

Exploring the implications of IT-enabled relational structures on service performance

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Abstract

Overview:

The design, management and delivery of complex service systems suggest that we must develop a scientific understanding regarding the configuration of resources to deliver service excellence. In order to ground an understanding on service delivery, there is a need to establish a theory on service formation within complex service systems to examine the value propositions which connects them. Within the service-dominant environment, organisations are faced with increasing challenges to develop their capabilities in complex service models. This is not just a phenomenon experienced within the private sector alone since the public sector continues to come under scrutiny with its level of expenditure ('the public purse') on implementing innovative applications of technology to improve service delivery. However, although the emerging paradigm of 'service science' calls for more theoretical focus on understanding complex service systems, few efforts have surfaced which apply a new theoretical lens on understanding the underlying trajectories of socio-technical dynamics within a service system. In addition, there is a lack of research on service science within the public sector, especially within an Irish context.

Research Contribution:

Service networks play a central role towards supporting services across the global economy. In today's service-dominant business environment, harnessing innovative applications of technology is considered one of the critical factors towards organisational sustainability. Consequently, the application of technology to support services has altered our traditional understanding of the '*organisation*', making it more difficult to conceptualise the paradigm of services. Thus, the emergence of '*Service Science*' as a discipline, has underscored the importance of understanding the complexities of service and their intertwining socio-technical properties. However, what has come to light is that there is a lack of insight on what these intertwining properties are and how they are influenced by technology.

This research explores an academic service network, with particular attention paid towards a critical exam grading end-to-end process. The researcher employs a case study to examine the impact of an information system (IS) on a traditionally bureaucratic public service system and its transformation from a paper-based system to an automated system. The research adopts actor-network theory (ANT) as a research lens which offers a rich vocabulary to describe the interplay of socio-technical dynamics which influence the service system reconfiguration. ANT is often described as a systematic approach to explore the infrastructure which supports the 'scientific and technological achievements' within a network making it a more radical approach to researching service networks. ANT suggests that the world is made up of complex networks which are comprised of many complex interactions (local and global) which constantly reconfigure itself on a regular basis. This systematic approach focuses on the infrastructure which supports socio-technical developments and their interactions. ANT also provides us with a lens to examine the links between the so-called social and the technology and suggests that actors with similar interests can be enrolled to stabilise the network. In addition, the research offers a visual comparison of the service relational infrastructure through the use of social network analysis (SNA) which complements ANT to examine a pre- and post IS implementation. SNA also demonstrates the value of ties and relationships between each node to provide a visual and mathematical representation of interaction and exchanges which influence behaviour. Mapping representation of service network is important as managers realise that the key to continued success is within their understanding of how workflows and business processes can be optimised. In order to guide the data collection process, this research draws

on grounded theory techniques to remain faithful to tried and tested data gathering and analysis procedures (see figure 1).

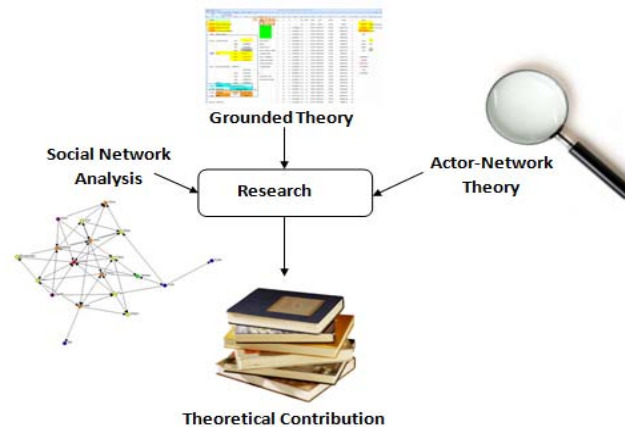


Figure 1 Research Enquiry Process

This research approach offers a different lens towards the case study as outlined in the conceptual model below (figure 2):

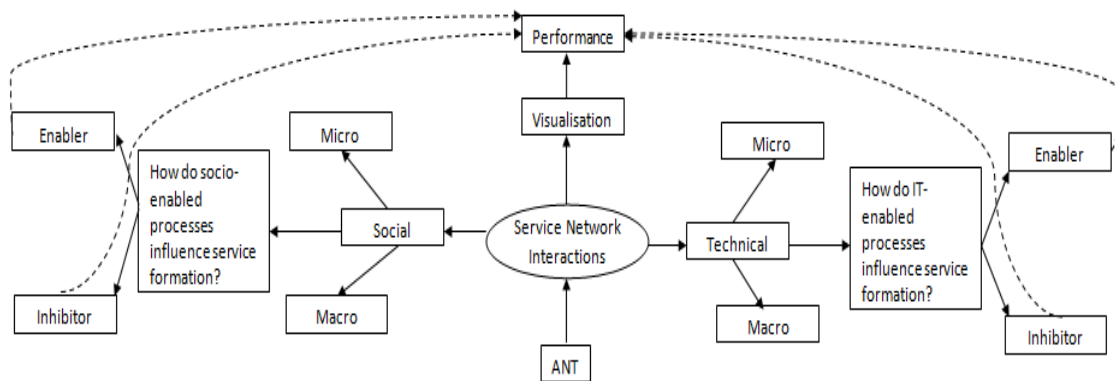


Figure 2 Conceptual Model of the Research

The framework (figure 2) illustrates and specifies what concepts were identified in the initial literature review are used to examine service networks and the supported the decisions which supported the initial development of the inductive process, for example, the model considers, for example:

- A service network is comprised of both social and technical factors;
- ANT is an appropriate research lens to explore the socio-technical nature of service network;
- Both the service micro and macro environments should be compared for their socio-technical components and irregularities;
- The questions highlight the need to examine ‘how’ social-enabled and technical-enabled factors influence the service network;
- The model also suggest the need to explore ‘why’ the enablers and inhibitors of socio-technical entities influence a service network;
- The model illustrates the need to visualise the service network relational infrastructure.

Reducing the Fear of Crime in a Community as a Complex Service System: The Case of

London Borough of Sutton

One may view the community as an arrangement of relational structures which contribute some well-being or cause conflict/tension within the social infrastructure. The methods adopted in this research may be applied to the case study in a number of ways. For example, the application of SNA can provide insights on criminal gang formation, i.e. who links up with whom, the nature of the relationship, and the nature of the network. SNA is an approach and set of techniques which can assist to study the exchange of resources and competencies (for example, information) among criminal gangs. SNA also demonstrates the value of ties and relationships between each actor to provide a visual and mathematical representation of interaction and exchanges which influence behaviour. Mapping representation of criminals is important to understand how anti-social actions impacts on the wider LBS community. For example, studies in the past have adopted the SNA approach to monitor terrorism developments and modelled actor links which may be associated with criminal activity and criminal association to understand how gangs are assembled.

In addition, ANT can be employed as a radical and systematic approach to explore the criminal infrastructure of the LBS community networks. This systematic approach focuses on the community infrastructure which supports the exploration of socio-technical developments and actors influence on criminal actions and anti-social behaviour. ANT breaks away from the social science school of thought as it does not fix itself upon any set theory per se, but rather enjoys the radical uncertainty of human behaviour in which actions are not predetermined.

In Sutton, vandalism zones may be monitored through SNA, while highlighting high risk zones through, for example, heat map visualisation. This analysis can assist police to concentrate their efforts to establish deterrents such as greater police presence, latest military security camera specification technology, and 'neighbourhood watch' initiatives. This information can be presented at the "Problem Solving Meetings" (as is the case with Wrythe Lane) on a regular basis to examine how partners operate in local positions to deal with problems. Within Wrythe Lane, this information may be gathered from the Police Computer Aided Dispatch (CAD) data to monitor how the community evolves and how anti-social behaviour impacts on the communities developments. This can be also effective in the ICT strategy of LBS to examine the value of money through ANT, i.e. how has technology shaped the social and the social shaped the technology. SNA can offer us a visualisation on whether 'partnership' within the ICT strategy is successful and where opportunities may exist. In addition, we can analyse the nature of the network to examine leadership roles, behavioural changes (across specific timeframes), and risk assessments of the ICT infrastructure.