interpretive studies are characterized with a bias resulted from involvement of the researcher as an interpreting actor who is inside the study rather than outside. As such, self-reflexivity is one of the most important criteria for evaluating the quality of qualitative-interpretive studies (Tracy, 2013), in which the researcher is encouraged to be frank about the strengths and shortcomings and biases of his or her research and provides adequate self-awareness and self-exposure for the reader to make judgments about his or her point of view (Richardson, 2000). For example, ethnographers should report their own voice in relation to others and explain how they have known what they claim to know (Tracy,

2013). Section six provides details about ensuring the validity, credibility and reliability of interpretive studies and addressing the issues arising from the biases associated with this approach.

The philosophical paradigm that guides this study is subjective-interpretive approach. The reason to adopt this approach for the study was based on two factors. First, the underlying assumptions of this approach are in line with the researcher's personal beliefs. Being an interpretive person, the researcher firmly holds to the importance of capturing people's multiple perspectives and interpretations as they collectively shape social reality which is contextual and relative to particular time, place and group of people. The second reason is related to the focal concept of the research and the questions set to be addressed which concern about the use of social media to mediate information sharing among people, and the use of this information internally by SMEs to develop new innovations that are aligned with both company and customers' needs. The researcher believes that subjective-interpretive approach helps to understand how innovative ideas are emerging in everyday interactions of members of online cultures and communities with one another and with the firm via the use of computer-mediated communications. In this approach empirical reality is seen as a consequence of ongoing interpretations of meaning produced by individuals who are engaged in online communities and the similarities and contrasts between these interpretations (Suddaby, 2006). In fact, this view helps the researcher to explore how social realities (innovations), identities and actions related to a particular time, place and context are socially shaped and interpreted between the members of online communities and cultures through the routine and creative use of language, symbols and texts in their everyday conversations (Kozinets, 2010; Watson, 2001).

3.3. Research Srategy

3.3.1. Introduction

From the outset the intention of the research was to study how people's interactions via social media influence firms' innovation practices, but the precise focus shifted during the course of the research. The initial research plan focused on the use of social media by small firms, but this was abandoned during the primary stages of the research, after several attempts to find small businesses relative to the research topic failed. It was soon identified that small businesses, due to their characteristics of little structure and limited resources (particularly lack of social media experts), rarely use

social media in their day-to-day operations and also as a main channel to inform their innovation activities. Therefore, identifying small firms suitable for the purpose of this research that were also willing to join the study seemed to be very hard and time consuming, if not impossible.

As such the focus of the study moved on to medium-sized businesses. The intention was to explore social media adoption, information sharing and innovation in the context of medium-sized businesses, a context that is less explored from an interdisciplinary (from the social media, and innovation perspectives) approach. Although medium-sized businesses are also characterized with little structure and limited resources, there are more evidence of emerging studies that show a significant shift in the adoption of social media by these firms to address their business objectives (Goldman Sachs, 2016; Rehm et al., 2015; Burgess and Bingley, 2014; Burgess et al., 2014; Kane et al., 2014). However, since the research on the use of social media in SMEs context is still emerging, the findings generally lack theoretical and empirical grounding. Therefore, the intention was to identify medium-sized case studies and examine people's interactions through their social media channels, to develop a new theoretical framework from empirical data that leverages understanding of social media use in the context of SMEs to enhance their innovation practices. Apart from making contribution to the academic theories of social media-enabled innovation, another aim of the research was set to provide a practical solution and useful feedback to the firms participating in the study to inform their social media and innovation strategies.

However, a number of problems emerged relating to this research strategy, the most immediate being that, despite prolonged discussions with a number of medium-sized businesses that were consistent with this research, none were willing to participate. The other problem was insufficient and inadequate social media interactions of some other businesses that were willing to join the study, which made their selection impossible. For example, after months of exploring a number of hotels and hospitality enterprises that were active on TripAdvisor and Booking.com, and a number of entrepreneurs who had built a good reputation on crowdfunding sites such as Kickstarter, it was identified that they are either passive respondents to people's online comments or they are using social media only for limited marketing purposes, and not as a tool to inform their innovation practices.

Having acknowledged that the identification and access to relevant SMEs was a big hurdle of this research, important contacts were made by the lead supervisor with a

number of SMEs and also with social media consultants and experts through his own personal links and contacts. As a result two organizations were selected and agreed to allow the researcher access to their social media channels as well as to their internal key informants. The first organization which constitutes the main case study of the research is an established education resource provider company. It has a unique and successful social media strategy, leading to ongoing co-design of ideas with online members that shape the main foundation for the company's whole innovation processes. The second organization selected for this study is a legal services provider firm that plays the role of a secondary case study to the main case of the research. Apart from having a good reputation as a legal firm, the company has adopted an innovative strategy in using social media to acquire more clients, help them with their legal issues and develop new services through interactions with them. Detailed information about each case and the case study selections are provided in section 3.3.3. The next section describes the use of case study methodology as an appropriate choice of research strategy for the present study.

3.3.2. Case Study Methodology

The adoption of subjective-interpretive approach as the philosophical foundation for the study informed the researcher's choice of design and methodology which also includes the choice of data collection and analysis methods. The use of case study methodology has an established place as one of the most popular research strategies among qualitative researchers (Piekkari et al., 2009). It is also appropriate to use a case study methodology for the present research topic as it can provide a complete and in-depth picture about the topic of interest where "how" or "why" research questions are asked to investigate a contemporary phenomenon within its real-life context, because the boundaries between the phenomenon and the context are not clearly evident and multiple sources of evidence are needed (Yin, 2009; 2003; Robson, 2002 p.178). For the present study, the specific aim is to develop understanding about the impact of using social media on innovation practices from the SMEs perspective. As discussed in chapter 2, social media adoption and innovation practices both are complex concepts, because the social media strategies and purposes, and also the meaning of innovation and its practices differs for different organizations, times, and situations. Therefore, it is quite difficult and less appropriate to investigate such phenomena via a set of pre-specified and controllable variables, which is a common

approach for the researches that are designed based on using experimental techniques and surveys. Moreover, the case study methodology is appropriate choice, as it enables a researcher to examine a small number of selected examples through various types of data collection and analysis methods (Thorpe and Holt, 2007; Hartley, 2004). Therefore, it provides an in-depth understanding of a phenomenon within its real-life context. Other potential methodologies could not serve the research so well to get to the heart of a phenomenon. For example, by conducting a survey of a number of SMEs that are using social media to interact with their customers, a useful overview of the topic might be gained, but would have lacked sufficient details provided by multiple key informants and multiple sources of data to understand phenomena in their particular contexts and the reasons behind different regularities and events (Yin, 2009; Stake, 2006).

While the literature on case studies have generally focused on the methods of data collection and analysis, the ways of theorising from case studies which is heavily relied on the philosophical assumptions of the research is often neglected. Theorising from case studies is based on two important dimensions which are causal explanation and contextualization. The two dimensional views have distinguished three major typologies of theorising from case studies which are based on the works of the famous case study researchers; Kathy Eisenhardt, Robert Yin, and Robert Stake (Welch et al., 2011).

The Eisenhardt's version of case study is built on a "positivist view" of science which aims to develop testable hypotheses and theories that are generalizable across different settings (Eisenhardt, 1989 p.546). Therefore, this view is based upon the methods of natural science such as large-scale sampling and quantitative testing through which the researcher can uncover new regularities or laws of behaviour between variables, and generate theoretical propositions as a natural complement to deductive theory-testing (Eisenhardt and Graebner, 2007; Eisenhardt, 1989; Outhwaite, 1987). Eisenhardt argues that researchers should avoid the "idiosyncratic details of individual cases and conclude with only the relationships that are replicated across most or all of the cases" (Eisenhardt and Graebner, 2007 p.30). Hence, there is a shift in her view of case study from context-related details to context-free propositions (Welch et al., 2011). In other words, Eisenhardt is more interested to examine relationships between variables and constructs to identify generalizable patterns for further testing, than to provide insight into why and how particular

relationships occur. This view is not only in contrast with the notion of contextualization, but it can also be seen as a weak form of causal explanation, because it seeks to establish regularities rather than the reasons behind them (Welch et al., 2011).

Yin (2009) is not opposing the exploratory theory-building use of case studies, but unlike Eisenhardt he does not limit case studies to this early stage in the theorising process. Instead he emphasizes the explanatory nature of case studies rather than exploratory purposes (Welch et al, 2011). In fact, he argues that case studies provide the best tool to examine in-depth "how" and "why" questions by testing cause and effect relationships over time (Yin, 2009 p.9). In Yin's view the "explanatory" nature of case studies is based on deductive logic, in which several propositions are tested, competing explanations are compared, and existing theories are modified and confirmed, and causal explanations are established. In other words, such case study approach is well suited for verification of existing theories rather than discovery of new ones (Yin, 2014). Flyvbjerg (2006, p. 227) goes even beyond, to claim that case studies are ideal for falsification of established theories, which is regarded by Popper as central to theory development. However, Yin (2014) is sharing similar philosophical assumptions with Eisenhardt about issues such as generalizability, validity and reliability of case study research. But he believes in different contribution for the case study research compared to Eisenhardt, which is based on explanatory logic. Therefore, many of procedures that Yin (2009) advocates, such as replication logic, pattern matching and time-series analysis, are rooted in natural experimental techniques (Welch et al., 2011 p. 746). For example, his reply to concerns about the generalizability of case studies is that, similar to the experimental logic, case study findings are generalizable to "theoretical propositions and not to populations" (Yin, 2009 p. 15). So, Yin believes that an appropriate research design and application of proper analytical techniques enable the researcher to develop a set of causal relationships between a range of dependent and independent variables, and isolate them from the broader context of the case. These relationships can then be tested further by other case studies to identify whether or not the causal patterns occur as predicted, just as a theory that is tested and refined by multiple experiments (Yin, 2014; 2009; Welch et al., 2011).

Robert Stake (2006) holds a totally different view towards case studies compared to Eisenhardt and Yin, which resulted from a rich idiographic tradition rather than nomothetic social science, and regards case studies as a form of interpretive sense

making approach. In fact, he favours a social science that seeks to understand particularities rather than causal explanations (Welch et al., 2011; Stake 1995). This view is directly resulted from interpretive epistemology, and emphasizes the uniqueness of each case, in which subjects give meaning to, experience, and interpret their social environment as well as their own behaviour, and researchers are part of the world they study (Stake, 2006). As such, the research findings in this approach, are based on the subjective experience of participants and the researcher (verstehen), and therefore are characterized with inherent biases, and are not generalizable across settings (Stake, 2006; 1995; Johnson and Duberley, 2000). So, Stake distinguishes between case studies that examine cause and effect relationships, and those helping to understand human experience. Lincoln and Guba (1985) argue that case studies can best address the human experience because they enable a rich contextual description essential to understanding. Therefore, given the interpretive philosophical commitment, Stake challenges the positivist assumptions underpinning Eisenhardt's and Yin's case study traditions, such as generalizability, causality and objectivity. He emphasizes particularization as the ultimate goal of case studies that is achieved by understanding the uniqueness of each case. As such, instead of aiming for generalizable explanations, Stake encourages researchers to embrace context, narratives and personal engagement in the research (Stake, 1995 pp.39-40).

To gain an in-depth understanding of the phenomenon and situational human experience, Stake suggests to conduct a single or a few case studies to understand commonalities and differences between contexts. In this view each case is situated to gain understanding of that particular entity as it is situated. Therefore, the phenomenon would be studied in some of its situations. As a result, the complex meaning of the phenomenon would be understood differently and better, because the activities and contexts of cases differ from one another (Stake, 2006). As such, different cases will not be compared in this approach, but they will provide diversified instances to better understand the phenomenon (Stake, 2006).

In adoption of the case study methodology, the present research subscribes mostly to the version put forward by Robert Stake (Stake, 2006; 1995). By conducting interpretive case studies, this research will benefit from emerging and unanticipated interpretations of data that comes from information-rich online communities as well as the key informants inside the firms and results in development of thick descriptions of particular contexts. This also enables an incremental development of a new theoretical

framework emerging from empirical data rather than from sequential, positivist procedures (Suddaby, 2006). Table 10 lists some of the key differences between the three case study approaches.

Table 10: comparing the three major methods of theorising from case studies (Welch et al., 2011 p.745)

Main advocate	Eisenhardt	Yin	Stake
Philosophical orientation	Positivist (empiricist)	Positivist (falsificationist)	Interpretive/constructionist
Nature of research process	Objective search for generalities	Objective search for causes	Subjective search for meaning
Case study outcome	Explanation in the form of testable propositions	Explanation in the form of cause-effect linkages	Understanding of actor's subjective experiences
Strength of case study	Induction	Internal validity	Thick description
Attitude to generalization	Generalization to population	Generalization to theory (analytic generalization)	"Particularization" not generalization
Nature of causality	Regularity model: proposing associations between events (weak form of causality)	Specifying cause and effect relationships (strong form of causality)	Too simplistic and deterministic a concept
Role of context	Contextual description a first step only	Causal relationships are isolated from the context of the case	Contextual description necessary for understanding

3.3.3. Case Study Site Selection

One of the most important and difficult tasks in using case study methodology in the social sciences and human services is the selection of cases to study. The quality and depth of understanding the topic of interest depends on choosing well suited cases (Yin, 2014; Creswell, 2007; Stake, 1995). The famous case study researchers such as Eisenhardt, Yin, and Stake, offer a range of suggestions on how best to identify suitable cases to study. Since the present research has mainly subscribed to Robert Stake's version of interpretive case study, therefore it will more rely on his suggestions for case study site selection.

Stake (2006 p.23) proposes three main criteria as a general rule for selecting the cases:

- Is the case relevant to the research topic?
- Do the cases provide diversity across contexts?
- Do the cases provide good opportunities to learn about complexity of the phenomena and contexts?

To follow the above criteria for case study site selection, it is important to first recognize what concept or idea binds the cases together. Sometimes this concept needs to be targeted to find relevant cases; usually researchers target the phenomenon that provides the binding concept. The selected cases for the study may each have a different relationship with the binding concept. For example some may represent model cases, while others may represent only an incidental relationship. However, in general, those cases will be selected that clearly represent the phenomenon or binding concept (Stake, 2006). In this research the binding concept is "which SMEs can help the researcher to understand how social media interactions influence and possibly enhance firms' innovation practices?" Therefore, in selecting the case studies for the research, the effort was placed to satisfy Stake's criteria which includes the relevance of cases to the research topic, diversity across contexts, and opportunities to maximise what can be learnt about complexity of the phenomenon, for example by choosing two exceptional cases with different characteristics and different social media and innovation strategies.

The two cases chosen for this research however, were not selected as systematically as suggested by Stake (2006). As mentioned earlier, after months of unsuccessful negotiations with a number of small and medium-sized businesses, an important

criteria for selecting the cases was the willingness of relevant medium-sized businesses to grant access, having sufficient and adequate social media interactions, and having prospective key informants willing to open up discussions (Kozinets, 2010; Stake, 1995). However, effort was made to satisfy Stake's criteria in selecting the cases. As such, both cases chosen for the study have similarities and differences: They are almost similar in size and resources, and they both represent successful social media strategies which enhance the firms' innovation practices. They also have major differences, as they represent a diversity of contexts (education resource development, and legal services sectors), culture, procedures, and structure. These similarities and differences between the two cases provide the opportunity to learn about social media-enabled innovations in different environments and from the perspective of people who have different experiences of the phenomenon (Stake, 2006).

The two cases selected for this study have been given pseudonyms in this report to protect the confidentiality of their information and their informants:

UKEducation is a UK-based, medium-sized enterprise (with around 80 staff) that provides printable online education resources primarily for early years students and their teachers. The company has an established social media web presence and communicates with different groups of teachers and parents through the use of a wide range of Facebook groups, Twitter and Instagram accounts, Blogs, and email. The company currently has 186 online Facebook groups that are divided in three major categories based on, the teaching subject and the students' age group (also referred to as the "curriculum groups"), geographical location ("Location based groups"), and wellbeing activities for teachers and parents (referred to as the "wellbeing groups"). Groups are generally created to support ideas and inspiration for professional educational practitioners. Parents looking for support could also join the "Parents' groups" that are designed to assist them with different educational aspects related to their children. Facebook groups are the major source of innovation and resource creation for the company. Collaboration between the company and the groups' members had resulted in co-design of more than 5 million education resources by the time of conducting fieldwork for the present study.

UKLegal is a UK-based medium-sized law firm (with around 120 staff) that makes extensive use of Twitter to communicate with its clients and potential clients and to give them free legal advice. The company has four local offices that are located in

different UK cities and provides legal advice in four major areas of law which are: corporate, property, disputes, and personal. The company occasionally conducts live "Legal Hours" sessions on Twitter on pre-announced topics that enable direct interaction with members of the public who are seeking answers to their legal issues. The most frequently asked questions are collected, categorised and answered by the firm's lawyers and are reflected in the company's free online "Legal Library". By the time of conducting this research, the company's legal library contained more than 10,000 questions and answers. The Twitter sessions help the firm to identify emerging patterns of legal issues and to extend its knowledge that in turn could result in innovating new services aligned with market needs.

3.4. Data Collection and Analysis Methods

3.4.1. Introduction

With reference to the research questions, the underlying philosophical assumptions, and the literature review, netnography and semi-structured interviews were selected as the main methods for developing cases studies of the present research.

Netnography which is also known as "virtual ethnography" or "the application of ethnography to the internet" enables the researcher to study online cultures and communities and to understand naturally occurring interactions among online social groups that shape the reality, through the analysis of computer-mediated communications as a rich source of data (Gebauer et al., 2013). As presented in the literature review chapter, recent netnographies in the online fieldwork (i.e. the case studies of LEGO, Finnair, Dell, Medcorp, etc.) have proven that this methodology also provides a valid framework to study social media-enabled innovation practices (Rehm et al., 2015; Schlagwein and Bjorn-Andersen, 2014; Blohm et al., 2013; Jarvenpaa and Tuunainen, 2013; Di Gangi et al., 2010). Therefore, this research adopts netnography as the preferred methodology to answer the first subsequent research question: How does social media influence information sharing between small and medium-sized businesses and their external stakeholders? The scope of netnographies encompassed a number of UKEducation's Facebook groups, blog posts and chat events, as well as UKLegal's Twitter interactions and blog posts (See following for details).

In order to understand the SMEs' perception about the use of social media to interact with external stakeholders and to acquire their innovative ideas, and to gain an insight

about the use of these ideas internally to support their innovation practices (which constitutes the second subsequent research question), interviews with experts in the fields of social media, online education resources (UKEducation), and legal aid services (UKLegal) have been conducted. Details about the scope of interviews within UKEducation and UKLegal are provided in sections 3.4.3 and 3.5.3. The method of interview is chosen because it allows the researcher to gain a deeper understanding about the topic of interest and how and why the participants hold a particular perception about an issue (Tracy, 2013; Easterby-Smith et al., 2008). Furthermore, interviews represent a popular and a widely used method in social science research, and therefore, many people are familiar and feel comfortable with this approach (Crabtree and Miller, 1999). This helps the researcher by reducing the efforts needed to introduce participants with the commitments and procedures involved in the method and make it easier to gain their informed consent (Easterby-Smith et al., 2008).

As mentioned earlier in regards with conducting interpretive case studies, researchers taking this approach are advised to increase the accuracy of their findings by adopting multiple data collection methods (Charmaz, 2006; Cunliffe, 2002). Hence, the use of netnography and interviews for this study can verify the accuracy of findings, as they help the researcher to capture and analyze both external and internal participants' views, interpretations and reflections about social media adoption and innovation in SMEs.

Assessment and analysis of the data collected from netnographies and interviews in this research is based on the concepts of Grounded Theory. The purpose of this approach is to analyze qualitative data with the aim of developing a new theoretical framework from empirical data without relying on existing established theories (Corbin and Strauss, 2015). Coding and classification of data are key elements of grounded theory through which this study can develop a practical insight and generate a new theory to conceptualize social media-enabled innovation in SMEs (Kozinets, 2002 p.64). However, as Corbin and Strauss (2015 p.52) suggested, once the grounded theoretical analysis has been completed, it makes sense for the researcher to examine their newly developed theory with other theories and literature concepts to be able to improve and refine their theory and to locate it within a larger body of professional analytical knowledge. Therefore, as mentioned in the introduction chapter, this research also considered alternative theoretical frameworks used in the field of information systems management such as Technology Acceptance Model (TAM),

Actor Network Theory (ANT), Structuration Theory, and Activity Theory as overarching frameworks that could potentially add new insights to the emerging model from the grounded theory analysis. As a result, activity theory was selected to be included in the original research design to further complete the emerging model. But this theoretical framework was eliminated from the research later when the emerging model from the grounded theoretical analysis completed, because the author felt that activity theory did not provide new insight to the newly-developed model beyond the main open innovation and social media frameworks. However, this study has also used other relevant concepts from the literature (see the section 2.5.4) to examine and interpret the newly-developed theoretical model and to better explain the relationships between its different components.

3.4.2. Netnography

Netnography is relatively a new online qualitative research method originating in ethnography, which is applied to understand social interactions in the context of online cultures and communities (Kozinets, 1998). This methodology is strongly connected to the work of Robert Kozinets who has defined a specific set of procedures for online participant observation, including online data collection, analysis, research ethics, and representation (Kozinets, 1998).

The hybrid term netnography is resulted from a combination of "internet" or "network" with "ethnography", and is also referred to as "online ethnography" or "virtual ethnography". This approach enables the researcher to systematically analyse virtual communities by accessing their publically available information and their naturally occurring public conversations (Kozinets, 1998; Belz and Baumbach, 2010 p.305). Therefore, this method helps market researchers to extract useful information from online communities such as customer needs, trends, and behaviour. However, netnography which is an interpretive research method also enables the researcher to study online participants while sharing their knowledge and contribute in discussions. This helps the researcher to understand how social media interactions among online community members can influence and create opinions about products and services and how they could influence other users' purchasing decisions (Belz and Baumbach, 2010; Bartl, 2007 pp.83-85). Moreover, Kozinets (2010) adds the assertion that by investigating particular online cultures and communities and interpreting their members' behaviour, new insights can be gained about the ways of generating new product concepts, marketing strategies and campaigns, and advertising strategies.

Kozinets (2010) describes a five-step procedure to conduct a netnography: (1) planning (definition of research, social sites or topics to investigate), (2) entrée (Community identification and selection), (3) gathering data, (4) interpretation of data, (5) writing up the report and adhering to ethical standards (Figure 23). Next, the following steps are described.
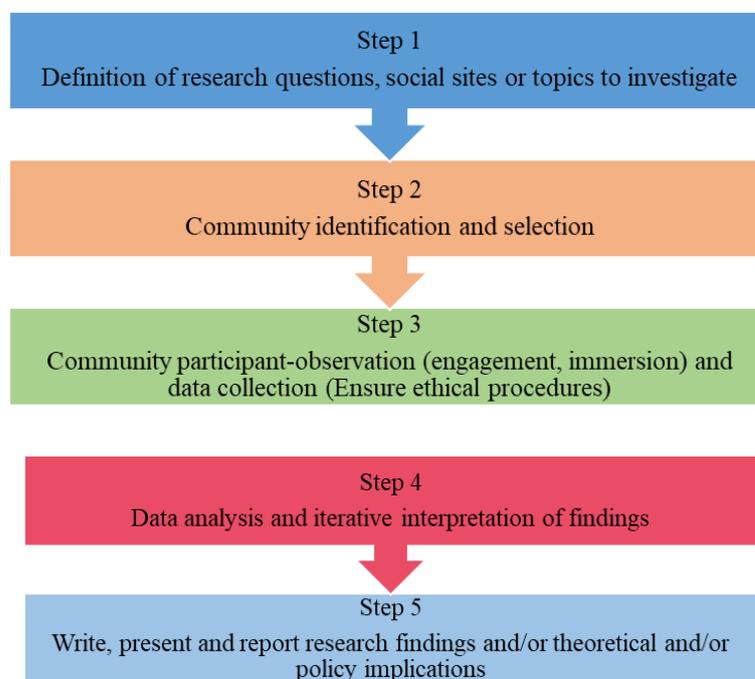
Figure 23: Netnography research (Kozinets, 2010 p.61)

3.4.2.1. Planning and Entree

According to Kozinets (2010; 2002) there are two initial tasks to be undertaken before conducting a netnography. First, is to define an appropriate research question(s) that could help the researcher to identify and select right online communities to study. So, Kozinets (2010) suggests researchers to define open-ended questions. The research questions of this study meet this requirement as they enable the researcher to expand his investigation around the topic to appropriately address the questions.

The second prerequisite is to identify and select appropriate communities that are relevant to the research topic. Once potential communities have been identified, the researcher needs to familiarize him/herself with the chosen communities and their culture, participants, groups, and discussions taking place in them (Kozinets, 2010; 2002). To facilitate this process, Kozinets (2010; 2002) has provided a guideline on how to identify the right online communities. The main communities of interest for this research are three Facebook groups of UKEducation and a Twitter group belonging to

UKLegal. The communities can be evaluated on the basis of six criteria suggested by Kozinets:

1- **Relevant:** the selected groups for this research are directly related to the research topic and questions, supporting creative ideas and inspirations for professional educational practitioners and for new education resources development (UKEducation), or providing support for people's legal enquiries and needs (UKLegal).

2- **Active:** the online communities selected for this study have recent and regular communications occur through hourly/daily postings.

3- **Interactive:** the selected communities all have flow of communications between participants. For example, the members of UKEducation's groups make interesting postings, and like and comment upon others' postings on a regular basis. They share opinions, recommendations, experiences, and pictures of their activities in the class that help to improve the company's existing education resources, or to develop new prototypes.

4- **Substantial:** the selected communities have a critical mass of communicators which give participants an energetic feel. UKEducation, compared to other communities dealing with the topic of online education resources, is one of the biggest. UKLegal, is also one of the very rare law firms that provides free legal advice live on Tweeter which has resulted in an online reputation for the firm compared to other law firms.

5- **Heterogeneous:** both UKEducation and UKLegal have a range of different participants. The three Facebook groups of UKEduaction selected for this research, each represents discussions related to a specific students' age group (UK Education's main FB page, EYFS- Early Years Foundation Stage dedicated to children from birth to 5 years old, and KS3/KS4- Key Stage 3&4 dedicated to pupils aged 11-16). UKLegals' live Twitter hours also are conducted based on pre-announced legal topics in which people with diversified legal issues participate.

6- **Data-rich:** The selected groups offer a rich and detailed, historic and recent conversations between users.

Having followed the Kozinets' suggestions, the following online communities of UKEducation and UKLegal were selected as the venues for the netnography:

UKEducation

The company's main Facebook page (MFBP): This web page constitutes the company's main online communication channel where teachers and parents of different age groups could participate and contribute to discussions about general education topics. By the time of conducting the netnography, this group had more than 243,000 active members. The members post their opinions or questions, articles, pictures of their activities in the class, and "like" and comment on other users' postings on an hourly basis. The group also introduces and reflects the activities and discussions taking place in other UKEducation's Facebook groups (186 specialized groups) that are designed to respond to teachers' and parents' specific needs. In fact, all the other 186 Facebook groups are linked to the main Facebook page. The company also uses the group to communicate future events such as its various chat events on pre-announced specific education topics, or to introduce its newly developed online resources and to invite members to review the resources and comment upon them.

The Early Years Foundation Stage (EYFS): This group is one of the biggest and most successful UKEducation's Facebook groups that has more than 50,000 members, and supports ideas, topics and discussions specific to the needs of early years' students and their teachers. Participants in this group make postings and comments in the form of text, graphic, video or audio onto the "wall", and collaborate to develop new opinions and product concepts, answer each other questions, and refine the company's existing products. These collaborations between members and the company sometimes result in developing new prototypes.

The Key Stage 3 / Key Stage 4 teaching group (KS3/KS4): Like EYFS which supports the early years' specific needs, KS3/KS4 is designed to satisfy the specific needs of Key Stage 3 & 4 students and their teachers. However, this group has only around 500 members and is less successful than the previous two groups. Most of the content in this group are posted by the company-appointed admins, and other members rarely contribute to the discussions and are reluctant to collaborate with their peers. Since KS3/KS4 and EYFS both are created at the same time and are managed by the same team of admins, their netnographic analysis could help the researcher to identify the differences that led to the success of EYFS and failure of KS3/KS4.

Blogs: constitute an important part of the UKEducation's web site, where the company's education consultants and experts develop in-depth discussions about various education topics, the company's existing and prospective education resources, and the future events organized by the company. The discussions are followed and commented upon by various groups of teachers, the Facebook members, and enthusiastic customers. The company has also equipped the website and the blogs with specific functionalities that enable members (who have registered in the website) to further contribute and collaborate in product development, by reviewing and rating the existing resources, and suggesting new resources, for example by uploading their own product designs and prototypes. All the suggestions are added to the UKEducation's bank of ideas and are considered by the product development officers for further development.

Chats: Chat events are conducted regularly, on pre-announced specific topics within a number of the firm's Facebook groups, started primarily with the KS1/KS2 group. Chat events enable direct interactions between the members and the company's experts where they can directly communicate their preferences and ideas on a specific education subject such as the UKEducation's innovations, end of term preparation, SATs SPaG/GPS tests (Grammar and Pronunciation Practice test) and etc. Since during the online fieldwork for this research, the KS1/KS2 chats were popular and well established among teachers, a number of chat events from this group were decided to be analyzed as a part of the netnographic analysis.

UKLegal

Twitter's "Legal Hours": UKLegal makes an extensive use of Twitter to communicate with members of the public who are seeking answers to their legal questions. The company's Twitter account had around 8,500 followers and had tweeted more than 4,800 legal questions with direct links to the answers within the company's free online "Legal Library", by the time of conducting this study. The company occasionally conducts live "Legal Hours" sessions on Twitter on pre-announced topics, and then it collects, categorizes and answers the most frequently asked questions within its online "Legal Library". As a part of the netnography, a number of these "Legal Hours" were investigated and analysed. Table 11 summarises the online communities selected for this research.

Table11: The online communities selected for the netnography

UKEducation		
Community name (Pseudonym)	**Description**	**Number of members/followers**
MFBP	The company's main communication channel, created for general discussions.	243,000
EYFS	Dedicated to specific needs of the early years' students and their teachers	50,000
KS3/KS4	Dedicated to the specific needs of the KS3/KS4 students and their teachers	500
KS1/KS2 chats	Facilitates real-time interactions between the company and the online members on specific education topics	40,000
Blogs	Facilitates in-depth discussions and collaborations about various education topics, and the company's current and prospective education resources	***
UKLegal,		
Twitter's "Legal Hours"	Provides free legal advice live on Twitter on pre-announced topics	8,500

3.4.2.2. Data Collection and Analysis

The data collection and analysis mark the third and fourth stages of a netnography. According to Kozinets (2010), there are two important elements that need to be considered during data collection in online communities. First, the data that can be directly obtained from naturally occurring conversations between participants in online communities. Second, the data that can be collected by the researcher, often in the form of memo writing, through his/her observations of the online community and its participants' behaviour. Here, two distinctive advantages of netnography over traditional ethnography become apparent: the historical data that exists in virtual communities which is easily accessible, and moreover, most information in online communities are automatically transcribed which saves a lot of time for the researcher.

However, these advantages can also cause some challenges for the netnographer, such as the information overload (Kozinets, 2010; 2002).

Kozinets (2010) suggests Grounded Theory as the most appropriate method for analysing netnographic data, which leads to the emergence of codes, categories and concepts through an iterative analysis and coding, and sampling of further data in order to develop conceptual leads (Holton, 2007). *Theoretical sampling* and *comparative analysis* as two critical aspects of Grounded Theory leads the data collection and analysis process, and help the researcher to understand the interrelationship between categories and concepts and to identify the point of saturation to avoid being overloaded by massive information (Corbin and Strauss, 2015). As mentioned earlier, this research has also adopted Grounded Theory procedures for analysing both netnogrpahic and interviews data. Section 3.4.4 describes these procedures in detail.

The netnographic data collection and analysis for this study was conducted in two phases (phase 1 & 3, interspersed by interviews in phase 2) that are explained in the "Research Design" section (section 3.5). During the two phases of netnography approximately 550 posts, more than 2,500 comments, 10 blogs, 10 chat events, and around 500 Tweets from the selected groups and communities were analysed. In between this range, members of the online communities (particularly the UKEducation's groups) shared numerous interesting posts on a daily basis from which the researcher selected and analysed the most interesting ones. The analysis was not limited to textual postings only, and the researcher included pictures as well as shared web links into the analysis. The qualitative data analysis software NVIVO 10 was used for collecting, organizing and analysing the data.

3.4.2.3. Ensuring Ethical Standards in Conducting the Netnography

Kozinets (2010; 2002) advocates to obtain an agreement of the online communities and to adopt rigorous ethical standards for conducting a netnography. In this research therefore, a great emphasis is placed on obtaining the companies' consensus for conducting the netnography of their online communities, particularly because the UKEducation's communities are all closed groups, and only teachers and parents who have become members are allowed to participate. Although the membership in the communities is not a strict procedure and doesn't require specific criteria and is placed only to avoid malpractice, the researcher tried to follow the strict code of ethics

suggested by Kozinets (2010) in conducting the netnography. As such, the following ethical guideline was undertaken:

1- The researcher discussed his research ideas and their implications in meetings with the UKEducation's and the UKLegal's management and gained their consensus for conducting a netnography of their online communities. The researcher also agreed to disclose his presence in the online communities to the admins team, and to inform the intentions and affiliations of his research to the companies' management at any stage.

2- The researcher guaranteed that the collected data will be used properly and only for the purpose of this research. As such, there would be no risk of publishing personal and cultural information of the communities and their participants without their permission. Moreover, both companies participating in this study, and their selected online channels, as well as their online community members have been anonymised in this report so that no connection can be drawn to their real names and identities. The collected data has been only used for this study and is kept confidential on a password protected computer in Leeds University Business School as it is suggested by the University of Leeds Ethics Committee application. This also applies for the data collected from the interviews.

3- While the data collection and analysis was in progress, the researcher presented all his findings and results at different stages to the companies' management, admins and interview participants, and invited their comments, feedback, and possible corrections to ensure that the participants' views are captured and reflected correctly in the report. This process which is so called "member checks" helps to improve and verify the research findings and enables the researcher to ask further questions and to better use data and guides his/her future data collection. As a result the researcher gains deeper understanding of the phenomenon and its meanings. As one of the contributions of this study is to provide useful feedback and practical recommendations to the participating companies to improve their policies and strategies, a copy of the final thesis was also agreed to be made available to the companies.

3.4.3. Semi-Structured Interviews

Interviews are "guided question-answer conversations or an interchange of views between two persons conversing about a theme of mutual interest" (Kvale and Brinkmann, 2009 p.2). However, they differ from other conversations, as they follow a specific structure and purpose (Tracy, 2013). Qualitative interviews facilitate mutual understanding, discovery, reflection and explanation about the topic of interest between interviewer and interviewees in an organic and natural manner. They provide an opportunity for respondents to express their subjectively lived experiences and viewpoints about phenomena and to explain the reasons behind their actions and decisions (Tracy, 2013). Hence, interviews help to develop a deeper understanding about the main topic of interest, through enabling further exploration of complex phenomena, which is not possible to achieve in other qualitative methods (Rubin and Rubin, 2005). The advantage of interviews over other qualitative methods from an interpretive perspective relies in their characteristic of mutually creating a story in which the meaning is created between participants rather than being held in the mind of the interviewer or interviewee and swapped back and forth (Tripp, 1983).

Approximately 90 percent of all social science research rely on interviews (Briggs, 1986). Through interviews, the respondents provide their opinions, motivations, and experiences about an entity or provide information and background on issues in the past that cannot be observed or efficiently accessed (Tracy, 2013 p. 132). They may also help the researcher access information that is left out of formal documents for any reason. Therefore, they provide a thick description and tacit knowledge of the subject matter (Tracy, 2013). Interviews are also widely used for strengthening and completing the data obtained from other methods. For example they provide an opportunity to bring up observations conducted through ethnography or netnography in conversing with interviewees and asking them to verify, refute, defend, or expand particular findings (Tracy, 2013). The interviewer can also encourage respondents to further elaborate on specific issues by asking probing questions. Tracy (2013) argues that the best qualitative interviews go beyond collecting data to interpreting and analysing them within the interview and with collaboration of interviewees.

Semi-structured interviews are adopted as an appropriate method for this research, to provide a rich picture of social media-interactions between firms and their external stakeholders, and the use of information from social media to inform the firms' innovation practices. The approach can encourage respondents to provide their own

interpretation and meaning of their role in social media interactions, and in the use of information from social media. This gives a much deeper and more rounded insight about the research topic that will complete the initial insights gained from the netnography. Semi-structured interviews tend to be flexible and organic in nature in which the researcher enters the conversation with a set of flexible questions and probes that stimulate discussion rather than dictate it (Tracy, 2013). As such the interviews will be more creative, responding to the direction in which interviewees take the interview, and emphasizing significant issues that emerge during the conversations (Bryman, 2001). The interviews for the present research were therefore, semi-structured: a list of broad, and open ended questions was prepared and it was generally followed. However, when new issues arose from respondents, they were explored. The interviews' protocol and questions developed to address the main research questions are described in the Research Design section (section 3.5).

Deciding a sampling plan was another important factor in conducting the interviews for this study. A sampling plan is the design for how to specifically choose respondents for the interviews (Tracy, 2013). Hence, a purposeful sampling approach was adopted for the present study with the intention of interviewing a cross section of those involved in the whole process of social media interactions and innovation practices in the both firms (UKEducation and UKLegal), including people from different departments and those playing different roles within the process. So, the recruitment of interviewees for this study was done with the aim of maximum variation in the sample. This strategy helps the researcher to explore the topic of interest from a wider perspective and to answer the research questions more effectively (Eisenhardt, 1989).

To do so, the first step was to identify the key informants in both firms. This was done during the initial meetings with the UKEducation's and UKLegal's managements. At the initial meetings a list of the main departments and their managers in both firms, that were involved in social media interactions and products (or services) development processes was drawn up. The UKEducation's main departments involved in the process are: the marketing department (responsible for social media interactions), the product development office (responsible for deciding about new resources and creating content for them), The design office (responsible for designing the resources), the illustration office (responsible for creating illustrations required for the resources), the branding office (responsible for assuring that the company's resources are on brand), and the information management office (responsible for the design and

implementation of information systems within the firm). The UKLegal's main departments involved in the process are: the marketing department (responsible for social media interactions), and the services development team (responsible for development of new legal services). As such a list of eight key informants who were the senior officers (or head of the departments) in UKEducation and UKLegal, and were regarded as the most influential players in the process of social media adoption and innovation of the firms was prepared. These people were all contacted by email and they all accepted to participate in the research. During the interviews with these respondents a snowball sampling technique was used to identify and contact additional key informants to participate in the study. As a result ten additional interviewees were added to the list who were all contacted respectively and accepted to participate in the study. The final list included 18 interviewees, at least one key informant from each department in the both firms. All interviews were conducted face-to-face and took place at the venues chosen by the respondents, usually in their office or in the meeting room at their workplace.

Table 12 shows tabulation of interviewees according to their company and their assigned department. The combination of these two attributes was also used to assign an identifier for each interviewee. For the company, the letter 'E' represents UKEducation, and the letter 'L' represents UKLegal. For the UKEducation's departments, the word "Marketing" represents the marketing department, the word "Product" represents the product development office, the word "Design" represents the design office, the word "Illustration" represents the illustration office, the word "Information" represents the information management office, and the word "Brand" represents the branding office. For the UKLegal's departments, also the word "Marketing" represents the marketing department, and the word "services" represents the services department team.

Table 12: Number of respondents based on the company, and department.

Company/ Department	Marketing	Product	Design	Illustration	Information	Branding	Services	Total
UKEducation	5	3	2	1	1	2	-	14
UKLegal	2	-	-	-			2	4
Identifier	E_Marketing1-E_Marketing5 & L_Marketing1&2	E_Product1-E_Product3	E_Design 1&2	E_Illustration1&2	E_Information 1	E_Branding 1&2	E_Services1&2	18

3.4.4. Method of Data Analysis: Grounded Theory

Computer and web-enabled social contexts in which interactions and activities are largely mediated by computers and internet, have increasingly become important settings for information systems scholars to investigate. Participants of various social and business environments have recently become more interested in using computer-supported networks to communicate and to enhance their routine activities (Vaast and Walsham, 2013). For example many people are joining various online forums and communities, social networks (e.g. Facebook, Twitter, LinkedIn, etc.), open-source software communities, and online knowledge networks to work and to collaborate or to find support and develop new relationships (Kozinets, 2010; Vaast, 2007; McLure Wasco and Faraj, 2005;Cross and Sproull, 2004). These examples represent important emerging domains that call for new research because they directly involve the interactions between new computer-based systems and networks, and human and social behaviours (Orlikowski, 2007).

But due to the novelty and originality of these new contexts, information systems researchers often lack existing theories to gain an in-depth understanding of the activities and processes emerging in them (Vaast, and Walsham, 2013). This has led many IS researchers to adopt a grounded theory approach to develop new theories based on their empirical observations from online cultures and communities, and computer-mediated interactions (Kozinets, 2010). This enables IS researchers to also expand their analysis around the strategic areas of the IS discipline such as web-enabled innovation, computer-supported cooperative work, or social media interactions (Kozinets, 2015; Markham and Baym, 2008; Hine, 2000; Orlikowski, 1993). This study therefore, adopts grounded theory as the dominant method for data analysis. But it has not fully subscribed to the rigorous procedures suggested by the main grounded theory developers, Corbin and Strauss (2015), and Glaser and Strauss (1967).So, the present research follows a more flexible version of grounded theory which enables the researcher to also make use of the literature and established theories to develop a more comprehensive theory which gives a rounded view to the research topic (Charmaz, 2006).

Grounded theory was originally developed by Glaser and Strauss (1967) on the basis of interpretivism, as an alternative to positivism. As such, from the grounded theory perspective scientific truth cannot be understood as an independent reality, but rather as a phenomenon emerging from observations in which the meaning is socially

constructed (Bryant and Charmaz, 2007). Therefore, grounded theory was founded to include a set of procedures that help researchers to gradually identify new theories that are deeply grounded in empirical data (Charmaz, 2006; Suddaby, 2006). In fact, this approach lets the data speak first, rather than imposing an established conceptual framework upon it, and lets the new theory emerge from the data and then become refined in several iterations through constant comparison of the data with the emergent coding structure and existing theories (Glaser ad Strauss, 1967). This approach has been so far applied in many qualitative researches in the field of information systems such as those conducted by DA Cunha and Orlikowski (2008), Hara and Hew (2007), O' Mahony and Ferraro (2007), Lee and Cole (2003), Gasson (2003), Orlikowski and Yates (2002), Galal (2001), Orlikowski and Yates (1994), Orlikowski (1993), and Urquhart (1999).

However, since the initial development of grounded theory by Glaser and Strauss (1967), various interpretations and schools of grounded theory have been emerged, each suggesting different procedures for the method. In particular the two divergent interpretations of grounded theory were developed by the two founders of the method (Morse et al., 2009; Charmaz, 2006): Glaser suggested a less structured approach for conducting the method that was based on what he called "theoretical sensitivity" (Suddaby, 2006; Glaser, 1992). And on the other hand, Strauss supported the application of a more structured and systematic approach in data collection and analysis in which the emerging theory is strictly grounded in the data (Corbin and Strauss, 2015). While the two interpretations support different levels of rigor in the application of grounded theory, both involve a highly recursive process in which the data is analyzed and refined gradually, and the theory emerges through several back and forth iterations between empirical observations, the emerging conceptualization, and possible existing theories in the research area (Vaast and Walsham, 2013; Gasson, 2003).

In general grounded theory is based on three key analytical principles, namely theoretical sampling, coding sequence, and constant comparison.

Theoretical sampling:

According to Glaser and Strauss (1967), theoretical sampling is "the process of data collection for generating theory whereby the analyst jointly collects, codes, and analyzes his/her data and decides what data to collect next and where to find them, in

order to develop his/her theory as it emerges. This process of data collection is therefore, controlled by the emerging theory" (p.45). This means that grounded theory researchers continuously refine their observations and align their data collection with the emerging conceptualization from the previous data. For the present research, theoretical sampling was enabled, because the selected online communities provided an archive of previous online communications that were taking place about different topics, and availability of the search function further helped to find the data that could best develop the emerging theory.

Coding sequence:

The coding process is crucial to the grounded theory method as it helps to identify concepts and relationships among them that leads to development of a theory, and addresses the research questions based on empirical findings. Data in grounded theory has to be categorized and interpreted by means of three coding processes: *open coding, axial coding, and selective coding* (Corbin and Strauss, 2015). In open coding, the researcher is breaking down the data into manageable analytical pieces, and assigns these pieces of data to the concepts and categories that best describe the meaning of the data. Axial coding is the process in which the identified codes and categories in the previous stage (open coding) are reviewed, tested and modified against new data. The researcher may add, reduce, and combine the codes as the research progresses, and may also find new relationships between categories that help to explain the activities, decisions, or behaviors and the reasons behind them. This stage is a combination of inductive and deductive thinking. Therefore, at this stage it makes sense for researchers to also compare and examine their emerging theories with concepts and themes that are derived from the literature and with established theories for similarities and differences. This enables them to further improve and complete their emerging theories and to locate their theories within the larger body of professional theoretical knowledge (Corbin and Strauss, 2015; Charmaz, 2006; Glaser and Strauss, 1967). The third stage of the coding process is selective coding, during which all the emergent categories are linked together and unified around one or a few central categories or concepts that are identified during the axial coding. One of the most important tools that helps the researcher with the different stages of coding process to develop a new theory from the data is memo writing and analysis that are made by the researcher additionally to the coding process during different phases of data collection and analysis.

Appendix 3 illustrates a diagrammatic explanation of how social media data, secondary case data, narrative interview data, and the researchers' memos were analysed through the NVIVO software.

Data collection and analysis through various stages of the grounded theory coding is enhancing the credibility and validity of the analyses (Denzin and Lincoln, 2000; Strauss and Corbin, 1998; Miles and Huberman, 1994). Moreover, in the context of web-enabled social interactions this coding sequence is particularly important, because the context is still emerging and under-explored with changing characteristics from one firm to another. As such, due to the lack of familiarity with the research context, grounded researchers avoid the application of pre-determined established categories to their observations in this area.

Constant comparison:

Constant comparison enables the researcher to continuously compare and contrast new and notable observations with previous ones for similarities and differences (Corbin and Strauss, 1990). Corbin also call this an "analytic induction" in which the researcher constantly moves between the data and theory and tests and modifies emerging ideas from the previous iterations of data collection and analysis against ongoing observations (Suddaby, 2006). Therefore, each stage of coding lifts data to a higher level of abstraction and turns subjective experiences of participants into theoretical statements. These statements illuminate the relationships between actors and explain how these interactions construct the reality (Glaser and Strauss, 1967). The interplay between data collection, analysis, category creation, modifications, and refinement of the conceptual structure will continue until additional observations generate fewer and fewer insights (Suddaby, 2006). This is so called the point of saturation. As a result a new theory will emerge which "denotes a set of well-developed categories that are systematically interrelated through statements of relationship to form a theoretical framework that explains some relevant social phenomenon" (Strauss and Corbin, 1998 p.22).

A common misconception about grounded theory requires the researcher not to pay attention to the knowledge of previous studies and even defer reading existing theories until the data collection and analysis are completed. However, Glaser and Strauss (1967) encourage consideration of existing knowledge and theories which stimulate good ideas for developing and completing the emergent coding structure (p.79). But

they prevent researchers from testing existing theories rather than direct observation. They claim that testing pre-existing hypothesis leads to overlook the organic emergence of new theoretical frameworks, because it promotes intended categories used by preconceived structures. As mentioned earlier, this study adopts a more flexible approach of grounded theory in data collection and analysis that also uses the underlying concepts derived from the literature while undertaking coding procedures, to better develop the emergent categories. Section 3.5 describes the sequence of implementation of the research strategy and research methods discussed in sections 3.3 and 3.4, and the emergent coding structure and the new theoretical model developed from the application of grounded theory method.

3.5. Research Design

3.5.1. Introduction

Initial discussions with the companies' senior managers and key informants for each case study took place between June and August 2015. These meetings provided an opportunity for the researcher to discuss his research ideas and its implications, gain an initial impression of the companies' managers, and their agreement for participating in the research. During these discussions, a research design and a timetable were prepared for each of the two companies participating in the study, that were accepted by them to enable the research officially begin. From the outset, the present study intended to adopt an integrated multiphase research design approach, where multiple methods are combined into a comprehensive structure (Creswell and Clark, 2011) to maximize the power of each method in answering the research questions and to also maximize the validity and reliability of the whole research. As such the research design involved three phases (Figure 24) of connected data collection and analysis which are built upon each other to allow an in-depth understanding of the research topic and to ultimately addressing the main research question: *How do social media-based interactions influence the innovation practices of small and medium-sized businesses?*

After the initial meetings with a number of social media experts and admins of online communities in UKEducation and UKLegal, the phase one of the research was designed to include a netnographic study of three Facebook groups (MFBP,EYFS, and KS3/KS4), and a few blog posts of UKEducation, as well as a number of Twitter Legal Hours of UKLegal. This phase was designed to mainly address the first subsequent

research question which is*: How does social media influence information sharing between small and medium-sized businesses and their external stakeholders?* The research for the UKEducation case study was conducted concurrently with the UKLegal. Therefore, the phase one of the research for both case studies was conducted in September 2015 – January 2016.

Phase two was designed to include semi-structured interviews that partly address the first subsequent research question (the hidden aspects of the question that may not be answered through netntography), and mainly address the second subsequent research question: *How is information from social media used internally by small and medium-sized businesses to support their innovation practices?* At the initial meetings, a small number of additional people were identified who could give preliminary perspectives and useful insights about several aspects of social media interactions and innovation practices in the both firms. During the interviews with these people a snowball sampling technique was used to identify and recruit additional informants in each company who further enhanced the insights about the research questions.

Phase three was designed to conduct another round of netnographic studies to evaluate and refine the results of the previous two phases of data collection and analysis. So, the intention of this phase was to further complete and integrate the findings about external processes of social media interactions with the internal developments based on the acquired information from social media. However, the details of this phase was unclear in the outset. During the phase two interviews, it was identified that many critical decisions about creating new online groups and developing new education resources in UKEducation, are made based on the findings of chat events that are regularly taking place through the company's Facebook groups. These chat events are conducted in an advance level, where online members and experienced teachers discuss critical education topics, and collaborate with the firm to develop and implement new opinions and product concepts. After discussing the chat events in the interviews, the researcher was allowed to participate in some of them to capture and analyze their conversations. Therefore, the phase three focused on netnographic analysis of the chat events in UKEducation (the KS1/KS2 group), to evaluate and refine the findings of the previous two phases. UKLegal was exempted from this phase, because the Twitter Legal Hours that were already studied in the phase one, are the only social media interactions that the firm was undertaking to communicate with its clients.
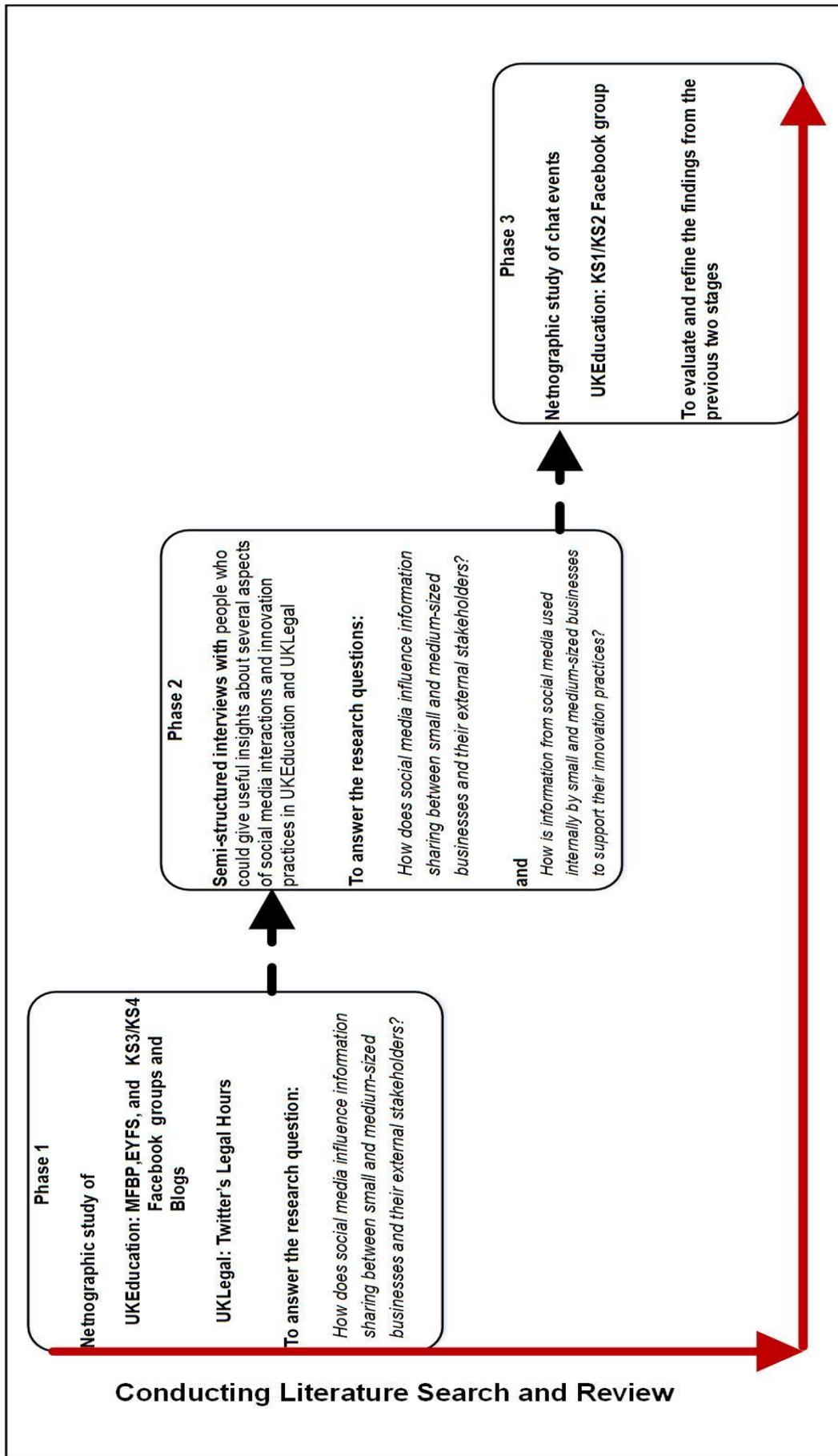
Figure 24: The Research Design

Phase 1

Netnographic study of

UKEducation: MFBP,EYFS, and KS3/KS4 Facebook groups and Blogs

UKLegal: Twitter's Legal Hours

To answer the research question:

How does social media influence information sharing between small and medium-sized businesses and their external stakeholders?

Phase 2

Semi-structured interviews with people who could give useful insights about several aspects of social media interactions and innovation practices in UKEducation and UKLegal

To answer the research questions:

How does social media influence information sharing between small and medium-sized businesses and their external stakeholders?

and

How is information from social media used internally by small and medium-sized businesses to support their innovation practices?

Phase 3

Netnographic study of chat events

UKEducation: KS1/KS2 Facebook group

To evaluate and refine the findings from the previous two stages

Conducting Literature Search and Review

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3.5.2. Phase 1: Netnography of Online Communities

Phase one of the research was undertaken during September 2015-January 2016. The preliminary purpose of this phase was to enable the researcher to learn more about the research subject and the contexts within which the subject is being studied. This was particularly important for the researcher who had little knowledge about the UKEducation's and UKLegal's social media activities and innovation practices prior to the study. Hence, this phase helped the researcher to learn more about the structure, content, and other relevant aspects of social media activities in the both firms. It also enabled the researcher to learn more about the practical application of netnography, including identification and selection of online communities, entrée, data collection and analysis, and the use of NVIVO software for managing and analysing of data. The ultimate purpose of this phase was then set to address the first sub-research question of the study.

Since one way to establish in-depth understanding about the topic is revisiting previous studies conducted in the research area, the literature review for this study was conducted progressively and was interwoven with the three phases of data collection and analysis. Particularly the last two sections of the literature review, were extensively explored during the three phases of data collection, and the research findings in UKEducation and UKLegal guided the literature search and review for these two sections.

The research in this phase focused on the netnography of three Facebook groups (MFBP, EYFS, and KS3/KS4), and a number of blogs of UKEducation, as well as a number of Twitter Legal Hours of UKLegal (see the details in section 3.4.2.1 and table 10). Approximately 550 posts, more than 2,500 comments, 10 blogs, and around 500 Tweets from the selected online groups and communities were collected and analysed in this phase. Moreover, during the initial meetings with the UKEducation's senior managers, the head of marketing department shared an important document with the researcher which is so called "Outside-In Spreadsheet". The outside-in spreadsheet is an Excel spreadsheet where all the ideas, customer needs, and trends identified from the social media interactions are collected, and then transferred to the firm's internal departments for further considerations and developments. The spreadsheet is updated by the Facebook admins on the daily basis and is considered as the main source of innovation for the company. Therefore, in between the netnographic analysis of phase one, the researcher also collected and analysed the related information of the outside-

in spreadsheet between September and October 2015. The analyses of this phase was not limited to textual postings only, and the researcher included pictures as well as shared web links into the analysis. The qualitative data analysis software NVIVO 10 was used for collecting, organizing and analysing the data. Appendix 3 illustrates a diagrammatic explanation of how social media data, secondary case data, narrative interview data, and the researchers' memos were analysed through the NVIVO software.

The research in this phase, generated insight about the research subject, and contexts of the two case studies, including the structure, content and other relevant aspects of their social media activities. However, the initial findings raised even more specific and critical questions such as *what motivates people to engage in social media interactions? How do the companies acquire the external knowledge for their innovations? How are the specific Facebook groups decided to be created? And how are they managed? And how can the social culture of the online communities be understood better?* These questions were partly addressed in this phase, using *theoretical sampling* and *constant comparison* principles of grounded theory approach that help the researcher to jointly collect, code and analyse the data, and to decide what data to collect next and where to find them based on the emergent concepts from the analysis (Corbin and Strauss, 2015). This also paved the way to address an important part of the first sub-research question. However, since a complete answer to this question required additional insight about the hidden aspects of social media activities that were taking place inside the firms, netnogrpahy alone could not fully address the question. Therefore, to completely answer the first sub-research question, the findings of this phase had to be combined with the interviews findings in the phase two.

All the collected data from the netnography were imported into Nvivo software. Using Nvivo, the collected data and the memos written by the researcher during the different stages of the netnography, were coded based on the grounded theory principles. The initial coding process generated a large number of concepts. Most of these concepts emerged from the empirical data, but there were also some other concepts derived from the literature review. Using Nvivo, the large number of concepts were clustered together to generate themes which became sections of the findings chapter (see appendix 3).

The main themes at this stage were:

Community Culture

Motives

Brand Building and Marketing

Information Sharing

Idea Creation and Concept Development

Information Use

Product and Service Development

Tools for Information Sharing and Information Use

Product launch

Value Creation and Sustainability

3.5.3. Phase 2: Interviews

The second phase of the research focused on semi-structured interviews to develop a deeper understanding about social media indications and innovation practices of the case studies. As mentioned earlier, this approach can encourage respondents to provide their own interpretations and meaning of their role that gives a more rounded view and deeper insight about the topic of interest which completes the initial insights gained from the netnopraphy. Hence, a purposeful sampling approach was adopted with the aim of interviewing the most influential players across different departments who are involved in the whole process of social media interactions and innovation practices in UKEducation and UKLegal (Tracy, 2013). This provided maximum variation in the recruitment of interviewees, and resulted in 18 participants being interviewed in this phase, at least one key informant from each department involved in the process, in the both firms (see table 12 for the tabulation of interviewees according to their company and their assigned departments).

The interviews with UKEducation participants took place concurrently with the UKLegal's interviews, between March and June 2016. However, while the data collection and analysis overlapped during each case study, the transcription and coding of the interviews that had started during the interviews period continued for some time afterwards. The research questions, and the emergent concepts and enquiries in phase one, and also the lessons learnt from the literature review, all were used to develop the interview questions for this phase. Whereas the interview

questions for UKEducation and UKLegal followed the same semi-structured protocol, the questions for each company were slightly changed, re-ordered, and re-phrased, to be adjusted with the specific structure, characteristics, and contextual differences of that firm (see below, Table 13& 14). Each interview lasted between 40 and 70 minutes, with average length of 50 minutes.

The interview questions were divided into four sections. In the first section, respondents were asked general questions about their background and their past work experience with social media. Section two explored the social media adoption and its implications to inform the firms' innovation practices. Section three explored the internal use of information from social media to develop new products or services. And finally, section four asked open-ended questions which allowed the interviewees to add more details to their previous responds, or to add comments on possible issues that were not explored during the interview. Appendix 4 shows a sample of the interview transcripts that were conducted with the UKEducation's informants. At the beginning of all interviews a brief introduction was provided to explain the purpose of the study, and to assure participants that their responses would remain confidential, and to also gain their informed consent for conducting the interviews. Appendix 5 shows the participant consent form used for this study.

Table 13: Interview questions for the UKEducation case study
1. **Introduction**   - Could you briefly describe your job role?   - Could you describe your experience with using social media to date?
2. **social media adoption and its implications for the firm's innovation practices**   - Which social media platforms are your teams currently using?   - How are these used internally and externally?   - How have your teams adapted to use social media (i.e. has it offered new ways of working, new training)? Can you give an example?   - How has social media changed UKEducation's interactions with the community of teachers?   - What are the similarities and differences between several UKEducation's FB groups?   - How are these groups shaped and being managed?   - How do the Facebook groups help UKEducation to innovate or improve its products?   - How do you (or your colleagues) identify and select promising ideas from social media communications?   - What other ways except social media are used to obtain this information?

3. Internal use of information from social media to develop new products or services
- How the selected ideas from social media are circulated among internal teams and are decided upon?
- How are the ideas turned into real products?
- How does the company introduce the newly-developed or improved resources to the market?
- Are there any circumstances where popular ideas or important issues discussed in the online groups, not considered and addressed by the company?

4. Ending questions
- What are the critical success factors in the adoption of social media for innovation purposes?
- How do you evaluate your role as a senior manager in this respect?
- Is there anything else you would like to add?

Table 14: Interview questions for the UKLegal case study
1. Introduction
- Could you briefly describe your job role?
- Could you describe your experience with using social media to date?
2. social media adoption and its implications for the firm's innovation practices
- Which social media platforms is your team currently using?
- When and how did you start using these?
- How are these used internally and externally?
- How have your team members adapted to use social media (i.e. has it offered new ways of working, new training)? Can you give an example?
- How has social media changed the UKLegal's interactions with its clients and potential clients?
- How does social media help the company to improve its current services and to innovate new legal services?
- What are the "Twitter's Legal hour" sessions and how do they help the company to identify common legal needs, enquiries, and trends?
- How would you have gained this information prior to the adoption of social media?
- How does the team of your lawyers respond to the questions and issues expressed by people during the "Legal hour" sessions?
- How was the company's "online legal library" shaped and how it is managed now?
3. Internal use of information from social media to develop new products or services
- How do you (or your colleagues) identify and select the more important and demanding legal issues, trends, or services from social media?
- How the new legal services are developed based on the identified legal issues and trends from social media communications?
- How does the company introduce the newly-developed legal services to the market?
- How does the company gain value/revenue from its social media interactions and from the new services that are developed respectively?

- Are there any circumstances where important issues or legal enquiries expressed by the online members, not considered and addressed by the company?
4. Ending questions
- What are the critical success factors in the adoption of social media for innovation purposes?
- How do you evaluate your role as a senior manager in this respect?
- Is there anything else you would like to add?

The analysis of each interview was undertaken immediately after it was conducted. All interviews were audio recorded and transcribed respectively based on the interviewees' verbatim. Little attempt was made by the researcher to modify incomplete sentences or incorrect grammar, used by the participants. So, the researcher adopted Bazeley's (2007) recommendation in maintaining the natural language of interviews while transcribing them. This helped the researcher to capture the interviewees' natural styles of expression. During the interviews with UKEducation's participants, a process map showing the firm's social media activities as well as various activities undertaken by the internal departments to develop new resources, was drawn up based on the interviewees' responses. This process map was also shown to the respondents afterwards, seeking their additional information and comments about the whole process and their own personal role in the fulfilment of different activities. This helped the researcher to take additional notes that further completed the UKEducation's interviews.

After each interview and its related memos and meeting notes were transcribed, they were stored in a Microsoft Word document in a password protected computer in LUBS (Leeds University Business School), and then they were imported into the Nvivo software for coding and analysis (see appendix 3). Using Nvivo, the interviews' transcripts and the meeting notes and memos related to them were coded by a large number of concepts. Although the netnographic analysis in phase one had already created a large number of concepts which were sorted into a number of themes, coding of the interviews in this phase generated several new concepts and themes that were combined with the existing codes to enable the researcher explain several aspects of social media activities, information sharing, information use, and innovation within each case study.

At this point the focus switched back to the literature which was being reviewed progressively and interwoven with data collection, to examine the emergent concepts and thematic structure in the light of the literature (Corbin and Strauss, 2015). As a result, the literature review completely supported and covered the emergent concepts

and findings from the empirical data analysis. Therefore, at this point the researcher brought together common issues and important concepts from the literature, to further complete the empirical findings, and to develop a revised set of key themes. Hence, the emergent concepts and themes resulted from the two phases of data collection and analysis, and their re-examination in the light of the literature review, led to a new set of themes, which also became sections of the findings chapter. These themes are:

Branding and socialization

- Institutionalized tactics
- Individualized tactics

Information sharing

- Idea generation and co-creation
- Information aggregation

Information use

- Information absorption
- New product (or service) development

Maturity

- Product (or service) launch
- Sustainability of the process

In the new thematic structure, all the emergent concepts were grouped together into four key themes, each consisting of two main sub-themes. The *community culture, motives, and brand building and marketing* themes identified during the phase one of the analysis, were all combined together and created the new theme, *Branding and Socialization,* which particularly focused on two different types of socialization: *institutionalized and individualized tactics*. The theme *Idea Creation and Concept Development* which had already been recognized was re-phrased to *Idea Generation and Co-creation*, and was added to a new sub-theme, *Information aggregation,* and both were grouped under the *Information sharing*. The *Product and Service Development* and *Tools for information sharing and information use,* identified in the phase one, were combined into the theme, *Information use*, which included two sub-themes, *Information absorption* and *new product (or service) development*. And finally the *product launch,* identified in the phase one, was brought under *Maturity* which also included a new sub-theme of *sustainability of the process*.

3.5.4. Phase 3: Netnography of Chat Events

This phase focused on the netnographic study of 10 chat sessions undertaken in KS1/KS2, one of the UKEducation's popular Facebook groups. This phase was designed to evaluate and refine the findings of the previous two phases of data collection and analysis. The UKEducation's chat events are regularly taking place, each lasting for one hour and focused on a pre-announced specific education topic. All the conversations taken place during the selected chat events was captured by the researcher, as a result of his personal participation in the sessions, or his access to the group's archive. The researcher's participation in the chat sessions did not entail contributing to discussions, and the researcher only observed and collected data during the sessions.

After capturing the chat sessions, they were copied into Nvivo and were coded respectively according to the large number of concepts that had already been created, and which by now were sorted into the main themes that had been emerged during the previous two phases of data collection and analysis. All the previously-identified themes and concepts continued to seem relevant to the collected data in this phase, and the netnographic observations of chats didn't generate a further insight or change in the existing themes. The four key themes and their sub-themes and concepts developed in the previous two phases was continuing as the most important themes, and in particular the *information sharing* and *information use* seemed to be the core themes that had the potential to bring together all the other themes and concepts and to integrate them into a new model.

While the coding of the data in the phase one was happening, a preliminary model of social media adoption and innovation started to be developed incrementally, which was established at the end of phase two, drawing on the case studies' analyses and findings, and the reviewed literature (Figure 25).
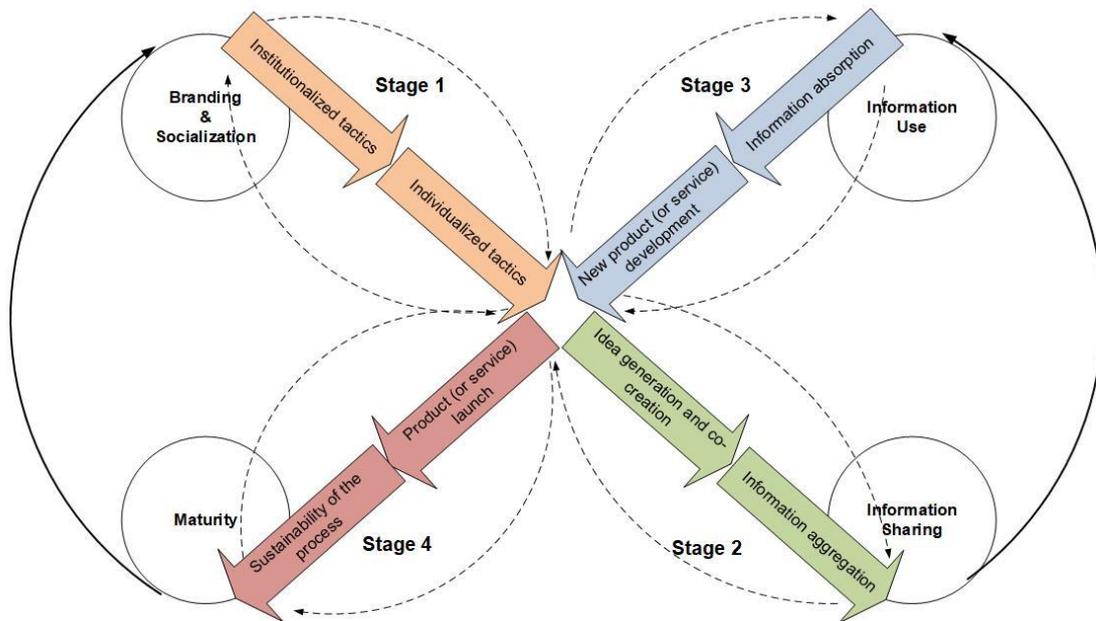
Figure 25: Social media-enabled innovation model emerged from the empirical analysis

The model will be explained in detail in the Discussion Chapter, but it is shown here to illustrate that it has resulted from the analysis and coding of the empirical data. Evaluations and refinements of the final concepts and themes emergent from the empirical data, and combining themes into the above integrated model was also significantly influenced by a re-reading of some of the most influential articles in the literature review, in particular Jarvenpaa and Tuunainen (2013) which links customers' socialization to open innovation with social media, Schlagwein and Bjorn-Andersen (2014) who formulated the use of social media for idea generation and co-creation in Lego, and Blohm et al. (2013) who investigated the firms' absorption capacity of crowdsourcing data.

3.6. Reliability and Validity

One of the most important criteria of validity in qualitative research is the researcher's self-reflexivity, which means that the researcher should consider the honesty and authenticity with him/herself, and with the audience in terms of the research that is undertaken (Tracy, 2013). It is important to remain reflexive throughout the whole research process. This requires researchers to be aware of how their role and nature of their involvement in the research could shape the findings (King and Horrocks, 2010). This is particularly important for the qualitative studies that are conducted under the subjective-interpretive paradigm, as these studies are involved with some degrees of inherent biases, because of the role of researchers in these studies, who act as another informant that are part of the world they study (Stake, 2006). However, a

number of strategies were adopted in this research to minimize the bias in the analyses and interpretation of data, and to increase the validity and reliability of the findings. These strategies are presented in this section.

Triangulation: refers to a powerful technique that facilitates validation of data through cross verifications from multiple resources, and through the application and combination of diversified research methods in the study of the same phenomenon (Bogdan and Biklen, 2006). According to Stake (1995), gathering data through different methods offers the possibility of methodological triangulation, and helps the researcher to minimise misrepresentation, reduce misunderstanding, and build increased confidence in the interpretation of the research findings. Hence, to achieve triangulation, this study adopted three phases of data collection and analysis to obtain data from two companies and their external stakeholders through different methods namely, the netnography of the firms' online communities, semi-structured interviews and the netnogrpahy of chat events. Apart from this, the researcher also collected and analysed the documents such as the "outside-in spreadsheet" that the firms (particularly UKEducation) provided to him. Moreover, the adoption of grounded theory approach and its key constituents; *theoretical sampling* and *constant comparison*; in data collection and analysis enabled the researcher to constantly move between the data and the emerging ideas and patterns and to test and verify the ideas iteratively through ongoing observations, until additional observations didn't generate new insights, and the saturation point was achieved. This strategy which has been described in section 3.4.4., further increased reliability and validity of the present study.

Member checking: One of the main critiques of qualitative research in general and the subjective-interpretive school of thought in particular is that they are open for the researcher's biased interpretation, and his/her personal believes and assumptions could affect the way the research findings shape. In response, famous interpretive researchers such as Tracy (2013); Cunliffe (2011); Buchanan and Bryman (2007); Charmaz (2006); Alvesson and Karreman (2000); Burrell and Morgan (1979), argue that the researcher's bias is an inherent part of the subjective-interpretive research which is resulted from positioning the researcher as another interpreting actor whose voice is clearly in the research, rather than an objective observer. However, apart from triangulation, another strategy that could minimize bias and increase the validity and reliability of the research is member checking that enables the researcher to check the reliability and consistency of their findings with key informants and participants (Gibbs

et al., 2011; Silverman, 2010). For the present study, the researcher presented all his findings at different stages to the UKEducation's and UKLegal's key informants during the interviews and several subsequent meetings, and used their comments and feedback to improve and refine the results. For example, as mentioned earlier, during the interviews with UKEducation's participants, a process map of the firm's social media and innovation activities was drawn up. This process map was shown to the respondents and their comments about the whole process and their own role in the fulfilment of activities was taken, which helped to further enhance the consistency of the findings.

Audit trail: An audit trail is a transparent description of the research steps and its analytical process including all the steps and decisions taken from the start of a research project to the development and reporting of findings (Lincoln and Guba, 1985). Audit trail is often kept in the form of records that clearly show what was done and how investigations were performed during the course of a research. For the present study, a research diary was created to capture all details of the research journey such as the researcher's feelings, assumptions, new ideas, hunches and other observations that happened during the different phases of the research (Corbin and Strauss, 2015). All the notes and entries in the research diary that are so called "memos" were reviewed several times by the researcher as the research was in progress. The most important memos were also imported into NVIVO, using the software's memo tool. These memos were analysed and coded concurrently with the other data and in many cases helped the researcher to better interpret the meanings of the emergent concepts and the relationship between them. Moreover, the NVIVO project was saved under a different name after each phase of data collection and analysis. This resulted in having multiple versions of the project which helped the researcher to better capture the evolution of the research project and reflect on the entire analysis and changes made to the coding structure.

Chapter 4: Findings

Within each of the cases, data from netnography and analysis of the interview transcripts were brought together to write a case narrative which describes the detailed research findings from that particular case (Stake, 2006). Each case narrative is anonymised and discussed as a separate part in this chapter.

Part 1: UKEducation

4.1.1. Introduction: UKEducation

UKEducation is a UK-based, medium-sized enterprise (with around 80 staff) that provides printable online education resources primarily for early years students and their teachers. The company has an established social media web presence and communicates with different groups of teachers and parents through Facebook, Twitter, Instagram, Blogs, and email (see the sections 3.3.3, 3.4.2.1, and 3.4.3 for details). By the time the field study was in progress (January 2016), the company had 36 Facebook groups mainly targeting students of different ages, and their curriculum-based education topics within UK and also international market. However, the company has currently increased the number of these online groups to 186. This shows the importance of social media interactions within the company's broader strategy, and the success of its social media initiatives, particularly to enhance collaboration between the community of teachers to help and support each other and to co-design new solutions for different education and teaching-related issues. The company's Facebook groups are divided in three major categories based on, *the teaching subjects and the students' age groups* (also referred to as the "curriculum groups")*, geographical location* ("Location based groups"), and *wellbeing activities to help teachers and parents* having a healthy lifestyle (referred to as the "wellbeing groups"). Groups are created to support ideas and inspiration for professional educational practitioners, and also to provide the major source ideation for the company to inform its innovation and resource creation practices. Collaboration between the company and the groups' members had resulted in co-design of more than 5 million education resources by the time of conducting fieldwork for the present study. These resources cover various education topics for different students' age groups such as EYFS, KS1/KS2, KS3/KS4, and etc.

The research explored four online communities of UKEducation:

(i)   the company's Main Facebook Page (MFBP) which is created for general teaching-related discussions,

(ii)   EYFS (The Early Years Foundation Stage) which is created to address specific needs of the early years' students and their teachers,

(iii)   KS3/KS4 (Key Stage 3 and 4) to investigate the needs of KS3/KS4 teachers and students,

(iv)   And the chat sessions between the KS1/KS2 (Key Stage 1 and 2) teachers and the company (see table 10 from the previous chapter for more details).

The research also included interviews with the key informants of the main departments involved in social media interactions and product development processes of the firm. This included 14 people from 6 key departments (as described in Table 12, section 3.4.3):

4.1.2. Motives for Social Media Activities

There are a number of motives for UKEducation to engage in social media interactions with teachers through its multiple online communities. These motives are: brand building, idea generation and innovation, various characteristics of social media platforms, dealing with niche groups and their needs, international growth, employees' background and personal motives, and revenue generation.

4.1.2.1. Brand Building

The first motive for the company has been to create and establish its brand within the UK and international market as a knowledge-intensive firm that provides the opportunity for teachers and parents to learn from each other; to share their information, knowledge and expertise, and to exchange their ideas and problems with their peers in a supportive and friendly environment. The company's various online communities support teachers, save their time, and reduce their work pressure through different ways and put them in touch with other sources of support.

> *I guess there are a number of motives: one is to build the brand… So, it's to get people seeing it, noticing it, so that we can build trust and setting a sort of vision of a leader… that helps people by placing information. So, we use these platforms as a way to save people's time, to help them with the work-life balance. So, if they don't know something, they don't have to search internet for the information… They know they can come to UKEducation's groups and find whatever they need. They don't have to make resources themselves. Or they*

can ask their questions in the groups or on Twitter, and we can help them. So, yes, it's just the out way of trying to help people with their difficult jobs. (E_Marketing1)

For E_Marketing3, online groups provide an opportunity to show the company's supportive voice and caring culture, and thus teachers often find the groups' conversations even more beneficial to their career than the regular staff meetings or management meetings in their schools. During the chat sessions, teachers explained that in many ways online communities were more beneficial to them as they contain more professional conversations that are focused on developing their skills, which cannot be achieved easily in school or through other teachers' communities.

I mean because I'm a teacher, I can use the information from social media for content ideas, and to see what's happening out there… and by looking at conversations I can notice things. So, for example people come to the groups and say: ah, I have to mark books tonight, and it can take me an hour and half. So, I think what we can do to help people save time with marking. So, I might come up with an idea of having a lot of stickers that we can just print off, and put them in the books instead of having to physically write. (E_Marketing3)

According to E_Marketing1 these stickers received 25K clicks in the first two hours after they were launched through the company's website. This is an example of a resource that was developed directly from an idea in the Facebook groups to help teachers with marking.

Something totally different (the marking stickers) that no-one else is doing. There are a lot of other ideas that have come from the groups including the EYFS templates, nearly all the childminder resources, the TA packs and etc. (E_Marketing1)

Or when I'm seeing a lot of people complaining about "I've got job interview and I don't know the questions that I might be asked in the interview". So, I can then create content for job interviews. So, I think the way that I'm physically doing it is I am just looking and reading through online conversations day after day after day, and I'm noticing concepts and writing it down, and thinking of ideas all the time for all the groups. (E_Product2).

Figure 26 shows how the admin of the EYFS group helps one of the online members with her problem by putting her in touch with other group members, so that others can share their class experience with her.
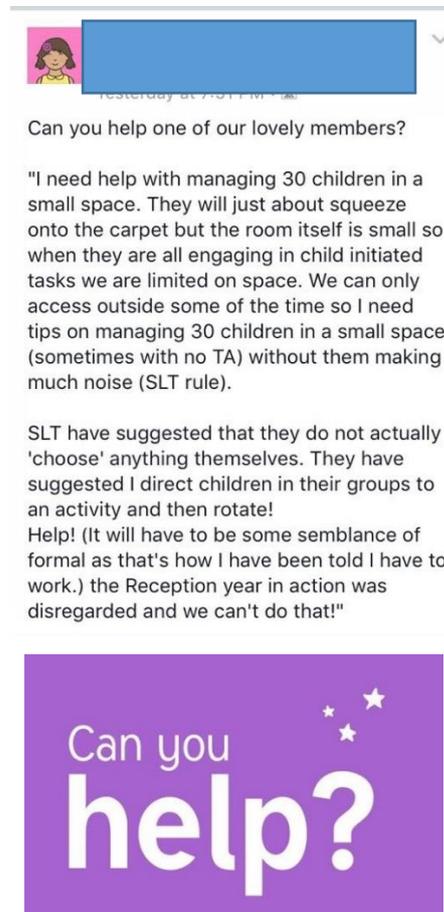
Figure 26: asking the EYFS group members to help a teacher with her problem in the class. Retrieved from the UKEducation's EYFS group.

Figure 27 also shows an exchange of ideas and problems among the KS1/KS2 members about a specific teaching issue.
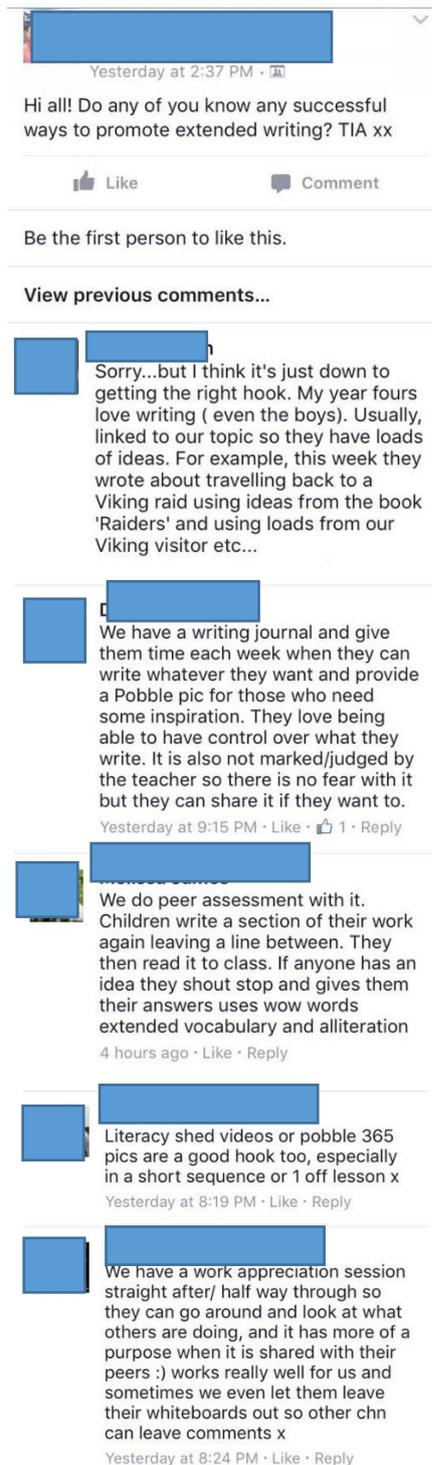
Figure 27: Exchange of ideas among KS1/KS2 members about a teaching issue.
Retrieved from the UKEducation's KS1/KS2 group.

So, all the participants reported that using social media to demonstrate the company's supportive and caring culture has enabled them to get much closer to the users and communicate with them directly in the groups. This also provides an opportunity for teachers' community to influence the company's initiatives by giving feedback on its existing resources and communicate their needs and collaborate with the firm to develop new resources.

They give feedback and tell us what they think and what they want. We can then react quickly and make resources for them that day. They love this. They feel included and involved. They know we are listening to them and that we are real people who care about them. Our branding for social media is "we are kind to you, be kind to yourself". This goes fairly deep. We care about you and your job. So, take some time out, treat yourself, look after yourself…. (E_Marketing1)

4.1.2.2. Idea Generation and Innovation

The second motive for social media adoption is that the online communities provide the major source of ideation for the company that inform most of its innovation and product development practices. For most of the interviewees social media provides a useful tool for pedagogical research to identify the educational trends and also the gaps in existing teaching resources. According to E_Marketing1, E_Product1, and E_Product2, online conversations about specific educational topics help the groups' admins (who are also teachers) to identify recent changes in the curriculum, to recognize the upcoming events and make sure that UKEducation has provided sufficient resources for those events, and to measure the popularity of the existing resources, and tailor the resources to the users' specific needs. The online members' collaborations to develop new solutions for teaching practices also offers efficiency saving and economies of scale for the company by enabling it to co-design a huge number of resources while requiring less time and staff input and therefore saving financial costs substantially. This is particularly important for UKEducation, since as a medium-sized enterprise, it lacks the capacity to develop and improve such a huge amount of dynamic and ever changing educational resources on its own. As such, the ideas and information captured from social media over time, has resulted in development of a full range of resources for all education topics and specific events; for different markets and age groups, that are available on the company's website. This has turned the UKEducation's website to a one-stop shop for teachers and parents that offers all sorts of teaching and educational resources available to download and use, and also provides links to the company's online communities and groups, and to the specific educational blogs related to each group of resources.

Online groups are amazing sources of ideation. We got loads of ideas from there. If you look at the KS1/KS2 group for example, teachers generate huge amount of resources in there. If we want to create all those resources ourselves it takes ages… They are continually developing their own things and put them

in there, and then we say "ah, how would you use this resource for teaching this or that subject? Ah, how lovely this one is?" And because we (the group admins) are teachers ourselves, we can understand what exactly they are talking about, and I go through their conversations and say "yes, this is an idea"… and also one of the best things about social media is that it helps us to gauge popularity of ideas. There are some indications like the number of "likes", "shares", and "comments" that gives you a sense of how that idea is popular. But that is your experience as a teacher that makes you to identify the actual ideas. (E_Marketing3)

For example, E_marketing1 explains how the product development team has developed a range of resources for the EYFS students based on the "arctic idea" that was identified from some popular threads, and pictures that were showing teachers' entertaining activities of making igloo houses with milk bottles for their students in class (Figure 28).

There are sometimes some popular threads and conversations about random topics like igloo for instance. The igloo idea itself, is not something that we can create a particular resource for it. But by looking at conversations about igloo we say "ah, we can do some resources on the arctic subject". So, we created word cards, sensory trays, display banners, and some other resources to get behind the igloo. And now you can find topics and resourceson the "arctic" on our website. So, they are really popular topics. And then, we might put the pictures of igloo up on our Facebook page and link them to our arctic resources beneath.

Figure 28: Identifying the "arctic idea" from teachers' conversation about making igloo houses in class. Retrieved from the UKEducation's MFBP group.

Reception teacher Sarah and her TAs made this huge igloo from 700-800 milk bottles!

"So far it has number cards in, winter themed books and also a 'stove' for role play but we are hoping to change it, so have got some small world penguins coming and some sugar cubes and foam cubes to make small igloos."

Well done! We think it's wonderful! ❄

I had to make mine single handed. Could've done with ace TAs help. Well done ladies for helping your teacher 😀

Like · Reply · 55 · November 5 at 11:51am

amazing!!
Reply · 4 · November 6 at 1:40am

View more replies

Thanks for the lovely comments! We used a hot glue gun to glue them together & our local Starbucks saved all their empty bottles for us- without them we wouldn't have done it!
Like · Reply · 48 · November 5 at 8:53am

This is such a cool idea! We made one that sits under some trees in the playground bit this indoor one is fab! X
Like · Reply · November 5 at 10:05am

What size milk bottles did you use please?
Like · Reply · November 5 at 10:29am

How long did it take to build?
Like · Reply · November 5 at 12:19pm

Love it smile emoticon
Like · Reply · November 5 at 12:56pm

We used more industrial glue but found it wouldn't hold ???
Like · Reply · November 5 at 2:30pm

That's interesting to know. I wondered the odds of finding half gallon jugs in that quality. At Least that's what they look like to me.
Like · Reply · November 6 at 7:40pm

Soo awesome....clever clever patient persons
Yesterday at 2:15am

They are 4 pint milk bottles smile emoticon

E_product3 emphasizes the importance of social media groups to facilitate understanding new markets and developing new resources based on their needs. She

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argues that for any new market that the company approaches, having a social media group is necessary, because the marketing team needs to identify how to enter that market and the product development team also needs to identify what specific resources are demanding in that particular market.

So, for example, when we wanted to enter the Australian market, I started participating in some Australian's teaching groups other than the UKEducation's groups to decide what we want to do in this new market, because I didn't know the market at all. So, I read, and watched and listened to what they were talking about. For example I had never heard about the "Anzac Day" a few years ago before we start the Australian group. But now I know about the Anzac Day, because I have read a lot in the Australian groups about the Anzac Day's activities in Australian schools, and we now create a lot of resources for the Anzac Day for the Australian market. (E_Product3)

She adds:

I have to learn everything about the new markets we are entering to, and the information that I gain from the Facebook groups is amazing. So, for example there has been a lot of interests recently in the Irish groups about the Irish 1916 rising. Have you heard about the 1916 rising? I didn't know that either. But this topic is really popular in the Irish groups. So, I can look at the other groups to see what people are talking about 1916 rising. And then I can feed that back to [my colleagues] to create content on that.

Or another very good example that happened recently was about the "Holy Communion". So, I know some parents send their children to catholic schools, and the children are going through a process at the moment where they receive the Holy Communion. Even [E_Product1, E_Marketing1, E_Marketing2] had never heard of that. I knew of it and I was noticing it popping up in the groups. So, I then said to [E_Product1] that we can create resources for the "sacrament". She had already spotted the conversation, but she didn't know what it was. So, it's just kind of life knowledge that you gain from being in the groups.

Moreover, the interviewees reported that many times members of the online groups develop prototypes of actual teaching resources with all the content, design, and illustrations required to produce a real-world paper-based teaching product. These resources may be part of the teachers' work or their teaching plan for that week.

E_Marketing3 and E_Product1 argue that if the teachers'-made prototypes generate interest among users, and the company's Facebook admins or the product development officers think that these prototypes can be turned to popular products, they will then take the idea from the groups and will slightly re-design it and re-word it to be turned into a UKEducation version of that resource. The interviewees also explained that in such cases taking the intellectual property of the original idea will not cause an issue; indeed developing the users' ideas by the company and turning their prototypes into actual resources make them feel excited and build up trust among them and motivate them to share more ideas and collaborate in further development of the resources.

> *For example, for Christmas we have a "Santa Door" resource which is a colourful paper, looks like a Santa that children stick on the door. So, because that was really popular in the groups, I made content for it on the website. But it was a very basic content. But it did really well, and people were paying to get access to that content. And then some others posted their own new versions of "Santa Door" to the groups that they had made at home. And then we used those ideas based on their popularity to expand the original idea and make more resources on that. (E_Marketing2).*

> *So, we use people's ideas internally to create our resources. And then being responsive and listening to what they are saying, builds up trust and builds up their love for us. And then in turn, they use our resources that are built upon their ideas and work together to further develop and expand the resources. And this massively feeds us with new ideas on the existing resources on the daily basis. So, our resources are continually developed and we are involved in an ongoing collaboration with our users to create new resources. (E_Product1)*

> *There is a teacher in my group who writes poetry. And once we illustrated one of her works in the group. So, our illustrators made a beautiful illustration on her poetry. And she was so delighted. So I think this is a nice relationship that we have with our users, and we couldn't have it without trusting each other. (E_Marketing4)*

4.1.2.3. Various Characteristics of Social Media Platforms

The third motive for using social media is driven by the various attributes of different types of social media platforms that enable the company to pursue its strategies at

different levels in regards with different groups of audiences. The company is using Facebook, Twitter, Instagram, and Pinterest to interact with people. However, these platforms are used differently by the company. Twitter is used more to facilitate the company's interactions with highly professional users such as educational writers, educational researchers, and teachers who are doing higher university degrees, and therefore it is more considered as a tool to facilitate Continuing Professional Development (CPD). The UKEducation's marketing team often advertises its current education topics on Twitter, by scheduling tweets that direct researchers and expert teachers in the field to the company's blog posts, and to the newly-developed resources on the company's website. Twitter is also more popular among the secondary school teachers (KS3/KS4) as they are reluctant to be on Facebook because their students are often on Facebook and they don't like to be followed by their students. Therefore, they prefer to communicate with their peers via Twitter, as they can use it in a very professional way and also their students are unlikely to be on Twitter.

Facebook is considered as the company's main communication channel and the major source of ideation (except for KS3/KS4 group) where the company obtains most of ideas for its innovations and product development practices. The UKEducation's strategy in using Facebook is to build a community of practice for teachers, and to keep the flow of conversations and information sharing among users, not necessarily about the company's resources, but to cover the broader educational and teaching related topics. By the time the research was in progress the company had 36 Facebook accounts which covered most of the key markets and niche groups of audiences as addressed by E_Product1.

> *We have Facebook accounts now for each of our key markets, and Facebook has provided an opportunity for us to get feedback on our resources straight from our users, and to find out what people want from us. So, we are directly asking questions like "we've got this topic coming up. What would you like to see?" or "while this event is happening, what would you like to see UKEducation create for you?" …and while we are an established brand in UK, we hope our new groups that we have created for the new markets also become a further help for teachers in that area to be discussing their own issues, and not necessarily promoting our products. So, I think people are currently moving off from websites, and forums into Facebook groups and moving into the social*

media. So, we definitely like to capture not only the market, but the space. So, you can see that a lot of chats about teaching issues are happening in our groups. So, we are trying to keep this conversation happen under the UKEducation's umbrella. (E_Product1)

In terms of Pinterest and Instagram, UKEducation uses these platforms to show how their resources are used in the actual life by teachers and their students. E_Marketing2 argues that "*when you see one of our resources in a display where children work around it, you are more likely to download it than if we would give you a picture that we have made of it*". As such, the company can also use Pinterest and Instagram to measure the popularity of its resources, for example by seeing how many times they are pinned or liked.

4.1.2.4. Dealing with Niche Groups and their Needs

The fourth motive for the company's social media activities is to involve with niche markets and smaller groups of teachers and parents with special needs that cannot be addressed through the bigger public groups. According to the interviewees, when the company's main Facebook groups such as the MFBP, EYFS, KS1/KS2, and KS3/KS4 that are so called "curriculum groups" get bigger, they become very hard to manage and a growing conflict of interests happens among their users. Therefore, when divergent patterns are identified in the main groups, the company creates smaller niche groups from the original communities where users can follow their specific interests, while they are keep staying in the main groups and contribute towards their development as well. Previous research supports this approach, "If a community is large, it is important for individuals to be able to find members with whom they share interest, and to develop personal relationships. The formation of personal relationships between members is one of the criteria for developing trust, which is a key driver of information sharing" (Boon et al., 2015 p. 350). There are three types of niche groups emerging from the main groups. The first type are called "pastoral groups" and are aimed to address special needs of the children who are experiencing specific situations or disabilities, as explained by E_Marketing3.

So, in pastoral groups we are creating pastoral resources for children who are experiencing parents' divorce, or young carers, or children that may have special disabilities like autism, or their parents might be ill… we are also

developing specific resources for children who might be transgender or questioning transgender and this kind of things. (E_Marketing3)

The second type of online niche groups are called "Wellbeing groups", and are dedicated to support teachers who are experiencing stress and pressure at work by helping them manage their work-life balance and involving them in entertaining activities with their peers. E_Marketing3 who is responsible to manage the wellbeing groups describes how some of these groups are created.

So, the first life style group that I set up from the "wellbeing group" was the "Book club"… People in the "wellbeing group" started saying that they wanted to read more, but couldn't get out to the book clubs. And I just came up with the idea of a virtual book club, where we all read the same book and come into a chat event to talk about it rather than go to someone's house and talk about it. So, we used the traditional book club model to make it into the virtual space, and it works virtually well. So, there is a big engagement of people who are borrowing the book from the library, or from their school, and share it with others virtually during the month, and then we all have conversations about it at the end of that month. So, there is no resource generation from this idea, but it's about introducing the UKEducation's brand out there in a supportive lovely way. (E_marketing3)

She also reported that after receiving positive feedback from the "Book club" community, the company has set up more "wellbeing" groups such as the "Slimming club", "Gardening club", "Craft club", and "Fitness and Running club" for teachers. "Craft club" is a place where teachers share and implement some knitting projects, and in the "Slimming club" teachers share their healthy food recipes such as slow cooker recipes and meal planners. And with the "Fitness and Running club", some of the members who are also runners, share their training plans with others. So, there is no curriculum-based resources generated in the wellbeing groups, but the activities undertaken, improve teachers' lifestyle, and also, communicates the company's brand as a supportive, and caring brand among teachers.

The third type of online niche groups are specific education groups focused on the specific teaching aspects or education topics that are often neglected in the wider national education system. These groups cover a wide range of communities as addressed by E_Marketing1 and E_Marketing3.

As the main curriculum groups grow, we look for patterns, and if there is a need, we form break away groups that just focus on one area. This allows us to talk to niche markets like "Childminders", "TAs" (teaching Assistant groups), "Home Education Parents", Librarian groups, Parents groups, and "Moderation" groups that often are not considered and are not listened to. They feel that we are on their side and understand their needs, so they reward us with loyalty. For example, we created the "Lap books" for the "Home Education Parents" that are really popular. (E_Marketing1)

The "Moderation" group for example, which is quite busy now, and has about 1000 members, came out from a chat event about two months ago. And it became clear that there was a need for teachers to be able to get together to moderate children's work, because schools won't be providing this service anymore. I knew that as a professional, because I used to run this service, and I was in charge of the moderation to the whole Sheffield for KS1 for about 5 years. So, I knew that if the service is to be taken away, there was going to be a gap. (E_Marketing3)

From the E_Marketing5 point of view, creating smaller groups from the original communities, enables FB admins to also separate teachers from parents in the groups that helps both teachers and parents to feel more confident and comfortable in their conversations.

Recently we started to have more and more parents in the groups, and teachers didn't feel comfortable to discuss many things in front of the parents. The teachers didn't ask us directly to divide the groups. But they were saying for example "Ah, I didn't know there are parents here". So, it was from there that the idea arose that we need to divide the main groups, because we need teachers and parents both feel comfortable, and for many teachers it's still a taboo situation to show they need help with a specific topic in front of the parents. (E_Marketing5)

Figure 29 shows parts of a chat session about SPaG/GPS (exploring exercises for primary pupils that cover National Curriculum spelling, punctuation ..., and Grammar revision in general) conducted in the "Grammar experts" group, which is emerged from the KS1/KS2 community, to answer teachers' questions in this respects.

A place to discuss everything to do with the KS1 and 2 SPaG/GPS Tests. Grammar expert Grammarsaurus will be joining us to answer any tricky questions, and share some handy videos!

✏ Write Post   ▣ Add Photo/Video   ☰ Create Poll

thing...

RECENT ACTIVITY

created a poll.

Is there anything you'd like to focus on in particular?

☐	The subjunctive form	+7
☐	Preposition or subordinating conjunction - knowing the difference?	+6
☐	Subordinating conjunctions	+3
☐	Active/passive voice	+2
☐	Dashes	+1

5 More Options...

Thank you so much to the wonderful Grammarsaurus for helping to curate our chat tonight! Some fantastic ideas shared.

Our Subs winner this evening is Donna Cowie - I will PM you shortly 😊 well done!

👍 Like　　💬 Comment

👍❤️ 11

Oh wow thank you!!!! Thank you x
2 · April 21, 2016 at 9:04pm

Replies

Thanks to all - Kate and Mitchell you are legends 😊
April 21, 2016 at 9:10pm

Write a comment...　　😊 📷 GIF 🏷️
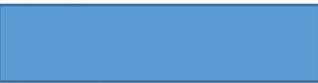
The GrammarsaurusDoesSATs series will end after SATs and a new one entitled GrammarsaurusDoesWriting will begin to help prepare teachers, parents and pupils for 'at age related' in writing!

What do you guys think? Any requests for it? Let me know! 😄

👍 Like　　💬 Comment
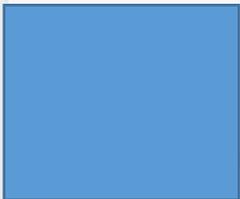
others

Wow - sounds fab! Do you have a link to the SATs series to share?
👍 1 · April 21, 2016 at 9:09pm

udson https://www.youtube.com/playlist...
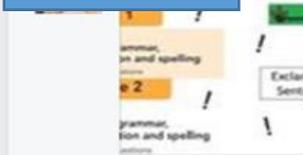
GrammarsaurusDoesSATS

YOUTUBE.COM

Like · Reply · 👍 1 · April 21, 2016 at 9:10pm

Additional SPaG tests created using the original sample questions are on my online TES store. Download for FREE! ^-^

https://www.tes.com/teachin.../additional-spag-test-3-11259465

National curriculum tests

Key stage 1

NEW

English grammar, punctuation and spelling

Paper 2: questions

First name	
Middle name	
Last name	

SAMPLE BOOKLET

National curriculum tests

Key stage 2

NEW

3

English grammar, punctuation and spelling

Paper 1: questions

First name				
Middle name				
Last name				
Date of birth	Day		Month		Year	
School name				

👍 Like   💬 Comment

Awesome! Thankyou! I'll be using these but as a teaching tool rather than test conditions over the next couple of weeks 😃

Like · Reply · 👍 1 · April 21, 2016 at 8:58pm

You're welcome!!

1, 2016 at 8:58pm

Write a comment...   ☺ ◎ GIF 😜

Synonyms and antonyms - a wonderful lesson pack here >>
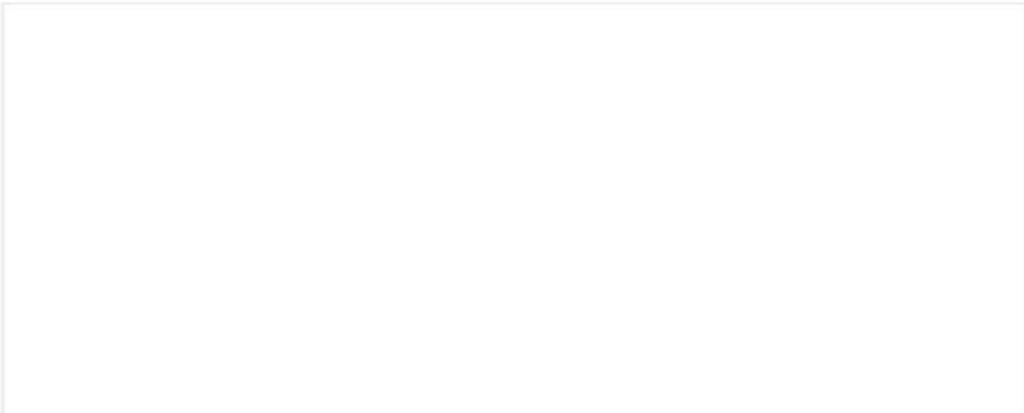
PlanIt Y6 SPaG Lesson Pack: Synonyms and Antonyms

PlanIt Y6 SPaG Lesson Pack: Synonyms and Antonyms - In this lesson children identify and suggest synonyms and antonyms to improve their writing. The lesson pack contains a lesson plan, lesson presentation and accompanying activity sheets to scaffold children's learning. The lesson pack also...

👍 Like   💬 Comment   ➤ Share

👍 3

Write a comment...   😊 📷 GIF 🙂

Evening all!
Just wanted to share a couple of things I've done with my class that have helped them with exclamation sentences.
One activity was the children gave each other compliments such as "what a lovely top you are wearing Miss" and "how well you join your handwriting Bob".
The other activity was the children said exclamation sentences and me and my TA had to act them out e.g. "what a lovely dance you are doing Miss". They thought of some to make us do funny things but they absolutely loved it (so did I!).

Hello all! A year 1 teacher here 😊 I find myself doing a lot of GaPS than I have ever done before- and I can not believe the terminology my year 1s have to know! However they are doing so well and I hope I am giving them a good starting point for year 2!!

👍 Like   💬 Comment

👍 3

View 3 more comments

n That's what I like to hear!! 😄
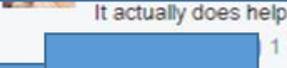
It actually does help pupils' writing and language development a lot! 😄
1 · April 21, 2016 at 8:26pm

I have been so impressed with my year 2's and how well they have remembered the terminology!
· April 21, 2016 at 8:27pm

I think some of the words are fun words to remember 😊 We use praise a lot and I make sure the children know that I will be asking them about it later in the week and they will get a sticker/ up the class chart if they remember 😊
Like · Reply · 👍 1 · April 21, 2016 at 8:28pm

Write a comment...   😊 📷 GIF 🎁

Ok so SPaG can be a bit dry - does anyone have any ideas for how to liven SPaG up a bit? Mitchell has suggested using songs that use certain forms - which I love! Any more?

👍 Like   💬 Comment

y I think using interactive stories are always fun, literacy books etc... as that makes it more interactive xx I love the idea of songs too x
Like · Reply · 👍 1 · April 21, 2016 at 8:19pm

l could you give us a list of songs you've used in your teaching and which aspects of SPaG they relate to?
Like · Reply · April 21, 2016 at 8:20pm

n We use songs to teach tense.

They can all be found as 'karaoke' videos on my channel - I can't upload pupils singing it though
😔 !... See More
Like · Reply · 👍 2 · April 21, 2016 at 8:27pm

Figure 29: a chat session about SPaG/GPS. Retrived from the UKEducation's KS1/KS2 community

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4.1.2.5. International Growth

The fifth motive for adopting social media is the company's vision for international growth. As such, for any new targeting market, a social media group is required to facilitate interactions with teachers in that area, to identify the market's characteristics and needs, and to understand its curriculum, and demanding teaching resources. There are a number of criteria that are considered by the company for selecting a new market to approach. First, the new market would be preferred if it has a strong alignment with the UK culture and curriculum. For example, New Zealand and Australia have quite similar curriculum and culture to the UK, and therefore they are easier markets for the company to approach. The second criteria for selecting a new market is to offer a unique and exceptional opportunity for the company compared to other markets. For example, after the recent Syrian refugee crisis, a mass migration of people took place from Syria to Germany. This makes Germany a potential market for UKEducation, as at the moment there are over a million Arabic-speaking Syrian refugees in Germany who need lots of education resources for their children, but there is nothing in the market. So, although this market has no alignment with the UK curriculum or culture, but it definitely offers a unique opportunity for the company and therefore has been selected to be approached. And the third criteria is for the new market to demonstrate a paying culture for the teaching content. For example, while Australia and New Zealand are untapped markets with an acceptable level of paying culture, the US market is occupied by a lot of free teaching content and many players, which reduce "paying culture" among the US teachers.

4.1.2.6. Employees' Background and Personal Motives

The sixth motive for social media adoption refers to the firm's employees. The interviewees reported personal motives other than the company's tasks for participating in social media activities. Most of the marketing team members described their in-depth knowledge, and professional experience of using social media in their previous jobs alongside their teaching background as a strong motive for undertaking social media activities in UKEducation.

> *Before working for UKEducation, I was heavily involved in the "Mummy Blogger" community and also have a few blogs that I do in my spare time that are aimed at parents. Due to this experience, I already understood how to use tools like Hootsuite, Facebook analytics, Google analytics, Bitly and all the main social*

media channels. I have a deep understanding of social media and would consider myself to be an advanced user. (E_Marketing1)

In my previous role as a deputy head, I set up Twitter for my whole school. So, every class had their own Twitter account, and we had the school Twitter account as well. And also as a part of my MA project that I did at Sheffield Hallam University, I looked at how to use social media within the school setting? So, I do have a theoretical knowledge of social media as well as personally using it myself. So, I have my own professional teaching Twitter account and then I have my own Facebook account for very different kind of things. So, I think I've got a good working knowledge of social media, not just for the content generation and publishing side of things, but actually what it means to be using that kind of content when you are dealing with young children as well. (E_Marketing3)

4.1.2.7. Revenue Generation

Finally, the seventh motive which drives UKEducations' social media activities is to generate revenue by encouraging people through the social media groups to subscribe to the company's website and downloading the teaching resources throughout the year. Although UKEducation offers a lot of free resources, but most of its curriculum-based teaching resources require subscriptions. The company offers a wide range of subscriptions such as Gold, Platinum, Classic, Platinum PlanIt, Platinum Foundation, and Platinum Plus.

A lot of time and effort is being placed to create our resources. This includes our teaching content advisors who spend time to create content for the resources, and also the illustration and design time that are placed to create the resources. So, creating the Platinum PlanIt's packages for example, has taken a year and had 20 teachers involved in it. It includes the whole lessons packs for different educational topics and specific events such as Good Friday, Easter, and etc… So, everything you need to teach that topic for 6 weeks or 6 lessons, like PowerPoint presentations, worksheets, display materials and other things are provided in the package. Therefore we try to persuade teachers and parents to buy a personal or school subscription to download our resources. Otherwise we can't employ more people and make more resources which helps the whole community of teachers. (E_Marketing2)

4.1.3. Branding and Socialization Activities

As discussed in the previous section, UKEducation is heavily relied on social media interactions with online community of teachers, especially via its Facebook groups to differentiate and customize its services and products and to offer greater variety and choice. The company's main social media strategy is to establish and keep up the flow of conversations and information sharing among teachers that results in generating and exploiting input beyond the company's boundaries and enables UKEducation to identify current trends and existing gaps in teaching resources and education topics, and to work closely with teachers to develop new solutions. As such, teachers engage in an iterative process through which tacit knowledge is exchanged reciprocally between the firm and teachers. This opens up and transforms the scale of innovation and product development of the firm by enabling ongoing crowdsourcing of creative ideas. However, encouraging individuals to participate in online conversations and to contribute inputs to the groups is not an easy task, particularly at the early days of any online group (Jarvenpaa and Tuunainen, 2013). Hence, to encourage individuals to participate in online conversations and information sharing practices, UKEducation has undertaken a number of socialization activities (Jarvenpaa and Tuunainen, 2013) which are: experiment with multiple social media platforms, institutionalized and individualized socialization tactics, and form smaller groups around shared interests. These tactics are discussed below:

4.1.3.1. Experiment with Multiple Social Media Platforms

UKEducation is using multiple social media platforms (Facebook, Twitter, Instagram and Pinterest) to interact with different groups of audiences to accomplish various purposes. The interviewees especially those involved in the marketing activities of the firm have learned through numerous experiments with different types of social media platforms that each platform works well for certain purposes, and the use of a single social media technology cannot stimulate teachers' participation and collaboration. For example, while Facebook provides a useful tool as a fast and highly individualized channel for the interactions of the majority of teachers especially those involved with the early years' students, it did not encourage conversations among the secondary school teachers. Instead, the secondary school teachers are more interested in using Twitter and the company's blogs to interact with their peers, because their students rarely have Twitter accounts while they might have Facebook accounts and therefore can follow their teachers on Facebook. The use of Twitter is also highly influential to

engage more professional and highly educated members, such as educational researchers and writers, in pedagogical research and other collaborative activities with the firm. Pinterest and Instagram are also used to promote the company's resources and to measure their popularity. Despite the fact that UKEducation, as a medium-sized enterprise, has limited resources and capacity for innovation, the use of multiple social media platforms have empowered the firm to tap into the creative potential, knowledge, and experience of a huge crowd of teachers, which enable the firm to continuously innovate and develop new resources on the daily basis. As such, although the company is using multiple social media platforms, all of them are aimed to keep up the flow of conversations among different groups of teachers; to offer them help and support, to identify current trends and gaps in the market, and to collaborate with them for co-design of new ideas and solutions.

4.1.3.2. Institutionalized and Individualized Socialization Tactics

To establish conversations in the online groups, especially in their early days when the groups are just created and are small and their members are reluctant to contribute, the company undertakes a combination of institutionalized and individualized socialization tactics to create relationship with the members and to build up trust among them. As an institutionalized socialization tactic, the company begins with generating initial threads and set the expectations, during which control over communications is kept primarily with the firm. After a while, the company gradually relinquishes control over communications to the teachers and they become in charge of the interactions and the company plays more of a supportive role (individualized tactic). All the interviewees in this study reported that to initiate conversations, the company should demonstrate its presence in the group from the very early stages of its creation; by generating multiple threads, welcoming people to the group, communicating what the group stands for, and what is expected to happen in the group. All these activities are part of institutionalized tactic. This is addressed by E_Marketing3 as follow:

> *Running an online group is all about engagement, and being visible and open to the members. It's about the brand and how we use the [UKEducation's] voice when we are posting… So, all the Facebook admins who are within the groups should have a uniformed [UKEducation] voice, and having already developed among themselves a lovely, caring [UKEducation] position that comes across the whole social media side.*

So, when we decide to create a new group we already advertise it in other groups (e.g. the main groups), and then when the group is set up I'm online to accept everybody straight away, and to make sure they are not waiting. Then I try to start conversation by generating multiple little threads like: "Do you know about UKEducation?", "Do you know what UKEducation is?", "oh, tell us a little bit about yourself", "oh, what are you doing in this group?", "what do you expect to see in the group?", "have you seen these fabulous resources?" So, I will spend a few days generating enough content in the group… and then the group starts rolling itself gradually. And because I'm always visible in the groups, people see me as a friend who can go to and ask for help and assistance. So, they might say "ah, this is a great idea…how can I download it? Have you got any resources on this or that..?" (E_Marketing3)

For E_marketing1-5 generating threads and asking regular questions about teaching and education related topics by the Facebook admins, and inviting teachers to share their opinions and experiences with other members are important activities to establish and enhance conversations in the groups. Whereas members may not directly contribute to the conversations at the beginning, many of them may ask for help and support and share their ideas with the group admins or with some other members through private messages. However, as the trust is being gradually built among the members and towards the group as a whole, and the members are assured that their opinions are valued by the firm and their peers, they start asking questions publically and contribute inputs directly to the group.

To build trust and to create relationship with the members, I talk to them as my friends; "Good morning! How are you today? Now, let me see…." And I often ask them questions and ask their help and support for some resource creations, when I know there is a better way to prepare those resources, but I just cannot find it and I'm running out of time. So, I show them that nobody can say I know everything or I never make mistakes. So, I just want to let them understand that I'm just like themselves, and I may need help sometimes. And, I've got a very good response of that. They are supporting me a lot and they contribute whenever I need help… But then the most amazing time for me is when people who may had never contributed before, post to the group and say: "this is my first post. Can I ask you about something? Can anyone help me with this?" or "what you think about this idea?" And then as long as people can trust and feel

confident and comfortable in the group they contribute to conversations, share their ideas and collaborate with us in developing new resources. (E_Marketing4)

While the group admins generate threads and lead the conversations, they are always cautious about the published content and avoid spreading any controversial content in the groups.

We try not to be negative, never criticise government, and parents and "the system" if possible. We avoid talking about religion, alcohol, and anything that is contentious. But sometimes we mix it up a bit just to keep people on their toes. Things develop overtime – we see what works and do more of it. Or try something totally new. We know that The Very Hungry Caterpillar (a famous animated film for children) always gets good results, so we keep using it. Jokes about stationary works well, that sort of things. We have found that asking questions in the groups is always effective, or asking for feedback. It also leads users to ask each other for help. It's all about keeping up the flow of conversations. (E_Marketing1)

Once the group gets bigger and its members become socialized and involved in conversations, the company relinquishes most of control over communications to the members and adopts more individualized socialization tactics. As such, the group admins who were previously trying to engage community members in conversations by generating threads and inviting people to share their ideas, now combine institutionalized and individualized tactics together to leverage different objectives in complementary ways. As a result, the leading role of the group admins become less apparent and they become more involved in collaborative activities with the members to co-design new ideas. Instead, the members become more active contributors; initiating conversations, asking each other questions, giving each other feedback and support, and participating in collaborative approaches with the firm. However, the company continues to post content about the resources and upcoming events, asking questions, and inviting members to share their ideas, but in a more collaborative way with members.

It takes time to get people engaged in conversations. But once they are engaged, the group starts to grow itself, and we get less involved in initiating and leading the conversations. Instead we try to more listen, read and learn from the conversations. However, we try to make sure that the conversation is

always running. So we post threads about the resources and upcoming events. We also send weekly emails to the group members with just a little bit update of what's happening in the groups, and advertising resources and upcoming events. We also ask questions in the groups and try to identify people's ideas, and motivate them to contribute. For example, we regularly run surveys in the groups to ask people's ideas about our different products' layouts and previews, to know what they prefer. So, we ask them directly "what do you prefer out of these layouts?" Let say the Irish group. We regularly post to the group asking "Is there any resource we don't have which you want?" or asking the Australian and New Zealand groups "are there any upcoming events or any topics that we don't have resource for?" or "what type of resources you would like us to develop for you?" (E_Marketing2)

So, overtime UKEducation has leveraged the learnings from its several social media initiatives, to achieve a balance between its institutionalized and individualized socialization tactics by applying collaborative control principles in managing the online communities and socializing their members. According to the marketing interviewees, collaborative control of the groups ensures that the members are in charge of much of the groups' communications and activities, but UKEducation also provides sufficient resourcing, and monitoring, and maintains control over the configurations and timescales of initiatives, and when needed, swifts corrective actions. This collaborative approach helps the company to manage the whole innovation value chain and to leverage and sustain the idea generation process for new resources (Jarvenpaa and Tuunainen, 2013).

Sometimes we have "super users" in the groups who can take over the conversations a bit. But we get them on board and make them feel like one of us. We send them goodies and freebies to say thank you. Then their posts tend to become more [UKEducation] based. This encourages others to post in the groups and comment – as they want to become a super user as well, we're also very careful to remove negative posts or any that involves an argument. As the groups grow, we look for patterns, and if there is a need we form break away groups that just focus on one area – like Moderation, Childminders, and Home Education Parents groups… Our main Facebook page is a different case again. We try to play it safe on here as its more public and we can't react upon it as quickly. (E_Marketing1)

4.1.3.3. Form Smaller Groups around Shared Interests

As mentioned in the previous sections, when the company's main groups such as MFBP, EYFS, KS1/KS2, and KS3/KS4 get bigger, they become hard to manage and some divergent patterns among their members become apparent. To address these issues, the company creates several smaller niche groups from the original communities which allow teachers to follow their specific interests, share information and have discussions with like-minded peers in their field. At the time of the research the company had created 36 niche groups classified in three types: Pastoral groups, Wellbeing groups, and Specific Curriculum groups. And the work was being undertaken to extend this service to more groups and increase uptake. These efforts resulted in development of 186 groups by the time of writing this report. All interviewees admitted that creating smaller groups around shared interests (like Childminders, Moderation, Home Education Parents, etc.) builds stronger identification among members and increasingly connects members and potential members with one another and with the company both collectively with a common cause and relationally at the interpersonal level. Hence, smaller groups enhance valuable contributions and co-creation activities among members. Although members in the main groups share a lot of useful information with their peers, sometimes they feel less passionate to participate in co-creation or evaluation of products and services that are not directly relating to their specific needs and interests. Hence, the sense of community and collective identification with the firm among members in the main groups is not as strong to create commitment for participating in ongoing collaborations and co-creation practices with the firms, as it is in the smaller groups. However, in smaller groups such as the KS1/KS2 chat sessions (e.g. SPaG/GPS chat session) more specific bonds are created between the firm and the online members. Having Facebook admins, who are specialist paid teachers, for managing the groups (for example a Home Educator teacher to manage the Home Parent Education group, or a Childminder specialist to manage the Childminder group, etc.), helps UKEducation to leverage the collective identification of members with the firm, as the members feel their needs are better understood and addressed by the group admins. As such the company amplifies the advantage of using social media by creating smaller groups from the main groups, and promoting co-creation among members through enhancing both collective identification (with a common cause) and interpersonal relations (linking members to one another and to the group admins). This also leverages trust among members

towards the company and the groups as a whole, which is a key driver of information sharing.

4.1.4. Information Sharing Activities

Once teachers have been socialized and involved in the online communities, they start contributing inputs via the company's multiple social media platforms; Facebook, Twitter, Instagram, and Pinterest. This is the creative stage where participants post their ideas in the form of text and pictures of their activities in the class, or in the form of prototypes with actual product specifications such as the teaching content, illustrations, and design required for development of an actual product, or exchange their problems and work closely with one another to develop new solutions.

The posting of an idea or question on the Facebook groups starts a discussion thread. Participants may also upload the files of the prototypes or resources that they have made at home to the groups through the "Files" tab located at the top left of any Facebook group.   Other participants may then choose to contribute by adding comments to the posted ideas or questions (when participants focus on someone else's idea), or post their own idea to start a new discussion thread. Therefore, if the posted idea or the proposed question is popular and interesting for the teachers, or relates to the issues that they regularly encounter at work, then they may contribute many comments and replies to refine the posted idea or combining it with other posts or ideas which result in co-creation of a new idea or prototype. But if the posted idea is not interesting for teachers, then it may generate a little discussion.

> *Teachers can post their ideas and suggested resources directly to the Facebook groups or upload their content in the form of files through the "Files" tab at the top of any group. So, one way through which we get content ideas for the resources are the files that are uploaded to the "Files "sections. However, most teachers prefer to upload the content that they have made at home as a post rather than upload it via the "Files" section. And then some ideas get a lot of "likes" and "comments", and we can identify which one is popular, and use the best ones to create content for our resources. (E_Marketing1)*

The interviewees admitted that not all the threads and comments generated in the groups are productive and useful. The members' comments for example could range from emotive (e.g. "great idea!!") to highly prescriptive (e.g. "if you change this content or design in this specific way, it might be more interesting") to content-free (e.g. "could

you explain how this idea can be used?"). However, the interviewees also reported that in many experiences especially with the smaller and more specific groups, and also with the specific chat events on pre-announced subjects, there are genius teachers who contribute generative threads or ask generative questions that are followed by many comments from others and result in co-creation of promising ideas.

> *So, we have super users who post a lot. There is a girl who is called Natalie, and everyone loves her. She is amazing, and she is always making resources, and posting them to the groups. She posts great ideas, followed by several questions to improve the resources, and everyone loves her resources and her ideas. And that gives us an idea that we can do something like this or slightly different to create something new. (E_Product1).*

Another variation in people's contribution towards the groups' discussions is in the way that they vote for an idea. Many times the members are asked by the firm to vote on a posted idea or on the company's current resources, especially when people are frequently talking about that idea or a specific resource, but the company's admins are not sure whether or not the idea is worth to be further developed internally. According to E_Marketing 1-5, in some UKEducation's groups there may be dozens or even hundreds of threads being generated each day and without members' voting it would take countless hours to consider each thread and predict the most preferred ideas in the market. Moreover, by voting and commenting on the ideas, some of the experimental stages required for the implementation and actual development of the ideas are quickly evaluated by members, which improves the company's cycle time for new product development. However, the criteria used by different members for voting is sometimes unclear, leading to implicit variations in criteria used by different groups of audiences for voting, from having beautiful design, or suitable content, to "coolness" of an idea to feasibility. Consequently, the ideas that are voted as most popular by the online members may not be the most feasible, innovative or even relevant ideas. In such cases, the Facebook admins often ask clarifying questions in the groups that helps the product development officers to make the decision of which concept should be resourced and further developed.

> *Sometimes there are popular ideas and threads about some topics like igloo that we cannot create particular resources to get directly with that. However, we can make some other resources to get behind the igloo, such as the resources we have made for the "arctic" topic, which are quite popular. So, although the*

igloo idea is very popular among teachers, but it is not a great idea, because it is not something that we can easily create content for. But what we do in such cases, if we see a post is very popular and it has gained a lot of likes and comments, we might then do another post to clarify. So, for example, yesterday people were talking a lot about "handwriting" in one of the groups. So, I wrote another post and said: "Will there be much interest if we create more resources on the handwriting scheme of work?" I just asked them directly and then lots of people said "yes". So if I see a few threads with the same content, I will then create my own thread asking direct questions and then they can reply. And I can get an idea of how popular the concept would be. (E_Marketing5).

E_Marketing2 describes how the UKEducation's product developers have gained insight to develop a range of resources on the "space and astronaut training" topic, based on the members' threads that had combined the "space" related ideas with curriculum-based teaching activities.

Recently in the KS1 group people started to post "astronaut training" stuff, and combining the "space" related topics with their daily based teaching activities, because there was Tim Peake going to the International Space Station (Figure 30). So, some teachers posted pictures of their classroom's astronaut training, and some others were posting ideas about the space-themed teaching activities to do in the class. I took all the ideas and put them into the outside-in spreadsheet, and then the product development team created a range of resources such as space maths, space display, space lettering, space colouring, space writing, space banner, space role play, space border and space activities on those ideas. They started with designing an "astronaut training certificate", because it was an easy resource to do. But then the hard bit that took longer time to develop was the actual astronaut training content that were developed by an Earlier and a KS1 teachers and were used in a range of other curriculum-based resources.

Figure 30: Combining space-related ideas with curriculum-based teaching activities

. Retrieved from the UKEducation's KS1/KS2 group.

Comments

Read the story of whatever next, then get them to write labels, or initial sounds of words of objects that they would take to space with them?
Like · Reply · 1 · November 17 at 1:36pm

I'm assuming you're reception??
Like · Reply · November 17 at 1:37pm

Yes I am x
Like · Reply · November 17 at 2:35pm

This might help:

Space Lesson Plan and Enhancement Ideas EYFS

ember 17 at 2:31pm

Get a decorating suit from pound land (they are oversized) a pair of wellies and a hood/ helmet dress someone up as a visiting spaceperson, read aliens love underpants or similar,
Like · Reply · 1 · November 17 at 3:09pm

Last week we did whatever next and wrote what we saw on our trip to the moon, lists in role play, space log books on role play and also moon rock investigation. This we we are designing and making a rocket-labelling the design. If it continues next week, we will probably follow aliens love underpants and the following we to end the topic and tie in with Christmas, what would you send the man on the moon (John Lewis)
Like · Reply · 1 · November 17 at 3:13pm

Ours have enjoyed: writing a packing list of essentials to take to the moon; Painting an alien and labelling; creating space rockets and presenting verbally to key group; designing constellation pictures
Like · Reply · November 18 at 4:02am

e I am doing this next term, using bin bags to black out my display in the role play area and loads and loads of foil to turn it into a space station come rocket with a viewing window to the display

Meanwhile for E_Marketing4 the smaller niche groups and their related chat sessions, where specific ideas for specific content are discussed, have provided an opportunity to understand the members' specific skills, which is an important element in sustaining collaborative practices in the groups. Whether or not the members in these groups are in regular contact with one another and with the firm, if they are aware of each other's skills, they can quickly get together the right people to discuss a particular subject or can contact the people they need for advice and information. This is also aligned with

the literature review findings that suggest once communications between people in online communities become visible for third parties (UKEducation in this case), they could improve their metaknowledge (knowledge of who knows what and who knows whom) and use that knowledge in their future projects (Leonardi, 2014). Such is the case for the UKEducation's online communities. According to E_Marketing3, the company regularly runs focus groups and chat events where expert teachers who are already identified during online conversations are invited from different groups to give feedback on the company's current products and services or to participate in specific discussions that help the company to decide about its future innovation project initiatives.

> *So, I regularly run focus groups that include teachers from different groups with specific expertise that I have identified from the previous conversations or chat events. So, I invite them to join focus groups, and I'll ask them for feedback on our current resources and teaching content, and then we can act upon their feedback. Next week for example, we are running two focus groups. One of them is going to ask teachers about our subscription plans. In the other one we are going to ask teachers' ideas about some mobile apps that we are thinking to make for teachers. And that could be really good for the purpose of our analysis… The focus groups are quite useful because the groups are not too busy and are quite manageable, and we can also actively ask experienced teachers what they want, and we can just keep asking them every day what content we can create that helps them. We can also do chat events and ask a wider group of people (everyone in the group) directly about their ideas and preferences. (E_Marketing3)*

Interviews conducted with the participants from both marketing and product development departments revealed that most of the company's key informants are also involved in other non-UKEducation online communities of teachers, such as several UK Education Twitter chats, as a complementary social media activity that also provides useful source of ideation for the firm.

> *There are also several Twitter groups that we don't run them, but I always participate in their regular chat sessions.   There are hashtags such as "#UKEdChat" or "#PrimaryRocks" for Early years and Primary school teachers. It is really useful for us to be able to look at those hashtags and see what people are talking about. There is also a secondary English chat event for those who*

are going into the secondary school (to high school) which is called "#EngChatUK" and runs weekly chat sessions on Monday evenings. And that is really useful because these chat events give us a lot of ideas for content creation. There are also some other communities of teachers on Twitter that give us an insight about our new markets such as "#EdChatIE" which is for Irish Educators and "#VLNPrimary" that is for New Zealand primary education which is one of our key markets. So, for all our key markets we are also involved in other non-UKEducation groups, and can quickly join the groups and see what's going there. And sometimes these groups are even more useful for us than our own groups. (E_Marketing1).

Apart from the Facebook groups and Twitter chats, teachers also share their ideas, suggestions and needs with the firm by sending direct emails to the marketing department, or by submitting a request form through the "request system" which is built into the company's website and enables users to rate and review the resources, suggest changes for current resources, or upload their own prototypes for further considerations and developments by the firm.

All the ideas, trends and information identified from social media interactions are collected from the company's different social media channels and are recorded into the outside-in spreadsheet, which is an Excel spreadsheet for transferring external ideas inside the firm for further considerations and developments. The outside-in spreadsheet is updated every day by everyone in the company who is directly or indirectly involved with the online communities such as the company's social media admins (the Facebook, Twitter, Instagram and Pinterest admins) and the Chief Product Development Officers (CPDOs) who are in charge of the company's products and services developments.

While updating the outside-in spreadsheet, the groups' admins also record the number of likes, comments, and shares for each idea and how frequently it has been discussed in UKEducation and other non-UKEducation groups or is pinned on Pinterest, to indicate the popularity of the idea among teachers. This helps the CPDOs in decision making and prioritisation of the prospective innovation projects (See the next section for more details).

So, we do have the outside-in process through which everyone who is involved in the social media groups such as our content developer teachers and

Facebook admins put all the ideas that they have identified from different social media channels like Twitter and all our Facebook groups on the outside-in spreadsheet. These guys are responsible for making sure that they keep an eye on everything and record everything properly; even if it is something really small, or something that they are not sure whether it would be popular. They put everything on the outside-in, but they don't decide whether to make those resources or not. I and … [the other CPDOs] decide which one to take forward, and that's our responsibility. (E_Product2).

Well, we put all the trends, and ideas on the outside-in spreadsheet. We are also looking to see if there is any event that we have not already realized and therefore have not made resources for, and then we put that on the list. Or if there is anything that people have overly discussed in the groups like saying "I want some such and such resources…" we also indicate in the outside-in spreadsheet how popular the resources or ideas are, based on the number of likes and comments that they have gained, or how frequently we have seen them in different groups or on Pinterest. However, while the number of likes, shares, and comments are important indicators, our own experience as teachers also helps us to determine the priority of ideas. But then it's the [Chief Product Development Officers'] responsibility to decide which idea should be developed. Because they think about the ideas from the actual resource perspective. So, we might say for example, that there are a lot of people talking about women's football or whatever, and suggest developing resources based on this idea. But the [CPDOs] can verify whether or not the idea is doable, or if we can make return on that, and then do it. (E_Marketing2)

As such, socializing teachers and involving them in information sharing practices, not only results in generating new ideas, but also reveals their specific knowledge and skills. There are also some teachers who may emerge as "super users" and key figures in the groups. These people are in frequent communication with other group members, and provide them with a wide range of information and support, and have a good awareness of their skills and knowledge. Therefore, when needed, they can closely collaborate with the firm by quickly getting together the right people to discuss a particular subject or contact with other members who can help by giving advice and information. Capturing online contributions via the outside-in spreadsheet also enables

UKEducation to identify patterns that can result in developing new deliverables or creating smaller niche groups from the main groups to focus on specific teaching areas.

So, the outside-in analysis is not only helping us to develop new resources, but it also helps to identify what is trending in the groups. I look at the most popular conversations of the day as well as the most frequently searched items on the website and the most frequently downloaded resources from our website on the daily basis. And then I create resource packs including the top 10 resources of the day, and put them on the web site. We use software called "Trello" and "Tablo" through which we can identify the most frequently searched and downloaded items. And because we have so many content on the website, people feel happy when we make things for them easy by putting all the popular resources for them in a resource pack. So, rather than having to search through all the resources, they just download the packs, cos they know the packs contain the best resources for each topic. (E_Marketing1)

4.1.5. Information Use Activities

The outside-in spreadsheet collects all the creative ideas and information from various external social media channels such as the Facebook groups, Twitter, Instagram, and Pinterest accounts, as well as the "Request System" built into the company's website, and transfer them inside the firm for further investigation. These ideas can be the result of individuals' creativity, or they can be the result of focus groups and specific chat events that are running regular brainstorming sessions through the online groups. Alongside the external sources of ideation, there are also regular staff meetings within the company in which the Chief Product Development Officers (CPDOs; who are in charge of filtering ideas and making decision about them, and managing the company's innovation portfolio), the Teaching Content Advisors (TCAs; who are in charge of developing content for the resources), and other teachers involved in the product development process of the company get together to discuss new trends and ideas through brainstorming sessions which can result in generating new product ideas. The information management department of the firm also provides CPDOs with complementary statistics and analysis such as the information about successful products (e.g. the most frequently downloaded items), and missing resources for different groups. Hence, the external and internal sources of ideation create a sustainable knowledge supply chain that significantly improves and supports the firm's innovation process.

So, we have the outside-in spreadsheet where all the ideas and information from social media are pulled together and put onto the spreadsheet. But this is not the only channel where the ideas come from. We also have regular staff meetings where our teachers are coming to the office to meet together and to discuss their areas. And many of the ideas for creating new sets of resources are coming from the regular internal staff meetings. (E_Branding1)

As well as the internal and external sources of ideation, statistical analyses of the business can also lead to new resource development. For example I might be looking at the Saint Patrick's resources and then identify that we've got some really successful resources missing for the Saint Patrick's Day which are existing in other resource groups. So, If I identify some resources that have been really successful in a group, such as a couple of distinctive and specific displays (e.g. display lettering), then I will suggest to the CPDOs to make those resources for all other groups as well. (E_Information1)

However, all the collected ideas and information from the external and internal channels, have to be investigated carefully to determine their significance according to the company's strategies and criteria for the innovation project initiatives. This task is done by the Chief Product Development Officers (CPDOs). The CPDOs team includes three expert teachers with the background of teaching different "Key Stages" who are responsible to act upon the ideas, evaluating and filtering them, and decide which ideas should be developed further into new concepts and finally be created into new resources. Since it takes time and effort of different internal groups to develop new ideas into actual products, CPDOs try to intelligently filter new ideas while decreasing the probability of rejecting good ideas. As such, CPDOs filter the ideas and prioritize them based on their feasibility and complexity and also the extent to which these ideas can be used in developing multiple resources for various education subjects and activities. To better understand the evaluation criteria, it is important to first describe the product development structure in UKEducation. Figure 31 shows the UKEducation's process map for social media interactions and innovation activities that was drawn up based on the interviews conducted with the firm's employees.
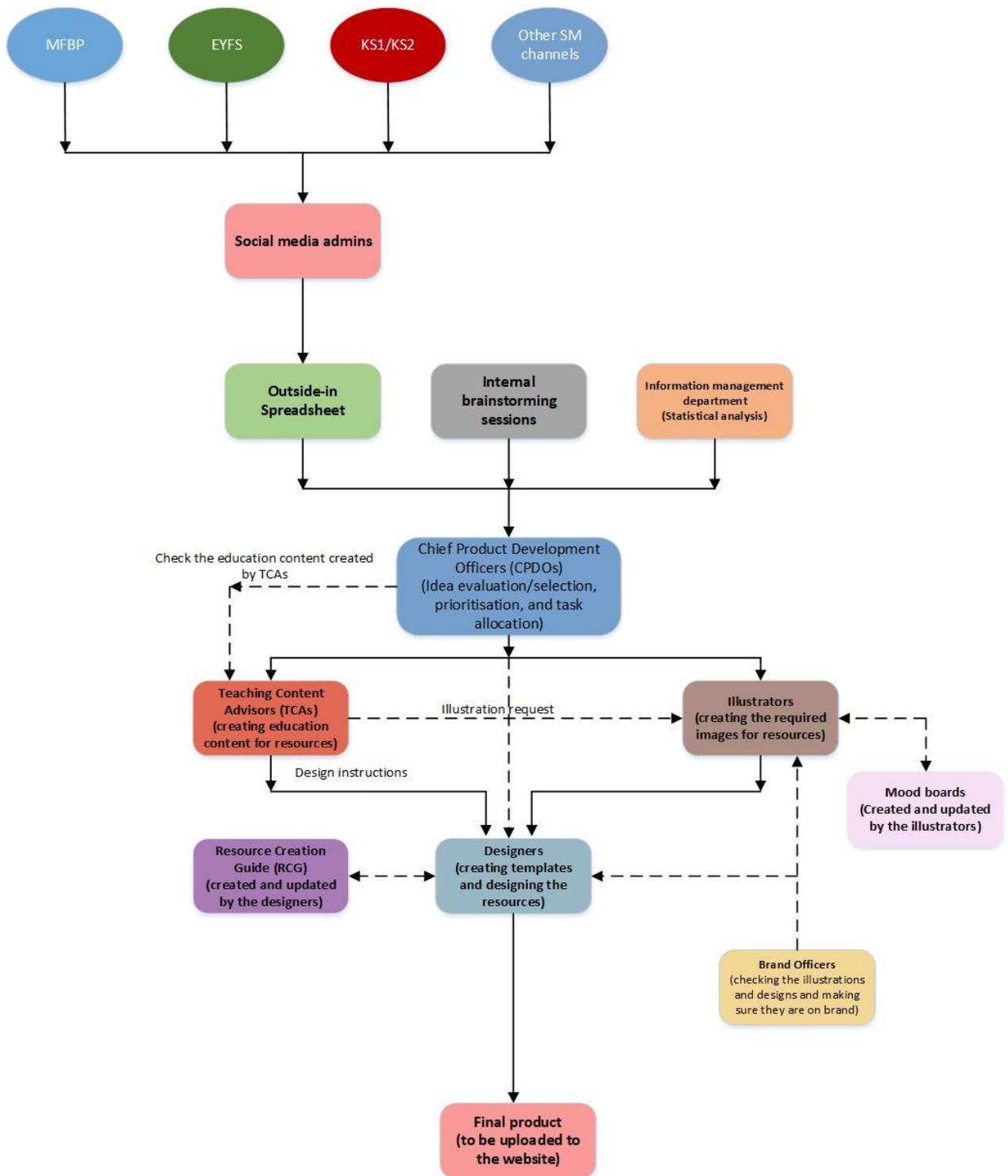
Figure 31: UKEducation's process map for social media interactions and innovation activities

UKEducation produces resources for all education subjects and activities (e.g. Math, English, Science, Physical Education and etc.) of the Early Years' and several Key Stages' groups. For each activity or subject, the company creates a standard range of resources including display banners, display posters, PowerPoints, Flipcharts and eBooks, activity sheets, writing frames and templates, assessment worksheets, word

cards, flash cards, activities and games, adult guidance, resource packs, and many other resources. When a new idea about a specific topic within an education subject (e.g. fractions in math) is decided by the CPDO team to be implemented, they also decide which types of resources from the list should be created for that activity or topic. Then they prioritize and schedule each resource within the company's innovation portfolio, and assign it to the Teaching Content Advisors (TCAs) to develop education content for it, the illustrators to create the required pictures for it, and the designers to create a template where the content and illustrations will be fitted together for that resource in a way that gives users a certain feel of the UKEducation's brand. As the new resource is being developed through the different stages of content creation, illustration, and design, it is also checked at the end of each stage by the internal teams of teachers and brand officers, from the content and design perspectives, to make sure that the resource content is correct and satisfies the expectations and the design also effectively represents the UKEducation's brand. And finally when the resource is fully developed and approved internally, it will then be uploaded to the website and is ready to download by the users.

> *So, we look at the outside-in spreadsheet every day; me and my colleagues [the other CPDO members]; and decide which ideas should be made into actual resources. If there are some links provided for the suggested ideas in the spreadsheet, we also look at them and we try to understand the discussions in the social media space from our own perspective and think about them from the actual resource development point of view. Then, if there is an idea which is quite popular, we make a judgement for it based on our own knowledge and the amount of time that will take to develop it. But as a rule, we are trying to do as much resources as we can from the outside-in spreadsheet. And a lot of times even if an idea is not really popular but it is feasible, then we try to push it forward, depending on our available time and people to do it. But if we are unsure about an idea, we are in a very lucky position here at UKEducation that we can play around with ideas and experiment them to see if they are popular, and then push them forward. So, it's not always about pulling out the popular ideas, but it's about testing the ideas as well. (E_Product3)*

> *So, probably one of the most recent and good examples of resource development would be the PE (Physical Education) resources. The idea came from the outside-in spreadsheet, and one of the CPDO officers took the idea to*

her internal team of teachers and they decided to work on it. The internal team decided about the range of PE activities that should be covered in the resource package, such as tumbling, jumping, dancing, and lots of other activities, and then they also decided about a standard range of resources that should be made for each activity, such as display banners, word cards, challenge cards, and etc. Then each teacher in the meeting took one of the activities, and created content for the resources that were decided to get with that activity. So, this was a collaborative sort of resource development, based on the external ideation. (E_Branding2)

One of the most important criteria for deciding about an idea and its prioritisation, is the number of resources that can be created for different activities and education subjects based on that idea. For example, the assessment worksheets are very popular among teachers, and therefore UKEducation regularly creates new assessment worksheets and improves the existing ones, which enable teachers to work with different formulas to assess their students' progress, and to understand what they already know and what they need to work on. The idea was first developed for English teaching activities, but since it was successful, the same resources were developed for all the other subject areas such as math and science. As such, the design department was tasked to create a set of standard templates for all the assessment worksheets that could be used in different activities and for different subjects by the other designers as they develop more assessment worksheets in the future. The templates were using similar title, wording and branding style and layout, giving a certain feel and a certain look of the UKEducation's brand to the worksheets that can be recognized by the users among all the other non-UKEducation resources. In contrast, the development of a random idea such as the "Long John Silver" for example, who was a real pirate and might be popular for students, would require a considerable amount of time and content creation, illustration and design efforts, but it may result in creating only a few resources such as an information PowerPoint and some display materials. Therefore, although the company would carry on the idea due to its popularity among students, but it may be given a lower priority and be taken forward when the content creators, illustrators and designers have less work to do.

The other important criteria for the selection and prioritisation of an idea is its complexity and the amount of time and effort it needs for the content creation, illustration, and template design. For example, some new ideas may only require minor

amendments and customizations to the existing resources to be tailored to the specific needs of a niche group of teachers. These ideas are relatively easy and straightforward as their development path is obvious and the required content, illustration and templates for the older versions of these resources already exist in the company's archive. Therefore, to develop a new version, the content creators and illustrators may only need to undertake small changes in the existing content or illustrations to fit the resource with the new topic or activity.

> *For example, "Mindfulness Colouring" packages (including several Mindfulness Colouring activity sheets and cards with various themes) are one of our most popular resources that we have been creating since a few years ago. So, as one simple idea, someone in a group may suggest: it might be really nice to have "Space-themed Mindfulness Colouring", in which case we would say, ah this is easy to do, because we already have the "Mindfulness Colouring" templates, and we only need to ask one of our illustrators to create some "Space-themed" illustrations and then pass it to a designer to fit everything on the template, and then upload it to the website (Figure 32). (E_Design2)*

In contrast, there might be some other ideas about totally new topics or subject areas such as the PE resources, or the 1916 Irish rising; mentioned earlier in this chapter; that UKEducation has never considered and created resources for in the past. Therefore, there is no pre-existing content, illustrations and templates for these resources in the company's archive. Such resources should be planned and implemented more carefully, as they would involve different groups of content creators, illustrators and designers to develop all the resources for that topic from scratch and therefore, they might distract the resource creators from their other tasks, as addressed by E_Product 1.

> *For the random or totally new ideas we obviously make decisions on the individually basis. For example, when someone in the groups is asking for some resources about the "Long John Silver", we would think that it takes a lot of illustration time, but then we can only create a few resources such as an information PowerPoint or some support resources on that. So, it might not be a good idea. We will obviously try to carry this idea forward but it would be based on a few different factors. I need to be thinking about the work balance between the different groups such as the content creators, illustrators and designers. So, I need to consider how much illustration does this idea require? How long does*

it take to be illustrated? Is it likely to be something popular enough that we can make money back on that? Because the illustration is expensive. So, if I give that to the illustration team, is that going to stop them from being able to make other illustrations that will give the resource creators enough work? I need to make sure that whatever goes through, we've got enough work for everyone in the building. So, something that requires a lot of illustrations, but you can only make one or two resources on that, is not very good. So, we have to think about all these elements as we are deciding about an idea. It is not always the case to do what is really popular, but it needs to be feasible as well. (E_Product1)

Figure 32: a preview of some Space-themed Mindfulness-Colouring resource packages. Retrieved from the UKEducation's website.
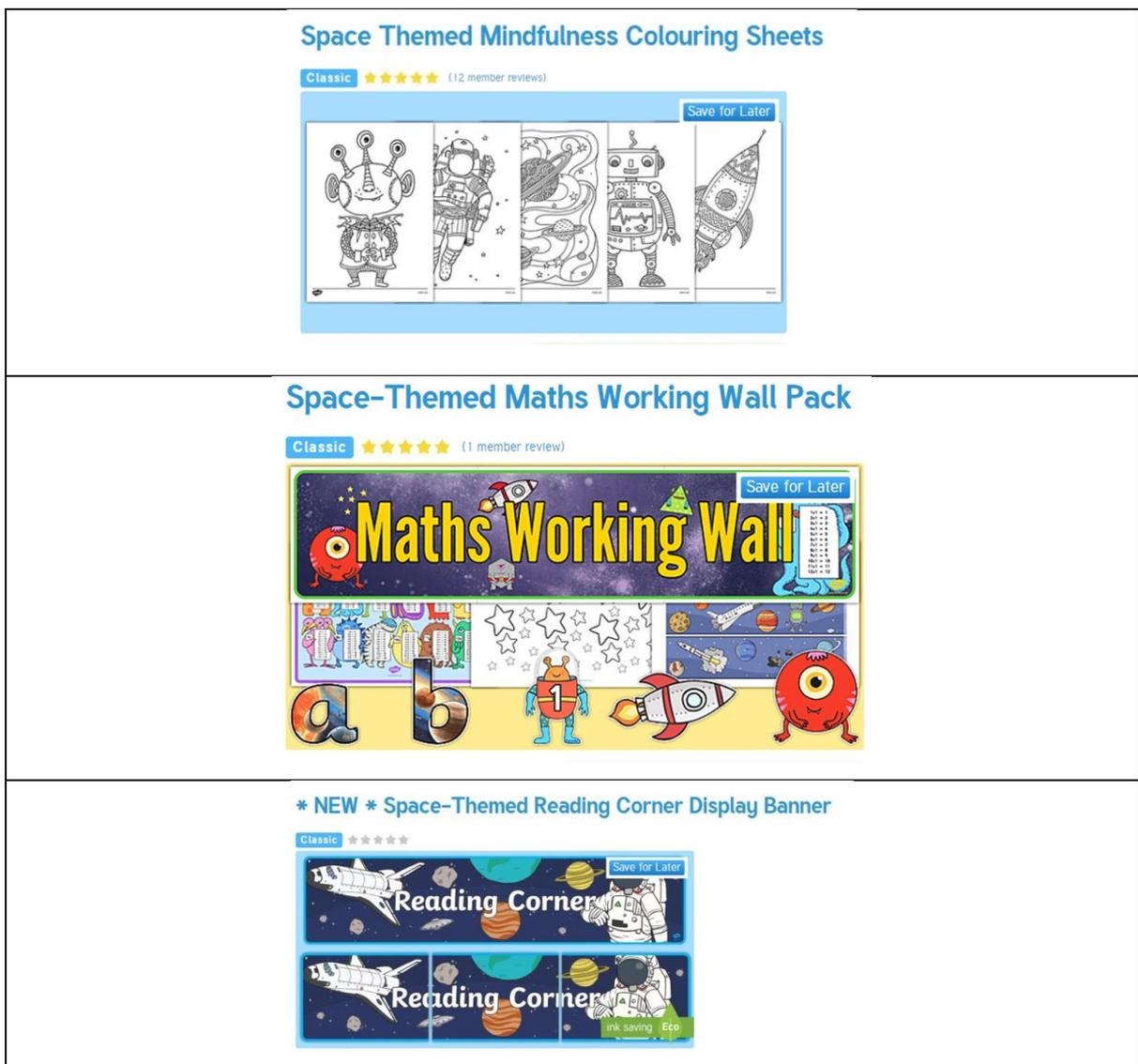
Meanwhile, the interviewees also described additional details about the different stages of resource development inside the company; the content creation, illustration, and template design:

Content creation: A team of experienced teachers who are so called "Teaching Content Advisors" (TCAs) is responsible to create written education content for the resources. The TCAs have specialized teachers who develop content for the Early Years and the different Key Stages. There are also subject-specific teachers within the group such as math teachers who are responsible to develop content for higher Key Stages, like the Key Stage 2 onwards. As TCAs are creating content for a resource, they may also submit an illustration request, asking the illustration team to create specific pictures that should be included in that resource template (i.e. the specific images that should be assigned to any key vocabulary in a work sheet). They may also provide some instructions for the designers in terms of the specific ways that content and illustrations should be fitted together to create that resource. TCAs also involve in the online groups, running surveys and asking the members' ideas and feedback about the resources and their content preferences, which helps them to prepare more useful content for the resources.

Illustration: The illustration team creates all the pictures required for the resources based on the TCAs' requests. The illustration plays an important role towards the visual representation of the brand in the market and for each Key Stage group, as it gives a certain feel about the UKEducation's resources and their particular style for each Key Stage.

> *So, if you see an illustration that we have made, you will recognize that, and will say, ah, that is a UKEducation's illustration. This is because our illustrations are created according to a particular and pre-determined set of aesthetic rules that gives people a specific experience and feel about the illustration style that makes the resources for each Key Stage. (E_Design1)*

All the UKEducation's illustrations are created based on a series of mood boards; a collection of images that gives a mood for each Key Stage of the business and determines the illustration style and the required colours for that Key Stage. Using mood boards is a common technique in fashion design, and for UKEducation it has resulted in having different types of images across the different Key Stages as addressed by E_Illustration1.

So, the images that we use for EYFS and for the other Key Stages are very different from each other, and this is determined by the mood board that we have for each Key Stage. The EYFS mood board for example uses bright colours, black and bold outlines and simple illustrations with less details than the other Key Stages. Everything for EYFS including the text and images are a bit bigger and brighter. Then, for Key Stage 1 the mood board is still quite bright and fun feeling, but the illustrations have more depth. So, an image of a cat in EYFS would be quite simple and cute, whereas in Key Stage 1, it would be a bit more shading and a bit more fur, but the colour palette is still quite similar. And then for Key Stage 2, the picture of the cat would have more texture and depth. So, it would look more like a real cat than the EYFS and Key Stage 1. And people in Key Stage 2 are more like what you would expect in the games. And then, for the secondary school our illustrations are very different from the primary school. So, they don't have any black outline, because we want to make them feel younger. Therefore they've got very similar colour outlines to the actual feel. (E_Illustration1)

So, for the EYFS for example, we want to make sure that the images will connect with the children of that age, and make sure that as they are growing up with our resources, they won't feel bored, because all the way through, we would provide them with the most suitable and exciting resources for their age. We also take into account the teachers that use those resources, as they are different groups of teachers. And we want to make sure that each group will have a certain feel to its resources, because they look and feel in certain ways. (E_Branding1)

The illustration mood boards in UKEducation have been developed and consolidated overtime based on the inputs and feedback that are provided either internally by the TCAs, brand officers, and designers, or externally through the online communities of teachers. Once a picture is illustrated, it would be sent to the designers to be used for developing the resource that it has been requested for, and it will also be archived in a massive illustration bank within the company to be used for other resources in the future.

Template design: once the content and illustrations for a particular resource have been created by the TCAs and illustrators, or retrieved from the company's archive, they are sent to the designers to be placed and fitted together onto a template that they

have specifically designed for that type of resource, and then the resource will be uploaded to the website. Like the mood boards that guide the illustrations' activities, there is also a "Resource Creation Guide" (RCG) in UKEducation which is the brand guideline and provides comprehensive instructions for designing the resources' templates in a way that represent the UKEducation's brand. So, the designers know that when they are tasked to design a word card for example, how the UKEducation's word card should look like, because all the company's word cards should be built on the same template. The RCG determines the templates' layout such as the title, wording, branding, and headers and footers styles and location, for all types of resources. Hence, there is a consistency among the company's resources, and the way they represent the brand, and people who download and use the resources can recognize a certain level of professionalism among the UKEducation's resources. Overtime the company's designers and brand officers have collaboratively developed standard templates for all types of the company's resources. These templates have been developed loose enough, so that each template can be used for designing the same resource for different teaching subjects and activities. The Resource Creation Guide is being refined regularly through several research practices and online surveys that are conducted in the social media groups to identify the members' preferences for various resources. These preferences are combined with the design and branding principles to refine the templates' preview in a way that satisfy both the members' expectations and also the company's branding guidelines.

4.1.6. Internal Communications

At the time of conducting this research, the information management department was developing an internal collaboration platform to change the traditional way of communication within the company by enabling knowledge to flow within the firm and between different departments. The new platforms which is so called the "Resource Creation Process" (RCP) enables employees to keep the track of resources as they are being developed through the different stages of content creation, illustration, and design. The platform enables employees to add notes next to the resources and update their development status. The platform also facilitates communications among people who are involved in the development process of resources, as when they are unsure about the particulars of their task in terms of any specific project, they can post their issue to the RCP, and then people from across the company, from the CPDOs, TCAs, illustrators, and designers could offer their feedback. As such the issue can be solved

within a few minutes. And everyone involved in that project would know where the process is going and how they can align themselves with others. Without the internal collaboration tool, particular issues are sometimes taking hours or days to resolve, especially because many of UKEducation's employees work from home or from outside the UK, like the New Zealand and Australian teachers who collaborate with the firm. These teachers are currently communicating with their UK colleagues by email, which is not an effective way of communication and collaboration for problem solving and product development practices.

4.1.7. Conclusions

The findings from the UKEducation case study suggest that social media has strong positive effects on the information sharing and innovation practices of the firm. The case study throws up some possible answers to the questions arising from the literature review.

The case study findings suggest that the firm and its employees have strong motives for being involved in social media interactions with the online community of teachers. These motives are: brand building, idea generation and innovation, various characteristics of social media platforms, dealing with niche groups and their needs, international growth, employees' background and personal motives, and revenue generation.

The findings also show that UKEducation has a clear strategy for using social media to inform its innovation practices. The company has adopted multiple institutionalized and individualized socialization tactics to generate and establish the flow of conversations and information sharing within its online communities. This has resulted in generating and exploiting inputs beyond the company's boundaries and enables UKEducation to identify creative ideas, current trends, and existing gaps in the market and to work closely with teachers to develop new solutions. The balance of institutionalized and individualized socialization tactics has enabled collaborative control in managing the online communities, in which most of control over communications has been gradually relinquished to the members, and this has enabled the company to more involve in collaboration and co-creation practices with the members. This enhances the sense of community among online members and strengthens their connections with one another and with the firm both collectively with a common cause and relationally at the interpersonal level.

Using multiple social media platforms to interact with teachers, and creating smaller groups around their shared interests have provided an opportunity to understand the members' specific needs as well as their skills, which is an important element in co-creation of UKEducation's products. It has also offered efficiency saving and economies of scale to the company by enabling it to co-design a huge number of resources while requiring less time and staff input and therefore saving financial costs substantially. This is particularly important for UKEducation, since as a medium-sized enterprise, it lacks the capacity to develop and improve all its educational resources on its own. As such, over time the company has developed a full range of resources for all education topics and specific events; for different markets and age groups, that are available on the company's website.

The internal departments and employees of the firm also play a very important role in the innovation process, by collecting external ideas and combining them with their own experiences to expand the existing resources and to develop new ones. The marketing staff are in regular contact with the CPDOs, and transfer all the creative ideas and information collected from the social media channels to them, using the outside-in spreadsheet. The CPDOs' role in the information use is also very central, as they filter the collected ideas and decide which ones to take forward. They also manage the company's whole innovation projects initiatives by prioritisation, scheduling and alignment of the prospective projects, dividing the work between the content creators (TCAs), illustrators and designers, and also by managing the work balance throughout the whole company.

Now that the internal collaboration platform is being developed to change the traditional way of communication within the company, the internal process of decision making and resource development is expected to be further integrated and optimized that would result in enhancing the collaboration between different internal departments. However, the connection between the internal collaboration platform and the outside-in spreadsheet is expected to be a challenge which can reduce the overall capability of the system in the short run. This is because the outside-in spreadsheet is updated manually by the marketing staff, and therefore has a limited absorptive capacity to collect and transfer all the crowdsourced ideas to inside the firm. As such, a substantial piece of work will be required to be done by the information management department to fully integrate the external ideation process conducted through the social media channels with the internal collaboration platform.

UKEducation is an exceptional case among non-high-tech SMEs for its creative business model and extensive use of social media to inform its innovation practices. As such, the company has developed an established relationship with the members of its online communities, which has resulted in ongoing development of new products and services and will make any future initiative easier.

Part 2: UKLegal

4.2.1. Introduction: UKLegal

UKLegal is a UK-based, medium-sized law firm (with approximately 120 staff) with four local offices located in different UK cities that provide legal advice in four major areas of law, namely corporate and business affairs, property, disputes, and personal issues. According to the UKLegal's interviewees, until 2013 the company didn't have a strong internet and social media web presence, with having only 200 followers on Twitter and a static website that didn't help the company to acquire more clients and to gain competitive advantage over other law firms. In late 2013, UKLegal was facing a difficult financial situation and its local offices were struggling to compete with other law firms in their area. The company's managing director (L_Management2) who is an experienced and well-known lawyer was aware that the internet and social media technologies could provide a good opportunity for the firm to gain more clients and to address the confronted issues. However, he also knew that his firm didn't have enough experience and knowledge to re-define its practices based on the new communication technologies. Therefore, he invited one of his friends who was the former CEO and owner (L_Management1) of one of the most successful UK online retailing companies to join UKLegal to help them for rebranding the firm. Once L_Management1 joined the firm as the new managing partner, he led the company's social media strategy, as he had a clear idea in mind for developing and re-aligning UKLegal's new business model based on providing free legal advice on Twitter. He had successfully experienced similar strategy (providing free online services) with his previously owned business in the online retailing sector. As a result he had sold his business for £1.6 billion, and he believed that the same strategy could also be applied in the legal sector.

To implement the new social media initiatives, the company also recruited an experienced social media consultant and manager (L_SM1) to manage the company's Twitter account under the new vision provided by L_Management1. As a result, the company started using Twitter by sharing free valuable legal content with online users to address their general legal issues. The company tweeted several legal questions every day and linked them back to the related answers in an online legal library which was built into the company's website. The company later developed live chat sessions on Twitter called "Legal Hours" to further engage with online members and address their specific and personal legal issues. According to L_Management1&2, the adoption of the new business model based on social media initiatives, changed people's feel

and perception about the brand. They argue that the company's social media strategy on Twitter was successful, as the number of their followers increased from 200 at the beginning to 8,500 by the time of conducting this research (approximately 1 year). The company's managers stated that the provision of free legal advice on Twitter increased the number of their actual clients, and when people needed further legal services such as several legal paper works, UKLegal was the first place for them to go. This is due to the fact that people feel differently about the firm because it supports them by providing free legal advice.

While the UKLegal's managers believe that their initial social media strategy has been successful, the firm's social media consultant (L_SM1) believes that they could develop more advanced strategies to use social media beyond marketing level and for further engagement with the current and potential clients and to also inform other parts of the business such as customer services, internal collaborations and new services development. According to L_SM1, after establishing the initial Twitter interactions with clients, she proposed various suggestions for the next level of the company's strategies. However, most of her suggestions were rejected by L_Management1 as he had no intention to involve in advance level social media interactions mentioned above. From the interviews with L_SM1 and L_Management1, it seems that the relations between these two was not well established, because they had opposing ideas about managing the company's social media channel. Whereas L_Management1 had a more marketing view toward social media influenced by his retailing background, L_SM1 adopted more strategic and all-rounded view that was inspired by her background as a social media consultant. Therefore, after a while L_SM1 decided to leave her job in UKLegal, to engage in more consulting roles as she addressed:

> *Lots of my role in UKLegal at that time was planning the events, implementing chat sessions, and writing and scheduling the content. Moreover, the company was on a crossroad and was thinking where to go next. I offered them variety of suggestions for the next stage of our initiatives. But they would have to change their internal processes, systems and technologies to adopt those initiatives, and they didn't accept that. So, I personally decided not to continue with UKLegal, as I liked to work more as a consultant. (L_SM1)*

After L_SM1 left UKLegal, the company employed a part-time social media manager to manage the company's Twitter account and report to the management. At the time of conducting the research, UKLegal was still distinguished from its competitors for its

innovative use of social media to change the way that legal services are delivered to the clients, but it was also at a crossroad of thinking about its next level strategy.

The research included interviews with the both managing partners as well as the former and current social media managers of the firm. As a part of the netnography a number of the Twitter chat sessions; "Legal Hours" were also retrieved from the company's Twitter account and were analysed.

4.2.2. Motives for Social Media Activities

There are a number of motives for UKLegal to engage in social media interactions with online clients. Firstly, the company's managers were motivated by a vision of building and establishing the company's new brand as an innovative law firm which has changed the traditional way that law is delivered. Therefore, they were interested in using new technologies such as the internet and social media to understand what people want in terms of legal services and support them by providing free legal advice on the internet. This was addressed by L_Management1 as he was describing his role in UKLegal.

> *My role in [UKLegal] is to move the business forward, because law is an industry which is not moving forward. And if it doesn't move forward it will fail. There are lots of people from the outside, who are going to move in and take it over. So, we have to try doing new things and change the way that law is delivered. And one of them is to use new technologies; the internet and social media; and try to do things in a different way.*

L_Management1 then explains how the innovative use of social media in providing simple and free legal advice has distinguished UKLegal from its competitors.

> *So, a lawyer's job is to basically provide legal advice to the clients. Yes, they also do paper works and provide other services. But quite often people will go to a lawyer to get legal advice. So, this is what people need; legal advice. But, what the law firms have been doing on the internet for the last few years is trying to sell people documents. But none of them have managed to be successful, because the legal documents that they sell are too complicated… So, this tells us that what people actually want from a law firm on the internet is to answer their legal questions, and to provide simple answers. So, what they are looking for is "simple law"; simple simple simple law. (L_Management1)*

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Now we are the only law firm in the country that has got big online resources on its website, such as the legal library and the legal glossary. No one else in the country has got these resources. Other law firms are only talking about themselves on their websites. But we are the only one that provides free legal content to our users. Our website is easy to navigate and you can use it on your mobile phone, or iPad, or on your computer, and that is an innovation. So, law is just about answering people's questions and we try to address this need and also to measure what people actually want from us on the internet. (L_Management2)

Secondly, UKLegal's managers are looking at social media as a marketing tool that enhances their interactions with the public and could gain more clients and positive word of mouth for the company. L_SM1 addressed this motive while she was describing her role in UKLegal.

So, I was hired as the company's social media consultant, but I also implemented social media management activities which initially started with managing their Twitter account… When I was hired, the company had no presence on social media at all, and had no activities… and part of my role was to take the firm from A to B; with A is having not much followers, and B is having lots of followers. (L_SM1)

L_SM1 believes that Twitter was the most immediate and direct platform to fulfil the company's marketing perspectives by enhancing its "*influence and reach*" in the market as well as its "*engagement*" with the clients. She argues that using social media platforms in general and Twitter in particular for marketing purposes provides a few possible actions for the audiences to take. These actions are to re-tweet the post, write comment upon it, click on it, and like it. These actions each can either increase the influence and reach of the company in the market, or enhance its engagement with the users. L_SM1 believes that in some platforms such as Facebook these two outcomes (influence and reach, and engagement) can happen together, but on Twitter they can rarely be achieved together, as people often tend to go for one or the other.

So, the influence and reach, and engagement are quite separate things, and they don't necessarily go well together on Twitter. Some content will generate influence which are mainly indicated by re-tweets, but won't encourage engagement. There are some other content that encourage engagement which

are indicated by many comments and replying to the posts, but they won't get
lots of re-tweets. So, engagement will generate a lot of conversations and
comments about the post, whereas the influence would generate a lot of sharing
and re-tweeting the content, but not much interactions. On Facebook there is
less clear cut between these two, but I found that on Twitter these two are quite
separate. (L_SM1)

As such, according to L_SM1 using Twitter has successfully informed the firm's
marketing strategy by empowering the firm to keep a balance between the influence
and reach, and engagement in the market and among users through the use of
different types of content. This has led the firm to create a broader reach as a market
leader, and also to give depth to its interactions with the clients.

So, the question is how does Twitter fit into our business? If the business wants
to create a broader reach and be a market leader, then it may use a type of
content that generates more influence than engagement, for example via re-
tweet, and share. But, if the goal is to gain more engagement, then you need to
have more conversations, comments, etc. So, that needs different type of
content. (L_SM1)

The next two sections (4.2.3 and 4.2.4) describe how UKLegal generated influence
and reach, and engagement through different types of content.

Thirdly, the company's former and current social media managers (L_SM1&2) were
motivated by the potential of social media to leverage the UKLegals' capabilities in
identifying new patterns in legal services and understanding people's specific ideas
and needs, and address them by developing new legal services or online applications
in the future. According to L_SM1, statistical analysis of the online data that is obtained
from the company's Twitter account help to identify the most popular topics, and the
questions that are most frequently asked or clicked upon and checked by the users.
This could help the company to make better decisions about its marketing (influence
and reach, and engagement) strategies and future topics as well as the new services
that should be developed to address people's specific needs.

So, the analysis of the data that is generated in our Twitter account helped me
to understand why some tweets become more popular than others. For
example, if I send a tweet about residential property at 5 pm, and it becomes

popular, does that happen because it has been sent at 5 pm? Or is that popular because of the topic? Or is that popular because of the way that I worded it? Or, is that popular, simply because I didn't tweet other questions? And because we have sent lots of different tweets over a long period of time, we could identify some patterns in the data. So, we could see for example that every time we have posted about start-up businesses, we have seen a lot of activities on the client side. So, this gives us an idea for developing specific services or applications for start-ups. We can also measure what time of the day our audiences have been online. There are some Twitter analytics tools such as "Social Brow" that tells us what time our audiences are online. What do they talk about? And what are their interests? This helps to inform our decisions about our future topics and services and strategies to increase our reach and engagement. (L_SM1)

Fourthly, the company's managers are motivated by the increased value of their business that resulted from using social media to deliver free legal services to the clients. According to L_Management1, during the re-branding process, the company spent little money for implementing its marketing strategies, because it was mainly based on using social media to change the traditional way of delivering legal services. And this increased people's feel and perception about the brand which in turn increased the company's value as well as its revenue.

Basically we didn't use social media to make any money. It was purely a brand building strategy. Let's think how many services you use on your mobile phone or on your computer that you are not paying any money for? But these companies are worth hundreds of million pounds. So, we simply provide free content on our website, so that people feel better about our firm. And giving things away for free, may give a better feel about you. Actually American companies are better in giving things away, and the value of those companies increase enormously. And don't forget my company that I sold for £1.6 billion was giving free services to customers, and we ended up with lots of people using our services and that is worth a lot of money. So, in terms of UKLegal, we re-branded the firm without spending any money on marketing. The only thing we do is social media which we spend very little money on. But our clients and the company's value have clearly gone up as a result of using social media. (L_management1)

4.2.3. Branding and Socialization Activities

UKLegal's branding and socialization activities are mainly driven by the company's strategy to identify what people want from social media and from a law firm on the internet, and trying to address these needs. Therefore, different tactics were tested to identify how social media could help the firm to satisfy people's expectations. As a result, the firm identified that people are most interested in acquiring general information about different legal issues, and to get simple answers to their personal legal questions. Therefore, UKLegal decided to answer people's legal questions through its Twitter account on the daily basis, and to supply an online content that clients could find interesting and useful to address their legal needs.

However, due to the firm's difficult financial situation, its managers wanted to keep the cost of this innovative solution minimal, and didn't want to employ lawyers for writing and developing their online legal content. While the managers were considering different ways of implementing their new social media strategy, L_Management1 built relations with an external legal content vendor that had already developed two major databases that were later called "Legal Library", and "Legal Glossary" by UKLegal. Legal Library was containing around 7000 legal questions and answers based on the UK current law at the time, and it was still under development by adding further questions and answers. Legal Glossary also contained enormous amount of simple meanings to legal terms. The legal content vender had developed these two databases for a different purpose and they had never thought to use them online. However, the vendor's price for each of the databases was only a few hundred pounds, and during the purchase negotiations, the vendor agreed that the databases can be used as online resources by UKLegal. Moreover, the firms signed a contract upon which the vendor would have to update the databases' content when there is a change in the law. Hence, UKLegal successfully resourced its online social media initiative of providing free legal answers to legal questions while incurring minimal costs.

> *So, we purchased the "Legal Library" and "Legal Glossary" each for a few hundred pounds. I know a few other firms that have got these databases as well. But they are not doing what we are doing with the databases. So, the important thing is to see the opportunity and think ah, I know what we can do with this. There are many others who see these databases, but don't think that they can use them on social media. When I spoke to the company that had developed the databases, and said I like to have them, and I like to use them*

on social media, they said "no one else has asked for this!!" No one else!! But I could see the opportunity because I'm a retailer, and my background is customer-based. So, I put myself in the customer shoes, and try to understand how I would feel if I was a customer. (L_Management1)

UKLegal used only its Twitter account to implement its social media strategy because the company's managers found Twitter as the most appropriate and cost effective tool for sharing their legal content with online users. This was addressed by L_Management1 and L_SM1 as follow:

The amount of money that we spend to manage our Twitter account is also minimal. We are not spending thousands a month. We don't employ anybody full-time. We have employed a part-time social media manager for a few hundred pounds who also selects and schedules the questions and answers that are supposed to be tweeted during the week or month and puts them into the software that we've got, and they are tweeted automatically as they are scheduled. (L_Management1)

So, we initially decided to focus only on Twitter. We could have other social media platforms as well. But the company had limited budget and focusing on one platform rather than multiple ones could streamline the cost of resources and the workload of that. I think it's better to start small and then leverage your strategy to other platforms if necessary. The other reason was the direct link between the platform's characteristics and what we wanted to do on social media which was offering questions and providing links to the answers. (L_SM1)

Hence, UKLegal started to tweet several questions about legal issues and legal terms every day, which were followed by short URLs that would navigate users to the answers in the "Legal Library" and "Legal Glossary" that were now built into the company's website. L_Management2 argues that posing questions on Twitter, and offering links to the answers which are built into the company's website creates a "knowledge gap" among users and encourages them to click the URLs and check the answers. He adds, once clients click onto the links and enter into the website, they would not only find the answers, but they also become exposed to the brand and its caring culture and supportive voice that "*UKLegal's approach is to help and support them by providing simple answers to their everyday legal questions*". This approach is also suggested by the institutionalized (structured and collective) socialization tactics

identified in the literature review (Jarvenpaa and Tuunainen, 2013), and builds trust among users and socialize them for further social media interactions with the firm. Hence, users become prepared for the next stage of socialization tactics in which they are more likely to participate in conversations and information sharing practices with the firm and with other community members (individualized socialization tactics).

> *Let's have a look at what we tweeted today: "what is probate?" so, people will be reading it and thinking "what is probate?" is it about this? Is it about that? Or the other question: "how long will it take for a case to come to an employment tribunal?" And then on the Legal Glossary we have asked: "What does absolute mean?" it means complete and unconditional. Or the "note" means a document acknowledging that a debt exists and promising to re-pay the debt. So, people will read the question, think about it, and then will read the answer and will say, ah that's interesting. (L_Management2)*

L_SM2 believes that like all branding and socialization tactics, the language that is used to word communicated messages is very important in creating reach and influence among users and to engage them further in communications. This is addressed in the UKLegal's tweets as follow:

> *Branding and socialization activities on social media is not only about having a clever marketing strategy, but it is also about clear messaging. So, if for example I want to tweet a question about "probate", instead of asking "what is probate?" I may word it like "learn what probate is" or "lawyers often talk about probate, but what actually is it?" so, by changing the way you wording the questions or messages, they become clearer and more engaging. (L_SM2)*

The UKLegal's branding and socialization activities so far, were mainly based on institutionalized tactics that communicated legal questions and answers from the company towards the online clients in a push mode. L_Management1&2 argue that this strategy was successful as it created a broad reach and influence among users within the UK and also the other commonwealth countries, because many times the company's legal content were re-tweeted by people and even by other law firms in these countries. L_SM1 however, argues that although this initial social media strategy enabled the firm to gain a good reputation within the legal services sector, it didn't lead to community creation and establishment, and therefore, it didn't generate much engagement among users. As such, the shared legal content via Twitter was less

followed by users' comments or generated conversations among them. Hence, to enhance engagement and information sharing among users, L_SM1 suggested to implement live Twitter chat sessions on pre-announced specific legal topics that were later called "Legal Hours".

So, sharing the "Legal Library's" and "Legal Glossary's" content via Twitter was successful as most of our questions were re-tweeted by people and even by other law firms which was quite interesting. We found that people in commonwealth countries are also reading and re-tweeting our content. But the re-tweets were generating more influence than engagement. So, the downfall of this tactic was having less engagement than I would like. Posing questions means that we've got great things to offer. This generates influence by increasing re-tweets, shares, clicks, and traffic on the website. So the brand is definitely seen as an established and influential brand. But if we wanted to amplify the benefits of using social media, we needed to also increase people's engagement in conversations and information sharing practices. So, I felt the only way to do that was to have live interactive Twitter chats, and we started that. (L_SM1)

4.2.4. Information Sharing Activities

Whereas the institutionalized socialization tactic of sharing legal questions and answers from the company to the online clients via Twitter increased the company's followers, it didn't engage people in online conversations and information sharing practices with the firm. To address this issue, and to amplify the benefits and values of using social media, L_SM1 conducted a business case suggesting to run live interactive Twitter chats with clients on pre-announced legal topics.

I could see that sharing questions and answers via Twitter was increasing our influence and reach and we were growing in number, but we didn't have enough engagement. So, the only next level was to increase engagement. But I didn't want to do that in an expensive way. So, I put a business case forward to UKLegal about doing live interactive Twitter chats. It looked like a simple proposal explaining to the management: what is a Twitter chat? Explaining what it is with some links to the relevant articles, why should we do that? To increase engagement while expanding our influence and reach at the same time, what would that look like? That would look like a lawyer and a social media person

managing a live engagement, what would be the pre-activities? Advertising the topics in advance and engaging people through social media, what would happen during the chat sessions? And then finally how would we report, analyse and use the acquired data? So, I presented this small business case to the management, and they said ok, let's try it. (L_SM1)

Hence, the "Legal Hour" chat sessions were organized and implemented by UKLegal. The chat sessions were initially planned to be conducted every two weeks, with each session lasting about an hour. According to L_Management2, Legal Hours were set up to provide genuine legal advice to the online clients. He adds that unlike many Twitter chats that are based on open conversations around lots of people about different subjects, "Legal Hours" were organized to provide a more streamlined, Q and A sessions about pre-announced and specific legal topics. During each "Legal Hour", there was a Lawyer sat with the company's social media manager, answering and debating the questions, and then a secretary who was typing up the answers and a moderator who was welcoming people into the conversation, engaging with them, taking their questions, and uploading the answers. Depending on the topic, sometimes people with other expertise might be added to the UKLegal's team for each Legal Hour. These expertise could range from property agents (i.e. when the Legal Hour's topic is "property law") to accountants, to employment agents (i.e. when the Legal Hour's topic is about "Employment Law"), and so forth. The company's managing directors (L_Management1 and L_Management2) were also present in all Legal Hours, managing the process. Due to the limitation of characters in Twitter's communications, the management decided to answer the proposed questions during the Legal Hour by creating live blog posts on the company's web site. L_SM1 describes the actual implementation of a Legal Hour as follow:

We advertised the topic for each Legal Hour session about a month in advance, and invited clients to get their questions ready for the Legal Hour. And then once the chat session started, people would start asking their questions. In the room there was a lawyer sat with me answering and debating the questions, and a moderator who was welcoming people into the conversation, engaging with them, and taking their questions. Once a question came in, we would acknowledge straight away by responding and saying "Thank you for the question. We will get to that question as soon as we can". And then the questions were written on a post-it-note and were placed in front of the lawyer

to be answered. And next to the lawyer was sat a secretary who was typing the answers. All answers were uploaded as blog posts onto the company's website and then we just shared the link to each answer on a tweet while having the username of the person who asked the question, tagged on the tweet. So, we would tweet for example: "Hi [username], here is the answer to your question. Have a great day". Sometimes there might be some questions that had already been answered in the "Legal Library" or "Legal Glossary" or during previous "Legal Hours". In such cases we would share the link to the answer immediately. (L_SM1)

According to L_Management1, the topics of the first few chat sessions were selected randomly by the company's managers. But overtime, the statistical analysis of the chat sessions as well as differences in people's responses to each topic helped the management to identify the most popular and successful topics and to make more strategic decisions based on the trends. This also led the company to adopt a specific strategic approach in conducting each Legal Hour session as addressed by L_Management1:

Initially the topic selection was not hugely strategic because we were doing it for the first time. So, in the first few chat sessions we were just saying let's try a topic. But then, as we did more of it, we found the topics that were most popular and successful. We also identified interesting differences in responses to different topics. So, the "Family Law" for example was the quietest session, and people were sending us private messages with their questions, because they didn't want to ask questions about their family issues such as divorce online, for the privacy reasons. But the "Employment Law" was opposite. People asked a lot of questions even when they knew their employees or their bosses could see that. Then we had the "Residential Law" for example, and for that we had a property agent and a property lawyer in the room as well. So, we learned to have a strategic approach for each Twitter hour. So we tend to look at the topic and see what are the key things that influence people's behaviour? When for example people buy properties most often? What are the special activities around the topic? And then try to plan each topic at its best time. (L_Management1)

As described by L_management2, Legal Hours also increased the size of "Legal Library" because some of the questions and answers during the Legal Hour sessions

were later added to the "Legal Library". And this was done in a way that didn't cause problems for the regular updates made by the "Legal Library's" vendor to the company's database. Implementing "Legal Hours" as an individualized socialization tactic enabled the company to engage more people in mutual conversations with the firm and enhanced information sharing about legal issues among online users. Although the specific focus of each Legal Hour to a particular legal topic, and the company's central management and control of the sessions, didn't allow the online users to lead the conversations, but the sessions could still reflect the diversity in their views and experiences about legal issues and also reflect their expectations about the company's future initiatives. According to L_Management2, Legal Hours could also expand the reach and influence of the company, because while UKLegal is a regional law firm, it received legal questions from all over the country during each live session. This shows that the UKLegal's institutionalized (sharing questions and answers from Legal Library and Legal Glossary via Twitter) and individualized (Legal Hours) socialization tactics have been successful to address people's needs for free and simple legal advice which was lacking in the legal sector. However, L_SM2 reported that since L_SM1 had left UKLegal (a few months before conducting this interview) and he was appointed as the company's social media manager, they have not been able to continue the Legal Hour sessions, because L_SM2 was new to the field and it takes time for him to familiarize himself with the way of organizing such live interactive sessions. But they were planning to run the sessions again in the near future.

4.2.5. Information Use Activities

The interviewees reported a number of innovations as a result of using social media by UKLegal to interact with clients. Firstly, they report the creative use of social media to change the traditional way of delivering legal services as an innovation in itself. Secondly, they believe the use of social media to interact with clients has resulted in extensive improvement in the company's language for communicating legal issues. L_SM1 argues that the language used by law firms is often jargon and heavy in a way that is not easily understandable for their clients. She explains that online interactions with clients and answering their legal questions via Twitter have enabled the company's lawyers to learn how people talk about law and understand it in their own words. Hence, by mimicking their language and simplifying complicated legal issues, the company's lawyers have been able to communicate with clients more effectively.

Thirdly, the interviewees spoke about their innovative marketing strategy which has increased the overall influence and reach, and engagement of the brand by sharing the "Legal Library's" and "Legal Glossary's" content via Twitter and conducting live "Legal Hours" to address people's specific legal issues. For L_Management2, social media has enabled the firm to communicate its caring culture and supportive voice with clients, and encourage them to engage in mutual communications with the firm. He suggests that this could generate extensive ideas and develop and improve the company's current and future services. However, L_SM1 argues that to leverage the benefits of using social media, particularly to inform the company's innovation practices, (i.e. to use people's ideas and feedback for developing new legal services), UKLegal should have a clear vision about its next level social media strategy and implement a high level online data collection and analysis structure upon that to fulfil its strategic objectives.

According to L_SM1, the information acquired from social media activities; particularly "Legal Hours" sessions; can be used to leverage the firm's innovations in at least three levels apart from the marketing. These three levels are internal collaborations, customer services, and new products and services development.

As described by L_SM2, when a company like UKLegal grows in size and spreads its offices to different geographic locations, implementing collaborative social network platforms inside the firm could leverage collaboration and teamwork among employees and integrate their internal workflow with the firm's external social media interactions . Such integration will help employees who are not directly interacting with online clients, to learn first-hand about the needs and expectations of current and potential clients. And internally, it could facilitate communications between lawyers in different local offices of the firm, and enhance problem solving among them, which in turn improves the company's legal services. Hence, internal collaboration platforms can help the firm to better use external information acquired from social media, and to inform the other two advance initiatives which are improved customer services, and new products and services development.

L_SM1 argues that using social media can also improve and change the nature of customer services operations, as it transforms these operations and people complaints from being an internal or private process to a social activity. Nowadays people can see how well are companies responding to people's complaints, whereas in the past it was not clear how well employees were responding to customers' phone calls and emails

or how well the companies were addressing people's issues. L_SM1 describes that the use of social media has also increased the workload of customer services' teams and many of them don't know how to manage customer services through social media. As a result, many companies are deliberately ignoring engagement with customers on social media and are reluctant to use customers' feedback to improve their products, services or internal processes, because this will require them to change their internal systems and technologies, and implement internal social media platforms and several data mining and analytics tools, and will also increase the workload of their employees. L_SM1 believes that these companies want to get all the benefits of social media, but not to incur any of its challenges. She emphasized the importance of using social media to improve customer services in organizations as follow:

> *It has been statistically identified that any complaint on social media is the tip of the iceberg, and it's the canary in a coal mine. The idea of the canary in a coal mine is the old miners' expression. So, a canary would be able to smell gas in a coal mine, and it would signal people to get out of the mine before exploded. Unfortunately the canary would generally die, but the coal miners will hopefully stay alive. So, the point of a complaint on social media is that it reflects the feeling of customers out there. So, to have an objective for encouraging people to share their complaints means to make complaining easy for customers and being welcoming to that which enables us to find all the negative feelings that exist, and to use the acquired data strategically to identify and address the issues… There is a book called "Hug your haters" which is about using social media to improve customer services. There is a case study within the book about a company that has got a new customer services' director who wants to increase the number of complaints by 300%. This is really counter intuitive, because his colleagues would say if you want to show you have improved your processes, you should reduce the number of complaints. But he said absolutely not, because if there is an issue out there, then we want to find it. We want to do everything possible to make sure we are getting that data. So, we will put signs up in all our stores saying "please tell us your feedback, please tell us your complaints". (L_SM1)*

Therefore, L_SM1 argues that one the UKLegal's downfalls in its social media strategy is to pay less attention to engaging people in mutual communications with the firm. She adds, while sharing the Legal Library's and legal Glossary's content via Twitter

takes place in a push mode from the company to the clients, even the Legal Hours sessions that are supposed to engage people in online conversations and information sharing practices are also strictly focused on streamlined legal questions and answers. And this avoids people to freely discuss their opinions, and share their expectations and complaints with the firm. Additionally, the company's managers have no intention to implement a systematic online data collection and analysis structure upon the legal chat sessions, to actively identify and address people's expectations and their potential complaints.

L_SM1 believes that having a clear and advance social media strategy and a high level data collection and analysis structure from the outset, will not only lead to internal collaborations and customer services innovation, but will also help the company to build on these initiatives for developing new products and services, as many high-tech companies do. However, L_SM1 argues that having an advance social media strategy needs the company's transformation from being a business that is using social media as one of its many tools, to a social business that is using information from social media to inform its strategic decisions internally and externally. In her opinion, many businesses start from the easiest part which is using social media as a marketing tool but rarely move to more advance levels. She argues such is the case for UKLegal, as it has not yet decided to leverage its social media strategy to more advance levels beyond marketing.

For L_SM1, having an advance social media strategy also depends on the nature and context of the business and on the company's size as well. For example, in a company such as UKEducation, continuous learning and development of teaching practices are important parts of their daily routine activities, whereas in law firms like UKLegal things move slowly and within a standardized and pre-determined framework to ensure that all activities are legally accurate. As a result, products and services innovation in the education context is much easier than the legal context. Therefore, UKLegal as a law firm has found that innovation in the way of delivering legal services is easier and less challenging than innovation in the nature of actual services. L_SM1 also argues that SMEs could easier implement advance social media initiatives than larger firms due to a number of reasons. Firstly, SMEs require less resources to implement such initiatives than large firms. Secondly, they would face less barriers during the implementation process. And thirdly, due to the size of SMEs, their departments often can better collaborate with one another to introduce such changes than the larger firms.

4.2.6. Conclusions

UKLegal is at a crossroads and is thinking about the next level of its social media strategy. Although its marketing strategy has been successful to increase the reach and influence of the brand among online users, it has been less successful to engage people in mutual conversations and information sharing practices with the firm. As a result, it has not yet expanded the company's innovations to other parts of the business other than marketing, such as internal collaborations, customer services, and new services development.

UKLegal is driven by a number of motives to engage in social media activities with online clients. First, to re-build and establish its brand as an innovative law firm that has changed the traditional way of delivering legal services. Second, to use social media as a marketing tool to increase its reach and influence in the market, and to engage in mutual conversations with clients. Third, to use social media for identifying emerging legal patterns. And fourth, to increase the company's value by providing free and simple answers to people's legal questions via Twitter.

To increase its reach and influence in the market, the company regularly tweets several legal questions from the "Legal Library" and "Legal Glossary", and links them back to the answers that are built into the company's website. This creates a knowledge gap among users, and communicates the company's supportive voice once the clients enter into the website to check the answers for the questions.

To increase people's engagement in online conversations and information sharing practices with the firm, UKLegal set up live Twitter chat sessions in which the firm's lawyers were answering the clients' questions on pre-announced specific legal topics. The live Twitter chat sessions increased mutual conversations between the firm and online clients, because clients were sharing their legal issues, experiences and opinions with others during the sessions. Additionally, the communicated legal questions and answers during the chat sessions, often encouraged other clients who had experienced similar legal issues in the past to share their views and opinions about the problem and its possible solutions in different conditions and contexts. Moreover, depending on the topic of chat session, sometimes UKLegal invited some people with other expertise to the Legal Hours to share their expert views about the topic of interest with the firm and its clients. These expertise could range from the property agents, to accountants, to employment agents, and etc. The involvement of these experts in the

chat sessions often generated collaborative discussions between the experts and the firm's lawyers about the clients' legal issues. These collaborative discussions sometimes led to generating new ideas for addressing the clients' legal issues, and also leveraged the organizational learning in UKLegal. As a result, the company reflected the new insights that had obtained from the discussions by adding new blog posts to the "Legal Library", explaining alternative solutions to address legal issues. However, Twitter chat sessions did not stimulate co-creation and new services development between the firm and online clients. The company's social media managers argue that the lack of a clear social media strategy for innovation and a high level data collection and analysis structure that could help the firm to identify new patterns in legal services, were the main reasons to avoid co-creation take place between the firm and its clients. They also argue that the formal structure of chat sessions and their focus on streamlined questions and answers affected the creativity of clients and the firm's employees, and reduced the likelihood of generating collaborative discussions among clients that could help the firm undertake new innovations.

Chapter 5: Discussion

5.1. Introduction

The previous chapter has outlined the findings from the two case studies of social media-enabled innovation in SMEs, UKEducation and UKLegal. This chapter will discuss these findings in the light of the constructed theoretical framework, exploring the four main themes which contribute to the development of the framework: branding and socialization, information sharing, information use, and Maturity.

The internet and social media technologies have provided an opportunity for firms to create online communities where customers and other community members can engage in value co-creation with firms by submitting product reviews, providing feedback, suggesting ideas, identifying new sources of innovation, and co-creating new solutions. However, engaging people in online communities and information sharing practices, and using the acquired information from social media to introduce innovative solutions is not easy and can be challenging for the individuals and organizations involved. Therefore, this research has explored the research question:

1. How do social media-based interactions influence the innovation practices of small and medium-sized businesses?

> 1.1. How does social media influence information sharing between small and medium-sized businesses and their external stakeholders?

> 1.2. How is information from social media used internally by small and medium-sized businesses to support their innovation practices?

The literature review for this thesis has been undertaken to identify relevant research relating to the research question. It explored the changing nature of social media adoption and the evolution of innovation practices overtime, and provided an overview of the academic and practitioner perspectives on the current position of social media-enabled innovation in organizations. It also provided a rich source of knowledge on issues of social media-enabled innovations, such as the challenge of empowering individuals to participate in open innovation activities, and cope with the enormous volume and variety of data that is acquired on crowdsourcing platforms, which makes the effective exploitation of these data a serious challenge for firms. These challenges were found to be important themes for all organizations in general and for SMEs in particular. The literature review also provided some understanding of the factors

contributing to successful adoption of social media platforms and effective use of online communities and the acquired information from them to overcome the challenges and to inform successful innovations. A number of reports on the impact of SMEs' innovations in development of economies as a whole, and the role of new technologies in such innovations were also examined.

The grounded theory procedures supported by the interpretive epistemology together with the key themes which emerged from the literature review (chapter two) were used to develop a research protocol for the two case studies of this thesis. The methodology is described in chapter three and the case narratives are included in chapter four.

During the empirical field study for the research, a model of social media-enabled innovation has been developed (Figure 33). It emerged iteratively from the consideration of the literature review and the themes which emerged from the case study narratives. The model has four stages, and each stage consists of two key components: branding and socialization (including institutionalized and individualized tactics), information sharing (including idea generation and co-creation, and information aggregation), information use (including information absorption, and new product or service development), and maturity (including product or service launch, and sustainability of the process). Although the model explores a number of similar broad themes to those identified in the literature (Boon et al, 2015; Schlagwein and Bjorn-Andersen, 2014; Leonardi, 2014; Jarvenpaa and Tuunainen, 2013; Majchrzak and Malhotra, 2013; Blohm et al, 2013; Di Gangi et al, 2010), it adds new insights by exploring further sub-themes within each broad theme, integrating the themes together, and exploring different issues from those investigated in the literature, reflecting differences in the context of the research case studies.
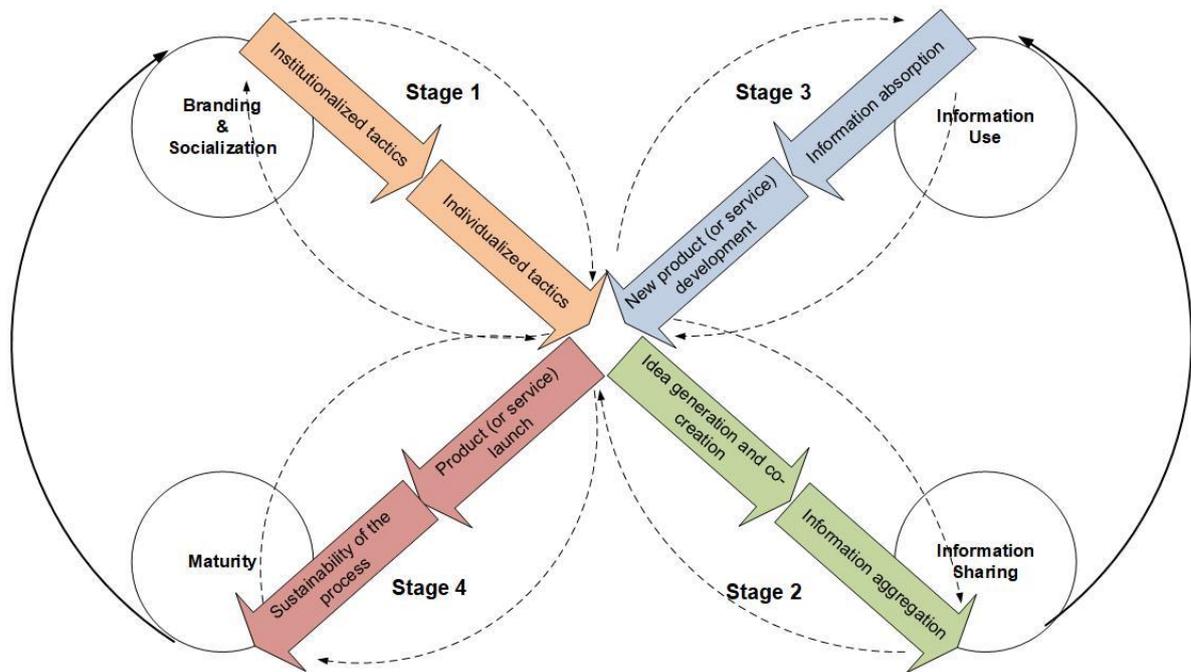
Figure 33: Model of social media-enabled innovation

This chapter explores the model of social media-enabled innovation (Figure 33) as it was developed during the two case studies. Section two discusses the vision, strategy and motives of the two case studies to engage in social media interactions with people. Section three considers how people should be socialized and prepared to participate in information sharing practices with the firm. Section four looks at the information sharing and idea generation activities among online community members, section five explores how the information from social media should be used internally by the firm to develop new products and services, and section six discusses the maturity of the model and how the whole process should be embedded and sustained within the organization and among its audiences to reap the long term benefits. So, the aim of the model is to help SMEs to socialize their external stakeholders via social media platforms and involve them in online information sharing and idea generation practices to identify, evaluate, develop, implement and exploit new products and services more efficiently and effectively.

The model reads from the stage 1 to stage 4, and although it has distinguishable stages, these stages and the steps within them have overlaps and occur concurrently. As such, the branding and socialization, information sharing, information use, and maturity stages have overlaps and can take place concurrently. The X-shape of the model indicates the integration and overlap between its different stages. And the two iterative loops on the two sides of the model emphasize this integration and ongoing

nature of the model. Additionally, the iterative loops around the activities of each stage of the model also show the overlap and iterations between these concepts. For example, the institutionalized and individualized tactics in stage one have overlaps and occur concurrently.

5.2. Vision, Strategy, and Motives

Vision and strategy emerged from the literature review as important factors affecting the success of social media initiatives in the long run. The literature review also suggest that having strong motives for engaging in social media interactions is also influential in the adoption of different social media features, and in realization of the firm's strategic objectives (Allen et al., 2011). According to Jarvenpaa and Tuunainen (2013), open innovation with social media requires a vision that moves beyond any particular initiative, and remains focused on long-term goals through shorter-term initiatives. Literature review on the development of social media initiatives across the enterprises shows companies are using social media mainly to improve their marketing, innovation, leadership and operations practices (Kane et al, 2014). Although for many firms, marketing objectives are the main components of value creation from social media activities, the story for businesses with long term vision and strategy does not end there. These businesses may start by using social media to improve their sales and marketing practices, but overtime they move beyond marketing objectives to create a holistic social business. As such, they integrate external social media channels into their internal systems and processes to improve decision making in different areas of the business such as innovation, leadership, and operations (Majchrzak and Malhotra, 2013). The literature suggest that being a mature social business requires major organizational transformations that take a long time and repeated experiments. However, the firm can move forward toward these strategic objectives in small, incremental steps. Each specific step helps to move up the firm's maturity scale and leads to better results (Kane et al., 2014; Jarvenpaa and Tuunainen, 2013).

UKEducation initially started its social media activities by a vision of creating and establishing the company's brand within the UK and international market as a leader and the major provider of online education resources for early years' students. As such the company adopted multiple strategies to guide its social media activities towards their vision. UKEducation first undertook activities that introduced the firm as a major source of information and problem solving to the community of teachers that could

save their time and reduce their work pressure by providing them with help and support and various resources to address their dynamic educational needs. This strategy builds trust among online community members and echoes the company's supportive voice and caring culture as it is also reflected in the company's branding message "we are kind to you, be kind to yourself". As a result, the firm was enabled to get much closer to the online members and to communicate with them directly in the groups. UKEducation created several online communities on different social media platforms, and used the various attributes of the platforms to pursue its strategies at different levels and to approach different groups of audiences. This is reflected in the interviews of UKEducation's employees who argued that "for any new targeting market, having a social media group is necessary for the firm, to facilitate interactions with teachers in that area, to identify the market's characteristics and needs, and to understand their curriculum".

Apart from the management, UKEducation's employees (particularly the marketing staff) also demonstrate strong motivations and personal interests for engaging in social media interactions with the community of teachers. This is due to their in-depth knowledge and professional experience of using social media in their previous jobs together with their teaching background.

Overtime UKEucation moved its social media interactions beyond the branding and marketing objectives to create a holistic social business. The company expanded its social media capacities by using multiple social media platforms as useful tools for pedagogical research to identify the market trends and existing gaps in educational resources. The company encouraged online members to collaborate in developing new solutions for teaching practices and issues, and used their ideas as a major source of ideation for new products and services development. As such, UKEducation integrated the acquired information from social media with the internal systems and processes to inform most of its innovations and product development practices.

This is reflected in the company's collaborations with smaller and niche groups of teachers to identify and address their special needs that cannot be addressed through the bigger public groups. According to the interviewees, when the company's main Facebook groups get bigger, and divergent patterns become apparent among their members, the company creates smaller niche groups from the main communities, where individuals can find like-minded members with whom they share interest, and develop personal relationships. This leverages trust among online members and

encourages them to contribute information and innovative ideas and to collaborate with the firm more actively.

As was described in the findings chapter, the smaller niche groups that are so far created by UKEducation can be classified in three categories:

- "Pastoral groups" that are aimed to address special needs of the children who are experiencing specific situations or disabilities.
- "Wellbeing groups" to support teachers who are experiencing stress and pressure at work.
- "Curriculum groups" to support special needs of specific education groups such as Childminders, Home Educators, Moderators, etc.

The increased collaboration between UKEducation and online members results in high level values such as efficiency saving and economies of scale for the company by enabling it to co-design a huge number of resources while requiring less time and staff input and therefore saving financial costs substantially. This is particularly important for UKEducation, since as a medium-sized enterprise, it lacks the capacity to continually develop and improve such a huge amount of educational resources on its own.

Moving the UKEducation's social media activities beyond marketing to realize collaboration and co-creation objectives, has also leveraged the firm's revenue substantially. The ongoing collaboration between the firm and online members has turned the company's website to a one-stop shop for teachers that offers different types of teaching and educational resources and encourages them to subscribe to the company's website to download and use the resources.

To sum up, UKEducation demonstrated a long term vision for becoming a mature social business. However, the company moved toward this vision in small, incremental steps. It started with using social media for branding and marketing purposes, and then moved toward online pedagogical research, encouraged collaboration and co-creation among members, and finally integrated information from social media into its internal processes to develop new products and services (Figure 34). Hence, the analysis of UKEducation's case study also shows a clear strategy to guide the company's social media activities towards their vision.
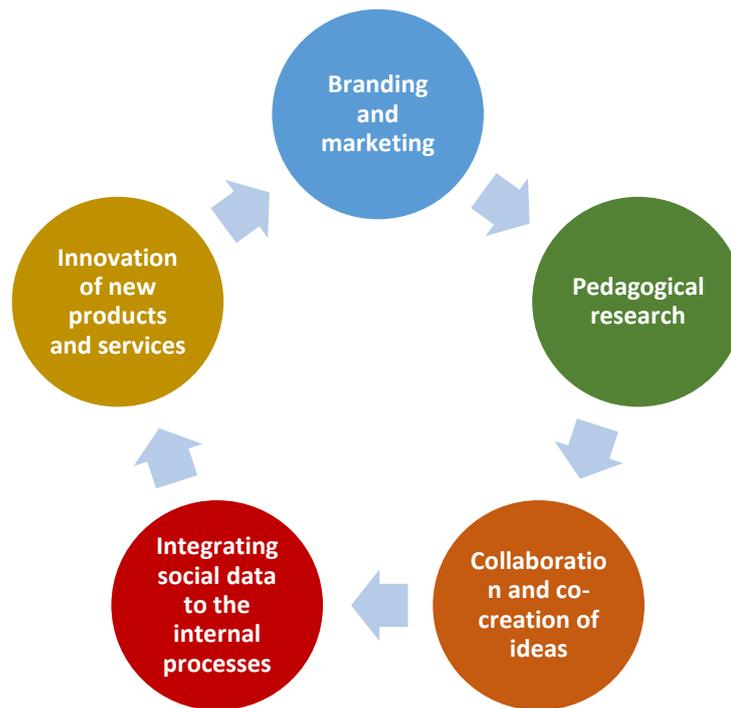
Figure 34: UKEducation' vision for social media adoption

In the following sections of this chapter the company's social media and innovation strategies (which constitute the four stages of social media-enabled innovation model) would be discussed in detail.

UKLegal's vision for using social media is to build and establish its brand as an innovative law firm which has changed the traditional way of delivering legal services to clients. The company has a clear strategy to pursue its brand building vision by using Twitter to provide clients and potential clients with free legal advice and simple answers to their legal questions. This strategy has leveraged the UKLegal's interactions with the public and has gained more clients and positive word of mouth for the company.

Unlike UKEducation that has developed multiple online communities on different social media platforms, UKLegal is only using Twitter to communicate with people, because the company's managers believe that Twitter is the most immediate and direct platform to fulfil their marketing perspectives which are an increased "*influence and reach*" in the market and in-depth "*engagement*" with clients.

However, while the UKLegal's managers argue that their social media strategy has been successful to increase their reach and influence in the market, the company's social media managers argue that this strategy has been less successful to create engagement, and idea generation practices among clients. The analysis of UKlegal's case study suggests that the company lacks a long term vison and strategy to move

its social media activities beyond marketing, and this has resulted in limited engagement on the client side, and unclear data collection and analysis structure that does not lead to innovation of new services.

The research interviews suggest that unlike UKEducation in which the main motivation for engaging in social media activities is to establish and sustain collaboration and open innovation between the firm and community of teachers, in UKLegal there was opposing motivations for the adoption of social media. On one hand, the company's social media managers (L_SM1&2) were motivated to move their activities beyond marketing, and expand their social media capabilities to identify new patterns in legal services and market needs, and to integrate this information into the company's core operations to innovate new offerings. On the other hand, the company's managers were mainly motivated by the increased value of the business resulted from using social media to deliver free legal advice to the clients. Therefore, there was no intention among the company's managers to move their activities beyond brand building and marketing to pursue long term visions such as collaboration and open innovation. This conflict of interests in UKLegal resulted in L_SM1's frustration, and finally she left the company. Hence, UKLegal's live chat sessions (Legal Hours) were stopped since then. Table 15 summarises the vision and motives of UKEducation and UKLegal for engaging in social media activities.

Table 15: UKEducation's and UKLegal's Vision and motives for engaging in social media activities

	Vision and motives	
UKEducation	• Brand building and marketing • Pedagogical research • Collaboration and co-creation of ideas • Integrating social data with the internal processes • Efficiency saving and economies of scale • Innovation of new products and services • Generating revenue for the firm	
UKLegal	Managers and social	• Brand building and marketing • Increasing the company's influence and reach in the market • Increasing the value of the business by using social media to deliver free legal advice to the clients

	media consultants	• Increasing engagement with clients
	Social media consultants	• Integrating information from social media with the company's internal workflow to innovate new services

5.3. Branding and Socialization

The first theme in the model of social media-enabled innovation (Figure 35) is branding and socialization, how the firm builds trust among online users and engage them in online conversations and information sharing practices to co-create new solutions. Therefore, it relates to the first sub-question for the research which is:

1.1.   How does social media influence information sharing between small and medium-sized businesses and their external stakeholders?

Two aspects of branding and socialization emerged as areas of interest during the study which are institutionalized and individualized socialization tactics. Executing these tactics to achieve the goal is undertaken by a number of lower-level processes. These tactics and processes are explained below in turn, but first a brief description about the importance of branding and socialization activity is provided.
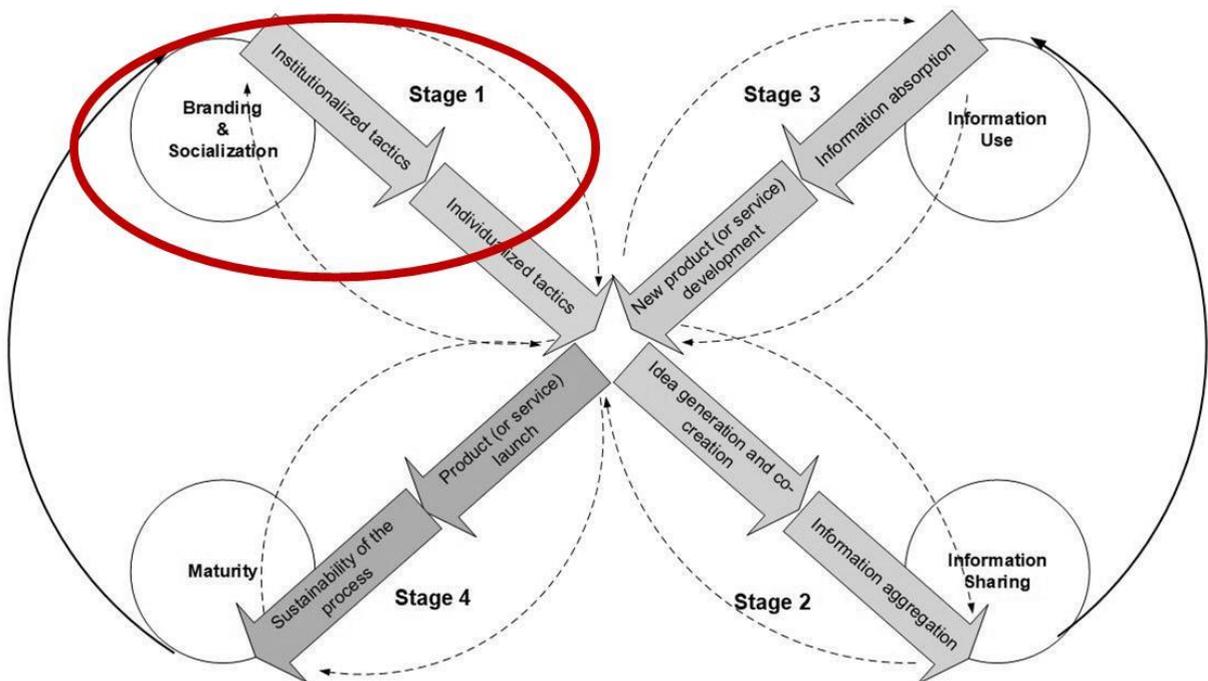
Figure 35: Stage 1 of social media-enabled innovation model

Companies with advance social media vision and strategies establish online communities to involve their users in collaboration and open innovation practices to differentiate and customize their products and services and to offer greater variety and choice (Jarvenpaa and Tuunainen, 2013). Individuals' participation in online collaborations enable these companies to continually innovate by generating and exploiting useful inputs beyond the company's boundaries (Majchrzak and Malhotra, 2013). They are enabled to work closely with online community members and exchange tacit knowledge reciprocally that results in a high volume and variety of innovative ideas (Blohm et al., 2013). However, Boon et al. (2015) and Jarvenpaa and Tuunainen (2013) suggest that to prepare individuals for participation in online collaborative approaches, a firm needs to implement two types of socialization tactics; institutionalized and individualized, to create a sense of community and partnership with the company among its online members.

5.3.1. Institutionalized and Individualized Socialization Tactics

As has been described in the literature review chapter, with institutionalized socialization tactic, the company starts promoting direct interactions with individuals by generating initial threads and conversations, and controls the communicated messages and information that is presented in online communities (Jarvenpaa and Tuunainen, 2013). This tactic often involves company-appointed agents, such as marketing and salespeople, brand managers or community managers, who communicate the company's values and try to create a sense of community, and identification with the firm and its brand among members (Gilpin, 2010). Therefore, this tactic mainly operates from the company towards the online community in a push mode or one-way manner by generating content that encourage people's engagement in conversations and collaboration practices.

On the other hand, with individualized socialization tactic, control over interactions and online conversations is mainly relinquished to the community members, and the company plays more of a supportive role. This tactic operates in a pull mode (from the community to the company) and fosters diversified views and expectations about the company and its products, services and operations in an informal manner that could result in addressing the unique needs of individuals. Therefore, it promotes peer-to-peer interactions and varied experiences (Jarvenpaa and Tuunainen, 2013).

The literature review suggest that to build trust among members and to socialize them in online communities, a combination of institutionalized and individualized socialization tactics should be adopted. A right balance between these two tactics is necessary to nurture and protect the user/organization relationship, to engage individuals in conversations, and to manage their expectations before problems arise (Leonardi, 2014; Di Gangi et al., 2010). Jarvenpaa and Tuunainen (2013) argue that using only institutionalized tactic avoids mutual interactions between the firm and individuals. And the separate use of individualized and institutionalized tactics can also create a void by not stimulating online discussions.

The results for this study suggest that **UKEducation** has undertaken a combination of institutionalized and individualized socialization tactics to build trust among its online community members and to engage them in mutual conversations with one another and with the firm. In terms of institutionalized tactic, the company is continually generating multiple informal threads within the communities about education topics, upcoming events, and the new resources that have been prepared for teachers. The company has widely involved its marketing officers, brand managers and community managers in online interactions with members to support them by giving them advice on various teaching aspects and their wellbeing situation. Creating specific educational blogs on the company's website also provides a comprehensive guide for users to download and use each group of the company's resources more effectively. The company's community managers also ask regular questions in the groups and conduct product development surveys inviting members to share their opinions, experiences and expectations with the firm which result in development and improvement of UKEducation's products and services while communicating the company's supportive voice and caring culture with the community members.

Once the community members become socialized and involved in conversations, the company relinquishes control over communications to the members and undertakes more individualized socialization tactics. Hence, the company's brand managers and community managers become more involved in collaborative activities with the members to co-create new ideas. By creating smaller and niche groups around members' shared interests, and conducting regular chat events around specific education topics, the company's employees and community managers are stepping into the customer shoes and try to identify the strengths and weaknesses of their

resources. So, new ideas are generated that can be further evaluated and developed by the community.

Hence, the combination of institutionalized and individualized socialization tactics has enabled the firm to successfully engage its community members in online discussions and co-creation practices with the firm. As such, UKEducation has adopted collaborative control principals for managing its social media platforms by ensuring that members are in charge of communications and content generation, but the firm provides sufficient resourcing, and monitoring, and maintains control over the configurations and timescales of initiatives, and when needed, swifts corrective actions.

Unlike UKEducation that has adopted mixed socialization tactics, the **UKLegal's** branding and socialization activities are mainly based on institutionalized tactics, because they are sharing legal content (legal questions and answers) with their clients and potential clients through the company's Twitter account in a push mode and formal manner (push mode), with a fixed sequence and defined timetable. Hence, UKLegal tweets several questions about legal issues and legal terms every day, and provides short URLs that navigate users to the answers in the "Legal Library" and "Legal Glossary" databases that are built into the company's website. The company's managers believe that posing questions on Twitter and offering links to the answers which are built into the company's website creates a "knowledge gap" among users and encourage them to check the answers. And once they enter into the website to check the answers they become exposed to the brand and its values, by receiving simple answers to their legal questions.

Although UKLegal's managers believe that this institutionalized tactic has enabled them to increase their reach and influence in the market, the analysis shows that they have been less successful to engage clients in mutual conversations with each other and with the firm's employees. Therefore, the company conducted live Twitter chat sessions (Legal Hours) as a more individualized socialization tactic to create a sense of community among users and encourage them to participate in mutual conversations with the firm. However, this solution also didn't offer an effective way for clients to discuss their legal issues as a group, and only enabled them to ask broad legal questions and receive general answers from the firm. As such, UKLegal was less successful to generate engagement and collaboration among users, and this may be partly due to the management's vision that was mainly focused on marketing strategies

and therefore didn't employ more effective individualized tactics that could stimulate information sharing and mutual conversations among members. There are also other reasons for the limited conversation and collaboration among UKLegal's clients, such as the adopted platform, and the context of legal sector and the culture of interactions in this context that would be discussed later in this chapter.

The following sub-sections discuss the details of activities and processes undertaken by UKEducation and UKLegal to execute their institutionalized and individualized socialization tactics.

5.3.1.1. Experiment with Multiple Social Media Platforms

Using appropriate social media platforms by a firm is the most fundamental criteria to stimulate information sharing among individuals, as they need to be able to communicate with each other effectively. However, the adopted platforms in many cases affects the user-organization relationship and avoids effective communication between them (Boon et al., 2015). The structure and specific characteristics of each social media platform affect the way that individuals could generate contributions and interact with other contributors. This structure shapes the creative activities of members and affects the structure, format, and quality of their proposed ideas (Blohm et al., 2013). For this reason Jarvenpaa and Tuunainen (2013) argue that each social media platform can work for one purpose for a while, whereas another one can focus on something else. Therefore, a combination of multiple social media platforms is required to fulfil the dynamic objectives of the firm that are continuously in flux. The authors have concluded that using a single social media platform cannot stimulate members' participation in co-creation practices.

The literature reviewed for this study also suggest that social media in general and crowdsourcing platforms in particular can result in generating high volume and variety of data that complicates its effective exploitation by the firm. The increased volume and variety of contributed ideas can inhibit companies, particularly SMEs, to effectively understand, evaluate and implement the ideas (Blohm et al., 2013; Di gangi et al., 2010). Therefore, adopting appropriate platforms could also support the crowdsourcing, and increase the value of crowdsourced ideas by mitigating the challenges of volume and variety, and facilitating the evaluation, dissemination and assimilation of ideas (Riedl et al., 2013).

UKEducation has adopted various social media platforms to communicate with online members, including Facebook and Twitter groups as well as live chat sessions and discussions within the groups, Instagram, Pinterest, forums and blogs and the company's website. These multiple ways of communication encourage different groups of members to share their experiences, knowledge and issues about different teaching-related areas with others. This is particularly helpful for generating new ideas and leveraging the collective learning among members.

UKEducation's Facebook groups provide a useful tool as a fast and highly individualized channel for interacting simultaneously with a variety of community members, while also allowing members to interact with each other. These groups promote collaboration among members by enabling them to post their ideas and enquiries, and also explore, comment, like, and refine existing contributions. Creating smaller and niche Facebook groups by the firm and conducting regular chat sessions as an individualized tactic, further enhance collaboration among members, because they engage members in regular brainstorming sessions in which they collaboratively discuss different views and assumptions about an idea or a given problem to refine the idea and resolve a critical issue that was previously unresolved. This also improves the quality and understandability of generated ideas, and reduces the evaluation, dissemination and assimilation challenges. The above reasons have made Facebook, the core technology for UKEducation to co-create innovative ideas for its new products and services.

The use of Twitter and the company's weblog is also highly influential to engage more professional and highly educated members, such as educational researchers and writers, in pedagogical research and other collaborative activities with the firm which often result in generating new content about particular education topics. Twitter is also the main communication platform for the secondary school teachers, as their students rarely have Twitter accounts and therefore could not track the teachers online, whereas on Facebook they might be identified and followed by their students. Pinterest and Instagram are also used by the company to promote its various resources and to measure their popularity among members.

UKEducation's website is also equipped with a user toolkit that helps to standardize the process of framing and submitting an idea. When members post their ideas through Facebook or other social media platforms, many times they cannot include the necessary details of the ideas due to the technological limits. This in turn, limits the

firm and also other members to understand the ideas appropriately. Moreover, many ideas and comments posted by the members are based on their specific experiences and therefore contain a tacit knowledge dimension that is difficult to express through existing social media platforms such as Facebook, Instagram or Pinterest. This could easily lead the firm to misinterpret an idea or disregard it too quickly, and could also generate little support for the idea among community members (Di Gangi et al., 2010). But the user toolkit provides functions and components that facilitate the appropriate transfer of ideas and knowledge from members to the firm. The user toolkit which is built into the UKEducation's website enables members to upload their prototypes including content and design specifications such as templates and illustrations. It also classifies the contributions by the resource category which helps UKEducation's employees to identify and reduce duplicated ideas and make sure that the selected ideas for implementation are unique and include enough and the right kind of details. This substantially reduces the amount of time required for the refinement of initial idea and allows the firm to spend more time on examination of the viability of the idea for implementation.

Despite the fact that UKEducation, as a medium-sized enterprise, has limited resources and capacity for innovation, the use of multiple social media platforms has empowered the firm to tap into the creative potential, knowledge, and experience of a huge crowd of teachers. This enables the firm to continuously innovate and develop new resources on the daily basis. As such, all the company's social media platforms are focused on the ultimate goal of the company which is open innovation and development of new ideas and solutions through keeping up the flow of conversations among members; offering them help and support, and identifying current trends and gaps in the market.

UKLegal is only using Twitter to communicate with online clients, because the company's managers believe that Twitter is the most appropriate and cost effective tool for implementing their social media strategy which is sharing legal content with their clients.

We could have other social media platforms as well. But the company had limited budget and focusing on one platform rather than multiple ones could streamline the cost of resources and the workload of that. I think it's better to start small and then leverage your strategy to other platforms if necessary. The other reason to use Twitter

was the direct link between the platform's characteristics and what we wanted to do on social media which was offering questions and providing links to the answers. (L_SM1)

Although Twitter has been a useful tool for UKLegal to spread its legal content in the virtual environment and therefore has increased the company's reach and influence in the market, it did not allow members to engage in lengthy discussions with each other and with the firm that could result in co-creation of new ideas. This is partly due to the Twitter's word limit which does not allow clients to engage in detailed conversations about their legal issues and experiences, and partly due to the company's institutionalized socialization tactic which is based on sharing legal content from the company towards clients or answering their legal questions through blog posts which cannot be edited or commented upon by clients.

5.3.1.2. Community Building

Another important aspect for socializing online members is community building. The literature review emphasize the importance of online communities with self-organizing social structures in enhancing crowdsourcing and co-creation of new ideas (Teo et al., 2011). Such communities empower the firm to continually acquire new members, and socialize them around a common cause and shared interests which is a key driver of information sharing. Online communities with self-organizing social structure improve the absorptive capacity and effective exploitations of contributed ideas, because the company will need fewer resources for managing the community, as most of these activities are relinquished to the community members and are performed in a self-organizing manner (Blohm et al., 2013).

UKEducation has created several vibrant communities, particularly on Facebook (i.e. the company's main communities such as MFBP, EYFS, KS1/KS2, and KS3/KS4) through which has attracted a critical mass of contributors to participate in information sharing and idea generation practices. These communities result in a high volume and variety of crowdsources ideas, and enhance the inflow of the evaluations, comments, tags, likes, and refinement of initial ideas that facilitates data evaluation for the company.

According to Blohm et al. (2013), to tie new members to the online communities and to stimulate ongoing participation and information sharing among all members, they have to be emotionally integrated into their communities. To achieve this, UKEducation creates smaller niche groups from the main communities as they grow in size and

become hard to manage and divergent patterns among their members become apparent. These smaller groups enable members to find other like-minded people with whom they share interest and could develop personal relationships. Although members in the main Facebook groups share a lot of useful information with their peers, they feel less passionate to participate in conversations that are not relating to their specific needs and interests. However, in the smaller groups, members quickly develop and internalize a shared culture which helps them to develop a better understanding of each other's experiences, issues and contributed ideas, and to actively engage in collaboration and co-creation of new solutions which are related to their specific needs and interests. These characteristics enable UKEducation to set an agenda for the type of contributions it is seeking in the smaller groups (Boon et al., 2015; Blohm et al., 2013). Apart from the UKEducation's main Facebook groups, at the time of the research the company had created 36 smaller groups classified in three categories: Pastoral groups, Wellbeing groups, and Curriculum groups. And the work was being undertaken to extend this service to more groups and increase uptake. These efforts resulted in having developed 186 groups at the time of writing this report.

Emotional integration in UKEducation's communities is also enhanced by applying more individualized socialization tactics such as building self-organizing and self-governance social structures that enable members to actively engage in the management of the communities. The assignment of specialist teachers as the Facebook admins for these groups (for example having a Home Educator teacher to manage the Home Parent Education group, or a Childminder specialist to manage the Childminder group, etc.) has increased the emotional integration in the groups, as members feel their needs are better understood and addressed by the group admins. This integration strengthens interpersonal ties among members and between members and UKEducation's employees, which facilitates information exchange, and idea evaluation and dissemination.

In contrast, UKLegal had no current strategy for community building and for engaging people in co-creation activities as a group. Instead, the company's strategy is to share legal content, and answers to legal questions publically on Twitter to increase its reach and to acquire more clients who participate in asking questions and read and re-tweet the company's legal content.

5.3.1.3. Strategic Positioning of Key Personnel within the Communities

Although the ultimate goal of branding and socialization activities is to increase individualized socialization among members and empowering them to actively engage in idea generation and the management of communities, the strategic position of the company's employees in these communities should not be neglected. As such the company should determine the role of its key personnel such as the group admins, brand managers, and R&D employees within the online communities to promote direct interactions between the members and the firm's key decision makers, and effective exploitation of contributed ideas (Boon et al., 2015; jarvenpaa and Tuunainen, 2013; Di Gangi et al., 2010).

The UKEducation's community managers mostly have teaching background and some of them are also part of the branding or product development departments of the firm. The netnographic analysis of UKEducation's groups suggests that the community members are interested in direct interactions with the firm's key decision makers, and these interactions also help the members to develop better and more feasible ideas that are aligned with the company's objectives. This has reduced the time cycle for the evaluation and implementation of the ideas by the firm. For instance, the CPDO (Chief Product Development Officers) officers regularly share the right examples of creative ideas that have led to development of promising resources in the past. This leverages the conversations and tacit knowledge exchange between members and the firm, and increases the transparency of the firm's decision making process and finally leads to high quality contributions in the future. Additionally, Boon et al. (2015) suggest that when a company shares its knowledge with members, it makes it clear that information is owned by the community and not only by the firm. UKEducation's employees also engage with the community to give them advice, ask their ideas, and resolve their problems. They also write blogs about different educational topics and the company's resources.

The UKLegal's employees such as lawyers and the company's social media managers also participated in direct interactions with clients during the live Twitter chat sessions (Legal Hours). However, some differences were apparent between the UKEducation's and UKLegal's employees' interactions with clients. For UKEducation, employees engage with the community through their own personal accounts and the company did not put any format and structure constraints on their conversation with online members. In contrast, for UKLegal, employees were allowed to interact with clients only during

the Legal Hours sessions and with a pre-determined purpose of answering their legal questions. All the employees also have to interact with clients through the UKLegal's Twitter account rather than their own personal accounts. It seems that these limits and structure constraints have reduced the creativity of both employees and clients, and the likelihood of development valuable solutions or sharing valuable information that the company could act upon. This finding supports Amabile's (1988) research that emphasizes the role of environmental factors, such as resources in the task domain (i.e. the type of social media platform adopted by the firm), skills in innovation management (i.e. allowing employees to engage in detailed conversations and collaborative approaches with clients), and motivation of the firm's senior managers to innovate (i.e. having a long terms social media strategy that informs the firm's innovation practices), in stimulating creativity and information sharing among employees and external stakeholders.

5.3.1.4. Rewarding Active Members

As has been described in the literature review chapter, information sharing research suggest that the intrinsic and extrinsic motivations and incentive structures is a factor affecting the individuals' participation in online conversations and co-creation practices (Battistella and Nonino, 2012; Boudreau and Lakhani, 2009). As such, individuals who stand out because they help other members or serve the community's objectives and values as a whole should be rewarded both intrinsically by giving status and appreciation, and extrinsically through economic and monetary advantages or career benefits (Adler and Chen, 2011; Jeppesen and Frederiksen, 2006).

UKEducation provides both intrinsic and extrinsic incentives for active community members. It offers free subscriptions to the company's online resources as an extrinsic reward as well as intrinsic personal satisfaction for individuals who have contributed creative ideas and well-developed prototypes by turning their ideas into actual resources. Active members are also appreciated and recognized by the company and their peers for their contributions, and therefore gain enhanced reputation within the community, and feel a sense of self-worth and enjoyment. In addition to providing incentives and rewards for the members who have contributed valuable content and well-developed ideas, UKEducation also reward members based on the amount of contributions they have made, such as the number of posted threads and ideas (regardless of whether or not their ideas are selected for further implementation), or the number of comments that they have made on others' ideas.

UKLegal has not offered any particular incentive structure for online interactions, because these interactions do not lead to collaboration and idea generation among clients, and they are only focused on answering people's legal questions.

5.3.2. Conclusions: Branding and Socialization

The combination of institutionalized and individualized socialization tactics and the subsequent activities that are performed by UKEducation, builds a sense of community among members, and connect them with one another and with the firm both collectively around their mutual interests, and relationally at the interpersonal level. UKEducation has undertaken several experiments with multiple social media platforms and online communities to build this identification and sense of community among members and to prepare them for active participation in information sharing and idea generation practices with the firm.

The UKLegal's clients also demonstrated their interest in obtaining free legal services delivered by the firm through its social media channel. As such the company successfully increased its reach and influence in the market. However, the company's socialization tactics did not create a sense of community and identification among members and therefore, they were less engaged in valuable conversations with the firm. Hence, to build more specific bonds with clients, UKLegal initiated live Twitter chat sessions (see the next section).

Table 16 summarises the stage one of the social media-enabled innovation model, and the activities and processes undertaken by UKEducation and UKLegal to execute this stage. Table 17 summarises the tools used by UKEducation and UKLegal at this stage.

Stage 1	main activities	lower level processes	UKEducation	UKLegal
Branding and socialization	Institutionalized socialization tactics	- Experiment with multiple social media platforms	✓	
		- Offer platforms that allow for member-to-member communication	✓	✓
	Individualized socialization tactics	- Community building	✓	
		- Form smaller groups around shared	✓	
		- Strategic poisoning of key personnel within the communities		

			UKEducation	UKLegal
		- Generating informal threads	✓	
		- Engaging the company's employees in online interactions with users	✓	
		- Writing blogs on the company's website	✓	✓
		- Asking regular questions and conducting surveys in the groups	✓	✓
		- Reward members who help the community	✓	
		- Using a single social media platform (Twitter) to communicate with clients	✓	
		- Sharing legal questions and answers with clients via Twitter		✓
		- Conducting live chat sessions to interact with online members		✓
			✓	✓

Table 16: The stage 1 of social media-enabled innovation model, including the activities and processes undertaken by UKEducation and UKLegal to perform this stage.

Table 17: The tools used by UKEducation and UKLegal to perform the first stage of social media-enabled innovation model.

	UKEducation	UKLegal
Tools	- Multiple social media platforms (Facebook, Twitter, Pinterest, Instagram) - The company's weblog - UKEducation's website with built-in user toolkit	- Using a single social media platform (Twitter) to communicate with clients - Legal Library and Legal Glossary (two databases built into the company's website)

5.4. Information Sharing

The second theme in the model of social media-enabled innovation is information sharing (Figure 36): the way that online community members actively engage in idea generation and co-creation with the firm, and the way their contributions are collected and transferred inside the firm for further considerations. Like the previous section (branding and socialization), this section also relates to the first sub-question for the research which is:

> 1.1. How does social media influence information sharing between small and medium-sized businesses and their external stakeholders?

Two aspects of information sharing will be explored here: idea generation and co-creation; and information aggregation. Executing these activities is undertaken by a number of lower level processes. These are all explored in turn in this section.

Figure 36: Stage 2 of social media-enabled innovation model
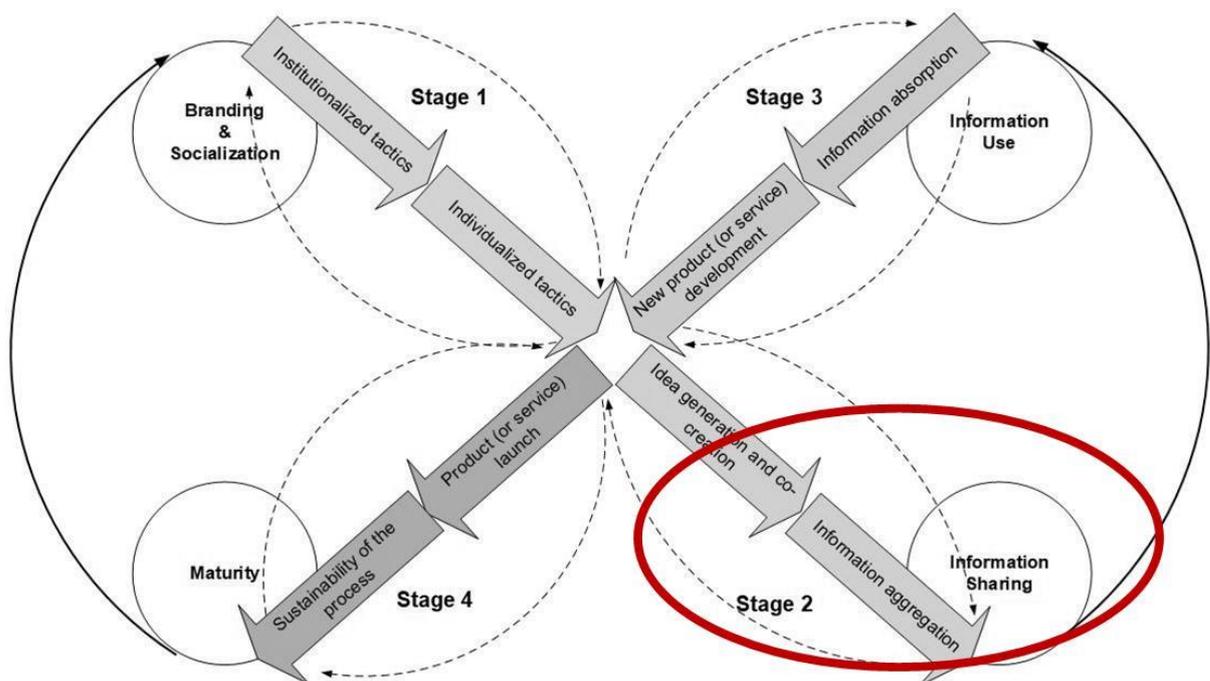
5.4.1. Idea Generation and Co-Creation

Idea generation and co-creation activity involves participants making contributions and collaborating as a group via the company's multiple social media platforms and communication channels. These contributions may range from generating ideas for incremental innovations such as feedback that improve current resources, to solutions

that could result in radical innovations such as developing prototypes for entirely new types of products and services that solve the existing gaps in the market and address specific needs of the members.

Crossan et al. (1999) have proposed a model which is known as one of the most influential and universally accepted models of organizational learning (Schlagwein and Bjorn-Andersen, 2014). This model illustrates the learning process in organization which transitions from individual level (employee) to group level (teams) and finally the organizational level (Figure 37). In Figure 37 the three grey symbols show the three different levels of organizational learning (individual, group, organizational); the upward arrows show the contributed ideas that are initially expressed by individuals, and then are refined by their team members, and finally have been implemented at organizational level. The downward arrows also indicate the feedback of organizational learning for the three levels.
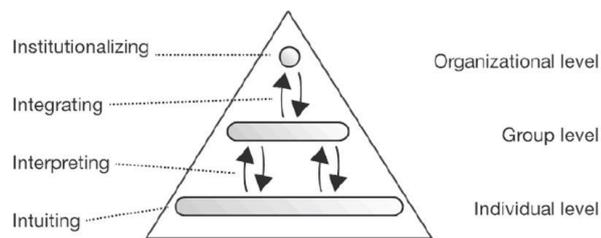
Figure 37: Organizational learning (adapted from Crossan et al.,1999)

The results for this study suggest that Crossan et al.'s (1999) three-level model also can be used to explain the information sharing stage (idea generation and co-creation, and information aggregation) in the social-media enabled innovation model. In the Crossan et al.'s model the all three levels of organizational learning were undertaken internally by the firms' employees and often independent of IT initiatives. However, in the social media-enabled innovation model which has been developed during this study, these three levels are performed with the collaboration of online community members and are heavily dependent on social media platforms.

Idea generation at individual level

Community members are initially intuiting ideas and hunches individually which are so called "ideations" (Schlagwein and Bjorn-Andersen, 2014). For UKEducation, these

ideas and hunches occur frequently among individual members of the company's online communities who are teachers and therefore have valuable personal experiences that allow them to recognize patterns and needs or see inherent possibilities for being more creative in teaching practices. Creativity theories literature often describe the creative process as a divergent process which is then followed by a convergent process (Amabile, 1988; Guilford, 1967). In the divergent process, individuals suggest several new ideas by making unconventional but valuable combinations and connections between different areas of knowledge or different contexts where there has been no connection before (Fauconnier and Turner, 2002; Amabile, 1988). Therefore, crowdsourcing platforms and communities that represent a broader range of individuals' backgrounds and experiences, are likely to generate more creative ideas by blending different contexts and thoughts. As a result, the crowd's ideations in such communities collectively offers a divergent creativity that spans the firm's boundaries, in contrast to traditional experts' intuition within the firms' R&D department (Schlagwein and Bjorn-Andersen, 2014; Majchrzak and Malhotra, 2013).

The interviews and netnographic observations for this study suggest that the UKEducation's community members are more likely to identify new combinations with other contexts, while the company's internal experts and innovation officers were more likely to develop new resources and content that required in-depth teaching knowledge of different key stages. One example of blending different contexts by the UKEducation's community members was the hunch that the space-themed activities (i.e. Tim Peake's travel to the international space station) could be combined with curriculum-based teaching topics to develop more exciting resources for children. This idea finally resulted in development of a range of new space-themed teaching resources for KS1 students.

As such, social media platforms have enabled external individuals to collaborate with the company's internal professional employees to develop new creative resources. In fact, individual ideations within the UKEducation's communities could have different creative effects on the company's products and services. These effects are not just about reducing the costs of resource development by offering efficiency saving and economies of scale, but they are also about offering different and complementary types of ideas to those that are normally developed within the internal departments of the firm.

For UKLegal, although the live Twitter chat sessions (Legal Hours) are more streamlined question and answer sessions between clients and the firm's employees about pre-announced legal topics, they provide an opportunity for clients to share their personal experiences and opinions about legal issues with their peers and also with the firm. Further, these chat sessions attract clients with diverse backgrounds to share very different experiences and solutions for the same legal issue in different conditions. As such, they enhance diversified views about the same issue and provide a combination of experiences and solutions for the legal issues in different contexts. This can help the company to identify new patterns and implications of legal issues in different contexts, and to take actions for addressing the clients' legal needs in these contexts.

Co-creation at group level

For UKEducation, individuals articulate their ideas and contributions in different formats ranging from text-based descriptions to pictures and graphic visualizations of their home-made resources or their activities in the class, to fully developed prototypes with actual product design specifications (including the teaching content, illustrations and template design for the proposed resources). These contributions are posted by members to the company's Facebook groups and chat sessions, or could be submitted through the user toolkit (which is so called the "request system") built into the company's website.

The posting of an idea starts a discussion thread which can then be followed by other members who may choose to contribute by adding comments on the posted idea or post their own idea and start a new discussion thread. As such, the members engage in a process through which they collectively communicate, discuss and interpret the proposed ideas which result in better understanding and refining of ideas or recombining the existing posts into other ideas.

In fact in the co-creation step, participants involve in a convergent creative process in which the ultimate goal is to discuss multiple viewpoints, assumptions and perspective about issues and potential resources to consolidate different ideas and to evaluate the best ones (Majchrzak et al., 2012). Therefore, even members who were not able to propose creative ideas individually, at least are able to participate in collective interpretation and evaluation of others' ideas. However, this research didn't find a specific pattern in evaluation of creative ideas by the UKEducation's community members, because the evaluation process for each idea was found to be more dependent on the nature of that idea and its use for teaching purposes. But the results

for this research support the creativity theories literature that argue the divergent process of individual ideations is followed by a convergent process of collective discussions and co-creations that reveals the most promising ideas.

This research also shows that the process of idea generation and co-creation is not effectively possible for UKEducation without online social media platforms and communities. This is in contrast with traditional innovation models where ideas are created and interpreted by the firm's internal departments in isolation. Social media platforms have made information sharing between UKEducation and external individuals possible that provides a new and potentially disruptive way for innovating the company's resources. To continue the above example, the KS1 Facebook group members immediately identified the promising potential of the space-themed resources for teaching different KS1 education topics, once the initial ideas were manifested and uploaded on the platform using the concept of Tim Peake going to the international space station. As such the ideas received many likes and votes within a few hours, accompanied by positive comments containing teachers' creative space-themed activities in the class.

However, to maximize individuals' creativity, UKEducation does not apply any format and structure constraints on posted ideas to the social media platforms (although the company has built a user toolkit into its website to standardize the process of framing and submitting ideas). This is because the company tries to extract as many solutions and well-developed prototypes as possible that could potentially lead to development of new resources. As a consequence, many of contributions particularly those that are posted on the company's main Facebook groups may lack sufficient focus, specificity and generativity required for a high value solution. Therefore, they may not generate collaborative discussions among members and may not lead to generative co-creations which is a fundamental requirement for innovation from diverse sources. This could lead to a range of comments from emotive (e.g. "great idea!!") to highly prescriptive (e.g. "if you change this content or design in this specific way, it might be more interesting") to content-free (e.g. "could you explain how this idea can be used?") (Majchrzak and Malhotra, 2013). Therefore, to increase the generativity of ideas and to encourage co-creation through collaborative discourse among online members, UKEducation also undertakes the following actions:

5.4.1.1. Information Exchange

Information exchange between the company and community members enhances collaborative discourse about proposed ideas, helps to develop alternative solutions, and jointly modifies ideas by discussing conflicting viewpoints and confronting different assumptions. Hence it helps to achieve a mutual understanding about problem, and to reach a consensus by realizing a solution that combines the conflicting viewpoints to best address the problem (Blohm et al., 2013).

UKEducation continually updates the community members with feedback on their contributions, and decisions being made about their proposed ideas. This is key to long term success because familiarizing individuals with the company's criteria for accepting potential ideas helps to develop more valuable solutions in the future. Hence, the company's admins create realistic expectations on the implementation of ideas and provide updates on the development status of contributions. They also reflect the product development officers' (CPDOs) comments on specific ideas and make these comments highly visible in the groups. Additionally they actively post threads and write blogs to explain certain decisions.

The company's Facebook admins and CPDOs also actively engage in co-creation of new ideas with the online members to integrate the company's internal and external environment and to mitigate potential disagreements. They encourage knowledge evolution and ideation in the groups and aggregate the contributed knowledge while avoiding controversial debates among members. For example, they aggregated different suggestions about SPaG/GPS exercises and activities in the "Grammar experts" Facebook group. Then, they conducted specific chat sessions in which they discussed different viewpoints and specifically focused on disagreements among contributors. Hence, while the company's employees manage the potential creative tensions between members and allow them to suggest divergent ideas in the groups, they also facilitate polite discussion of views in chat sessions which result in convergent creativity, and finally update the results on the Facebook groups. In some cases when the discussion is about a critical education topic or a resource package that will take a lot of efforts for UKEducation to be developed, the company creates opportunities for direct knowledge exchange between employees and community members before it makes the final decision. As such, the company invites the influential online members to internal workshops or brainstorming sessions with employees to facilitate the absorption process and final evaluation and decision making about the ideas.

5.4.1.2. Engage Lead Users

Engaging with teachers through multiple social media platforms has empowered UKEducation to identify lead users and their specific skills in the online groups. Lead users have unique knowledge and teaching experiences, and inherent creativity, and express needs that are often ahead of market trends (Di Gangi et al., 2010). Participation of lead users in online conversations leverages user innovations because they actively seek the opinion of other community members. They could also identify promising ideas among hundreds submitted, transferring tacit knowledge and help both the firm and other members to better understand the proposed problems and tasks and also the suggested solutions (Di Gangi et al., 2010).

For UKEducation, lead users are also aware of other members' skills, and therefore can quickly get together the right people to discuss particular subjects or contact people they need for advice and information. This finding is also supported by Leonardi's (2014) research that suggest once people's conversations become visible for third parties, they are able to identify who knows what and who knows whom and use this knowledge in their future projects. Hence, UKEducation regularly invite the lead users to focus groups, chat events and internal brainstorming sessions to obtain their expert opinions and feedback on the company's current products and services, and to get their help for deciding about the company's future projects' initiatives.

Unlike UKEducation, in UKLegal's chat sessions, clients' personal legal questions, experiences, and opinions are less followed by collaborative discussions or generate co-creations among other participants. In fact, the postings are primarily focused on clients' legal questions about pre-announced legal topics that are immediately answered by the company's lawyers. Since the clients' enquiries often have straightforward and accurate legal answers, therefore the conversations rarely lead to generative co-creations between clients and the firm's lawyers. However, the proposed legal questions and experiences often encourage other clients who have experienced similar legal issues in the past to share their diversified views about the problem and its potential solutions in different conditions. Additionally, depending on the topic, sometimes UKLegal adds some people with other expertise to its Legal Hour team to help the firm running the chat sessions. These expertise could range from property agents (i.e. when the Legal Hour's topic is "property law") to accountants, to employment agents (i.e. when the Legal Hour's topic is about "Employment Law"), and etc. These experts involve in collaborative discussions with the company's lawyers to

discuss and debate the clients' legal issues from different perspectives. Hence, these collaborative discussions sometimes lead to generating new ideas by blending law with other contexts such as "business and corporate affairs", "Housing" and etc. which help clients to find new solutions for their issues, and also leverage learning among the company's lawyers. This enables UKLegal to develop new legal services in the future based on the emergent ideas from blending different contexts with law, and also increases the size and richness of the "Legal Library", because the new insights obtained from these collaborative discussions are later added to the "Legal Library".

5.4.2. Information Aggregation

Information aggregation closely follows the idea generation and co-creation step and links creative ideas to the organizational level (Schlagwein and Bjorn-Andersen, 2014). As such, the ideas and interpretations from social media platforms should be regularly fed into the core organization, to innovation officers and internal products and services development departments. For open innovation, it is critical that new ideas are not only co-created collaboratively between the firm and its external stakeholders, but also systematically channelled to the right internal people (Whelan et al., 2013).

For this purpose, UKEducation's employees regularly collect all the ideas, trends and information that are generated in the company's online communities, and aggregate them into the outside-in spreadsheet, which is an Excel spreadsheet used for transferring external ideas to internal departments for further consideration and development. Then the company's Chief Product Development Officers (CPDOs) internally review all new ideas that are transferred via the outside-in spreadsheet, and determine which ideas are the best candidates for implementation (the criteria for making the final decision about ideas are discussed in the next section). Following the internal expert opinions, the company's social media admins communicate back to the community members (teachers) the outcomes of internal reviews, how the internal reviews worked, and in some cases explain why certain ideas were or were not produced by the company.

However, as was described earlier, the enormous volume and variety of contributed ideas through UKEducation's social media platforms, and the varying quality of these contributions complicate their initial evaluation (including ideas, prototypes, specific discussions and proposed solutions) by the company's social media admins, and therefore complicate the regular update of the outside-in spreadsheet. While the high

volume of contributions makes it impossible for the admins to evaluate all the ideas manually, the variety of contributions also inhibits automation of the evaluation task. To deal with this issue and the associated absorption challenges, UKEducation has developed two distinct capabilities which are summarized below:

5.4.2.1. Filter Design

An important factor that improves the absorptive capacity of crowdsourcing firms is to establish appropriate filter mechanisms that help to evaluate ideas early during the absorption process. Having filter mechanisms enable firms to focus their limited resources on the most promising ideas and therefore leverage the effectiveness of crowdsourcing (Blohm et al., 2013). As such, UKEducation has also developed some mechanisms to identify reliable contributions and aggregate them on the outside-in spreadsheet for the final evaluation by the core company's experts (CPDOs).

The results for this research shows that UKEducation has designed a multi-criteria filtering scale comprising several dimensions for the initial evaluation of ideas. First, the company's admins who also have teaching background evaluate ideas based on their novelty, relevance and feasibility. Second, they evaluate contributions with the rating scale. As such they consider ideas with a high rate of likes, shares, and comments. Third, they not only use ratings but they also analyze individuals' comments to better interpret the ratings. Moreover they consider the number of comments for each idea as an implicit measure of quality. And fourth, they measure how frequently similar ideas have been discussed in the company's social media platforms or chat sessions, or how frequently similar resources are searched or downloaded through the company's website. For this purpose, the company's employees are using software called "Trello" and "Tablo" through which they can identify the most frequently searched and downloaded items.

Hence, the employees (social media admins) aggregate the most popular and promising ideas on the outside-in spreadsheet, and for each idea they indicate the number of likes, comments, and shares, and a brief analysis of comments, together with their own opinion about the novelty and value of the contribution.

The research findings show that the outside-in spreadsheet improves the cycle time for new product development, since many times it provides a complete design available to UKEducation, and a complete market testing before product development, and it also indicates strong evidence for best-seller potential of the ideas and hence

an incentive for UKEducation to turn the ideas into actual resources as soon as possible. However, according to the UKEducation's interviewees the current issue with the outside-in spreadsheet is the possibility of duplicating ideas (aggregating ideas that contain similar content) on the spreadsheet, as it is updated and used simultaneously by several employees. This could lead to duplicates in the workload of the company's internal departments such as TCAs, designers, and illustrators. At the time of conducting this research, the information management department of the firm was developing an internal collaboration platform called "Resource Creation Process" that would take the place of outside-in spreadsheet in the future. This platform would eliminate duplicates, since it performs a duplication check on all contributions at any stage of the resource development process. The platform is also designed to integrate the resource development process inside the firm.

5.4.2.2. Seeking Feedback

Another variation in people's contribution towards the proposed ideas in social media platforms is in the way that they "like" ideas or vote for them. Many times the community members are asked to vote on a posted idea or on the current resources, when the company is unsure whether or not the idea is worth to be further developed internally. However, the criteria used by different members for voting is sometimes unclear, as some of them may vote for a beautiful design, or suitable content, or "coolness" of an idea. Consequently, the ideas that are voted as most popular by the online members may not be the most feasible, innovative or even relevant ones. In such cases, the UKEducation's admins often ask clarifying questions in the groups that helps the product development officers to make decision about concepts that should be resourced and further developed. By asking questions, the company's officers ensure that they are not developing a wrong idea, or a right idea incorrectly.

Figure 38 shows the UKEducation's units and people involved in the information sharing stage with online members (the area surrounded by the red rectangle), including idea generation and co-creation, and information aggregation activities.

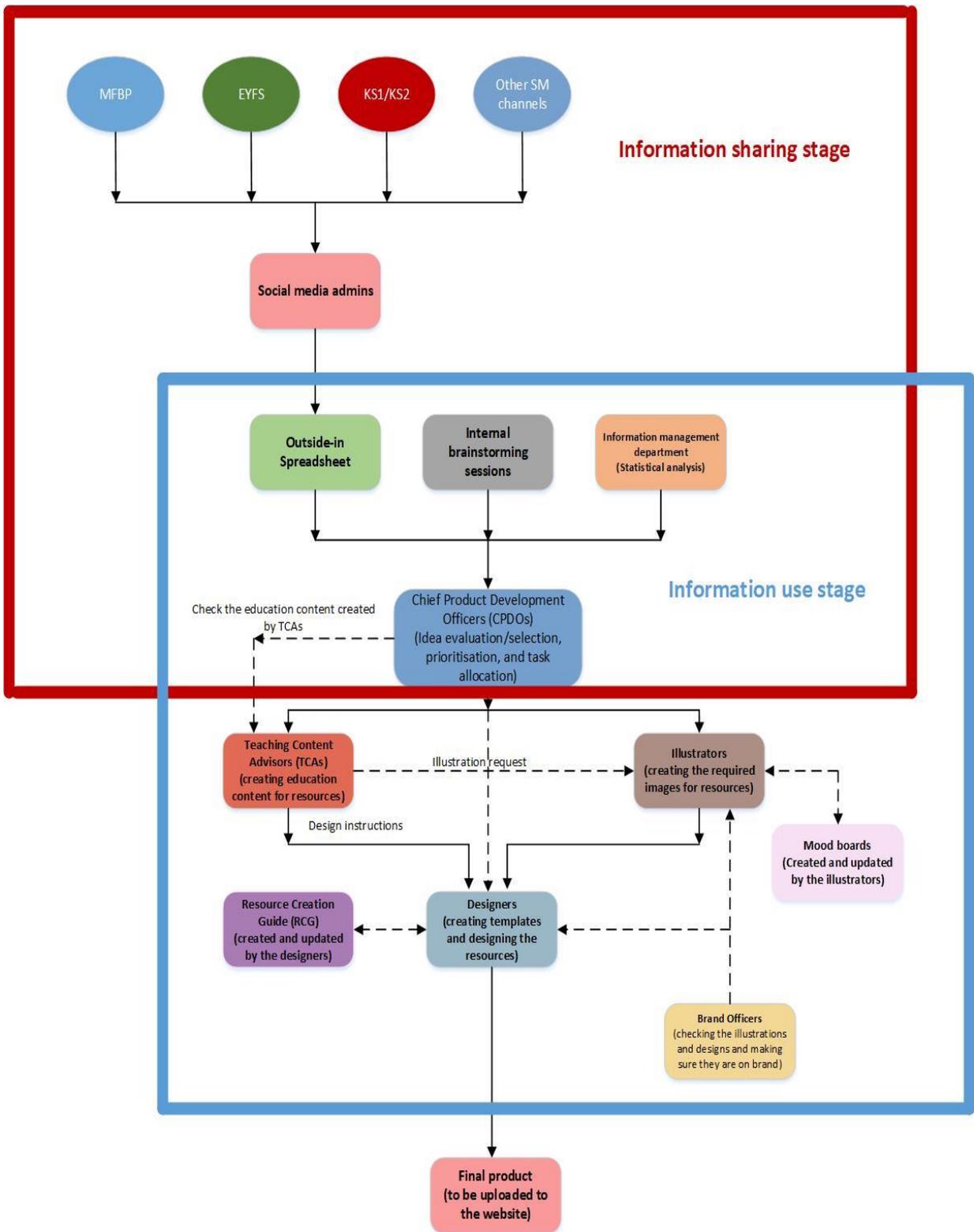Figure 38: the UKEducation's units and people involved in the information sharing stage with online members (the area surrounded by the red rectangle)

For UKLegal, although the initial legal topics for Twitter chat sessions were selected randomly, overtime the statistical analysis of the sessions and people's varying behaviour and responses to each topic helped the company to identify demanding

trends and more popular legal topics. For example, according to UKLegal's interviewees, "family law" has been the quietest session among others, and people were sending private messages rather than asking their questions publically, because they preferred to keep their private life confidential. In contrast, with the "employment law", people were freely asking questions on Twitter even when they knew their employees or their bosses could see that. So, the analysis of each Twitter chat session and identifying the key elements influencing people's behaviour, enabled the company to adopt a specific approach in conducting similar chat sessions in the future. The collaborative discussions and debates between the company's lawyers, and the third party agents invited to the chat sessions (i.e. property agents, employment agents, and accountants) with clients were also added to the "legal Library" in the form of blog posts. The analysis of these blog posts by the company's managers could help to identify legal patterns in different areas of business and personal law, and could possibly lead to development of new legal services to address the demanding issues in these areas.

Table 18 summarises the second stage of the social media-enabled innovation model, and the activities and processes undertaken by UKEducation and UKLegal to execute this stage. Table 19 summarises the tools used by UKEducation at this stage.

Table 18: The second stage of social media-enabled innovation model, including the activities and processes undertaken by UKEducation and UKLegal to perform this stage

Stage 2	main activities	lower level processes	UKEducation	UKLegal
Information sharing	Idea generation and co-creation	- Divergent process of individuals' ideation (suggesting several new ideas or experiences) by making unconventional connections between different contexts and areas of knowledge	✓	✓
		- convergent process of collective discussions and co-creations that reveals the most promising ideas	✓	✓
		- Information exchange between employees and community members	✓	✓

		- Engage lead users	✓	
	Information aggregation	- Filter design	✓	✓
		- Ask questions to understand	✓	

Table 19: The tools used by UKEducation and UKLegal to perform the second stage of the social media-enabled innovation model.

	UKEducation	UKLegal
Tools	- "Trello" and "Tablo" software used to identify the most frequently searched and downloaded items	-
	- Outside-in spreadsheet to aggregate and transfer external ideas to internal departments for further considerations and developments	-
	- The internal collaboration platform called "Resource Creation Process" that would be used to reduce duplications and to integrate the resource development process inside the firm	-

5.5. Information Use

The third theme in the model of social media-enabled innovation is information use (Figure 39): the way that information obtained from social media is absorbed and used internally by the firm to inform its innovation practices. Therefore, this section relates to the second sub-question for the research which is:

1.2. How is information from social media used internally by small and medium-sized businesses to support their innovation practices?

Two aspects of information use emerged as areas of interest during the study which are information absorption, and new product (or service) development. Executing

these activities is undertaken by a number of lower level processes. These are all explored in turn in this section.
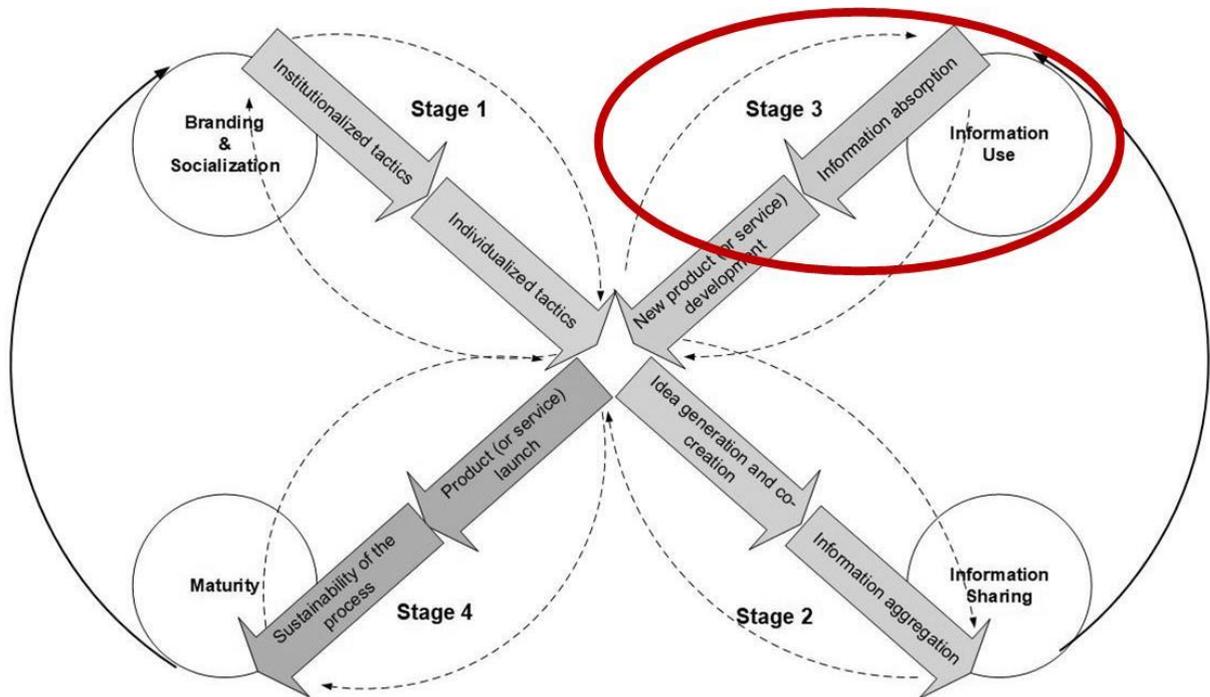
Figure 39: Stage 3 of social media-enabled innovation model

5.5.1. Information Absorption

Once a firm successfully builds up its online communities and encourages members to share their valuable information and ideas as a group, effectively exploiting these ideas would be the next challenge (Blohm et al., 2013). The case study findings for this research suggest that to deal with this challenge the firm needs to develop an absorptive capacity- "the capability to transform crowdsourced data into knowledge and business value" (Blohm et al., 2013 p. 203). The findings also suggest that in UKEducation, the absorption of crowdsourced information is undertaken through evaluation, dissemination, and assimilation processes that are discussed below.

5.5.1.1. Information Evaluation

In UKEducation, the ideas and interpretations that are collected from social media, and aggregated onto the outside-in spreadsheet are regularly feed forwarded from the marketing department to the core organization. As was described earlier, for open innovation, it is important that outside ideas are not only generated and co-created, but

also systematically channelled to the right internal people (Shlagwein and Bjorn-Andersen, 2014; Whelan et al., 2013).

As such, all the new ideas and information that were able to gather enough supporters or create discussions within the company's online communities are internally reviewed by the CPDO (Chief Product Development Officers) team that includes experienced teachers of different students' age groups. As an expert panel, these teachers are responsible for evaluating ideas from different developmental perspectives such as the content creation, illustration and design, and decide which ideas should be implemented and turned into actual education resources. Hence, this stage focuses on the actualization of ideas through a range of collective practices. As argued by the CPDOs' interviewees, the company tries to implement as much ideas as possible from the outside-in spreadsheet. However, due to the limited available time and employees, and also to create a balance between the workload of different product development teams (content creators, illustrators, and designers), the expert panel evaluates, selects and prioritises the potential ideas against certain criteria. These criteria are: the popularity of the idea, the range of resources that can be developed based on that idea, and the complexity of the idea (the amount of time and effort that requires for the idea to be developed).

For example, the idea for developing PE (Physical Education) resources that had come from the outside-in spreadsheet was evaluated internally by the CPDO officers, who initially discussed the relevance and feasibility of the idea, and the range of PE activities and resources that should be included in the final resource package. The expert panel analysed all the information about the PE ideas on the Facebook groups including the number of votes and also qualitative discussions. The high number of votes for the idea were generally considered as an indication of high buyer interest. This mechanism provided a market test for the company before it actually develops the idea. The officers also considered the positioning of the product idea in the different markets such as UK, Australia, New Zealand, etc., and the financial aspects of its development. And finally decided to implement the idea, and set up the required plans, resources and arrangements for the actual development of the new product.

Once UKEducation decides about the potential ideas, its marketing staff communicate back to the community members the results of internal evaluations, and how these evaluations worked, and in some cases the reasons why some ideas were or were not produced.

In many cases, the UKEducation's expert panel may combine, aggregate or refine the initial ideas received from social media so that they can satisfy the internal criteria mentioned above. This is aligned with Leonardi's (2014, p.799) research that suggests online routine communications between people contain some bits of information that can only be turned into valuable innovation if they are assembled with other bits of information from different communications.

5.5.1.2. Information Dissemination

As has been described earlier, the UKEducation's social media platforms not only attract contributors to share a high volume of information, but also lead to generating variety of ideas and solutions for different education topics. Since the company does not apply any format and structure constraints on people's contributions, they often post ideas that differ dramatically in format, ranging from text-based descriptions to graphic visualizations to fully developed prototypes with detailed specifications (such as the education content, illustrations, and the design details like the layouts, headings, titles, and boarders' formats and specifications). Therefore, while CPDOs evaluate the outside ideas, it is also important to transfer different types of ideas and information to the relevant internal departments (i.e. content creators, illustrators, and designers) that have the highest capacity for the assimilation, aggregation and finally implementation of those ideas.

As such, information dissemination for UKEducation involves identifying and selecting the employees and business units that can best utilize and assimilate the obtained information and subsequently implement the ideas. This is an important step in the absorption of crowdsourced information, because inappropriate recipients may not understand and appropriately use the ideas or may just ignore them. Therefore, regardless of whether or not an idea is finally decided to be implemented, CPDOs send all the obtained information from the outside-in spreadsheet that contain elements of education content, or graphic visualization, or design specifications to the content creation, illustration, and product design departments respectively. These ideas will then be analysed by the experts of these internal departments and will be stored in their repositories for future use. Due to the variety of online contributions, they might be of relevance for different internal departments, as each department can make its own use of the acquired ideas.

5.5.1.3. Information Assimilation

The assimilation of crowdsourced information is the process of transforming the obtained information into valuable knowledge that could be combined with the existing knowledge of the firm to create valuable innovations (Blohm et al., 2013 p. 203). The UKEducation's internal departments including content creators, illustrators, and product designers assimilate the ideas and concepts that are sent to them by CPDOs (the dissemination step) by developing these concepts and ideas, translate them, modify them, and aggregate them to their existing knowledge repositories. Hence, TCAs (Teaching Content Advisors who are responsible for developing education content for new products) aggregate the new content ideas to their exiting education content repository. The illustrators use the new graphic visualization ideas to further develop and complete their mood boards (the collection sets of images and pre-determined set of aesthetic rules that guide the company's illustrations for different key stages). And the company's designers use the new product design ideas to further develop and complete their Resource Creation Guide (RCG) which is the brand guideline and provides comprehensive instructions for designing the resources' templates in a way that represent the UKEducation's brand.

The assimilation of ideas and information by the company's internal departments help them to proactively aggregate the metaknowledge that they acquire on the daily basis through social media platforms and use it for their future innovations. As described by Leonardi (2014), this is a profound shift in organizational behaviour from the reactive search for solutions when the organization encounters new problems, to proactive aggregation of solutions and acquiring knowledge before the problem arise.

Whereas the information absorption in UKEducation takes place through a number of distinguishable stages (information evaluation, dissemination, and assimilation), for UKLegal this process is simple and does not contain multiple stages. Hence, the UKLegal's social media manager regularly analyses and evaluates people's responses to the legal questions and answers shared by the firm through its Twitter account, including the number of likes and re-tweets. The social media manager also evaluated all the statistics and qualitative discussions related to the firm's live twitter chat sessions with clients. The results of these analyses helps the company to identify people's varying behaviour and responses to each legal topic and to communicated legal discussions, and also to identify the legal patterns in the market and demanding legal issues that the management should act upon. The analysis of each Twitter chat

session leverages the company's knowledge about the key elements that influence people's behaviour during chat sessions on specific legal topics, and enables the company to adopt a specific approach in conducting similar chat sessions in the future. The analysis of collaborative discussions and debates between the company's lawyers, and third party agents during chat sessions also leverages organizational learning among the company's lawyers and empowers UKLegal to develop new legal services in the future based on the emergent ideas from blending different contexts with law, and also increases the size and richness of the "Legal Library", because the new insights obtained from these collaborative discussions are later added to the "Legal Library".

5.5.2. New Product (or Service) Development

New product (or service) development is the step from organizational cognition to organizational action (Crossan et al., 1999). For UKEducation, ideas that are decided by CPDOs to be implemented, become part of the company's permanent offerings and are listed among its innovation initiatives. Hence, the CPDO team utilises the evaluation criteria (mentioned in section 5.1.1.1) as the basis for prioritisation, scheduling and alignment of these innovation projects initiatives. They also assign the responsibilities and set up the required facilities for implementation of the new ideas. These responsibilities typically involve the creation of new content for the resources (which is done by the TCAs team), illustration of the required graphic visualizations (which is done by the illustration team), and creation and final design of new templates and newly developed products (which is done by the designers). These three elements are critical for developing any UKEducation's new product which in turn, could be used for the company's future initiatives as well. During the different stages of content creation, illustration and the final design of the new product, UKEducation may create several prototypes and test the newly developed product and assess the results to ensure that it is correct from the education content perspective, and also effectively represents the UKEducation's brand. Finally when the new product is completely developed and checked internally, it is ready to be listed among the company's new resources and to be launched to the market.

Figure 40 shows the UKEducation's units and people involved in the information use stage, including different information absorption (information evaluation,

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dissemination, and assimilation) and new product (or service) development processes (the area surrounded by the blue rectangle).

Figure 40: the UKEducation's units and people involved in the information use stage including different information absorption, and new product (or service) development processes (the area surrounded by the blue rectangle)

For UKLegal, the social media interactions with clients has so far resulted in a number of innovations. First, it has changed the traditional way of delivering legal services to the clients. Second, it has helped the company's lawyers to learn how people talk about law and understand it in their own words. Therefore, they have been able to communicate with clients more effectively by simplifying complicated legal terms and by giving simple answers to their legal questions. Third, social media has helped the company to adopt an innovative marketing strategy that has increased the company's overall influence and reach in the market. The UKLegal's case study suggests that the statistical and qualitative analyses of social media interactions, could enable the firm to transform its customer services operations to a social activity, and to develop new legal services based on the current market trends and demanding legal issues. However, the company's managers used the results of their analyses only to identify the most popular and demanding legal issues to conduct more live Twitter chat sessions around these topics.

Table 20 summarises the third stage of the social media-enabled innovation model, and the activities and processes undertaken by UKEducation and UKLegal to execute this stage.

Table 20: The third stage of social media-enabled innovation model, including the activities and processes undertaken by UKEducation and UKLegal to perform this stage.

Stage 3	Main activities	Lower level processes	UKEducation	UKLegal
Information use	Information absorption	- Information evaluation	✓	✓
		- Information dissemination	✓	
		- Information assimilation	✓	
	New product (or service) development	- The creation of education (or Legal) content	✓	✓
		- The illustration of graphic visualizations	✓	
		- Template design	✓	
		- Conducting live Twitter chat sessions on demanding legal topics		✓

5.6. Maturity

The fourth theme in the model of social media-enabled innovation is maturity (Figure 41): how the whole process of social media-enabled innovation becomes embedded into organizational systems and routines, and how this helps the firm to not only create value through its collective practices but also capture this value over a prolonged period of time. Therefore, this section also relates to the second sub-question for the research which is:

> 1.2.   How is information from social media used internally by small and medium-sized businesses to support their innovation practices?

Two aspects of maturity will be explored here: product (or service) launch, and sustainability of the process. These are all explored in turn in this section.
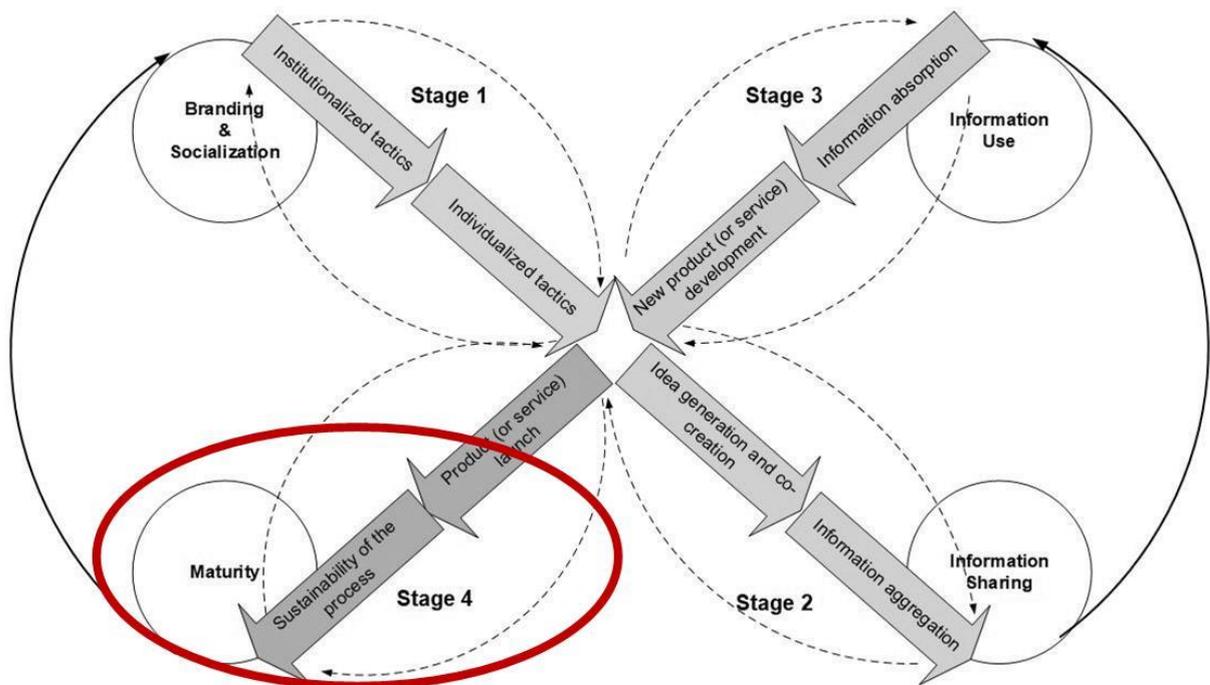
Figure 41: Stage 4 of social media-enabled innovation model

5.6.1. Product (or Service) Launch

The new products and services that are developed in the previous stage (section 5.5.2) are listed in the company's catalogues and would be offered to customers through online and physical channels.

For UKEducation, the newly-developed education resources are regularly updated in the company's online catalogue which is built into the company's website. The marketing staff regularly advertise these resources through several social media

channels, and invite the members to subscribe to the company's website to download the resources. They also send weekly newsletters to the online community members via email, where they advertise the new resources and upcoming events. The company often mentions the original submitters of successful ideas and tags their name to the new products' advertisements. Hence, the successful contributors achieve recognition from the UKEducation's online community, and the satisfaction of having their own proposed ideas officially endorsed and produced by UKEducation. Additionally, they also might be rewarded by the company by giving a free subscription to download and use the UKEdiocation's resources. This involves the members in the marketing of new products (or services) after launch, and empowers the company to move directly from co-creation of new resources to viral marketing. Again these promotional activities by the members take place via their personal and also the company's social media channels.

For UKLegal, once the managers decide to implement a new legal chat session on a particular legal topic, they advertise the topic in advance through the company's Twitter channel and invite clients to prepare their questions for the chat session. The clients who are already inspired by the legal content that the company shares with them, and have been engaged in the company's pervious chat sessions, often participate in promoting the company's new legal initiatives. Hence they re-tweet the UKLegal's advertisements and share the information about the company's free legal services through their personal social media channels.

5.6.2. Sustainability of the Process

Sustainability of the process refers to the process of embedding what has been successfully learnt during the previous stages of the model into organizational systems and routines to sustain the social media-enabled innovation practices over a prolonged period of time (Schlagwein and Bjorn-Andersen, 2014). Hence, this stage of the model focuses on regulating all the activities that have been undertaken during the previous stages to exploit what has been learnt in the past for the improvement and sustainability of future activities. As such, on the one hand, this stage is ultimately aimed to leverage and sustain socialization, and effective information sharing and information use. On the other hand, this stage generates and exploits feedback regarding the experiences with new learnings for the future socializations, information sharing and information use activities. As argued by Crossan et al. (1999) the notion of sustainability and embeddedness shifts the focus of open innovation models from

exploring to both exploration and exploitation. As such the model of social media-enabled innovation not only emphasizes value creation through social media interactions, but also includes value capture to exploit what has been learnt in the past for the improvement and sustainability of the model as a whole.

Hence, at this stage, UKEducation reviews and refines its long-term visions and strategies, as well as its operational activities that have been established during the previous social media interactions and open innovation practices. So, externally, UKEducation improved its institutionalized and individualized socialization tactics through repeated experiments, further diversified its social media channels, and increased the range of its niche and specific online communities to effectively collaborate with different groups of online members. Internally, the company integrated its social media platforms and communities into its organizational processes and structures. The development of the internal collaboration platform (RCP) by the company's information management department has been a key step to effectively integrate the crowdsourced ideas into the dissemination and assimilation processes of the firm that will ultimately reduce work duplications and the probability of rejecting good ideas, and will lead to a more effective innovation process. As such, social media platforms are considered by employees as critical part of their information systems that they use in their daily jobs.

The other UKEducation's internal behaviour that has led to the embeddedness of innovation through social media interactions, has been the proactive approach to aggregate new ideas and different bits of external information into existing knowledge repositories of the firm and using them for future innovation initiatives. This is in contrast with the reactive search for solutions when a new problem is encountered. As such, UKEducation has learnt about crowdsourcing by practicing it, and open innovation has now become an organizational capability at UKEducation. This has leveraged the image and work practices of UKEducation as an organization. For example, after development of the first PE resources package that only included a limited range of PE activities such as tumbling, jumping, and dancing, the company continued to engage in broader collaborations with the community members to include all the Olympic Games within the new PE resources package.

UKLegal also learnt how to establish its social media web presence to engage in mutual conversations with a bigger group of audiences. Externally, the company socialized its clients by sharing free legal content with them, and encouraged them to

engage in information sharing practices by conducting live Twitter chat sessions. Internally, the statistical and qualitative analysis of people's behaviour and responses to the company's online legal content and Twitter chat sessions leveraged the company's learning about the key elements that influence people's engagement in information sharing practices, and also helped the company to identify important legal patterns and demanding legal issues in different areas of business and personal law. The collaborative discussions between the company's lawyers, and third party agents during chat sessions also leveraged the company's insight about possible opportunities for developing new legal services by blending different contexts with law. However, since UKLegal's managers didn't have a clear long term vision and strategy to innovate through social media interactions, the acquired new insights and organizational learning did not result in new services development.

In summary, it can be argued that the use of social media in the UKEducation case constitutes a legitimate and effective form of open innovation. Hence, the process of social media-enabled innovation in UKEducation is novel, unique, external, and IT-enabled. The process is not just reducing the company's innovation costs, but rather provides alternative product ideas to those exist in the market. UKEducation and UKLegal both had learnings directly resulted from their online social media interactions. For example UKEducation learnt about new ideas for producing specific education resources by blending different contexts with the education topics (i.e. space-themed resources), and received refinements and evaluations from the members on its current products. And UKLegal learnt about demanding legal issues in certain areas of personal and business law, and also learnt about possible opportunities for developing new legal services by blending different contexts with law. On the other hand, both firms had also learnings that indirectly resulted from their social media initiatives. For example, they learnt about factors affecting socialization and information sharing practices and the way that social media can increase their open innovation capability.

5.7. Context

Apart from the contextual factors that have so far been discussed for the both case studies, there are two other contextual aspects that are likely to impact the successful adoption of the social media-enabled innovation model in organizations. These two aspects that were emerged as relevant are community culture and the company size.

5.7.1. Community Culture

The analysis of UKEducation and UKLegal case studies shows that the culture of online communities plays an important role in the likelihood of collaboration between their members which in turn could result in co-creation of new products or services. For example, teachers are by nature caring and sharing professionals who are eager to continually learn from each other. The educational environment is also characterised by rapid changes in terms of the teaching content, methods, and activities. This motivates the community of teachers to more and more engage in collective learning practices, and collaborate with each other to co-create new solutions for their changing needs and daily teaching activities. A review of 10 American and English studies on the impact of professional learning communities (PLCs) on teaching practices and student learning suggest that well-developed PLCs have positive impact on both teaching practice and student achievement (Vescio et al., 2008). According to Thompson et al. (2004) the concept of a PLC is based on the capacity of organizations to learn. So, learning communities are grounded in two assumptions. First, it is assumed that knowledge is embedded in the day-to-day experiences and routines of teachers and can best understood through information sharing with others who have the same experience (Buysse et al., 2003). Second, it is assumed that teachers' engagement in PLCs' communications will increase their professional knowledge and enhance student learning (Vescio et al., 2008). As such, social media platforms provide a legitimate and effective tool to leverage these collaborative practices. And the ideas that are co-created by the community of teachers are diversified and complementary to, yet different from the traditional teaching resources that are often produced internally by firms.

In contrast, the legal sector is characterised by static and rigid rules and norms, and changes in this sector take place slowly and within a standardized framework. Unlike the community of teachers, clients of a law firm are not necessarily connected through a similar professional background and do not collectively pursue a shared interest or a common cause that could get them together over a long period of time as a community and build interpersonal ties among them. Therefore, these clients are more seeking individual specialist legal advice for their legal problems, and also are less willing to share their personal and private experiences with others. Therefore, many times they ask their legal questions via private messages. The above reasons makes innovation in the nature of legal services more difficult for a law firm than the innovation in the way

of delivering such services. Again, social media platforms effectively enable a law firm to understand the need for innovative ways of delivering legal services, and to implement such initiatives.

5.7.2. Company Size

The research findings shows that UKEducation as a medium-sized enterprise with around 80 employees has much to gain from the efficiency saving and economies of scale offered by social media collaborations, and without IT enabled initiatives would have had difficulty to co-create such a huge amount of education resources. Social media collaborations have empowered the firm to co-create its resources while requiring less time and staff input and therefore saving financial costs substantially.

UKLegal is also a medium-sized law firm with 120 employees and four local offices located in different UK cities. The research shows that UKLegal also has seen gains offered by social media interactions, the greatest of which being an increased reach and influence in the market.

It would not be appropriate to draw any firm conclusions on the relationship between the company size and the effectiveness of social media-enabled innovation from these two case studies. But there are some indications from the two case studies that show SMEs have more to gain from social media practices and could make a larger contribution to open innovation activity, if they adopt an appropriate social media strategy. Social media research suggests (Burgess et al., 2014) that SMEs can easier implement social media initiatives than large firms for two reasons: First, they require less resources to implement such initiatives. And second, due to their size, SMEs' internal departments can better collaborate to implement social media initiatives. Larger organizations however, may adopt more sophisticated approaches due to their access to greater availability of resources and more technical expertise (Rogers, 2003).

Chapter 6: Conclusion

6.1. Chapter Overview

This chapter of the thesis starts by revisiting the research questions and the underlying motivation and summarizing the research findings. It will then describe the knowledge contributions of the study and outlines the implications for policy and practice. Finally, it concludes with a summary of the research limitations, and some implications for future research.

6.2. Research Summary

This research set out to learn about the impact of social media on innovation in small and medium-sized businesses. It explored the research question:

> 1. How do social media-based interactions influence the innovation practices of small and medium-sized businesses?

> 1.1.　　How does social media influence information sharing between small and medium-sized businesses and their external stakeholders?

> 1.2.　　How is information from social media used internally by small and medium-sized businesses to support their innovation practices?

To understand the current state of knowledge in the subject area, its limitations, and the way the research fits within the wider context, a critical review of the literature was undertaken which explored three main themes: Innovation and its impact on SMEs, open innovation and the enabling role of social media, and the challenges of social media-enabled open innovation. From the literature review a number of key concepts were identified. These concepts together with the research questions, and the underlying philosophical assumptions adopted for this study were used to develop a research framework for conducting the case studies of the thesis (see Methodology chapter).

Hence, qualitative interpretive case studies were conducted with two medium-sized UK businesses active in the fields of education resources development, and legal aid services, to conceptualize social media-enabled innovation in organizations. Netnography and semi-structured interviews were selected as the main methods for developing the cases studies. The case studies were guided by the grounded theory principals, which also informed the assessment and analysis of the collected data to develop a new theoretical model. The findings from each of the case studies were

analysed separately and written up as case narratives, which will be provided to the participating firms.

The analyses of cases studies, and the concepts identified from the literature review led to the development of a model of social media-enabled innovation (figure 42) which includes four main stages: Branding and socialization, information sharing, information use, and maturity. Each of the model's stages consists of two key components, and a number of lower level concepts. The model suggests that the successful integration of social media into the innovation process is dependent on the management's commitment, and needs a clear vision and a long term strategy to work towards the attainment of advance objectives set out for the different stages of the model. The research also identified two contextual factors that are likely to impact the successful adoption of the model in organizations. These two factors are: community culture and organization size.

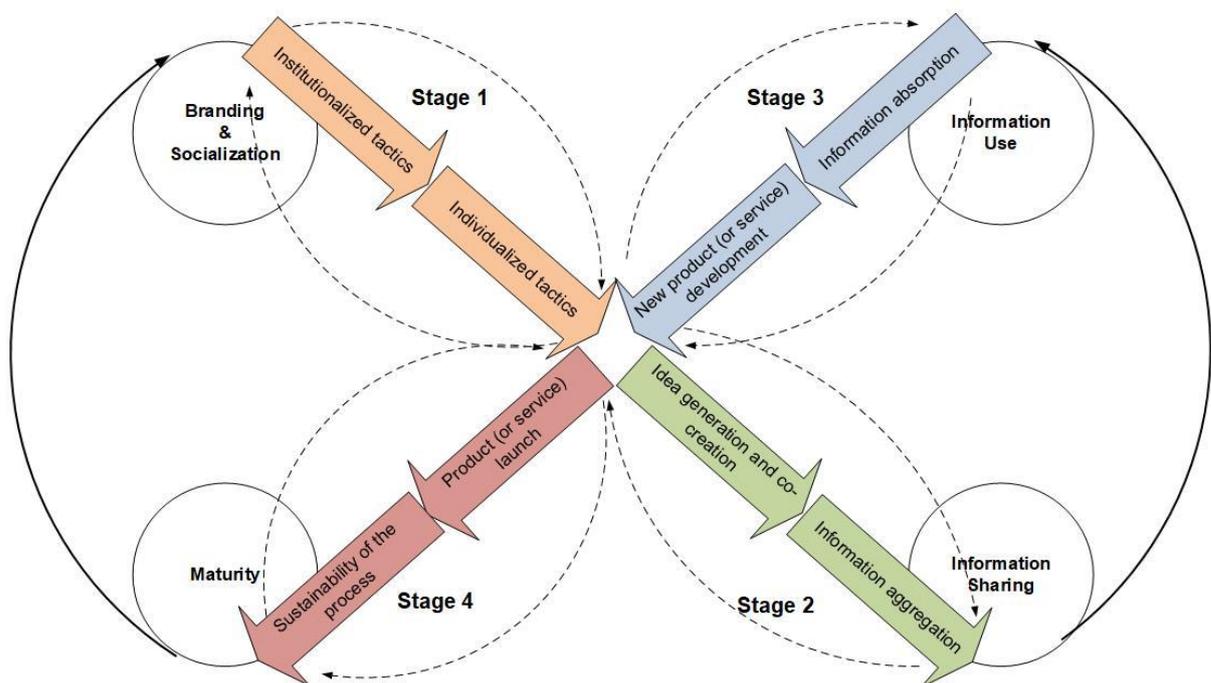Figure 42: Model of social media-enabled innovation

Branding and socialization

Socializing online members and encouraging them to participate in effective conversations and information sharing practices via the company's social media platforms has proved to be difficult for organizations. To overcome this issue, the model suggests two types of socialization tactics—institutionalized and individualized—that

should be implemented by the firm simultaneously. Institutionalized socialization tactic promotes direct interactions with individuals by generating initial threads and conversations, while control over the communicated messages is primarily with the firm. Hence, this tactic mainly operates from the company towards the online community in a push mode. While online members are becoming familiarized with the company's values, individualized socialization tactic gradually relinquishes control over online interactions to the community members. This tactic operates in a pull mode (from the community to the company) and fosters diversified views and expectations about the company and its products, services and operations in an informal manner and helps to address the unique needs of individuals. As such, it promotes peer-to-peer interactions and varied experiences, and therefore creates a sense of community and identification with the brand among members. Both case studies in this research have undertaken activities which contribute to the main themes of this stage, to differing degrees of success.

Information sharing

Two aspects of information sharing have been found to be influenced by social media which have a great impact on the effectiveness of open innovation. These two aspects are: idea generation and co-creation, and information aggregation. As such, online community members are initially intuiting ideas and hunches individually which are so called "ideations". These contributions are then collectively communicated, interpreted, and refined by other members that results in co-creation of more promising ideas. The creative ideas are regularly fed forward from social media platforms into the core organization for further considerations and developments.

The research has found that UKEducation has enhanced idea generation and co-creation among the community of teachers by adopting multiple social media platforms, and building several online communities, ranging from the main Facebook groups to smaller niche groups that address the members' specific interests and needs. The research findings suggest that social media platforms have enabled external individuals to collaborate with the company's internal professional employees to develop new creative resources. These collaborations have not only reduced the costs of resource development by offering efficiency saving and economies of scale, but they have also offered different and complementary types of ideas to those that are normally developed within the internal departments of the firm.

The research findings also indicate that UKLegal tried to increase people's engagement in online conversations and information sharing practices by conducting live Twitter chat sessions on pre-announced specific legal topics, and inviting third party agents with other expertise (i.e. accountants, employment agents, property agents) to participate in conversations. These conversations sometimes led to generating new ideas for addressing the clients' legal issues, and also leveraged the organizational learning in UKLegal. However, they did not lead to co-creation and new services development. The findings suggest that this was in part due to the lack of a clear social media strategy for innovation and the lack of a high level data collection and analysis structure, and partly due to the formal structure of chat sessions and their focus on streamlined questions and answers that restricted the creativity of both clients and the firm's employees.

Information use

The effective exploitation of the information obtained from social media emerged as an important theme in the success of social media-enabled innovation model. Effective information use depends on the firm's absorptive capacity, and the process through which it turns the absorbed knowledge into new products and services. The case study findings for this research suggest that the absorptive capacity of the firm can be improved by adopting appropriate processes for evaluating, disseminating and assimilating crowdsourced data. In UKEducation, these processes have led to co-creation of various education resources, efficiency saving and economies of scale, improved metadata (knowledge of who knows what and who knows whom), reduced work duplication, and improved organizational learning. The analysis of the research findings also suggest that UKLegal has mainly focused on service delivery, to create value by changing the way that legal services are delivered to the clients, rather than using information from social media to develop new legal services. However, the company analyses people's varying behaviour and responses to each legal topic and its related discussions, to identify the emerging legal patterns and demanding legal issues in the market, and to learn new lessons that help the company to conduct future chat sessions more appropriately.

Maturity

The process of social media-enabled innovation in an organization is influenced by its maturity. This concept is difficult to define, but it refers to the process of embedding

what has been learnt during the previous stages of the model into organizational systems and routines to improve and sustain the innovation supply chain over a prolonged period of time (Schlagwein and Bjorn-Andersen, 2014). Hence, this stage of the model helps the firm to not only create value through its collective practices during the previous stages, but also capture this value by leveraging organizational learning, and by continually delivering new offerings to the market.

For UKEducation, the newly-developed education resources are regularly listed in the company's catalogue and are offered to customers through online and physical channels. Additionally, it has been found that the company continually reviews and refines its long-term strategies toward the vision based on the received feedback from social media, which also results in ongoing improvements in the company's external social media interactions, as well as its internal product and service development operations. As such, it can be argued that the use of social media in the UKEducation case has provided a novel and unique opportunity for the firm to develop a legitimate and effective form of open innovation.

As indicated earlier, UKLegal had also learnings from its social media interactions that increased the company's reach and influence in the market. But the research findings suggest that these learnings had been more aggregated in the company's employees who were directly involved in social media interactions with clients, rather than being embedded in UKLegal's systems and routines as a whole. Therefore, the company's legal chat sessions were stopped when L_SM1 (the UKLegal's former social media manager and consultant) left the company.

Community culture

The analysis of both case studies shows that the culture of online communities plays an important role in the likelihood of collaboration between their members, which in turn could influence the firm's open innovation activities. Hence, it seems that communities with higher capacity to learn, where knowledge is embedded in the day-to-day experiences and routines of their members (i.e. teachers' community), are more likely to demonstrate information sharing and collaborative culture than other communities (Vescio et al., 2008; Thompson et al., 2004). And this in turn results in more idea generation, co-creation and innovation among these communities' members (Buysse et al., 2003)

Company size

Although it is difficult to draw a firm conclusion from this research about the relationship between the company size and the effectiveness of social media-enabled innovation, the two case studies of this thesis suggest that SMEs have much to gain from social media interactions with their external stakeholders. Using multiple social media platforms, and creating niche groups around people's shared interests offer efficiency saving and economies of scale to the company by enabling it to co-create a huge number of its offerings while requiring less time and staff input and therefore saving financial costs substantially. This is particularly important for SMEs, since they lack the required capacity to continually innovate on their own.

6.3. Academic Contributions

This section explains the academic contributions made by the present research in three areas: theoretical understanding of open innovation in SMEs, the uniqueness of social media-enabled innovation model, and methodology.

6.3.1. Theoretical Understanding of Open Innovation in SMEs

Open innovation has been known as an important source of sustainable development in organizations (Tidd and Bessant, 2014; Chesbrough, 2008), and therefore, has been a topic of interest among researchers during the recent years. The previous academic literature have suggested that SMEs are more likely to get involved in open innovation activities with their partners, suppliers, and customers, perhaps because they lack sufficient resources such as time, budget, and expertise, to innovate new products and services, and to develop new solutions for their problems alone (Rehm et al., 2015; Burgess et al., 2014; Kane, 2014, Chesbrough et al., 2013). While previous studies have mainly focused on the impact of open innovation on SMEs' development, they have rarely examined the complexity of actual implementation of open innovation in the context of SMEs by conducting in-depth empirical studies. This research is among the few empirical studies which have attempted to examine how SMEs can use social media technologies to collaborate with their external stakeholders and co-create new solutions. As such, this study took the concepts of open innovation, and social media interactions from the previous studies and explored them in the context of two medium sized businesses active in the education resources development and legal services

sectors, which have received little attention among the information systems and innovation management scholars (Vescio et al., 2008).

Hence, this study developed a model of social media-enabled innovation based on the empirical data from SMEs that was also verified by the concepts identified from the literature review. The findings of this study provide evidence and deepened understanding about the dynamic nature of social media interactions among online members, and the factors influencing people's contribution toward developing and co-creating new ideas, as well as complexities associated with the effective use of information acquired from social media to create and capture value sustainably in SMEs. To the researcher's knowledge, this is the first study that has empirically examined the whole lifecycle of social media-enabled innovation process within the context of SMEs in education resources development and legal aid services sectors.

Moreover, unlike many previous studies that have emphasized the SMEs' use of social media for marketing purposes (Kane et al., 2014; Burgess, 2014; Sigala, 2012), this research has provided empirical evidence that by having a clear vision and strategy, and support from the management, SMEs even in non-high-tech sectors, can use social media for more advance purposes beyond marketing. Hence, this study shows that the effective use of social media can help SMEs to co-create new solutions, increase their efficiency saving and economies of scale, obtain metadata (knowledge of who knows what and who knows whom), reduce internal work duplications, and leverage their individual and organizational learning. Findings from this research proved that the process of social media-enabled innovation in SMEs can be continues which occurs through the different stages of the proposed model. The findings also confirmed that this process is not static. Instead, it continually develops with time as it becomes mature through the knowledge, and experiences that are gained from the different stages of the model. The research also demonstrated how the success of open innovation activities in SMEs is contingent upon their context and situation where these activities take place. In sum, this research demonstrates how social media can have an impact on SMEs' innovation. In doing so it contributes to the early literature which focused on adoption impacts (Kane et al, 2014) or emphasized more focus on marketing aspects (Burgess, 2014; Sigala 2012).

6.3.2. Social Media-Enabled Innovation Model

There is a growing body of research on web-enabled open innovation models, which claim to have examined different aspects of the concept. Nevertheless, the majority of these studies have mainly focused on large businesses, with less research examining the use of social media to inform innovation practices in SMEs. Further, these studies mostly address only one part of the whole process of social media-enabled open innovation. For example, some of them have focused on different forms of motivation for online collaborations (Jarvenpaa and Tuunainen, 2013; Battistella and Nonino, 2012; Porter et al., 2011), while others have explored co-creation between the firm and external stakeholders (Schlagwein and Bjorn-Andersen, 2014), assuming that people are already socialized and prepared for mutual collaborations. Evidently, most of the authors have also neglected or totally excluded the challenges regarding exploitation of the information obtained from social media to sustainably create and capture business value in their models.

The model developed in the present study is unique in the sense that it is the only model which has explored and integrated the concepts of branding and socialization, information sharing, information use, and maturity in the context of SMEs. This model, as mentioned earlier, has been developed from the analysis and coding of the empirical data drawn from the research case studies. Evaluations and refinements of the final concepts and themes emergent from the empirical data, and combining them into the proposed model was also significantly influenced by a re-reading of some of the most influential articles in the literature review. Although the model explores a number of similar broad themes to those identified in the literature (Boon et al, 2015; Schlagwein and Bjorn-Andersen, 2014; Leonardi, 2014; Jarvenpaa and Tuunainen, 2013; Majchrzak and Malhotra, 2013; Blohm et al, 2013; Di Gangi et al, 2010), it adds new insights by exploring further sub-themes within each broad theme, integrating the themes together, and exploring different issues from those investigated in the literature, reflecting differences in the context of the research case studies. Therefore, the proposed model is useful in addressing the complexity of social media-enabled innovation in the context of case studies, as it combines critical concepts necessary to address different stages of the process into one comprehensive structure. Specifically, it defines the model's components and specifies how each component relates to the other components, and interacts to create the dynamic and continuous nature of the model.

6.3.3. Methodology

Another substantive contribution of the study is on the way the research was conducted. Conducting qualitative case studies through netnographic analysis and semi-structured interviews, and guided by grounded theory approach is rare in the study of computer and web-enabled social communities especially in the context of education resources developer and legal services provider SMEs.

There are two important advantages which distinguish netnography from traditional data collection methods in studying online cultures and communities (Kozinets, 2010). First, the data that can be directly obtained from naturally occurring conversations between participants in online communities. Second, the data that can be collected in the form of memo writing, through the researcher's observations of the online community and its participants' behaviour. Additionally, the historical data that exists in virtual communities is easily accessible, and also most information in online communities are automatically transcribed which saves a lot of time for the researcher.

The use of grounded theory approach to guide the process of data collection and analysis of the case studies has proved a useful way of investigating social media-enabled innovation in organizations, and could easily be adapted to future studies in this area. Due to the novelty and originality of research in computer and web-enabled social contexts, information systems researchers often lack existing theories to gain an in-depth understanding of the activities and processes emerging in online communities (Vaast, and Walsham, 2013). Hence, the present research adopted a grounded theory approach to develop a new theory based on empirical observations from online cultures and communities, and semi-structured interviews with the key informants from each organization (Kozinets, 2010). However, the researcher did not fully subscribe to the rigorous procedures suggested by the main grounded theory developers (Corbin and Strauss, 2015; Glaser and Strauss, 1967) and followed a more flexible version of grounded theory. This enabled the researcher to also make use of the literature and established theories to develop a more comprehensive theory which gives a rounded view to the research topic (Charmaz, 2006). Aspects of the methodology which makes this study particularly novel are:

- Theoretical sampling: "the process of data collection for generating theory whereby the analyst jointly collects, codes, and analyzes data and decides what data to collect next and where to find them, in order to develop the theory as it emerges.

This process of data collection is therefore, controlled by the emerging theory" (Glaser and Strauss, 1967 p.45).

- Constant comparison: which enabled the researcher to continuously compare and contrast new and notable observations with previous ones for similarities and differences (Corbin and Strauss, 1990).

- Conducting interviews with multiple key informants from each organization, to get a range of perspectives.

- The use of process maps in interviews, which helped to provide a focus for discussion.

- Providing an in-depth understanding of the differences between the contexts of two case studies.

- Linking context with the effectiveness of social media-enabled innovation.

- The use of positional and snowball sampling techniques to find potential interviewees in each organization.

6.4. Implications for Policy and Practice

The research findings have been discussed with participants in UKEducation and UKLegal as the fieldwork was in progress via meetings and during the interviews. This was done in part to increase the validity of the research, and also to provide an opportunity for discussing the lessons learned from the research for the companies' future activities. The research outcomes including the suggested model were highly appreciated by the UKEducation's management. As a result, he made a team including the company's Facebook admins, and the head of information management department, and asked them to find new software and ways to further improve the process of qualitative data capture and analysis from their Facebook groups. He called this project "Facebook analytics". In a meeting with the researcher and the members of the project's team, he stated that he has aimed to leverage the effective data collection and exploitation from the company's social media channels. He added this could help to further understand the tacit knowledge within online communications and to exploit it for the company's future innovations. A final written report will be provided for both UKEducation and UKLegal. It is hoped that this report and the suggested model can inform the future policy and practice of both organizations on social media-enabled innovation.

Although the structure and context of SMEs can influence the success of the social media-enabled innovation model, the present research has proved that the model can

contribute to the improvement of social media interactions and innovation practices in organizations. The appropriate implementation of the model enhances individuals' socialization in online communities and increases their regular communications, and therefore builds strong and frequent ties between members. Hence, members are more likely to participate in idea generation and co-creation activities with one another and with the firm. This in turn improves individual and organizational learning, increases efficiency saving and economies of scale, and improves metadata (knowledge of who knows what and who knows whom) in organization.

The model also contributes to build and improve the company's absorptive capacity by developing data evaluation, dissemination, and assimilation capabilities, and by promoting a proactive approach in the company to regularly aggregate new ideas and different bits of external information into the internal knowledge repositories and using them for future innovation initiatives. The maturity stage also regularly reviews what has been learnt in the past, and updates the company's strategy, and provides a practical guide for the future activities and projects.

Conducting qualitative case studies for the present research allowed for in-depth exploration of social media interactions, and collaborative approaches in UKEducation and UKLegal, and included the perspectives of a range of key informants. Moreover, having included UKEducation as a substantially successful case study in executing the all four stages of the social media-enabled innovation model, and UKLegal as a less successful case study in the research, provided a valuable opportunity to test the model against different contexts and situations, which increased the validity of the research.

6.5. Limitations and Implications for Future Research

The present study has a number of limitations that offer opportunities for further research. The first limitation of the study is the limited use of examples from SMEs in the literature review chapter. Undertaking the literature review for this study provided a valuable experience and opportunity for the researcher to develop his skills in searching academic databases, evaluating articles, and synthesizing findings from different studies. Due to the interdisciplinary nature of the present study, the literature review also included articles from a wide range of fields and perspectives such as traditional innovation, open innovation, social media adoption, crowdsourcing and co-creation, and etc. However, the existing literature lacked critical examples, and

empirical case studies exploring social media-enabled innovation in SMEs. Therefore, sometimes the researcher had to draw on valuable case studies and examples of large businesses and the lessons learned from their web-enabled innovation activities to illustrate the concept. Although this can be considered as a limitation, it also provided valuable insight to the topic, particularly for a new researcher coming to some of these areas of literature for the first time.

The second limitation of the study is related to the research findings and its proposed model. Like most of the qualitative studies, the findings and the presented model in this thesis are contingent upon the context of the research case studies, and methodology adopted. The model of social media-enabled innovation presented in this thesis is a useful pictorial summary of the findings, which could be used as a starting point in future studies. The adopted research methodology allowed for important issues to emerge from empirical data, and the model offered a reasonable explanation of these research findings, but there may be other factors contributing to the social media-enabled innovation in SMEs which have not been considered here. Due to the idiosyncratic, contextual, dynamic, and situational nature of the model and its components, generalising the findings across other SMEs in different sectors need to be done with caution. A promising opportunity for future research would be to use the methodology developed in this study to test the model in other SMEs in different business sectors. Research with other SMEs may reveal new contextual and non-contextual factors contributing to the model.

The third limitation is related to the measurement of some of the model's components. All four stages of the model and the key components contributing to each stage reflect findings from the research. However, some of these themes were not easy to measure and validate for each case study. For example, the UKLegal's managers claimed that their socialization tactics had led to increase the company's reach and influence in the market, but the netnographic data and interviews both did not permit to validate this claim. This was mainly because the model emerged gradually during the study rather than being tested from the outset. As another example, Maturity emerged as a main theme during the case studies and therefore, was only able to be explored during the three phases of data collection and analysis, because from the outset the research was not designed to find data to measure this concept. There are a number of ways in which the model's themes and concepts can be more accurately measured and validated in future studies. Firstly, future studies using netnographic analysis to explore

online cultures and communities, would be aided by further research to find measures that help them to compare different elements of the model across different online cultures and communities. Secondly, the model's concepts, including branding and socialization, information sharing, information use, and maturity can be explored in more depth by additional interviews with online community members outside the firm, and by exploring the online communities of other firms in the same business sector.

Appendix 1: The literature review – searches and results

Search Term	Database	Date	Number of articles	Number selected
(Social media* OR social network* OR social networking site OR social networking web site OR social networking website OR web 2.0 OR enterprise 2.0 OR online communities OR enterprise social network* OR online community OR Facebook OR Twitter OR crowdsourcing) AND (Innovation OR open innovation* OR innovation strategy OR innovation process OR innovation model* OR innovation framework OR co-creation) AND ("SME" OR "SMEs" OR small and medium sized business* OR small and medium-sized enterprise*)	Web of Science	19/01/2014	40	31
//	EBSCO Business Source Premier	25/01/2014	43	28 (9 duplicates)
//	ProQuest ABI/INFORM	12/02/2014	153	52 (7 duplicates)
//	Web of Science	24/02/2014	2	1
//	EBSCO Business Source Premier	24/02/2014	7	5
//	ProQuest ABI/INFORM	28/02/2014	38	25
//	Web of Science	21/03/2014	27	15
//	EBSCO Business Source Premier	15/04/2014	39	25
//	ProQuest ABI/INFORM	19/04/2014	15	7 (3 duplicates)
//	Web of Science	14/06/2014	31	14

				(6 duplicates)
//	EBSCO Business Source Premier	27/06/2014	5	3 (2 duplicates)
//	ProQuest ABI/INFORM	09/07/2014	63	41 (11duplicates)
//	Web of Science	21/07/2014	4	2 (2 duplicates)
//	EBSCO Business Source Premier	15/09/2014	23	16 (7 duplicates)
//	ProQuest ABI/INFORM	27/09/2014	32	16 (3 duplicates)
//	Web of Science	08/10/2014	14	10 (2 duplicates)
//	EBSCO Business Source Premier	17/10/2014	17	12 (6 duplicates)
//	ProQuest ABI/INFORM	23/10/2014	28	11 (5 duplicates)
//	Web of Science	07/11/2014	13	5
//	EBSCO Business Source Premier	14/11/2014	16	9 (3 duplicates)
//	Web of Science	11/12/2014	20	11 (2 duplicates)
//	EBSCO Business Source Premier	17/12/2014	5	3
//	ProQuest ABI/INFORM	15/1/2015	97	45 (12 duplicates)
//	Web of Science	24/1/2015	7	6 (3 duplicates)
Total			739	393 (83 duplicates)

Appendix 2: A summary of some of the most relevant and significant articles in the review

Authors	Paper's title	Source (journal) title	Year	Research question(s) or aim(s)	Methodology	Findings
Leonardi P.M.	Social media, knowledge sharing, and innovation: Towards a theory of communication visibility	Information Systems Research	2014	How do social networking sites influence communications and metadata in a firm?	Semi-structured interviews	Social networking sites make previously invisible communications, visible. This leads to improved organizational learning, innovation, and reduced work duplication
Schlagwein D., Bjorn-Andersen N.	Organizational Learning with Crowdsourcing: The Revelatory Case of LEGO	Journal of the Association for Information Systems	2014	How has social media improved organizational learning in LEGO?	Nentnography, ethnography, interviews	Social media improved the intuition and interpretation stages of Crossan's (1999) model of organizational learning in LEGO
Burgess S., Sellitto C., Cox C., Buultjens J.	Strategies for adopting consumer-generated media in small-sized to medium-sized tourism enterprises	International Journal of Tourism Research	2014	How do SMEs use social media for business purposes?	Observations, Interviews, literature review	The paper provides useful statistics from established reports. It also suggests a model for SM adoption in SMEs
Majchrzak A., Malhotra A.	Towards an information systems perspective and research agenda on crowdsourcing for innovation	Journal of Strategic Information Systems	2013	How do information systems influence open innovation practices?	Case study analysis (Netnography, interviews)	It suggests that information systems in general and social media in particular are not only the enablers of open innovation, but they can be a shaper that optimize open innovation

						and crowdsourcing in organizations
Marjanovic S., Fry C., Chataway J.	Crowdsourcing based business models: In search of evidence for innovation 2.0	Science and Public Policy	2012	How do crowdsourcing platforms enable innovation in organizations?	Multiple case studies. Developing a new model from empirical data	The paper suggests a new crowdsourcing model for innovation.
Kane G.	Enterprise social media: current capabilities and future possibilities	MIS Quarterly Executive	2015	How to successfully design and implement a social media platform in an organization?	Literature review analysis	The paper provides a platform-independent framework for considering the effects of social media on enterprises
Jarvenpaa S., Tuunainen V. K.	How Finnair socialized customers for service co-creation with social media	MIS Quarterly Executive	2013	How Finnair socialized customers for service co-creation with social media?	Netnography, content analysis	The paper provides a model for socializing customers and encouraging them to participate in co-creation activities with the firm, based on institutionalized and individualized tactics
Blohm I., Leimeister J. M., Krcmar H.	Crowdsourcing: How to benefit from too many great ideas	MIS Quarterly Executive	2013	How the company can effectively exploit crowdsourced data for its innovation practices?	Three case studies of medium-sized and large businesses	The paper provides practical suggestions for developing the company's absorptive capacity, and enabling it to overcome the challenges regarding the

|						volume and variety of crowdsourced data
Battistella C., Nonino F.	Open innovation web-based platforms: the impact of different form of motivation on collaboration	Innovation: Management, Policy and Practice	2012	How to motivate individuals to involve in collaborative activities with the firm?	Case study analysis, including netnography and interviews	The paper provides a model for customer motivation based on intrinsic and extrinsic motivation factors and the impact of each on collaborative activities.
Lisen S., Jarvenpaa S.	Digital Action Repertoires and Transforming a Social Movement Organization	MIS Quarterly	2016	How does social media influence organizational actions?	Case study analysis, including observations and interviews	The authors have examined the organizational transformation as a result of social media interactions.
Di Gangi P. M., Wasko M.	Social Media Engagement Theory: Exploring the Influence of User Engagement on Social Media Usage	Journal of Organizational and End User Computing	2016	How does social media interactions influence user experience and behavior?	Survey analysis	This research builds a model that hypothesizes the user experiences from social media interactions, and subsequent usage behaviour.
Mandviwalla M., Watson R.	Generating capital from social media	MIS Quarterly Executive	2014	How to generate capital from social media?	Case study analysis	Provides a structured approach for developing a social media strategy that can make different types of capital from social media and ultimately lead to innovation improvement

Rehm S V., Goel L., Junglas I.	Role of information systems in empowering innovation networks	MIS Quarterly Executive	2015	What are the key social media functionalities needed for facilitating innovation networks, and how to develop these functionalities in organizations?	A single case study of a medium-sized medical device producer	A new model has been suggested based on the use of multiple social media platforms. The model is context-dependent.
Ford R. C., Edvardsson B., Dickson D., Enquist B.	Managing the innovation co-creation challenges: Lessons from service exemplars Disney and IKEA	Organizational Dynamics	2012	How to manage incremental innovations Vs radical innovations in organizations?	Mixed methods, including Observations, interviews, survey analysis	The paper has provided a model that formulates incremental and radical innovations from the perspective of both customers and the firm
Lopez V. W. B., Esteves J.	Acquiring external knowledge to avoid wheel re-invention	Journal of Knowledge management	2013	How to effectively absorb external knowledge?	Case study analysis, including semi-structured interviews and archival data analysis	The paper has developed a model from the empirical data that formulates data collection from external sources, transferring it to the internal departments and managing it through the company's knowledge repositories
Boon E., Pitt L., Salehi-Sangari E.	Managing information sharing in online	Business Horizons	2015	How to stimulate information	Netnographic analysis of Etsy.com	The paper has provided a number of suggestions for managing online

				sharing in online communities?		communities and stimulating information sharing among their members
Di Gangi P.M., Wasko M., Hooker R. E.	Getting customers' ideas work for you: Learning from Dell how to succeed with online user innovation communities	MIS Quarterly Executive	2010	How to better understand external ideas and identify the most promising ones?	Single case study of DELL, including Netnography and interviews	The article has concluded with seven recommendations for how to overcome the challenges mentioned in the RQ
Vaast E., Walsham G.	Grounded theorizing for electronically mediated social contexts	European Journal of Information Systems	2013	How has grounded theory analysis been used in the field of information systems management?	Reviewed a selected set of papers	The paper has reviewed a selected set of papers to examine how the authors have used grounded theory to collect and analyze data and to build new theories in the field of IS research
Da Cunha J.V., Orlikowski W. J.	Performing catharsis: the use of online discussion forums in organizational change	Information and organization	2008	Examination of how the employees of a company used an online platform to help them deal with organizational changes.	Grounded theoretical analysis of an intra-organizational online forum in Epsilon, a large petroleum European company	The grounded theoretical analysis helped the company to identify three best practices to deal with organizational changes through social media interactions

Hara N., Hew K.F.	Knowledge sharing in an online community of healthcare professionals	Information Technology and People	2007	What types of knowledge did the nurses share with one another in online communities? What are the factors that sustain knowledge sharing among the nurses from their perspective?	Netnographic analysis of an online community of nurses in US, using grounded theory to analyze the data	Identification of "knowledge sharing" and "solicitation" as the most common activities of the community, and "institutional practice" and "personal opinion" as the most frequent types of shared knowledge

Appendix 3: Diagrammatic explanation of qualitative data analysis with NVIVO
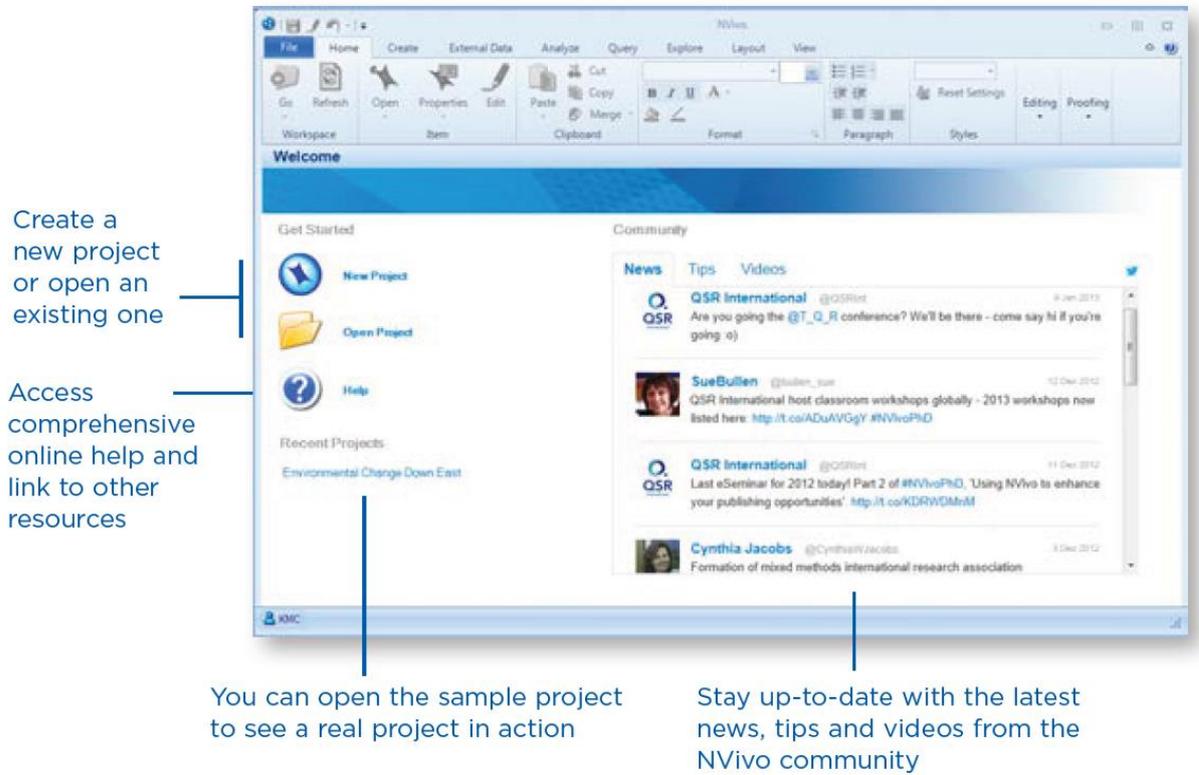
NVIVO doesn't favour a particular methodology. It is designed to facilitate common qualitative techniques for organizing, analysing, and sharing data, no matter what method is used. For the purpose of this research, NVIVO facilitated the iterative process of grounded theory analysis. The picture bellow shows the path that was taken for this research to explore the qualitative data and to identify new themes and verify them against ongoing observations.
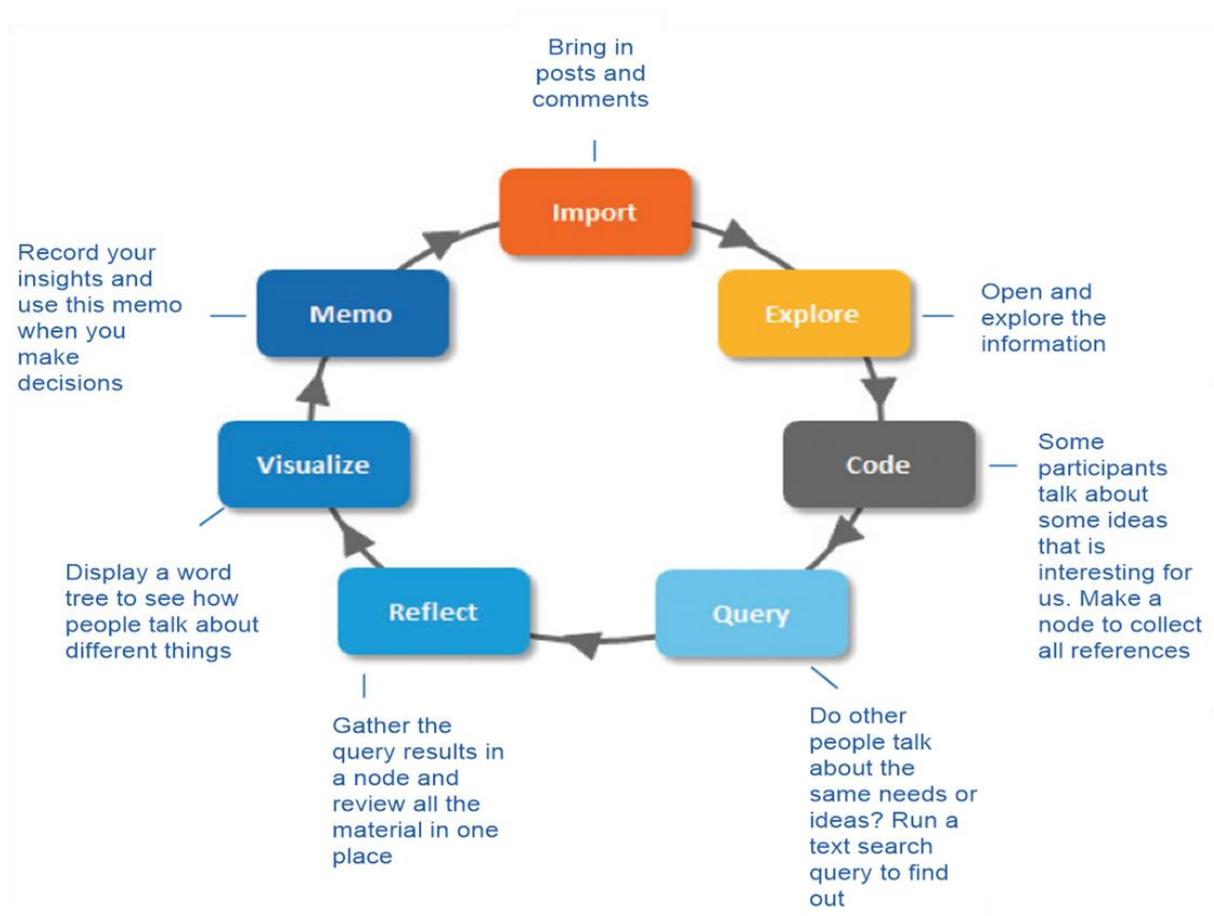
Adopted from QSR International (2014 p.6)

As such, NVIVO can help to manage, explore and find patterns in the data, but it cannot replace the researcher's analytical expertise.

The picture bellow shows the NVIVO welcome screen:

Create a
new project
or open an
existing one

Access
comprehensive
online help and
link to other
resources

You can open the sample project
to see a real project in action

Stay up-to-date with the latest
news, tips and videos from the
NVivo community

Once a new project has been created in NVIVO it provides a workspace with easy access to all project materials:

See the contents of a folder in List View

Access Help

The ribbon helps you to locate all NVivo commands

Navigation View lets you organize your material into folders

Check the status bar to see what is happening in your project

Work with your sources, nodes or other project items in Detail View. Undock Detail View to work in a separate window

Adopted from QSR International (2014 p.11)

The NVIVO ribbon helps to locate preferable commands. Commands are organized into logical groups, collected together under tabs. Each tab relates to a particular type of activity, such as creating new project items or analysing different types of data.

Quick Access Toolbar - customize the commands to suit the way you work

Tabs for accessing commands related to an activity

Hover over a command to see a description

The File tab for managing projects, printing and setting application options

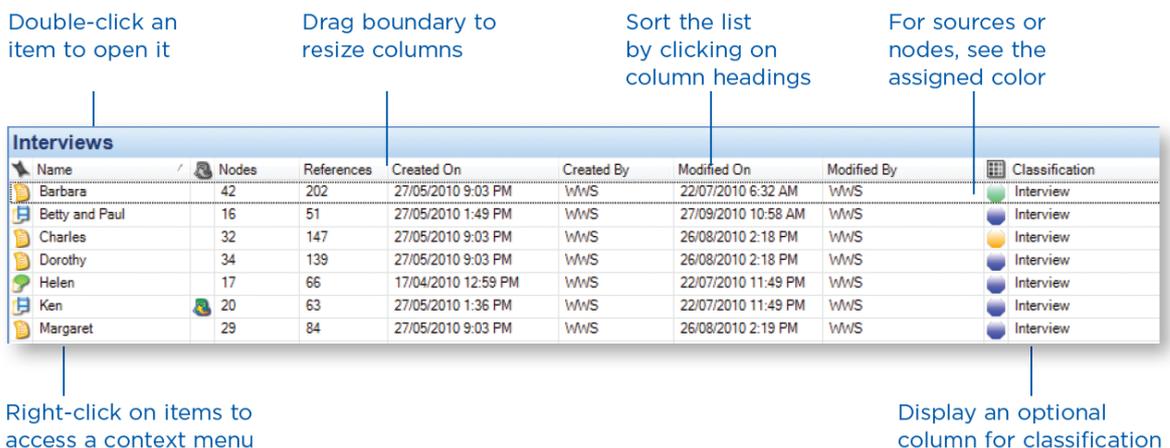Commands are organized in groups

Adopted from QSR International (2014 p.12)

Navigation View also helps to organize and easily access all the items in NVIVO.

Sources

⊞ Internals
⊞ Externals
⊞ Memos
　Framework Matrices

NVivo provides folders for your research materials. You can add folders under them to organize project items

Drag the handle down to make more room

Sources

Nodes

Classifications

Collections

Queries

Reports

Models

Folders

Click a button to see all the folders in the group

Click to see folders for all project items

Click to customize Navigation View

When a folder is selected in Navigation View, its contents are displayed in List View. In this view the user can add new items, open existing items, and edit items' properties.

Double-click an item to open it

Drag boundary to resize columns

Sort the list by clicking on column headings

For sources or nodes, see the assigned color

Interviews

Name		Nodes	References	Created On	Created By	Modified On	Modified By	Classification
Barbara		42	202	27/05/2010 9:03 PM	WWS	22/07/2010 6:32 AM	WWS	Interview
Betty and Paul		16	51	27/05/2010 1:49 PM	WWS	27/09/2010 10:58 AM	WWS	Interview
Charles		32	147	27/05/2010 9:03 PM	WWS	26/08/2010 2:18 PM	WWS	Interview
Dorothy		34	139	27/05/2010 9:03 PM	WWS	26/08/2010 2:18 PM	WWS	Interview
Helen		17	66	17/04/2010 12:59 PM	WWS	22/07/2010 11:49 PM	WWS	Interview
Ken		20	63	27/05/2010 1:36 PM	WWS	22/07/2010 11:49 PM	WWS	Interview
Margaret		29	84	27/05/2010 9:03 PM	WWS	26/08/2010 2:19 PM	WWS	Interview

Right-click on items to access a context menu
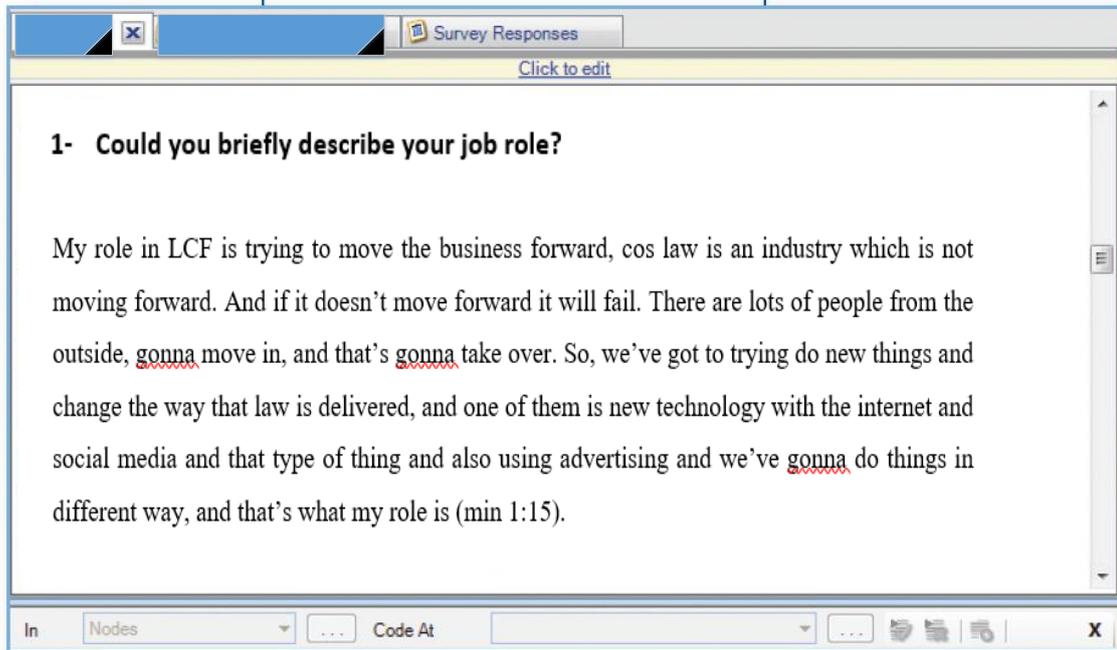
Display an optional column for classification

Adopted from QSR International (2014 p.13)

Once an item from List View is opened, its content is displayed in Detail View. The bellow picture shows an example of one of the research interviews opened in Detail View:

All data sources that need to be analysed including *articles, interviews, social media content, survey results, audio/video recordings, pictures, and web pages* can be imported to NVIVO through the options on the **External Data** tab:
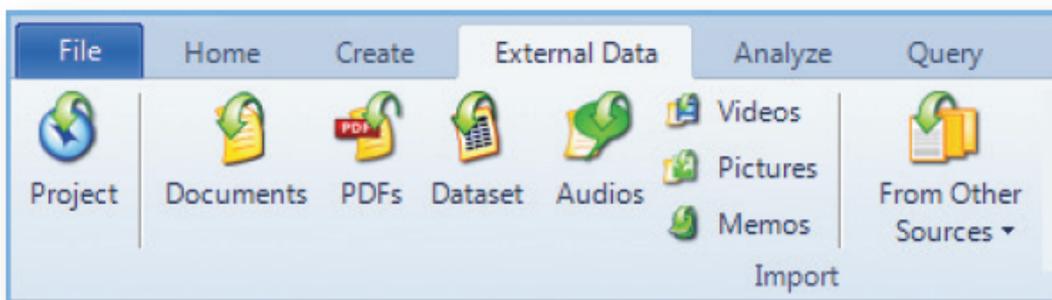
So, NVIVO enables the researcher to import interviews, journal articles, reports and any other Word documents or PDFs:

Select text, such as this paragraph, and code the text at a node

In PDFs you can also select regions of the page, like this image, and code the region at a node
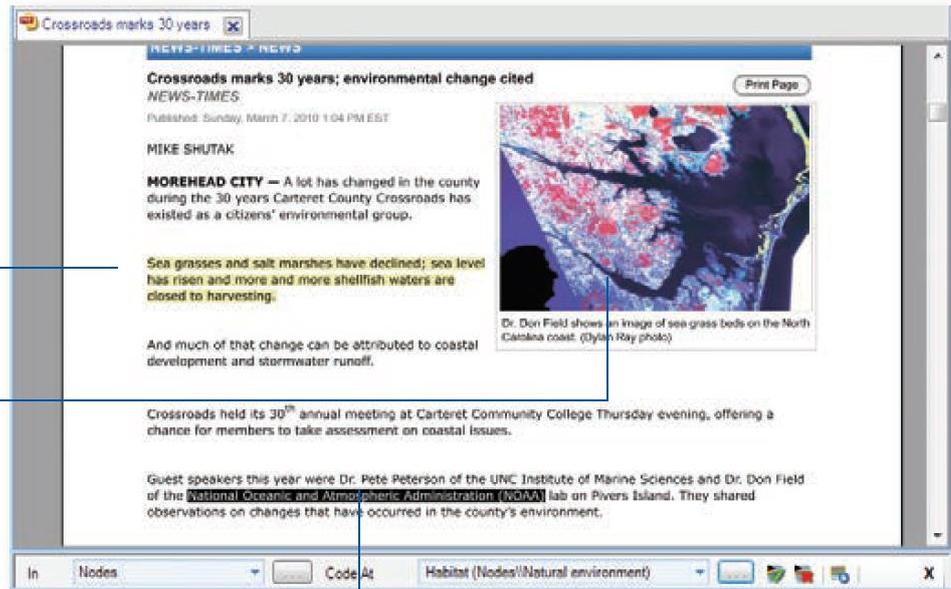
Add annotations or 'see also' links to selected text (or to selected regions of the page)

Adopted from QSR International (2014 p.16)

NCapture is a browser extension that enables the researcher to clip web pages and import them as PDF sources into the NVIVO project.
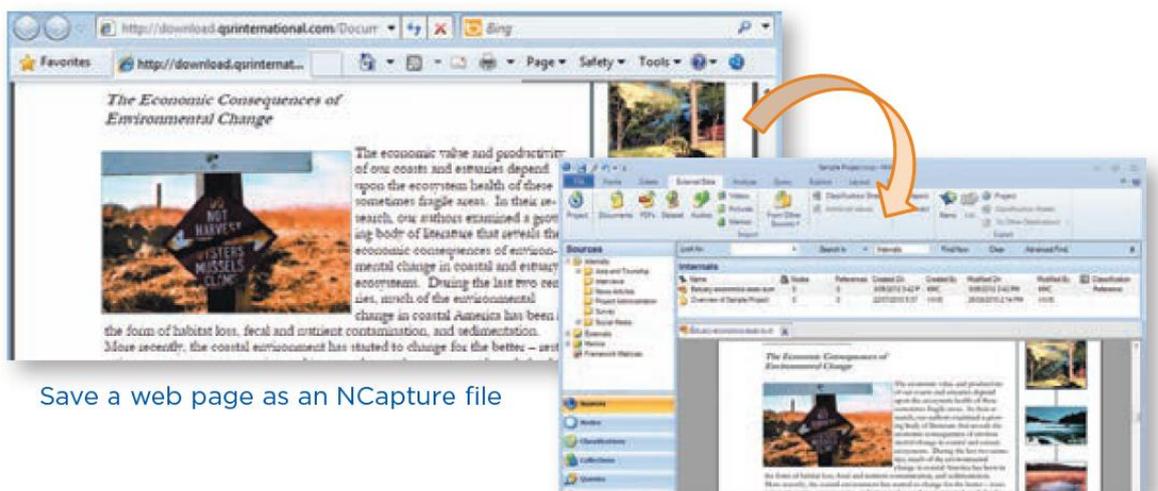
Save a web page as an NCapture file

Import it as a PDF source

Adopted from QSR International (2014 p.20)

As such, social media conversations from platforms such as Facebook, Twitter or LinkedIn can be imported into NVIVO via NCapture as PDF files or dataset resources (Excel spreadsheets). Having content in a dataset means they can be sorted, filtered, or auto coded (for example Tweets can be gathered by location).

Store social media content in a dataset

Adopted from QSR International (2014 p.20)

Once the data has been imported into NVIVO, it can be coded against different themes and concepts. These themes and concepts are referred to in NVIVO as "nodes".

If the researcher already knows what themes they are looking for (e.g. based on the literature review), then they can create and organize the nodes before they start coding:

1. In the **Navigation View**, click **Nodes**.
2. On the **Create** tab, in the **Nodes** group, click **Node**.
3. The **New Node** dialog box opens.
4. Enter a name and description.
5. Click **OK** and the new node is added to List View.
6. 'Child' nodes (sub-nodes) can be added under the new node to create a node hierarchy:
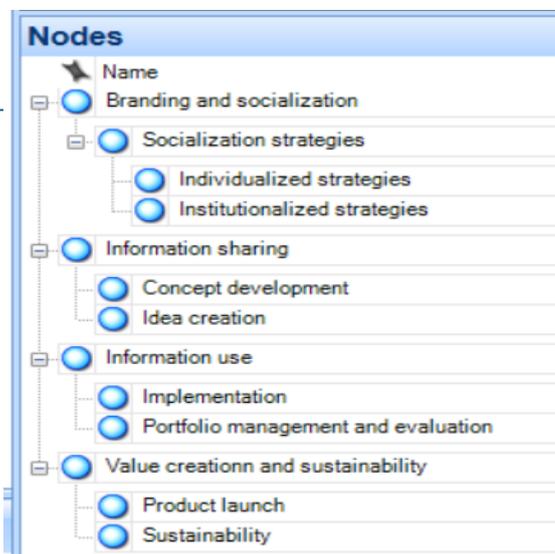
Then, as the researcher explores the data sources, they can code at the nodes they have already created:

1. Display the nodes in List View and open a source in Detail View.
2. Select the content that should be coded.
3. Drag the selected content to the node

However, if the researchers do not already know what themes they are looking for, then as they explore data sources they can create and 'code at' new nodes:

1. Open a source in Detail View.
2. Select the content that should be coded.
3. On the **Analyse** tab, in the **Coding** group, under **Code Selection At**, click **New Node**.
4. The **New Node** dialog box opens.
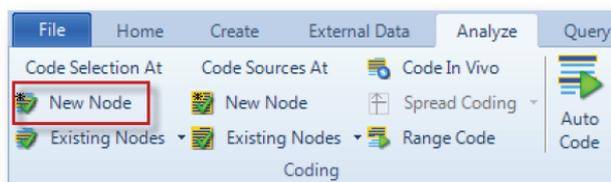
5. If the folder location for the node should be changed, click the **Select** button.
6. Enter a name and description.
7. Click **OK**.

Once the new node is created, it will be added to the selected location in the node hierarchy, and therefore, it can be also recognized and worked with in List View.

To see what has been coded in a source:

- Turn on coding highlight: on the **View** tab in the **Coding** group, click Highlight, and then select a highlight option.
- Turn on coding stripes: on the **View** tab in the **Coding** group, click **Coding stripes**, and then select an option. Coding stripes are displayed on the right of the source.
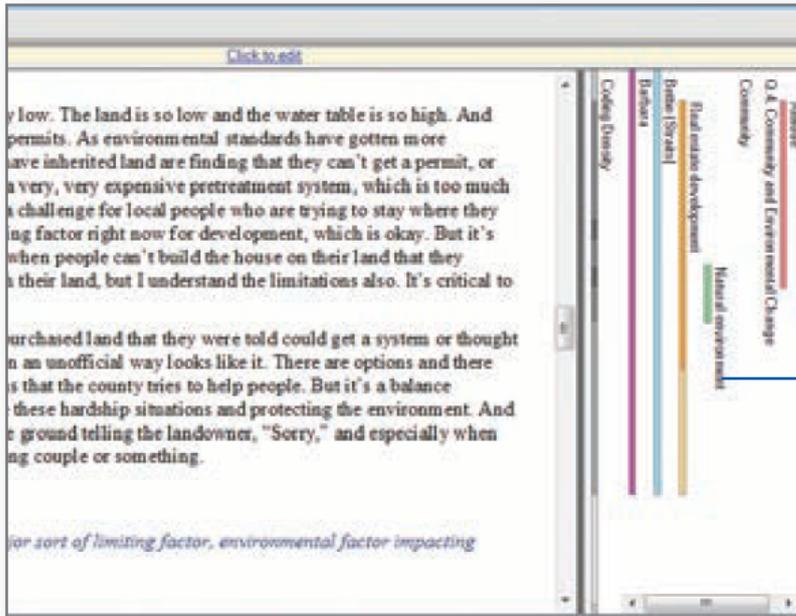
The existing nodes can also be opened to see the related references gathered in one place:

- In Navigation View, click **Nodes**.
- In List View, double-click the node.
- The node will be opened in Detail View.
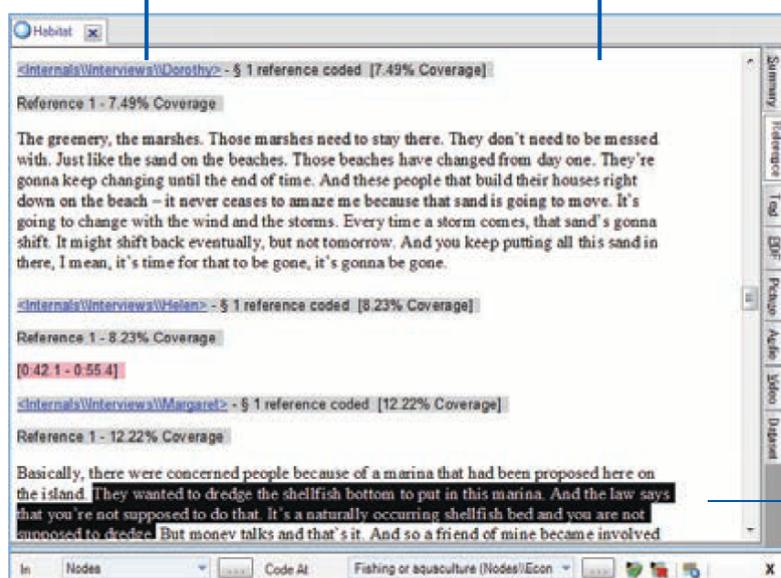
Adopted from QSR International (2014 p.27)

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NVIVO is also equipped with several 'queries' functions which enable the researcher to:

- Find and analyse the words or phrases in data resources and nodes. This helps to find specific words or those occur most frequently.
- Ask questions and find patterns based on the coding structure, which helps to develop new models from empirical data.

The NVIVO queries can be accessed through the **Query** Tab:
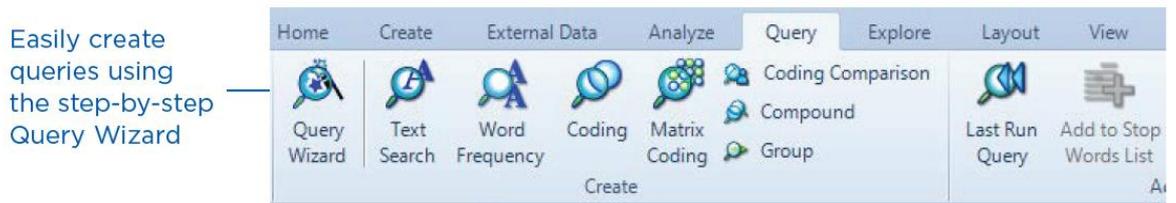
These queries are:

Text Search Query: to search for a word or phrase in data resources and view all the matches in a preview node.
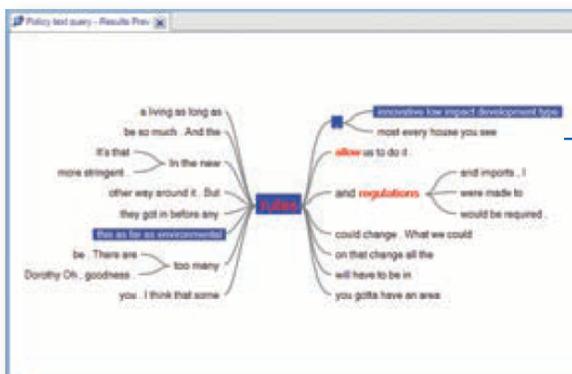
Word Frequency Query: to list the most frequently occurring words in data resources and visualize the results in a word cloud, tree map, or cluster analysis diagram.

Display results in a word cloud, double-click a word to gather all occurrences in a node

Coding Query: gathers all the coding at any combination of nodes. For example, it gathers and explores all content coded at *Branding and Socialization* and *Information Sharing.*

Mix Coding Query: Creates a matrix of nodes based on search criteria. For example shows the *socialization tactics* that lead to *idea generation and co-creation* among community members.

Coding Comparison Query: Compares the coding of two researchers or two groups of researchers.

Compound Query: Combines text and coding queries. For example looks for specified text in or near coded content.

Group Query: Finds items that are associated in a particular way with other items in the project. For example, the nodes that code a selection of data sources.

Appendix 4: Interview with E_Marketing3 from UKEducation

Name: E_Marketing3

Work role: Teacher and Social Support Advisor

Area/team: Marketing team

1- Can you tell me a bit about your job role?

So, my name is E_Marketing3. I was employed as a "Teacher Support Advisor" initially a year ago. But I'm now a "Teacher and Social Support Advisor", cos my role in the Facebook groups and on Twitter has been recognized as a developing role. So, I have responsibility for creating pastoral resources to support children. For example, in terms of learning mental role for children who are experiencing divorce at home or young carers, or they might be ill or their parents might be ill. Resources about friendship, developing specific resources for children who might be transgender or questioning transgender and this kind of things. So, my role is quite special, quite niche and that's my role in resource creation. But I also have to look for trends on Facebook and sometimes I might spot a resource gap because of my experience in teaching, as I have been teaching for 16 years and I was deputy head and senior leader as well. So, I might just go away and make that resource, put it on outside-in and then the resource will go straight into for checking here. So, I do have autonomy to be able to do that as well. Although that's changing very slightly now that the "teachers" and "support advisors" and the "teacher content advisors" are growing. We now have a lady who is specifically looking at Facebook requests. So, that's be less of that at the moment cos Vicky is taking that part on as the company grows. So, I work full time from home, half my time creating resources and half my time managing all the groups. So, I am admin in all of the Facebook groups and have my own Twitter account which is kind of research based. So. A bit less focused on resource generation and more a kind of pedagogical level, looking at teaching trends that are emerging across the UK mostly, although it is growing to be international and also manage one of the secondary Twitter accounts as well. So, yes, I've got those 2 strands.

2- How do you involve in the resource creation process and what part of it are you involved in?

So, it's mostly the pastoral stuff that I make. I'm pretty much the only teacher that creates that kind of content for the website. So, I create those stuff from the beginning to the end, everything about the content, not the design. So, we as teachers our job is to get assigned or to find the gap for a specific resource or a pack of resources and then I create all of the teaching content for that and then it gets sent to a designer to turn it into the UKEducation brand. But the resource that I create are mostly around the pastoral and support side of things. So, I have the pastoral for the children and then support for the teachers. So, I'm making a lot of "wellbeing" resources and tips on how to manage job sharing, learning observation performers, and that kind of things, as a part of curriculum content and all the other stuff.

3- Could you describe your experience with using social media to date?

- **Personally (at home)**
- **Professionally (at work)**

In my previous role as deputy head I set up Twitter for my whole school. So, every class had their own Twitter account, and we had the School Twitter account. So, with that came all of the ethical process behind it of ensuring people understood the permission side of photographing children and if there were children that didn't have photo permissions that they wouldn't put on, and that kind of things. There is a whole lot of work, and that was part of my MA project that I did at Sheffield Hallam University, how using social media within the school setting? So, how you actually gain those permissions from parents to encourage home-school into action? So, I do have quite a theoretical knowledge of social media as well as personally using it myself. So, I have my own professional teaching Twitter account and then I have my own Facebook account for very different kind of things. So, I've got quite a good working knowledge of social media, not just the content generation and publishing side of things, but actually what it means to be using that kind of content when you are dealing with young children as well.

4- Which social media platforms are you currently using in your job? (I.e. Facebook, Twitter, Instagram, LinkedIn, Pinterest, etc.)
5- How are these used [ask for each platform mentioned]?

- **Internally? [within the organisation/ between colleagues]**
- **Externally? [with outside organisations/members of the public and teachers]**
  Prompts:
  - **Pushing out information**

- **Gathering information**
- **Elicit discussions/ideas for new resources/ improvement of current resources/ new markets/ better use of existing resources/ new ways of working/ co-creation of Ideas**
- **Interacting with the community of teachers**
- **Other**

Ok. So, for myself I'm using Facebook and Twitter. The Pinterest and Instagram is mostly my other colleague. Have you spoken to her? Yes. And I have deliberately not gone into that because I think I would just end up with too much stuff. So, my collegaue has compartmentalised the Pinterest and Instagram, and I just do the Facebook and Twitter.

So, It's about engagement, It's about the brand and how we use the UKEducation's voice when we are posting. How all of us who are within the groups have that uniformed UKEducation voice? So, sometimes I do have to speak to some of the other people who were on there, just to change their opinion of how we would say it, that kind of things. So, between E_Makrketing1 and me, we have developed a lovely UKEducation position that comes across the social media side. But for my part, I get a lot of people asking me questions, asking me to direct them to resources, because I'm so visible in all of those groups. They see me as somebody to go to, to ask for help and assistance. So, I might get questions in the morning, like my printer is not working. How can I download the such and such? Or it might be "Ah, I can't find that number line. Can you tell me where it is?" Or it might be "Have you got any resources on this or that?" and that kind of things.

6- How do you build this relationship?

By being visible. So, I certainly in the curriculum groups I do lots of posts. By curriculum groups I mean EYFS, Key Stage 1, Key Stage 2, Key Stage 3. They are specific curriculum groups where I try to make sure the conversation is about the resources, and is about upcoming events, phonics screening in KS1, Sac see in KS2. Because I'm an experienced teacher I know those things that are coming up and so I can direct conversation that way. Then the new groups are having to be set up which UKEducation1 didn't want me to do them first, and I had to be a little bit sneaky to do some of them. So, the "Slimming group" for example came out of the "wellbeing group" which was one that I set up about six months ago. And that's very active group which is very support-based. But there are a lot of people were saying they wanted to join the Slimming mode and such things**.**

7- **How do you realize that a new group is emerging from the initial one and what makes these groups active? Is it about the nature of the group itself, or the type of conversations and the strategies that you take to** manage the group?

Well, it is a little bit of both. It's me identifying a need, with the "Slimming group" for example in particular, people were talking about that in a different group. And so, I started to ask questions of people like "do you think that this is something that UKEducation could support you with? Are there any resources that you would like to help you with this? Would you like a new group?". So over the course of about a week I was investigating the threads until I eventually made the decision to set one up. Then when backing to those threads where those conversations were already happening, to advertise the group, and then about 4 o'clock, once all the teachers are clocked off, I then advertised the new group in all the parent groups. So then, I try to make sure when I set a new group up that I am online to accept everybody straight away. So to make sure they are not waiting. So, it's a new group then approved, approved, approved. And then I'm in that new group generating threads. So "oh tell us little bit about yourself. Oh, what are you doing here in this group? Oh, that's really interesting. Do you show a picture of such and such and such? Have you seen this fabulous resource?". So, I'll spend a couple of hours generating enough content in that group, so that you don't scroll down and it's the end of the page. And then the group starts rolling itself then, as people say "oh, this is a great idea and continue the conversation themselves.

So, why some groups like KS3 and KS4 are always silent?

Ahhhhhhhh, do you know why it is? Yes, it's an exception in our groups really. Its Secondary teachers. They are terrified of Facebook, because if they are on Facebook their children in their class will find them. That's what it is. And I've said this over and over and over to E_Marketing1 that the reason why we can't investigate the Secondary market on Facebook is because they are not in it. They are on Twitter, which is why we set up the Secondary UKEducation account on Twitter, because they do use it in a very professional way for engaging in pedagogical research and those are doing MAs and research projects, and that kind of things. So, they are on Twitter, but very professionally and very considered. So, the Secondary stuff has been more successful

on Twitter than Facebook. So, yes, it is interesting that you noticed that KS3 and 4 group are too quiet on Facebook. That group is very frustrating. But we are still trying and I still kind of always use that group, and I don't neglect that group. But everything that I've done to trying grow it has fallen on their fears where all of those strategies that I use for all the other groups resulted in thousands members in a week. And I know what works and is successful and what doesn't.

8- **How has social media changed your interaction with the community of teachers?**
   Probes:
   - **Interactions/engagement with different groups of community?**

I personally believe that what we offer in the groups, myself in particular, but also others is beginning to have a little bit more of presence. But when I first started a year ago E_Product1&2, E_Marketing2, and E_Marketing1 were in the groups, doing a lot of the stuff that I have now taken over from them and doing them. So, I am very much seeing it as a supportive voice for the company. And people will often say that the groups and the chats and the talk in those groups is more beneficial to them than a staff meeting or a management meeting. Because it is a focused professional conversation on developing their practice. And no other teachers' community do that, no school do that, no primary resources do that. We are the only company that offer that support mechanism behind the resources, behind the subscription, there is a whole 24/7 hour caring culture of support and I think that's what people are beginning to see UKEducation as. Because they see that support which is unique, and nobody else does that.

9- **Did UKEducation exist before introducing social media or it started from beginning with using social media for interaction with teachers?**

I used social media myself in the classroom, maybe 4 years ago. But I think I found UKEducation first by trying to search for a specific resource and it came up on the internet, but it took me straight to the UKEducation's website and then to download it from there. And then a few of the people in school started using it, and then we found out it was just down the road. And then I noticed that ah, it's placed in our city. So, then we owned it. So then, we said ah it's ours and we got to use this cos this is a [our city] company. I know that it's a bit of unique position for us. But, yes we are talking about years ago. But I can't really answer how new teachers would come across it.

10- **Can you tell me how do you decide to enter into a new market and how do you decide to divide the groups into smaller ones?**

Well, I suppose that's what I do all the time with creating the new groups and things. I'm just stocking by the parent groups. I'm calling EYFS, KS1, KS2, and KS3,4 "the parent groups". So, when I'm talking to other people, when they are saying "oh, my group is really….", I say go to the parent groups which is where most of our members are and then we divide them down into smaller groups. So, if you look at the parent groups they all have 40,000, 50,000 members or more. Then the groups that sit underneath that like the "Book club" or the "Librarians", the "moderation" groups, they will all be in the KS1 group and also in the "Moderation" group. You don't often get those smaller groups of people joining together on their own. They are usually in the parent groups first which is why I do all my advertising in those groups. So, this "Moderation" group for example which again is quite busy is about 1000 people in there. That came out of a chat event around about 2 months ago. And it became clear to me that there was a need for teachers to be able to get together to moderate children's' work, because schools won't be providing that service anymore. I knew that as a professional because I used to run that service, and I was in charge of that moderation to the whole of Sheffield for KS1 for about 5 years. So, I knew that if that service is to be taken away, there was going to be a gap. So, I set up on the back of this chat a moderation group with specific permissions made explicit not to share children's work unless you have parents' permission for data gathering and entry which most people do anyway. So, people can then have a conversation about "oh is this expected level? Or what does that mean and such and such?". And that conversation happens over there in the moderation group.

So, for example I spotted a thread on KS1 by somebody saying "oh, would you mind just having a look at this work. I don't know whether what level it is?". And then I'll direct them into that group rather than answering on that thread. I say "why don't you go and have a chat about that on moderation group?". And then say" there you go", and then I announce the question on the moderation group and say there you go. And then I get 30 people join answering the question, on the back of that thread. And I don't have to answer the question because there all answers in the questions themselves in there.

11- **How do Facebook groups help UKEducation to innovate or improve its products?**

Probes:

- **How are the new ideas created?**

- **Who is involved?**

- **Can you give an example?**

So, it's then looking at which is what I'm doing in the chat with my key action points when I'm doing my analysis that I send to E_Marketing1, all the while I'm just scanning through and thinking ah, that's the gap there, and I can make that resource. That resource needs to be made. We haven't got a check list. So I'll either email E_Product1 If it's an urgent one, so, there has been a few urgent things that I say can you prioritize these to be made today. Sometimes I ask her can you direct someone to make that resource, or sometimes I make it myself, or sometime I'll say this needs to be done within a week.

This is why I was interested in who was going to be the person at the end of your analysis (Facebook analytics project in UKEducation) that says we need an Igloo house worksheet? Who is supposed to make the decision on which ideas should be developed further into new products? Because at the moment that's me here, and I'm doing all of that on my own with my eyes, by stocking all of these threads and all of these comments and then saying my colleagues like to […] and […] who are new and who are also doing the same thing. So, these people are doing a manual job and might end up without a job as a result of this automation project. So, that's something that I keep thinking. Are this new analytics software that the company is going to develop going to replace the human person? And with that it means my role in the groups will change because I'm not having to that stocking? And that who is going to put in place a job role that does that. Where is that going to come from? Because I see that as a quite critical job actually and it probably needs to be a teacher job because it's actually making decision on content.

12-How would you identify and select which ideas from social media would be popular and should be further developed as new resources?

Probe:

- **Guidelines followed to identify and select the idea?**

- **Company's policy/strategy?**

- **Who is involved in creation, identification and selection of ideas?**

Well, some of it is throwing it on wall and seeing what sticks. So, there is a point where some of it isn't in a process. It's just having a go and seeing if it works. So the first life style group that I set up from the "Wellbeing" group was the "Book club". And I didn't know what I was doing but people started saying in the "Wellbeing" group that they wanted to read more, but couldn't get out to the book clubs. And I just came up with this crazy idea of a virtual book club where we all read the same book but came into a chat event to talk about it rather than go to someone's house and talk about it. So, we used the traditional book club model to make it into the virtual space and it works virtually well. So, there is a big engagement of people who are barrowing that book from the library or they've got it in their school or in their bookshelf and share it with others virtually during the month and joining in the read along and then we all have a conversation about it at the end of that month. And I didn't know that's going to work. I had never seen anything else like that before, and that was just my hair brain scheme, thinking this might be something that could support them. So, there is no resource generation from this idea, but it's about get in that UKEducation brand out there in a supportive lovely role. So, that was the "Book club". And then following on from that I set up the "Slimming club" and then [the company's CEO] picked up on this. So, I'd been merrily trotting along, I was sending him some of my chat stats, and he was saying to me, cos I said I think I like to set up more groups, and he said to me go ahead, I trust you, you go for it. If there is something you want to do, you do it. So, I did. So, that was the "Slimming club". And then E_Product1 and E_Marketing1 were like "Ah, this is really good actually". And then [the CEO] said we need more of this. So then I set up the "Gardening club" and the "Craft Club" where I was sharing some knitting projects and that kind of things. And I also did the "Fitness and running club "and that kind of things. So all the people who are doing the coach to 5K or doing the marathon and all of that find this group useful. So, these groups are for the adults. So the purpose of creating these groups is about the bigger picture of the teachers' life style and the UKEducation's brand supporting their wellbeing which provides them resources like a coach to 5k training plan, a 5k to 10k training plan. So, [my colleague] who runs our "Home Education" section, he is a runner. So, he has developed those resources. And I'm a knitter and so I do knitting and crafts, so' I'm looking at doing that kind of things. And for the Slimming club I'm doing recipes, and slow cooker recipes, and meal planners and all of that. So, there were no resources being generated, not

curriculum resources. These are life style resources which is growing the brand and still very much on brand in terms of the lovely side of things (min 4:50).

13-Do the teachers in the groups also engage in co-creation of new ideas and curriculum resources?

We do have lots of that actually. In KS1 group in particular is quite difficult doing that. They generate huge amount of resources in there. So, if we want to create all those resources it takes ages. In that group if we think there is anything generated by the members that we can take it we do that, and intellectual property won't be an issue and it becomes UKEducation's property and we can turn it into UKEducation resource. So, it's been quite a few resources that been generated from there and are put in the KS1 group. There is something about KS1 teachers. They are continually developing their own things and put them in there and we say to them "ah, how would you use this resource for teaching this or that subjects? Ah, how lovely this one is?" and then we direct them towards the UKEducation version of that resource.

They actually generate a finished resource sometimes with all the content, design and illustrations included. The resources that they generate might be part of their work and teaching plan for that week. And then we are taking that and we implement it. So, we take that resource, that word document for example (the content), out of the files (the Files section), and give it to a designer here, and say redesign it, change this word, change that, or make it like this. But we keep the content pretty much the same.

14-How would you identify and select which ideas from social media would be popular and should be further developed as new resources?

Probe:

- **Guidelines followed to identify and select the idea?**

- **Company's policy/strategy?**

- **Who is involved in creation, identification and selection of ideas?**

Well, we do say to people that if they want their generated resources to be made, cos a lot of times it comes to me, and so they might PM me privately or I would then direct them to the "suggest a resource" tab on the website and I'll post the link on there and trying get people to go direct to the website rather than via me, so that it's all logged

then and gets our own code. Because it's been a specific request. So, that's how we are trying to manipulate people into doing that kind of things and contribute in co-creating resources. But sometimes it's hard, cos they email directly to me and then I have to then email it off to somebody else and our own code gets missed. Because it is not submitted through the "suggested resources" system on the website.

15-Can you explain how are the selected ideas from social media communicated and decided upon internally between different work groups? (The map created about UKEducation workflow would be discussed)

Probes:

- **Can you give an example?**

- **Guidelines followed?**

- **Devices/platforms/software used?**

- **People who are involved?**

I wouldn't make that decision if it's going to be made or not. My job is to put it on the outside-in spreadsheet. And then its CPDO's jobs to either allocate it to their resource plan or ignore it. If they think it's something that would generate a lot of downloads, then they will give it to another teacher to do the content of it. But I don't make that decision. Once the idea is on the outside-in and they decide to turn the idea into a UKEducation resource, again they would assign it to a specific teacher. Sometimes it's me, specially the pastoral and support stuff. Because I'm the only person that is doing those kind of resources and makes that content. So, for example when we have the request come through for transgender resources for young children that just came straight to me. There is nobody else that would manage that.

So, especially for something as difficult and potentially traumatic as that I do a lot of research on the internet or social media to make sure that I have got that right. So, I go to lots of different places to search that topic and make sure that I've got it right. And then being an intelligent woman, I then make my own version of it.

16- How are the newly-developed resources introduced to the community members? How does UKEducation earn profit from these resources?

Probes:

- **Different membership plans?**

Yes, I will do that through the groups. So, I'll then say, following on your requests and such and such, we have been looking at more sensitive material and this might be something that you might find useful. So, I'm in a unique position really, being able to advertise my own resources that I have made. There are lots of the teachers who make a wide range of resources, but they don't have Facebook presence. They make their resources and then it's gone, where mine, I'm able to grab them and then put them back up there. So, personally I like that. Cos I get feedback from teachers in the groups. But that's personally from my professional development, I get feedback on the things I have made whereas a lot of teachers don't.

17- How do you make sure that users will download the resources from the website legally and don't share their accounts with one another?

Those guys there; [IT guys] look for trends on log ins. So, if there is one specific account that has logged in through different devices at the same time, then they realize that they have probably shared their account. And they would then get an email to say your account would be blocked if you don't generate more usernames or don't use our offer for the school subscription. So, this is monitored by those guys there. That's not my job.

18- How do you deal with negative comments and users' complaints?

Ah, they are complaining about the price, constantly complaining about the price. So, "why haven't you got monthly direct debits? I can't afford 40 pounds per month", and then someone else is saying "40 pounds for one month? No, 40 pounds for year", then someone else is commenting "40 pounds for year? That's amazing value".

So, sometimes I delete negative comments if it starts to get personal and nasty, I would just delete them. And again that's set up within the Facebook rules that we will not tolerate people who are unsupportive or negative or rude to each other.

But I have never seen a complaint about someone who has asked for a resource and we didn't make it. If there is anything negative, it's sometimes the opposite. People complaining about other people who are generating lots of content. And in KS1 group, there is a girl called [her name] who has been teaching for 2 years, and she is constantly putting stuff in the "Files Section". And everybody say "ah, [her name]! You are amazing, Ah thank you very much, ah your resources are so fantastic". And this starts really annoy some others because this is a huge kind of … . And I got messages saying "we are all fantastic. Why she is so fantastic? She is not, she is just making some resources." and that kind of things. And that's quite hard to manage. But that's rarely happens really. Most of the comments and threads are very positive. Sometimes I have to delete something that says something that can start to identify the school. So, for example if somebody said "I just had a lesson observation and it went terribly and my deputy head teacher said such and such and such, and she is failing me...". so, I delete that kind of posts. Because that's getting into personal, and personal issues within the school that could be identified from that person's post.

19-In your view, what are the most important success factors in the use of social media for innovation?

I think, I've said this to E_Marketing1 on many occasions and I think I can sit with [the CEO] the other month, starting to say to me you do it, you run with it and starting to listen to what I'm saying. Because I think that there is a much bigger opportunity here for UKEducation to be a support mechanism for teachers who are on their knees. Teachers are leaving their profession many times and I understand that resource generation and content is the money, that generates our wages, I get that, but in terms of branding and marketing the brand I still think that there is an opportunity to use Facebook in particular, Twitter not so much, but Facebook because of the interaction in there which you don't really get in Twitter, to look at this supportive counseling role via the Facebook groups, which I'm doing to some extent but I just wonder if we are missing something and that could be something bigger and really quite exciting generated on that side of things. And yes, it would be a completely different market. And in terms of generating income I don't know what that would look like, but I'm not a business woman and that's not my role. I have identified to E_Marketing1 months and months ago that this was a gap that I think we can fill and that I'm personally filling at the moment without any specific skills, just using my intuition. So, yes, that's just

something that I do keep bringing up. That's a very specific social media on go. E_Marketing1 says that's really the unions' job. But I don't think it is. I think that' a very different field. That's just my thoughts.

      20-Is there anything else you would like to add? No, Thank you.

Appendix 5: Participant Consent Form

Title of Research Project: The Impact of Social Media on Innovation in Small and Medium-sized Businesses.

Name of Researcher: Lionel Zayeh Kooktapeh (contact number: xxxxxxxx)

*Please **initial the box** if you agree with the statement to the left*

1   I confirm that I have read and understand the above research project and I have had the opportunity to ask questions about the project.

□

2   I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without there being any negative consequences. In addition, should I not wish to answer any particular question or questions, I am free to decline.

□

3   I understand that my responses will be kept strictly confidential. I understand that whilst direct quotes may be used, my name will not be linked with the research materials, and I will not be identified or identifiable in the report, reports or articles that result from the research.

□

4   I agree for the data collected from me to be used in future research.

□

5   I agree for the interview to be recorded using a digital/audio recorder to ensure the responses are captured accurately.

□

_____   _____   _____

Name of participant   Date   Signature

Lionel Zayeh Kooktapeh   _____   _____
Lead researcher   Date   Signature

To be signed and dated in presence of the participant

After the form has been signed you will receive a copy of the consent form along with a summary of the research. If you would like a copy of the recording/transcript, this is also available on request.

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