

## KNOWNET: Exploring Interactive Knowledge Networking across Insurance Supply Chains.

**Dr. Susan Grant\***

School of Engineering and Design

Brunel University, Kingston Lane, Uxbridge, Middlesex UB8 3PH, United Kingdom.

*Susan.grant@brunel.ac.uk*

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**Abstract:** Social media has become an extremely powerful phenomenon with millions of users who post status updates, blog, links and pictures on social networking sites such as Facebook, LinkedIn, and Twitter. However, social networking has so far spread mainly among consumers. Businesses are only now beginning to acknowledge the benefits of using social media to enhance employee and supplier collaboration to support new ideas and innovation through knowledge sharing across functions and organizational boundaries. Many businesses are still trying to understand the various implications of integrating internal communication systems with social media tools and private collaboration and networking platforms. Indeed, a current issue in organizations today is to explore the value of social media mechanisms across a range of functions within their organizations and across their supply chains. The KNOWNET project (an EC funded Marie Curie IAPP) seeks to assess the value of social networking for knowledge exchange across Insurance supply chains. A key objective of the project being to develop and build a web based interactive environment - a Supplier Social Network or SSN, to support and facilitate exchange of good ideas, insights, knowledge, innovations etc across a diverse group of suppliers within a multi level supply chain within the Insurance sector.

**Key words:** supply chains, knowledge networking, insurance, social media.

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### 1. Packaging and supply chain

The astronomical growth and evolution of platforms such as Linked In, Facebook and Twitter reflect the success of social media technologies; more importantly it illustrates how businesses and consumers will expect to interact with and use digital media in the future, for all sorts of reasons, including driving innovation from knowledge sharing and generation. The KNOWNET project sets out to explore the potential and value of current social networking technology to support sustained knowledge sharing and generation across a multi-level supply chain in the insurance sector both in the UK and Spain.

The aims and objectives of KNOWNET are to develop, build and test an interactive Supplier social network (SSN) framework, designed to support local innovation and leaning where explicit, implicit and

tacit knowledge and experience of suppliers and their employees can be shared. The SSN will consist of a set of web based tools, such as forums, blogs, wikis, FAQs, public recommendations/suggestion pools and exercises and applications specially designed to utilise a range of learning processes (e.g. learning by doing, learning from others, and applications supporting the formation of communities of inquiry and promoting learning through social interaction. Specifically, the KNOWNET SSN platform will bring together supply chain members in a highly interactive real-time 3D environment, who be able to communicate quickly and effectively with sound and image and will promote the sharing and adoption of good ideas, practices etc. Specifically, the combination of exercises, applications and social interaction tools, ensures a holistic knowledge sharing platform which

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- encourages contact between supply chain partners
- encourages knowledge transfer across and between supply chain partners
- develops reciprocity and cooperation among supply chain partners
- uses active learning techniques
- gives prompt feedback
- reduces 'misinterpretation' of information
- communicates high expectations
- respects diverse talents and ways of learning and knowledge

Given that the idea of web based interactive SSN's is relatively novel, and a comparatively unexplored area in the field of supply chain management, the project also explores participants attitudes and behaviours surrounding the concept of virtual supplier communities. Crucial to the research is the use of Social Networking Analysis techniques to map and measure the relationships and flows of information/knowledge between individuals and groups within the various supply chains, and gain insight into the roles they play within the network.

The concept of collaborative networking is particularly timely in the insurance industry as it looks to strengthen the inter-organizational ties between its suppliers and external agencies, for improving processes, accelerating innovation, fostering creativity, and sharing experiences and local knowledge amongst its supplier networks. The research outputs will enable the industrial participants to assess the inherent value and efficacy of social networking as a knowledge sharing tool which can impact on a range of KPI's within a large supplier base, as well as provide opportunities for rethinking core processes across a breadth of insurance categories.

KNOWNET will be achieved by the knowledge exchange programme between two academic partners (Brunel University and Universitat Politècnica de València), and one private sector partner (Royal & Sun Alliance Insurance PLC UK).

## 2. Knowledge Networking

Knowledge is the foundation of a firm's competitive advantage and ultimately the driver of a firm's value (Teece 2000). Organizations therefore need to recognise it as being a valuable asset and develop

a mechanism for tapping into the collective intelligence and skills of employees and supplier partners in order to create a greater organizational knowledge base (Bollinger and Smith 2001).

Much of the information that companies share — data on inventory levels, sales, production schedules and prices — is easy to codify and transmit. But other types of knowledge are just as important to exchange and more difficult to codify: know-how, managerial and communication skills and organizational memory. Intercompany knowledge sharing should be a joint activity between supply chain partners; the parties share knowledge and then jointly interpret and integrate it into a relationship-domain-specific memory that influences relationship-specific behavior (Selnes and Sallis 2003). Myers and Cheung (2008) found typically three types of knowledge sharing within the supply chain, each offering distinct benefits to buyers and suppliers: information sharing, joint sense making and knowledge integration.

- *Information sharing* takes place when companies exchange important data about sales, customer needs, market structures and demand levels.
- *Joint sense making* occurs when supply chain partners work together to solve operational problems, analyze and discuss strategic issues and facilitate communication about the relationship. Since individual partners often interpret the same information differently, intercompany teams can help create a common understanding.
- *Knowledge integration* occurs when supply chain partners develop relationship-specific memories, providing everyone with a common understanding of idiosyncratic routines and procedures governing the relationship. This often results in collective problem solving that benefits both the companies and the relationship as a whole.

These knowledge-sharing activities constitute mechanisms that can make or break supply chain relationships.

In organizations, typically however vital corporate knowledge often gets trapped in information silos like email inboxes, functional silos, structured information systems like ERP, CRM and SRM systems, and more importantly within the minds of employees and supply partners who create, recognize, archive, access and apply knowledge in carrying out their daily tasks (Nonaka and Konno 1998).

Indeed, many companies' today, regardless of location, size or industry sector are struggling with interconnecting knowledge, talent, ideas and relationships both within their own organisational environment and across their supply chains.

With the development and evolution of social networking sites such as Facebook, LinkedIn, Twitter etc, whereby people connect and collaborate, share personal experiences, and subjective insights, the appeal of social networking for companies to achieve close communities with employees, customers, and suppliers is increasing (Khan & Khan 2012; Mangold & Faulds, 2009; Mayer, 2009; Yang & Chen, 2008). Such virtual communities can provide similar benefits to traditional social networking methods that enhance innovation and collaborative activity, but with the added advantage of speed, and free from boundaries of time or space (Ganley & Lampe 2009). Indeed, recent evidence shows companies' are beginning to consider web based 'social networking' as a community-building platform to sharing knowledge, (Bredl *et al.*, 2012; Annabi *et al.*, 2012; Álvarez *et al.*, 2009; Tsai, 2009). A recent special report in the Economist stated that social-networking technologies are creating considerable benefits for the businesses that embrace them. The openness and richness of social networks can foster a fertile environment for the creation of entirely new knowledge, while also accelerating the innovation rate (Majewski *et al.*, 2012; Seufert *et al.*, 1999; Tsai and Ghoshal, 1998).

The social aspect of learning and acquiring knowledge (know how, know why, know who and know what), is recognised as significant in these innovations. As such knowledge networking and community building to leverage, create sustain and share knowledge in a collaborative way is strongly emphasised through tools that support dialogue, discussion, observation and participation (Chatti *et al.*, 2007).

Whilst the literature on social networking as a collaborative tool (for learning and generating new knowledge) across and within commercial enterprises and their supply chains is relatively new, there are some good examples of existing commercial social networking software that has been applied successfully, that specifically encourage effective collaboration e.g. Yammer, a cloud-based enterprise social networking (ESN) system; TSB's \_connect portal, and Podio from Citrix. Asda's recent launch of 'Sustain and Save Exchange' (Procurement Leaders Staff 2012) and Caterpillar Inc's 'Knowledge Network' are good examples

of systems where opportunities for information, knowledge and learning's can be shared, questions raised, key documents posted, and focused activities attended, to spur new ideas and solve problems amongst members of a supply network.

Research into Supply chain networking is a particularly salient area expected to deliver a significant contribution to the knowledge transfer (and productivity) debate, and indeed there is increasingly recognition that supply chains are beginning to prioritise knowledge creation and exchange (Wu 2008) as in the case of ASDA above. Successful management of a supplier network in particular can potentially enhance the productivity of the supply chain through diffusion of knowledge. There is however, a generally adopted view that the potential of SCM synergies for the creation and transfer of useful knowledge has not yet been materialised (Giannakis 2008), and extensive knowledge sharing across supply chain still appears to be the exception rather than the rule (Lin 2005). Indeed, the findings of a recent study for the creation of value in organizations for example suggest that although firms in the UK for example, assign great importance to their suppliers as sources of new knowledge creation, their involvement in the generation of knowledge is low (Edwards *et al.*, 2004). There are a number of reasons and challenges associated with this. A key challenge concerns motivating supply chain members to engage in knowledge sharing and generating activities in the first place (Grant 2013, Ardichvili *et al.*, 2003), and a second challenge is the difficulty in generating and transforming knowledge into organizational action, both internally as well as across supply chain partners (Capo Vicedo *et al.*, 2011). A further key issue concerns the reluctance of companies to share information and knowledge beyond their own internal boundaries. This has implications for generating systems based supply chains innovations, which can impact greatly on customer focus as well as on operational efficiencies.

### 3. Rationale for study

Conducting business in the financial services sector, requires collaboration across multiple parties within a supply chain. Indeed, for agile industries such as insurance and banking, which depend on complex processes of multiple individuals exchanging information, knowledge, ideas, and insights, interaction, via social networks for example, could potentially deliver a huge set of efficiencies and

opportunities for rethinking core supply chain and internal processes.

Business in the financial services industry traditionally requires the input, participation and decisions of many stakeholders. For example, risk managers, actuaries, IT and marketing/distribution staff often collaborate in product development. Lloyds of London uses collaborative technologies to cut claims costs for all the claims in the entire London Insurance market (Kontzer 2002). In motor vehicle claims processing, repairers, assessors claims staff, policy holders and legal representatives need to provide inputs and make decisions at different stages of the claims process. Despite this need, and some minor developments in collaborative knowledge sharing, up to now, firms in the financial services industry are not seen as conducive to fostering knowledge sharing and generating collaborations across their supply chains in a proactive way (Dawson 2004).

Insurers are beginning to look to incorporate collaboration technologies into their operating models, to improve process efficiency and knowledge sharing (Josefowicz 2011, Kontzer 2002), and the use of social media to assist in the coordination of knowledge sharing and other business activities is only starting to be explored. This can allow companies to stay close to the changing desires of their customers and the changing trends in the market. However, the use of such approaches and technologies presents a new set of challenges to these organizations, who are not used to managing knowledge transfer in this way. Included in these challenges are monitoring appropriate content for sharing or archiving issues, measuring the benefits of these new tools, integrating these new tools into existing workflow, communication and archiving systems and understanding the motivations prompting people to share knowledge or participate in virtual communities, in an industry that has typically always used private communication channels.

The KNOWNET project seeks to build on these challenges by identifying and measuring the value of social networking across multiple groups and stakeholders in two insurance companies and their suppliers. Specifically, the project addresses the organizational contexts, and commitments, motivations of multiple groups and stakeholders prior to developing, building and trialling a bottom up, user designed web based interactive environment - a Supplier Social Network (SSN), to support and facilitate exchange of good ideas, insights, tacit and explicit knowledge, innovations etc. The project will also develop a tool for measuring accurate and

effective knowledge transfer, as well as measuring participant engagement and motivation to sharing new ideas, insights and knowledge in a conservative sector such as insurance.

### **Social Network Analysis**

In addition to building a socially interactive SSN framework, the project also uses social network analysis (SNA) techniques as a modelling tool to better understand knowledge management in a multilevel SC.

The SNA perspective views any system as a set of interrelated actors or nodes. Actors represent entities at various levels of collectivity, such as persons, companies, countries, and so on (Borgatti and Li, 2009). SNA is essentially the mapping and measuring of relationships and flows between people, groups, organizations, computers, or other information and knowledge processing entities (Hananman 2002). A key output of SNA is the knowledge map which provides insight for improving business and organisational processes (Liebowitz 2005). Knowledge maps may help identify intellectual capital (Liebowitz 2003, socialise new members and enhance organizational learning (Wexler 2001). Several authors propose SNA techniques (Boschma and Ter Wal, 2007; Borgatti *et al.*, 2009) as appropriate to model business networks. In fact, there have been many previous works from supply chain management using these techniques (Carter *et al.*, 2007; Mueller *et al.*, 2007; Ozkul and Barut, 2009; Borgatti and Li, 2009; Choi and Wu, 2009; Bernardes, 2010). The use of SNA techniques in this project is expected to provide useful insights into how RSA's SSN can reinforce their collaborative behaviours and activities to not only enhance their relationships, but to also achieve competitive advantages for the SSN as a whole.

## **4. Methodology**

The KNOWNET project will be implemented in 3 phases.

In phase one, the consortium partners will engage in exchanging knowledge to initially develop, build and test an interactive Supplier Social network, prior to conducting parallel trials in the UK and Spain to assess its knowledge transfer capability.

In Phase two, the consortium will identify 'optimal knowledge exchange and transfer tools and applications within a digital social networking environment, subsequent to evaluating user

engagement and knowledge transfer capability of the provisional integrated system.

Phase three will measure knowledge adoption and transfer capability within the revised framework, prior to finalising the platform.

The figure below outlines the 3 phases of the programme

As shown in Figure 1, the research programme will be implemented in 3 phases.

**In phase 1**, the key activities are to develop, build and test a provisional SSN platform. The development of a conceptual SSN model which will inform the build of the platform, will be based on a range of sources including a literature review, results from a recent pilot study (BRITAC 2011) examining attitudes to SSN engagement across a motor insurance

supply chain in the UK; social networking analysis theory and of course, user centric discussions on requirements ( via user stories) during the period of a secondment unit with the Insurance companies.

The major output of **phase 1** is to establish the parameters for a SSN platform via continuous discussion and negotiation with the partners and users, establish an architecture and specification for the SSN, and build a provisional SSN framework (incorporating web based tools,) that successfully enable diverse supply chain partners from selected insurance supply chains in the UK and Spain, to interact for the purposes of knowledge transfer.

**Consultation on requirements:** This initial step involved an intense period of consultation with key stakeholders in the company. This took the form of discussions and presentations during two

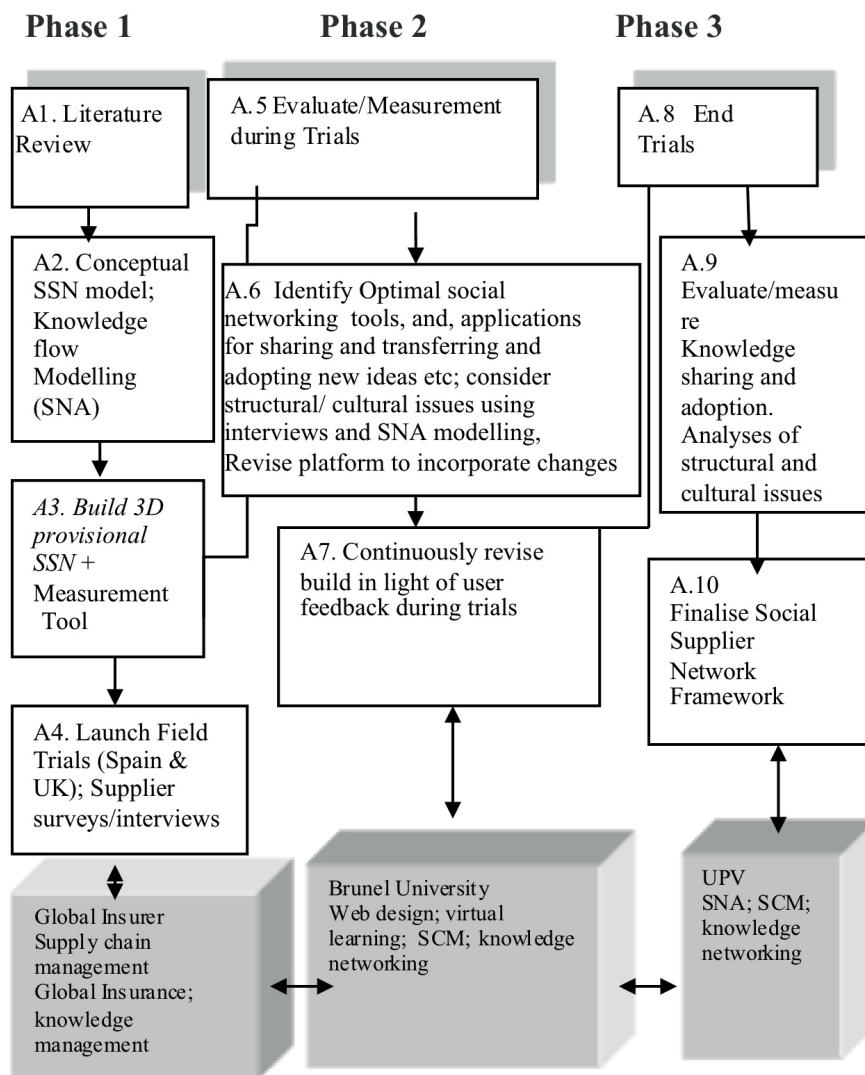


Figure 1. Methodology.

secondments over a period of months. The process began by identifying requirements with key stakeholders to reveal key areas where the adoption of social networking tools could provide a benefit. Six potential areas were identified and ranked using SWOT analysis. Following this, suitable participants from across business processes and externally (suppliers) were identified to take part in the trial.

Part of the process of identifying requirements of users involved gathering a catalogue of USER Stories, that would help drive the selection of tools/functions and serve as benchmarks to assess whether the platform solutions were delivering to requirements.

**Trial: November 2013.** The trial is due to launch towards the end of the first year, and will serve a dual purpose. Firstly as an iterative process with user centred feedback over a period of 12 months, to drive changes to the look, feel and functionality of the platform in order to optimise knowledge sharing/learning

The second purpose of the trial will be to log data on supplier engagement and usage, as well as survey supplier satisfaction and attitudes to interaction within an social networking environment.

The project will also carry out social networks analysis (SNA) techniques to model knowledge flows across the multi levels of the Supply chain. Much of the data will be gained from the logging data as well as via online interviews. The SNA modelling should reveal the structural properties of the network and the implications of these structural properties for the design of social network based systems.

In **Phase Two**, engagement with the platform over the trials will provide an opportunity to study the characteristics of online social networking and an understanding on how to improve/modify a later version of the SSN.

The major task of this phase will be to identify the optimal social media tools and applications (e.g. which provide wiki function, blog function etc.) capable of promoting the sharing of good ideas, and knowledge transfer through social interaction. This process will be iterative, until the end of the 12month period, when the trials conclude. The platform modification process will be process driven and user centric in nature.

The key activities in **Phase 3** will be to measure knowledge transfer and knowledge adoption within the revised SSN framework. Participants will be surveyed/interviewed to ascertain ease of use and

satisfaction with the tools, the acquisition of new content (via leaning by doing), the acquisition of new insights (via learning from others), and follow-on exercises later in the trial to measure ability of participants to implement the new content gained from the interaction with other participants and tools/exercises.

A further activity will involve identifying structural/cultural inhibitors and enablers' to engagement and interaction using interviews, surveys and continued SNA modelling during the field trials. The findings from the trials in phase 3 will define the generic constructs of the 'knowledge sharing SSN' determine its' usefulness across other domestic domains, and refine the evaluation tool. This tool will continue to monitor and measure engagement and usage, supplier feedback and the impact of the different learning processes and tools on the depth and breadth of knowledge transfer, motivation to share ideas, etc, until the end of the trial and highlight patterns of behaviour and adoption of new learning.

The SSN framework will be applied to a number of participants (primarily SME's) within a multilevel supply Insurance chain in Spain and the UK. Phase 3 aims to refine and validate the framework developed in phase 1 and evaluate this interactive medium for transferring ideas, insights, experiences and learning from others. The trial also allows researchers to explore structural (using SNA analysis) and cultural differences across the 2 groups. The SSN needs to be verified in different countries having different cultures. As a result the KNOWNET consortium consists of partners from different cultures to execute the field trials in the UK and Spain. If the SSN is shown to promote knowledge networking (knowledge exchange and generation and learning) across the partner's cultures, then it is felt that a similar framework using web based tools and applications, would be accepted by a number of other countries with similar cultures, within the EU. The KNOWNET project is underpinned by the transfer of knowledge between the commercial and academic partners. All phases of the research will include transfer of knowledge via secondments. The secondments to date have taken the form of workshop discussions, presentations and software demonstrations, and have been both intersectoral and international in nature.

## 5. Conclusion

The project is currently in the first year of operation and partners are working towards refining user

requirements for the platform. A third secondment unit is scheduled for the summer of 2014 where all partners will collaborate on midterm findings and lessons learned from the UK and Spanish trials.

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