A Study of the Barriers to Knowledge Sharing Between Port Health Authorities in the United Kingdom

Andrea Smith

Project submitted in part fulfilment of the Master of Business Administration

Bolton Business School
The University of Bolton 2011
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Executive Summary

Port health authorities were originally constituted for the purposes of preventing the introduction of dangerous epidemic diseases into the UK via the shipping industry. With 90% of today’s global trade being undertaken by this industry, preventing the spread of disease has never been more important. The introduction of the revised International Health Regulations in 2005 and the resulting Public Health (Ships) Regulations 1979 (as amended) made port health authorities responsible for issuing ship sanitation certificates, at authorised ports, to all ships sailing internationally (at 6 monthly intervals). This provides authorised officers with the power to request works to remedy any health risks on board. However, to ensure a robust and effective approach to the spread of disease, it is essential that port health authorities share knowledge, as this facilitates the control of conditions which may lead to the spread of disease. The need for knowledge sharing between port health authorities was further strengthened in 2005 following the publication of the Hampton Report and Regulators Compliance Code; Statutory Code of Practice for Regulators 2005, which make it a legal requirement for authorities to target actions on the basis of risk. As ships do not remain in one area, a local approach to these principles would not be effective, therefore port health authorities must work together to achieve compliance. To this end, the Association of Port Health Authorities launched the Ship Inspection Management System (SIMS), a secure web based inspection database in 2009. However, only 17 out of 87 port health authorities signed up to the system, which was eventually withdrawn in April 2010.
The objectives of this study were to investigate the current level of knowledge sharing between port health authorities in the UK, identify the barriers which prevent these authorities from sharing knowledge and assess the use of SIMS as a potential tool to assist knowledge sharing. A case study design was used consisting of; self completion questionnaires; semi-structured telephone interview and a focus group.

Some ports share knowledge on a regular basis; however the frequency of knowledge sharing appears to depend largely upon the port and be limited to the sharing of knowledge in extremes, as barriers exist which prevent authorities from sharing all knowledge relating to ship inspection. Main barriers identified include; the absence of a suitable communication method; relationship issues between authorities and lack of a knowledge sharing protocol detailing what knowledge should be shared. There is evidence that SIMS in its current format is not effective as it is too difficult to use and does not prove useful to port health authorities. Despite this there is overwhelming support for a knowledge sharing system to be developed based upon the principles of the SIMS system.

Recommendations include: development of a knowledge sharing protocol, formulation of a memorandum of understanding to develop a common line of action between port health authorities, provision of guidance on the mechanisms by which knowledge should be shared and an audit of available communication systems with the aim of developing an electronic communication system for the sharing of knowledge.
Acknowledgements

I would like to express my gratitude to Peter Moran, for his invaluable help and support during this research.

I am particularly grateful to Manchester Port Health Authority for supporting me and funding my degree over the last three years I would also like to thank port health colleagues for their participation and support.

Lastly, I would like to thank Ken Smith for putting up with me over the last 12 months.
## Glossary of Terms

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<td><strong>AIS</strong></td>
<td>Web site providing vessel movements in the UK. Available from <a href="http://www.shipais.com/">www.shipais.com/</a></td>
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<tr>
<td><strong>Authority Public Protection (APP)</strong></td>
<td>Environmental Health, Private Sector Housing and Trading Standards database system.</td>
</tr>
<tr>
<td><strong>Association of Port Health Authorities (APHA)</strong></td>
<td>The Association of Port Health Authorities co-ordinates and promotes an efficient port health service. It represents the interests of Member Authorities in discussions with Government on all matters relating to health control of shipping, aircraft and imported food.</td>
</tr>
<tr>
<td><strong>Beacon Award Scheme</strong></td>
<td>The Beacon Scheme was set up in 1999 to share best practice in service delivery across local government.</td>
</tr>
<tr>
<td><strong>Best Value</strong></td>
<td>Best value provides a framework for the planning, delivery and continuous improvement of local authority services. The overriding purpose is to establish a culture of good management in local government for the delivery of efficient, effective and economic services that meet the users’ needs.</td>
</tr>
<tr>
<td><strong>Excel</strong></td>
<td>Excel is an electronic spreadsheet program that can be used for storing, organizing and manipulating data.</td>
</tr>
<tr>
<td><strong>Explicit Knowledge</strong></td>
<td>Explicit knowledge is that which is understood by others. This type of knowledge is easy to codify in the form of instruction manuals or guidance notes.</td>
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<tr>
<td><strong>Food Standards Agency</strong></td>
<td>The Food Standards Agency is an independent Government department set up by an Act of Parliament in 2000 to protect the public’s health and consumer interests in relation to food.</td>
</tr>
<tr>
<td><strong>Food and Veterinary Office (FVO)</strong></td>
<td>The Commission, in its role as guardian of the European Community Treaties, is responsible for ensuring that Community legislation on food safety, animal health, plant health and animal welfare is properly implemented and enforced. As a Commission service, the Food and Veterinary Office (FVO) plays an important role in fulfilling this task.</td>
</tr>
<tr>
<td><strong>Hampton Report</strong></td>
<td>Report considering the scope for reducing administrative burdens by promoting more efficient approaches to regulatory inspection and enforcement, without compromising regulatory standards or outcomes.</td>
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| **Hampton principles** | • regulators, and the regulatory system as a whole, should use comprehensive risk assessment to concentrate resources on the areas that need them most  
• regulators should be accountable for the efficiency and effectiveness of their activities, while remaining independent in the decisions they take  
• no inspection should take place without a reason businesses should not have to give unnecessary information, nor give the same piece of information twice |
- the few businesses that persistently break regulations should be identified quickly and face proportionate and meaningful sanctions
- regulators should provide authoritative, accessible advice easily and cheaply
- regulators should be of the right size and scope, and no new regulator should be created where an existing one can do the work
- regulators should recognize that a key element of their activity will be to allow, or even encourage, economic progress and only to intervene when there is a clear case for protection

<table>
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<th>HSE is the national independent watchdog for work-related health, safety and illness.</th>
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<td>Internet Technology (IT)</td>
<td>Set of tools, processes, and methodologies (such as coding/programming, data communications, data conversion, storage and retrieval, systems analysis and design, systems control) and associated equipment employed to collect, process, and present information. In broad terms, IT also includes office automation, multimedia, and telecommunications. <a href="http://www.businessdictionary.com/definition/information-technology-IT.html">http://www.businessdictionary.com/definition/information-technology-IT.html</a> ACCESSED 25.04.2011</td>
</tr>
<tr>
<td>Local Authority (LA)</td>
<td>The group of people who govern an area</td>
</tr>
<tr>
<td>Manchester Port Health Authority (MPHA)</td>
<td>Port authority responsible for environmental health along the Manchester Ship Canal.</td>
</tr>
<tr>
<td>Memorandum of Understanding (MOU)</td>
<td>A document that expresses mutual accord on an issue between two or more parties. Memoranda of understanding are generally recognized as binding, even if no legal claim could be based on the rights and obligations laid down in them. To be legally operative, a memorandum of understanding must (1) identify the contracting parties, (2) spell out the subject matter of the agreement and its objectives, (3) summarize the essential terms of the agreement, and (4) must be signed by the contracting parties. Also called letter of intent.</td>
</tr>
<tr>
<td>Organisational Culture</td>
<td>The basic assumptions and beliefs that are shared by members of an organisation, that operate unconsciously and define in a basic taken-for-granted fashion an organisations view of itself and its environment (Schein,1997:6)</td>
</tr>
<tr>
<td>Personal Digital Assistant (PDA)</td>
<td>Powerful handheld computing device without a keyboard, but with a screen that reads the words written (drawn) on it with a pen –like stylus. Most PDAs (like the Palm Pilot) have built-in (or accessible through attachable modules) capabilities to</td>
</tr>
<tr>
<td><strong>Port Health Authority (PHA)</strong></td>
<td>Authority responsible for environmental health controls at air and sea ports</td>
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<tr>
<td><strong>Port Health Officer (PHO)</strong></td>
<td>Environmental health officer or scientific officer responsible for completing port health functions</td>
</tr>
<tr>
<td><strong>Regulator</strong></td>
<td>A person that regulates.</td>
</tr>
<tr>
<td><strong>Regulators Compliance Code</strong></td>
<td>The Regulators’ Compliance Code is a central part of the Government’s better regulation agenda. Its aim is to embed a risk-based, proportionate and targeted approach to regulatory inspection and enforcement among the regulators it applies to.</td>
</tr>
<tr>
<td><strong>Ship Inspection Management System</strong></td>
<td>The APHA Ship Inspection Management System (SIMS) uses hand-held PDAs to record ship inspection details in real time, supported by a central web-based database server, and enables officers to check the inspection history of ships in the port, record inspection details and produce certificates and reports on board the vessel. The aim of the system is to prevent duplication of workload and streamline the inspection process.</td>
</tr>
<tr>
<td><strong>Ship Sanitation Certificate (SSC)</strong></td>
<td>Certificate issued by port health authorities on a 6 monthly basis to all ships sailing internationally. Certificates state either that the ship is exempt from control measures (Ship sanitation exemption control certificate) or that measures are in place for the control of vectors (ship sanitation control certificate).</td>
</tr>
<tr>
<td><strong>Tacit Knowledge</strong></td>
<td>Tacit knowledge is knowledge that is formed by experience, reflection or individual talents. This is the knowledge known only to self and is therefore extremely difficult to codify.</td>
</tr>
<tr>
<td><strong>Vessel</strong></td>
<td>Marine vessel, boat or ship</td>
</tr>
<tr>
<td><strong>World Health Organisation (WHO)</strong></td>
<td>WHO is the directing and coordinating authority for health within the United Nations system. It is responsible for providing leadership on global health matters, shaping the health research agenda, setting norms and standards, articulating evidence-based policy options, providing technical support to countries and monitoring and assessing health trends.</td>
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<td>APP</td>
<td>Authority Public Protection</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>FG</td>
<td>Focus Group</td>
</tr>
<tr>
<td>IT</td>
<td>Internet Technology</td>
</tr>
<tr>
<td>LA</td>
<td>Local Authority</td>
</tr>
<tr>
<td>MOU</td>
<td>Memorandum of Understanding</td>
</tr>
<tr>
<td>MPHA</td>
<td>Manchester Port Health Authority</td>
</tr>
<tr>
<td>SCQ</td>
<td>Self Completion Questionnaire</td>
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<tr>
<td>SIMS</td>
<td>Ship Inspection Management System</td>
</tr>
<tr>
<td>SSC</td>
<td>Ship Sanitation Certificate</td>
</tr>
<tr>
<td>SSI</td>
<td>Semi structured Interview</td>
</tr>
<tr>
<td>The Code</td>
<td>Regulators Compliance Code</td>
</tr>
<tr>
<td>TAM</td>
<td>Technology Acceptance Model</td>
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<td>TRA</td>
<td>Theory of Reasoned Action</td>
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<td>PDA</td>
<td>Personal Digital Assistant</td>
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<td>PHA</td>
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<td>Port Health Officer</td>
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<tr>
<td>UK</td>
<td>United Kingdom</td>
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Chapter 1 – Introduction

About the Author

The author is employed as a Senior Port Health Officer at Manchester Port Health Authority (MPHA). This post is answerable directly to the Chief Port Health Officer. Senior Port Health Officers within the Authority are responsible for all operational activities including law enforcement and ensuring that the authority is meeting all its legal obligations.

Rationale Behind the Research

Today almost 90% of global trade is undertaken by the shipping industry which can act as a vehicle for the spread of disease and the vectors of disease (Maritime Knowledge Centre, 2009). To prevent this, powers are contained within the Public Health (Ships) Regulations 1979 (as amended) to provide for: prior notification by the Captain of serious health conditions on board, inspection of vessels in port, examination of any crew/passengers and the issuance of ship sanitation certificates (SSC).

SSCs aim to prevent international vessels from becoming a public health risk. A certificate must be issued (following inspection) to all ships sailing internationally at intervals of six months. The inspection and certificate provide port health officers (PHOs) with the power to request works to remedy any health risks identified. PHOs have the power to board vessels for routine inspection in between the issuance of SSCs. Periodic inspections are
conducted to assess continuing compliance with public health legislation relating to food hygiene, waste and animal health.

To issue a SSC the port must be authorised by the World Health Organisation (WHO) and meet minimum standards as outlined in the appendices of the International Health Regulations 2005. Currently 107 individual UK ports are authorised to issue SSCs. Ports within seventy six countries around the world are also authorised (WHO, 2010)

Vessels are often in a port only for as long as it takes to load/ unload before sailing to the next and may never return. In addition, the law states PHOs are unable to unduly delay a vessel, making the sharing of knowledge across Port Health Authorities (PHAs) essential if the work of these authorities is to be robust and effective. Many public health controls must be assessed for compliance at the next port of call as it is often not possible for them to be completed whilst the ship is in port. Without this knowledge sharing, public health controls placed on a vessel may not be complied with or may be incorrectly applied as a ship may never return to the port at which the controls were applied.

The need for knowledge sharing across PHAs has been further strengthened by the Hampton Report (2005;1) commissioned by the government, on the UK’s general regulatory system. The report identified that:

‘...the system as a whole is uncoordinated and good practice is not uniform. There are overlaps in regulators responsibilities and enforcement activities. There are too many forms, and too many duplicated information requests’
He concludes that regulation on a local and national level should be risk based and focused upon areas where the risks associated with them are greatest. Further, he identified that no inspection should be undertaken without a reason (Hampton, 2005). Hampton’s principles have been enacted in the Regulators’ Compliance Code: Statutory Code of Practice for Regulators (the code). It is therefore a legal requirement for all regulators to have regard to Hampton principles (LBRO, 2008). A local approach to Hampton by PHAs would be ineffective as ships do not remain in one area. To apply the principles effectively, PHAs must work together to achieve Hampton compliance at UK level.

In 2009, the Association of Port Health Authorities (APHA) in conjunction with a number of PHAs launched a secure, web based inspection database for the purposes of achieving compliance with the code. The Ship Inspection Management System (SIMS) is designed to hold all the information required by PHAs such as reports, notices served and advisory notes and allows the rapid transfer of information between authorities. Prior to being launched SIMs was piloted by a number of PHAs across the UK (APHA, 2010). To access the SIMs database, PHAs must be subscribers to the system. There is no legal requirement for authorities to use SIMs.

Only 17 of 87 UK PHAs signed up to the SIMs system. Of this 17, only 11 have uploaded data. In August 2010, 65 ship inspections were uploaded to the database by 5 PHAs. As with all databases, the value of the system increases with the number of users and the amount of information entered. Without the support of all or the majority of PHAs this system is of little use in the effective sharing the knowledge required to effectively target inspections.
Prior to SIMs there were no formal arrangements for sharing information across PHAs. Without this knowledge sharing there is no effective method for ascertaining the information required to comply effectively with the code or provide a robust stance against the international spread of disease. PHAs therefore undertake inspections based upon their own risk assessment criteria. This may mean that a ship has the potential to sail around the UK without an inspection. Conversely, a ship may be inspected at every port in the UK at which it docks. Some ad hoc sharing of information is conducted via telephone using the contact numbers provided by APHA in their Port Health Handbook.

National Context

PHAs were originally established for the purposes of preventing the introduction of dangerous epidemic diseases into the country via shipping. The UK has 86 PHAs undertaking the functions of a LA in relation to public health, food safety, pollution control and waste disposal. PHAs are also designated category 1 responders under the Civil Contingencies Act 2004. APHA represents the interests of PHAs and LAs (with responsibilities for air ports and sea ports) in the United Kingdom. Membership of this association is not mandatory however the majority of ports within the UK are members (APHA, 2010).

APHA aims to ensure all member organisations are familiar with changes in legislation and guidance. By working with members across the UK it aims to provide a forum for sharing best practice to deliver consistent and effective services. The association also plays a role in representing the profession
through liaison with government departments in the UK and internationally via the European Union (EU) (APHA (b), 2010).

**Local Context**

MPHA is a local government body established for the enforcement of environmental health and public health legislation on the Manchester Ship Canal, River Weaver and the surrounding docklands. Although primarily funded by taxation, as a riparian authority this funding is received as precepts from the eight local authorities through which the Manchester Ship Canal passes and is managed by a board of councillors from each of them. These councillors are responsible for making key business decisions relating to the authority. Operational aspects of the authority are undertaken by three full time and two part time members of staff. All of the ports on the Manchester Ship Canal are designated as authorised ports by the World Health Organisation and are therefore able to issue SSCs.

**Strategic Significance of the Area Under Investigation**

Addressing the barriers to knowledge sharing within PHAs is of strategic importance for the following reasons: It is a legal requirement for PHAs in the United Kingdom to have regard to the code and take into account its provisions when developing policies and principles. Only where there is evidence based reason may a regulator depart from the code. Whilst it is possible for individual PHAs to apply the code, this is unlikely to be effective.
The sharing of knowledge across PHAs will allow individual authorities to better target their resources. Rather than spending money on repeat inspections and inspections of those who are good performers, authorities would be able to target resources on those who need it most therefore reducing costs and freeing up resources (time and money) for other projects.

The effective sharing of knowledge across UK authorities may enable a robust and effective response towards preventing the spread of disease and will allow authorities to work towards raising standards of hygiene, food safety and general living conditions on board ships.

**Research Aims and Objectives**

1. To ascertain the current level of information sharing/ collaboration across Port Health Authorities within the UK.

2. To identify the barriers to knowledge sharing across Port Health Authorities within the UK.

3. To assess the use of SIMS as potential tool to assist knowledge sharing across authorities.
Chapter 2 – Literature Review and Conceptual Framework

- **Concepts relating to knowledge sharing and the use of IT as a facilitator**

**Knowledge Sharing**

Knowledge sharing is the means by which organisations access knowledge, both within their own organisation and within other organisations (Cummings, 2003). It is an important facet of knowledge management and is specifically mentioned in a number the definitions used to define the term including that of Teece, 2000; Scarborough *et al*, 1999 and Turban *et al*, 2002.

Cohan and Levinthal (1990) assert that organisations in which individuals share their knowledge, can innovate far beyond what one individual can achieve alone. Boland and Tenkasi (1995) expand upon this belief by stating that the sharing of diverse knowledge by individuals, working towards a common outcome will result in product success and competitive advantage.

Organisations that facilitate the sharing of knowledge are less likely to lose the knowledge embedded in individuals when they leave the organisation (Gupta and Govindarajan, 2000). Weiss (1999) concurs, and extends this believe in stating that even when individuals choose to stay within an organisation, without the sharing of knowledge, the full extent of their knowledge may never be realised or effectively utilised.

The University of Minnesota have developed a framework for knowledge sharing between individuals in an organisation. This framework was developed
for the private sector and depicts four key factors that influence knowledge sharing within an organisation. Each of the factors within the framework is interconnected demonstrating how each of them influences the other. The nature of knowledge, motivation to share and opportunities to share are embedded within the culture(s) of the work environment, demonstrating the influence that it has over the other factors (MINU IPE, 2003).

Exhibit 1 - Adapted from MINU IPE 2003

As with the majority of frameworks developed for knowledge sharing, this framework has been developed for and tested in the private sector. When applying this concept to the public sector, there are important contextual differences which must be taken into account. Unlike the private sector the public sector aims to produce public value, not profit. The public sector does not seek to use knowledge in order to achieve competitive advantage but to add
value as it enables good ideas and practices to be shared (Hartley and Bennington, 2006) (Rashman et al, 2009) (Hartley, 2008).

Complex social, political and economic factors, specific to the public sector, must be taken into consideration in the design and application of theory in order to be directly relevant (Pettigrew, 1992) (Hartley and Skelcher 2008) (Fowler and Pryke, 2003). In addition to this Rashman et al, (2009) believe that factors external to the sector also need to be considered when applying theory on knowledge management.

**Inter-Organisational Knowledge Sharing**

Inter-organizational knowledge sharing enables organisations to seek and benefit from knowledge that is external to the organisation. In the private sector this is often achieved through supply chains and strategic alliances (Hartley and Bennington, 2009). The sharing of knowledge between organisations is more complex than knowledge transfer within a single organisation due to the complication of different boundaries, cultures and processes between the organisations (Easterby-Smith et al, 2008).

Easterby- Smith et al, (2008) theory on knowledge sharing between organisations demonstrates the relationship between the capabilities of the source and recipient organisation, the type of knowledge to be shared and the dynamics of the relationship between organisations.
Exhibit 2 - Adapted from Easterby-Smith et al, 2008

This is a linear framework that demonstrates the sharing process between organisations as a stepwise progression with a clear start and end point. Unless the organisation is interested in gaining a specific piece of information, this style of model is not appropriate as it does not provide opportunity to revisit or refine knowledge, nor does it provide the opportunity for the donor organisation to benefit from the sharing of information (Ward et al, 2009). Hartley and Bennington (2009), believe that it is incorrect to consider knowledge sharing as only the movement of explicit knowledge from one organisation to another. Rather they believe that as knowledge is shared it is reviewed, refined and re-appreciated in relation to new uses or when used alongside existing knowledge.
Whilst depicted as unidirectional, Easterby-Smith et al (2008) believe that the model can be used bidirectionally thus allowing for a level of reinvention of knowledge as part of the process (Easterby-Smith et al, 2008).

The stepwise progression of the model makes the assumption that each of the components occur in order, no provision is made for circumstances where components occur out of sync to the model, as may occur in reality (Ward et al, 2009).

Like the model presented by MINU IPE (2003) this model was created for the private sector and does not take into account the contextual differences between the sectors. Many of the classical works on knowledge management fail to consider the public domain and the factors that apply specifically to these organisations (Rashman et al, 2009). Pettigrew et al, (1992) states that theory derived from the private sector should not be mechanistically moved over to the public sector. Therefore it is essential that conceptual approaches are developed so as to be directly applicable.

**Inter-organisational Knowledge Sharing Within the Public Sector**

Unlike the private sector, the public sector does not operate within a fully competitive environment. In contrast to the belief that the lack of economic incentive is likely to prevent the public sector from effectively adopting knowledge techniques, it is believed that in fact this is likely to result in knowledge sharing on a much wider basis than is possible or desirable in the private sector (Fowler and Pryke, 2003) (Ford and Murphy, 2008).
The government has recognised that the sharing of knowledge is central to public sector improvement and has reflected this in UK government policies such as Best Value, Beacon Award Schemes and the Regulators' Compliance Code (Hartley and Bennington, 2006) (Hartley and Allison, 2001). The Transformational Government Strategy Document (Cabinet Office, 2005) also emphasises the need for sharing of knowledge and services (Ford and Murphy, 2008). The aim this policy is to add value through the sharing of good practice and innovative processes across a range of organisations, therefore preventing duplication of effort and enabling organisations to pool resources (Rashman et al, 2009)(Hartley and Bennington, 2006)(Ford and Murphy, 2008). This is of particular importance in the light of public sector reform and in the current economic climate, where public sector organisations are required to do more for less.

Despite this recognition, there is little or no information available upon how knowledge should be transferred or applied within the sector. It is assumed that authorities will share knowledge voluntarily, via means of databases, websites and through benchmarking activities. However, lack of articulated theory may preclude this (Rashman et al, 2009)(Hartley and Bennington, 2006).

Additionally, investment in audit as a vertical means (government down) of improving performance has outstripped that of lateral learning, thus making knowledge sharing the ‘poor cousin’(Rashman et al, 2009)(Hartley and Bennington, 2006).

Hartley and Rashman (2007) have produced a conceptual framework aimed at examining the factors influencing organizational and inter-organizational
transfer in a public sector context. This model represents a relatively unique viewpoint as there are a somewhat limited number of studies of this type in the field (Hartley and Rashman, 2007).

Hartley and Rashman (2007) consider inter organisational transfer to be dependent upon four sets of factors: features of the source organisation; features of the recipient organisation; the relationship characteristics between the organisations and the environmental context. Thus their model takes into account each of these factors. Their model also demonstrates the need to consider the effect of both the local context (relationship between organisations) and the external context (effect of local history, demographics and political priorities). Hartley and Bennington (2006:106) support the inclusion of external context stating:

‘... it is seriously analytically incomplete not to take into account the role of elected political representatives in the context of knowledge generation within the public service sector.’

Cross and Sproull (2004), describe this framework as distinctive in that it emphasises the two way process of knowledge transfer and the importance of relationship factors between the recipient and the source.
Types of Knowledge

Unlike the Easterby-Smith framework, the framework produced by Bennington and Hartley does not consider the type of knowledge that is to be shared. Some authors consider that knowledge is the same as information. Others like Easterby-smith present a socially constructed model which depicts knowledge as being distinct from information and anchored in the beliefs and commitments of the holder.

A further distinction is drawn between tacit and explicit knowledge. Tacit knowledge is knowledge that is formed by experience, reflection or individual talents. This is the knowledge known only to self and is therefore extremely difficult to codify. Explicit knowledge is that which is understood by others. This type of knowledge is easy to codify in the form of instruction manuals or guidance notes (Haldin-Herrgard, 2000). Models which do not consider tacit as well as explicit information may deficient where tacit knowledge is significant in performance (Hartley and Allison, 2001).
Barriers to Knowledge Sharing in the Public Sector

A review of the literature has provided a comprehensive list of barriers that may prevent inter-organisational knowledge sharing. However, there are limited studies in this field, with the majority of studies focusing on knowledge sharing as part of Beacon Council scheme. Only two of the studies reviewed focused specifically on public sector knowledge sharing. See exhibit 4 for a critique of the barriers to knowledge sharing (Author, 2010).
<table>
<thead>
<tr>
<th>Author</th>
<th>Method of research</th>
<th>Barriers identified</th>
<th>Critique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cong and Pandya, 2003</td>
<td>Literature review</td>
<td>- Culture of knowledge is power</td>
<td>This study is centred on knowledge management in the UK public sector. Whilst not focused directly upon knowledge sharing the study raises some important contextual differences and identifies the conditions required for knowledge to be shared.</td>
</tr>
<tr>
<td>Rashman and Hartley, 2002</td>
<td>Review of empirical data</td>
<td>- Cultures (corporate and sub cultures)</td>
<td>This study examines the Beacon Council scheme in terms of knowledge transfer and organisational learning. The study was conducted in order to ascertain attitudes towards taking part in the scheme rather than assessing views on the knowledge sharing aspect of the scheme.</td>
</tr>
<tr>
<td>Rashman et al, 2005</td>
<td>Literature review, questionnaire and interview</td>
<td>- Absorptive capacity of an organisation</td>
<td>This study examines the extent to which knowledge transfer and creation can be used to improve public services. The study specifically focuses upon knowledge and good practice sharing across authorities involved in the Beacon Council Scheme. This study is one of the first studies to specifically look at knowledge sharing in a public sector context.</td>
</tr>
<tr>
<td>Hartley and Bennington, 2006</td>
<td>Literature review</td>
<td>- Culture</td>
<td>This study discusses the governments intended use of inter-organisational networks in the public sector to share knowledge and promote innovation. This study identifies a number of barriers and enablers to knowledge sharing and discusses the drag and drop metaphor in terms of the Beacon scheme, identifying that it is adaption not adoption that is central to knowledge transfer.</td>
</tr>
<tr>
<td>Author(s)</td>
<td>Methodology</td>
<td>Barriers to Knowledge Sharing</td>
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</tbody>
</table>
| Rashman et al, 2009 | Literature review | - Competition between public service providers leading to a lack of trust  
- Professional barriers and assumptions  
- Cultural features of the originating and recipient organisation  
- Capacity for knowledge to be absorbed and applied |
| Haynes, 2010 | Literature review | - Competition for development funding  
- Need for individuals to promote themselves as the best in the field |
| Fowler and Pryke, 2003 | Questionnaire and literature review | - ‘Sticky Knowledge’  
- Dysfunctional culture leading to knowledge becoming tradable. |

This study presents the views of a large and diverse range of literature on organisational learning and knowledge. Whilst not specifically focused on knowledge sharing, the study includes some important considerations that need to be taken into account for successful knowledge sharing to take place within a public sector context.

This study was completed with the intention of dispelling the myths surrounding knowledge management in the public sector. Barriers to knowledge sharing are discussed in terms of sharing knowledge between university academics. Whilst relating to the public sector this contextual difference limits the studies applicability to local government.

This study aims to address the knowledge management within the public sector. Whilst public sector based, the theory is applied to the civil service via the child support agency, and therefore may not be completely applicable to local government. As this paper focuses mainly upon knowledge management only a limited consideration is given to the process of knowledge sharing.

Exhibit 4 - Critique of the barriers to knowledge sharing (Author, 2010).
The following categories of barriers have been identified as part of the literature review:

- Cultural barriers
- Relationship barriers
- Organisational barriers

**Cultural Barriers**

Schein (1997:6) defines organisational culture as:

‘the basic assumptions and beliefs that are shared by members of an organisation, that operate unconsciously and define in a basic taken-for-granted fashion an organisation’s view of itself and its environment’.

Organisational culture is a key determinant in the success of knowledge sharing initiatives. If the culture of the organisation is one that does not support sharing it is unlikely that knowledge will be transferred successfully, even where the good intention of individuals, who are trying to promote knowledge exists (Stoddart, 2001) (Davenport and Prusak, 2000) (Levine, 2001) (Ahamed et al, 2002). Goffee and Jones (2003) believe that in order for a successful knowledge sharing culture to exist there must be trust and solidarity. However, studies completed within the public sector highlight a silo mentality with a lack of trust between departments leading to difficulties in creating networks across authorities (Bate and Robert, 2002) (Reid and Berdzki, 2004) (Cong and Pandya, 2003). This is supported by the work of Harris (2005) who argued that best value reviews encouraged silo mentality. However McIvor et al (2004)
revealed instances where public sector organisations were sharing knowledge via intranets.

The paradigm of ‘knowledge is power’ is another cultural issue identified as being a barrier to knowledge sharing within the public sector (Fowler and Pryke, 2003) (Syed - Ikhsan and Rowland, 2004). According to Liebowitz and Chen (2003) Bogdanowicz and Bailey (2002) and Goh(2002), the majority of managers view knowledge as a source of power for promotion and guaranteed employment and thus are reluctant to share. Additionally, where employees have varying levels of commitment to the organisations goals, knowledge may be viewed as tradable, thus undermining the sharing process. Conversely, Cong and Pandya (2003) established that knowledge sharing across departments occurred for reasons such as reputation, reciprocity and prestige.

A culture of problem solving and seeking is required in order for a collaborative climate to be established. Employees that are blamed for making mistakes whilst trying to solve problems are unlikely to share knowledge. To promote this style of culture, managers must demonstrate procedural justice and promote a culture of experimentation (Goh, 2002). However, studies by Vince and Broussine (2000) and Vince and Saleem (2004) suggest that a blame culture exists within the UK public sector, creating a negative impact upon communication and reflection processes (Rashman et al, 2009).
Relationship Barriers

A strong culture of collaboration and cooperation, between organisations, is required for knowledge sharing to be successful. However, whilst the overall policy context between organisations in the public sector is collaborative, the governments’ emphasis upon league tables and audit processes has created increased competition. Thus, the decision on what to share requires a risk calculation on behalf of the originating authority (Hartley and Bennington, 2006). This is supported by the work of Hartley and Bennington (2006) who identified that whilst the Beacon Scheme is seen to contribute to learning and innovation, audit and inspection is viewed as having a greater impact upon an authorities reputation.

Trust is a fundamental variable of knowledge sharing (Goh, 2002) (Rahman and Hartley, 2002) (Roberts, 2006) (Al-Alawi, 2007). Where there is little trust, knowledge sharing is unlikely to occur. This is supported by Ardichvili et al (2003) who identified that individuals chose not to share knowledge for a fear of ‘loosing face’ and letting colleagues down. Knowledge based trust is formed by recurring social interactions between trustor and trustee who, through repeated interactions get to know one another and develop an understanding for how the other will react to different situations (Tschannen-Moran and Hoy, 2001). Employees who have been in a prior satisfactory social interaction are more likely to share knowledge as they have reasonable assurance that they will not be ridiculed in public or have their knowledge taken advantage of (Ardichvili et al, 2003). This is supported by Cong and Pandya (2003) who state;
'People tend to share knowledge when they know each other. The level of trust has a direct bearing on knowledge sharing. The more trust that exists, the more people are willing to share.'

Declining trust within the public sector has resulted from increasing pressure to become more cost effective and efficient. This, Massey and Pyper (2005) believe has lead to the toleration of non-constructive and domineering management styles, low workforce morale and degradation of the traditional public sector ethic. When coupled with increasing redundancies and precarious forms of contract such as part time and temporary, it is unsurprising that there has been escalating distrust amongst public sector employees (Young and Daniel, 2003).

**Organisational Barriers**

Xu and Quaddus (2005) estimate that each year 3.2 percent of organisational knowledge becomes obsolete and 4.5 percent of knowledge becomes unavailable due to changes in personnel. This they argue is due to lack of ability to effectively capture, store and re use organisational expertise. Greenhalgh et al, (2004) believe that this absorptive capacity, rather than motivation to share that acts as a barrier to knowledge sharing between organisations. Thus, the successful transfer of knowledge between organisations depends as much upon the recipient organisation as it does on the originating organisation (Rashman and Hartley, 2002).

Van den Bosch et al (2005:280) define absorptive capacity as:
'the ability to recognise the value of new external knowledge, assimilate it, and apply it to commercial ends'.

The absorptive capacity of an organisation is determined by its pre-existing knowledge and expertise. Research into memory development indicates that accumulated prior knowledge increases the ability to; acquire knowledge; add new knowledge to memory and recall knowledge so that it can be re-used (Cohen and Levinthal, 1990). Considerable effort and preparation is required before an organisation can successfully absorb knowledge. However, in the public sector there has been limited research upon how this can be achieved (Rashman et al, 2009).

Information Technology (IT) as a Facilitator for Knowledge Sharing

Much of the early literature on knowledge management processes placed IT at the centre of managing organisations' knowledge assets (Scarborough et al, 1999) (Storey and Barnett, 2000). This literature has been heavily criticised by authors such as Peters (1992); Davenport and Prusack (2000); Hendriks (2001); who believe that IT is no more than a crucial enabler (Cong and Pandya, 2003). In fact, an excessive focus upon the use of IT has been identified as the most common pitfall and the reason why projects have failed to live up to expectations (Davenport and Prusack, 2000) (Malhotra, 2004). Reid et al (2004: 199) state:

‘Only people can take the central role in knowledge creation: computers are merely tools, however great their information processing capabilities may be’
An over reliance upon the use of IT in knowledge management has been criticised as resulting in the neglect of social and cultural factors that are essential to knowledge sharing (Hislop, 2002). Where social factors are given little emphasis, knowledge management initiatives are shown to be at risk (Storey and Barnett, 2000) (Hislop, 2002).

Hislop (2002); Malhotra (1997); Hildebrand (1999) however, believe that the failure of IT is due to the fundamental character of knowledge rather than the neglect of social or cultural issues. The differences between tacit and explicit knowledge are great, as are the methods used to share them (Hislop, 2002). Explicit knowledge is codified in a tangible form and therefore can be shared relatively easily. Tacit knowledge on the other hand is difficult to codify and share as it is embedded within the beliefs of the individual. Tacit knowledge can only ever be volunteered, even where this happens it must be codified in order to enable it to be re-used. No IT system will ever be able to persuade people to share this information (Reid et al, 2004). It is therefore generally agreed that whilst explicit knowledge can be shared via IT, the sharing of tacit knowledge is incredibly difficult if not impossible (Hislop, 2002).

None the less, the advancement of IT has been crucial in enabling inter-organisational networks to be formed (McIvor et al, 2004). IT is being used by the UK Government in an attempt to:

‘...achieve joined up working between different parts of government and providing new, efficient and convenient ways for citizens and businesses to communicate with government and to receive services’.

Modernising Government (1999:45)
The internet is gradually being recognised as a facilitator in the sharing of knowledge between and within organisations providing the potential for increasing performance, improving effectiveness and efficiency and providing a better foundation for decision making (McIvor et al, 2004).

**Enabling Requirements for IT Adoption**

The Technology Acceptance Model (TAM) was developed to provide a mechanism for evaluating why users accept or reject IT. The model was developed from the theory of reasoned action (TRA) which aims to explain the behaviours of people in different situations (Legris et al, 2003).

![Diagram of Technology Acceptance Model (TAM)](image)

Exhibit 5: Adapted from Davis et al, 1989

Perceived usefulness and perceived ease of use are hypothesised as determining attitudes towards use of the system with perceived ease of use having a direct impact upon the users’ perceived usefulness.

The TAM framework has been tested in many empirical researches and has proven a useful theoretical model in explaining behaviour towards use of IT
systems. However, a limitation of the framework is that IT is considered as an independent variable within the dynamics of the organisation. This is contrary to the research findings of Orlikowski and Hofman (1997), which suggests that there is independence between technology and the organisational context (Legris, 2003).

**Proposed Conceptual Framework**

![Proposed Conceptual Framework Diagram]
The conceptual framework demonstrates that:

1. The sharing of knowledge is dependent upon four factors; features of the source organisation; features of the recipient organisation; the environmental context and enabling social conditions.

2. Outer context is an over arching factor which affects every part of the model.

3. The method of communication, its perceived usefulness and ease of use is an integral part of the model. Regardless of relationship factors and the capacity of the originating and recipient organisation, if the community of interaction is not accepted knowledge transfer is unlikely to occur.

The framework supports this research in the following ways:

1. Each of the elements of the framework represents a step in the knowledge sharing process, thus enabling the author to identify the current level of knowledge sharing (objective 1) and any barriers that exist which prevent the process from being successful (objective 2).

2. The communities of interaction section and elements of the TAM model enable SIMS to be assessed as a suitable communication method in the knowledge sharing process (objective 2).
Chapter 3 – Research Methodology

Introduction - Research Paradigm and Philosophy

The aim of this chapter is to outline and understand each of the philosophical positions and how they relate to the area of study. An understanding each of these positions is required in order to enable the design of the research to be tailored to achieve the required outcomes.

Easterby-Smith et al (2002) suggest that it is important to understand research philosophy for the following reasons:

1) To enable a more informed decision to be made regarding research design (what evidence is gathered and the method by which it is obtained),

2) To assist in identifying research approaches that are appropriate for the proposed study,

3) To enable adaption of research design in order to take into account restraints.

Easterby-Smith (2002: 27)

There are three main philosophical views: positivism, realism and social constructionism. The acceptance of a particular epistemology usually leads the researcher to adopt methods that are characteristic of that position (Saunders et al, 2007).
**Positivism**

Positivism is an epistemological viewpoint that argues that the social world is external to the researcher and that its properties should be measured via objective methods (Gray, 2005) (Easterby-Smith et al, 2002). Positivism involves the researcher deducing a hypothesis that can be tested via empirical enquiry in order to confirm theory, or indicate the need for further research. Methodologies for this type of study are often very structured so as to enable replication. Data obtained as part of a positivist study is in the main quantitative, therefore enabling statistical analysis (Saunders et al, 2007)

**Social Constructionism**

In contrast to positivism, social constructionism holds that reality is determined by the experiences of people, rather than measured by objective methods. Hence rather than test a hypothesis, the social scientist aims to appreciate the different meanings and constructions that result from peoples experience (Easterby-Smith et al, 2002). Researchers undertaking a study using social constructionism are more likely to use a qualitative approach to research. Exhibit 6 details the contrasting implications of the two approaches.
<table>
<thead>
<tr>
<th></th>
<th><strong>Positivism</strong></th>
<th><strong>Social Constructionism</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>The observer</td>
<td>Must be independent</td>
<td>Is part of what is being observed</td>
</tr>
<tr>
<td>Human interests</td>
<td>Should be irrelevant</td>
<td>Are the main drivers of science</td>
</tr>
<tr>
<td>Explanations</td>
<td>Must demonstrate causality</td>
<td>Aim to increase general understanding of the situation</td>
</tr>
<tr>
<td>Research progresses through</td>
<td>Hypothesis and deductions</td>
<td>Gathering rich data from which ideas are induced</td>
</tr>
<tr>
<td>Concepts</td>
<td>Need to be operationalised so that they can be measured</td>
<td>Should incorporate the stakeholder perspectives</td>
</tr>
<tr>
<td>Units of analysis</td>
<td>Should be reduced to simplest terms</td>
<td>May involve complexity of ‘whole’ situations</td>
</tr>
<tr>
<td>Generalisation through</td>
<td>Statistical probability</td>
<td>Theoretical abstraction</td>
</tr>
<tr>
<td>Sampling requires</td>
<td>Large numbers selected randomly</td>
<td>Small numbers of cases chosen for specific reasons</td>
</tr>
</tbody>
</table>

Exhibit 6– adapted from Easterby-Smith *et al* 2002

Saunders *et al* (2007) have identified a number of advantages and disadvantages to the use of each method. These are outlined in exhibit 6 below.
## Positivism vs Social Constructionism

<table>
<thead>
<tr>
<th></th>
<th>Positivism</th>
<th>Social Constructionism</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advantages</strong></td>
<td>- Economical collection of large amount of data</td>
<td>- Facilitates understanding of how and why</td>
</tr>
<tr>
<td></td>
<td>- Clear theoretical focus for the research at the outset</td>
<td>- Enables researcher to be alive to changes which occur during the research process</td>
</tr>
<tr>
<td></td>
<td>- Greater opportunity for researcher to retain control of research process</td>
<td>- Good at understanding social processes</td>
</tr>
<tr>
<td></td>
<td>- Easily comparable data</td>
<td></td>
</tr>
<tr>
<td><strong>Disadvantages</strong></td>
<td>- Inflexible – direction often cannot be changed once data collection has started</td>
<td>- Data can be time consuming</td>
</tr>
<tr>
<td></td>
<td>- Weak at understanding social processes</td>
<td>- Data analysis is difficult</td>
</tr>
<tr>
<td></td>
<td>- Often doesn’t discover the meanings people attach to social phenomena</td>
<td>- Researcher has to live with the uncertainty that clear patterns may not emerge</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Generally perceived as less credible by non researchers</td>
</tr>
</tbody>
</table>

Exhibit 7 – Adapted from Saunders *et al*, 2007

### Realism

Like positivism, realism relates to scientific enquiry. The essence of this epistemological position is that objects exist independently of the human mind. This is oppose to idealism which theorises that only the mind and its contents exist (*Saunders et al*, 2007)

There are two contrasting forms of realism; direct realism and critical realism. Direct realism argues that our experiences of the world through our senses are accurate and therefore what you see is what you get. Critical realism argues that the senses deceive us and rather we experience sensations which are images of the real world as oppose to the real world directly. Critical realists believe that the world is experienced via two steps; the sensations received
from the thing itself and the processing that takes place in the mind after the sensation meets our senses. Direct realists do not believe that this second step is necessary (Saunders et al, 2007).

The following exhibit (exhibit 7) outlines the research implications for each of the epistemologies outlined in this chapter.

<table>
<thead>
<tr>
<th>Social Epistemologies</th>
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<tr>
<td><strong>Social Epistemologies</strong></td>
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<tr>
<td><strong>Elements of Methods</strong></td>
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<td><strong>Aims</strong></td>
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<td><strong>Starting points</strong></td>
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<td><strong>Designs</strong></td>
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<td><strong>Techniques</strong></td>
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<tr>
<td><strong>Analysis/interpretation</strong></td>
</tr>
<tr>
<td><strong>Outcomes</strong></td>
</tr>
</tbody>
</table>

Exhibit 8 – Adapted from Easterby-Smith et al, 2002

**Philosophical Position**

The main aim of this research is to identify the barriers to knowledge sharing across port health authorities through the use of the conceptual framework outlined in Chapter 2 (Exhibit 5).

The literature review clearly identifies that a number of barriers to knowledge sharing exist within the public sector. However, there are a relatively limited number of studies available and of these studies there are none focusing specifically upon port health. Therefore, this study aims to develop an increased understanding of the research area. This is consistent with a social constructionism approach to research design.
The barriers identified relate in the main to social processes such as culture and relationships. Research into social relationships is a predominant feature of social constructionism. However, structure is also identified as one of the common barriers. This is a reality independent of the human mind which has the potential to impact upon social relationships and is therefore a feature of realism. This therefore suggests that a realist approach is appropriate.

The conceptual framework considers factors such as; policy and practice and communities of interaction, which includes the use of IT. The success/failures’ of these factors may be hypothesised and measured. However as it is the effect of these factors upon the sharing of information that is to be investigated and not the success of these factors themselves, a realist approach is more appropriate than a positivist.

Due to a combination of factors from the social constructionism and realism philosophies the realist approach has been adopted as the most appropriate for this study.

**Research Strategy**

There are a number of different research strategies that can be used when conducting a study. These include; survey, case study, experiment, action research, and longitudinal. A case study method has been identified as the most appropriate strategy as the research aims to develop detailed knowledge of an area of study across a small number of organisations (Saunders *et al*, 2007)(Easterby-Smith *et al*, 2002).
Yin (1984:23) defines case study as;

‘An empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used’

Case studies are often used for explanatory and exploratory research as they have the considerable ability to generate answers to the questions why? what? and how? Data collection in this type of study is likely to be via a combination of research methods using both quantitative and qualitative research methods (Saunders et al, 2007). Yin (1984) highlights the importance of context within such studies.

**Qualitative and Quantitative Research**

There are two main types of primary research; qualitative and quantitative. Quantitative research generates statistics and is often conducted via questionnaires or structured interviews. Qualitative research is associated with gathering data that represents the findings without assigning numbers directly. This type of research is aimed at exploring attitudes or behaviours and is often collected via focus groups or unstructured interviews. As this type of research attempts to gain an in depth understanding of the subject, research is often conducted over a long period of time with many people. Exhibit 8 shows the differences between qualitative and quantitative data (Hair et al, 2007).
<table>
<thead>
<tr>
<th>Quantitative Data</th>
<th>Qualitative Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Based upon meanings derived from numbers</td>
<td>- Based upon meanings expressed through words</td>
</tr>
<tr>
<td>- Collection results in numerical and standardised data</td>
<td>- Collection results in non standardised data requiring classification into categories</td>
</tr>
<tr>
<td>- Analysis conducted through the use of diagrams and statistics</td>
<td>- Analysis conducted through use of conceptualisation</td>
</tr>
</tbody>
</table>


**Research Methodology**

Having concluded that a realist approach will be taken and that a case study approach will be adopted, it is necessary to combine both qualitative and quantitative methods of research in order to develop a research methodology which achieves triangulation. Triangulation is achieved by the use of multiple methods, whereby the inherent weaknesses of one method are supported and reinforced by the strengths of other methods.

The following methods of data collection have been identified for this study: self-completion questionnaire, semi-structured telephone interview and a focus group. The advantages and disadvantages of each method are shown in exhibit 10. This exhibit has been used to ensure that triangulation has been achieved.

**Self-Completion Questionnaire**

A self completion questionnaire was used to provide preliminary data on aspects contained within the conceptual framework. Self completion
questionnaires are a low cost method of collecting data from many people. Their assured anonymity enables people to return questionnaires without fear of retribution. Equally, they are free from the bias of the interviewer (Gray, 2005). There are also a number of disadvantages to the use of self-completion questionnaires. These include: lack of reward leading to low response rate, lack of ability to clarify ambiguous answers and lack of opportunity to read non verbal responses (such as body language and tone of voice) (Gray, 2005).

Specific to this study, self-completion questionnaires provide the ability to seek the opinions of Port Health Authorities located across the UK. Additionally, as not all authorities are members of APHA this method enables the author to seek the opinions of both members and non members. SIMS is an APHA initiative, however the sharing of knowledge is a port health wide issue and therefore a wide range of views is essential. Conversely, the use of self-completion questionnaires by the author may be viewed as an APHA initiative. This may inhibit the response of non member authorities who perceive the information will be used by APHA.

**Questionnaire Pilot**

The questionnaire was piloted with two Chief Port Health Officers and three port health officers at a port liaison network meeting. These people were chosen as they were independent to the study and represented a range of viewpoints. Two questions were re-worded to improve clarity and the accompanying letter was amended to include greater detail on the completion of section 3 for authorities who do not currently use SIMS.
Self-completion Questionnaire Sample Size

A sample size of 87 was chosen. This represents 100% of PHAs within the UK. Due to the relatively small number of PHAs within the UK and the low return rate of questionnaires, the author considered it appropriate to sample every authority to ensure a sufficient number of responses and a representative sample.

As two of the participants in the pilot study formed part of the target sample, the total number of questionnaires distributed was amended to take into account their involvement in the questionnaires development. A total of 85 questionnaires were therefore distributed, one to each Chief Port Health Officer in the United Kingdom. Each questionnaire was accompanied by a stamped addressed envelope to encourage completion and return.

Return Rate

The return rate for self-completion questionnaires was 41 (48%). This was a higher return rate than expected as self-completion questionnaires have an average return rate of approximately 30% (Saunders et al, 2007).

Semi-Structured Telephone Interviews

Semi structured interviews were used as a qualitative method to cross check the accuracy of answers provided in the self-completion questionnaires and provide a method by which ambiguous or interesting answers could be
discussed in more depth. Interview questions were developed from the answers provided in the returned questionnaires (to examine in more depth emerging theory) and from areas of the conceptual framework that require further investigation.

Semi-structured telephone interviews offer the advantage of being a fast and cost effective method of obtaining data. They provide the interviewer with the potential to explore in more depth, the area under investigation, whilst also providing an opportunity to gauge tone of voice. Whilst the interviewer has a list of questions to ask, this method of collection enables the interviewer to add, remove or ask questions out of order in an attempt to gain a better understanding of the research area and meet the research objectives. Disadvantages of this method include: interrupting people whilst at work, problems with contacting people despite prior arrangement and the inability to gauge non verbal responses (Gray, 2005).

In the context of this research project, semi-structured telephone interviews provide the author with the opportunity to explore in more depth the responses of Chief Officers located across the UK rather than limiting the scope of the interview to those people working within the North-West. The views of both members and non members alongside those who do and do not support the use of SIMS may also be sought. However, as with the use of self completion questionnaires, the response may be affected by the perception that the answers provided and the identity of the interviewee may be revealed to APHA. This may manifest itself through officers declining to take part in interviews or in interviewees not answering questions truthfully.
Semi-structured Telephone Interview Sample Size

A sample size of 9 was chosen as this represented approximately 10% of the overall population. This figure was chosen due to the length of time required to analyse the results and the time constraints of the study. The sample was made up of Chief Port Health Officers, who were invited to take part in the interview by the letter accompanying the self-completion questionnaires. Officers interested in taking part were asked to contact the author by email.

Focus Group

A focus group was used as a method by which attitudes to the study area could be tested. As with the semi-structured telephone interviews, focus group discussion areas were developed from the answers provided in the returned questionnaires (in order to examine in more depth emerging theory) and from areas of the conceptual framework that require further investigation.

Focus groups are a cost effective method of collecting data. They provide the interviewer with the opportunity to simultaneously seek the opinion of a number of people, whilst also providing access to non verbal communication such as body language. However, recruitment to a focus group can be extremely difficult without sufficient incentive and the dynamics of the group can have a significant impact upon the responses provided.
Focus Group Sample Size

9 port health representatives were chosen to participate in this study. As with the semi structured telephone interviews, this number was chosen to represent 10% of the total population.

Focus groups have been difficult to arrange as participants are located across the UK. Consequently, the author was required to conduct the research, with prior approval from the participants, at a pre arranged inter-authority meeting. This method of selecting participants introduces a level of bias in that people who attend such meetings may have different views to those who do not. Attendees are also more likely to be members of APHA. However, such a meeting provided the author with the opportunity to select participants from a wide range of ports (both in terms of geographical distance and size).

A total of 9 people were chosen from volunteers attending the Environmental Health and Hygiene Committee meeting. The group consisted of 2 Chief PHOs and 7 PHOs from PHAs that are APHA members.

Order of Research

As the piece of research covering the largest sample of PHAs, the self-completion questionnaire was conducted first. This provided the author with the opportunity to ask each PHA within the UK, a wide range of exploratory questions relating to the area of research. Once the questionnaires were returned, the semi structured interviews were conducted. This enabled the author to confirm the results of the questionnaire, whilst also providing an
opportunity for developing themes to be explored further. As the final piece of research, the focus group was used to bring together the findings of the questionnaire and interview to ensure triangulation and enable the author to clarify any areas of ambiguity.

Exhibit 10 provides a more detailed consideration of the advantages and disadvantages of each of the chosen research methods.
<table>
<thead>
<tr>
<th>RESEARCH METHOD</th>
<th>ADVANTAGES</th>
<th>DISADVANTAGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>SELF-COMPLETION QUESTIONNAIRE</td>
<td>- Low cost (time and money)</td>
<td>- Low response rate</td>
</tr>
<tr>
<td></td>
<td>- Can be used to gather data from many people</td>
<td>- Literacy required</td>
</tr>
<tr>
<td></td>
<td>- Respondents can complete the questionnaire in their own time</td>
<td>- Ambiguous or ill conceived answers cannot be cleared up</td>
</tr>
<tr>
<td></td>
<td>- Respondents are anonymous</td>
<td>- May not be completed by the correct recipient</td>
</tr>
<tr>
<td></td>
<td>- Lack of interviewer bias</td>
<td>- Unable to gauge non verbal communication</td>
</tr>
<tr>
<td></td>
<td>- Quick</td>
<td>- Respondents may provide inaccurate response</td>
</tr>
<tr>
<td>SEMI-STRUCTURED INTERVIEW</td>
<td>- Opportunity for answers to be expanded upon</td>
<td>- Interviewees are unable to remain anonymous</td>
</tr>
<tr>
<td></td>
<td>- Low cost (time and money)</td>
<td>- Inability to show visual aids</td>
</tr>
<tr>
<td></td>
<td>- Access to verbal clues (such as tone of voice)</td>
<td>- Interrupting people whilst at work</td>
</tr>
<tr>
<td></td>
<td>- Open and closed questions may be asked</td>
<td>- Require advance planning which may be time consuming</td>
</tr>
<tr>
<td></td>
<td>- Interview can be directed to the appropriate person</td>
<td>- Small sample size due to time taken to analyse information</td>
</tr>
<tr>
<td></td>
<td>- Access to people over a wide geographical area</td>
<td>- Interviewer basis may be introduced</td>
</tr>
<tr>
<td></td>
<td>- High response rate</td>
<td>- Unable to gauge non verbal communication (such as body language)</td>
</tr>
<tr>
<td></td>
<td>- Literacy is not required</td>
<td></td>
</tr>
<tr>
<td>FOCUS GROUP</td>
<td>- Provide access to non verbal communication</td>
<td>- Logistically difficult to arrange</td>
</tr>
<tr>
<td></td>
<td>- Able to simultaneously access the view of a number of people</td>
<td>- Interviewer bias may be introduced</td>
</tr>
<tr>
<td></td>
<td>- Literacy is not required</td>
<td>- Group dynamics may impact upon the responses provided</td>
</tr>
<tr>
<td></td>
<td>- Interview can be directed to the appropriate person</td>
<td>- Require a significant amount of cooperation and enthusiasm from participants</td>
</tr>
<tr>
<td></td>
<td>- Access to open and closed questions</td>
<td>- Participants are unable to remain anonymous</td>
</tr>
<tr>
<td></td>
<td>- Ability to ask complex questions</td>
<td></td>
</tr>
</tbody>
</table>

Exhibit 10 – Advantages and disadvantages of the research methods used.
**Triangulation**

Each of the research methods has weaknesses which could lead to the distortion of research findings. However, the weaknesses of one method have been suppressed by the collaborative strengths of the other methods, resulting in triangulation and therefore greater confidence in the research findings (Saunders *et al.*, 2007).

Triangulation has also enabled the author to use a combination of qualitative and quantitative research methods to investigate the research area (University of Bolton, 2011).

**Reliability**

Saunders *et al.* (2007) define reliability as:

*‘The extent to which your data collection techniques or analysis procedures will yield consistent findings’*

As a participant observer in the study, findings may be biased as a result of participants providing the answers that they believe the author is seeking to achieve and fear of reprisal. This has been mitigated by designing the questionnaire so that anonymity could be guaranteed and providing participants in the focus group and semi-structured interview with assurances that they would not be identifiable in any way (Saunders *et al.*, 2007).

In order to mitigate against observer error (the potential for questions to be asked in a way that elicit answers), the author ensured that questions written for
the focus group and semi-structured interview were written with a high degree of structure. Observer bias has been overcome via the use of multiple methods leading to triangulation (Saunders et al., 2007).

**Validity**

Validity is the extent to which results in a study are accurate and credible. External validity is the extent to which case study findings can be generalised beyond the study itself. As this study aims to develop detailed knowledge of an area of study across a small number of organisations, it is recognised that this research will only have internal validity and cannot be used to generalise about other public sector organisations (Gray, 2005).

**Cross Mapping Matrix**

The cross mapping matrix (Exhibit 11) has been designed to ensure the triangulation of research methods across each objective and that the conceptual framework is fully investigated as part of the research. Each element of the conceptual framework is represented by a section of the cross mapping matrix for each objective under investigation.

In order to assist with interpretation of the conceptual framework elements and assist the author when conducting research, the elements of the conceptual framework have been reworded using simpler terms. These terms are shown in the framework, in brackets, under the original wording.
### Exhibit 11 – Cross Mapping Matrix

<table>
<thead>
<tr>
<th></th>
<th>OBJECTIVE ONE</th>
<th>OBJECTIVE TWO</th>
<th>OBJECTIVE THREE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SOURCE</strong> (your authority)</td>
<td>Q1 FG Q2 SSI</td>
<td>Q7/Q9 FGQ2 IQ7/IQ8/IQ9</td>
<td>Q13/14 N/A IQ14</td>
</tr>
<tr>
<td><strong>RECIPIENT</strong> (Other authorities)</td>
<td>Q2 FGQ3 IQ2</td>
<td>Q8 FGQ2 N/A</td>
<td>Q15/16 N/A IQ14</td>
</tr>
<tr>
<td><strong>RELATIONSHIP CHARACTERISTICS</strong> (Relationship)</td>
<td>Q10 FGQ1 N/A</td>
<td>Q10/Q11 FGQ4 IQ 10</td>
<td>Q17 FGQ 10 N/A</td>
</tr>
<tr>
<td><strong>COMMUNITIES OF INTERACTION</strong> (Communication methods)</td>
<td>Q3/Q4 N/A</td>
<td>Q8/7 FGQ9 IQ11</td>
<td>Q18/19 N/A IQ17</td>
</tr>
<tr>
<td><strong>POLICY AND PRACTICE</strong> (Legislation and guidance)</td>
<td>Q5 FGQ5 N/A</td>
<td>N/A FGQ5 IQ13</td>
<td>Q20 FGQ11 IQ15</td>
</tr>
<tr>
<td><strong>OUTER CONTEXT</strong> (Social, political, environmental)</td>
<td>N/A FGQ6 IQ6</td>
<td>Q12 FGQ6 IQ12</td>
<td>N/A FGQ6 IQ20</td>
</tr>
<tr>
<td><strong>PERCEIVED USEFULNESS</strong> (Usefulness)</td>
<td>N/A FGQ7 IQ3/IQ5</td>
<td>Q6 N/A IQ5</td>
<td>Q23 N/A IQ18</td>
</tr>
<tr>
<td><strong>PERCEIVED EASE OF USE</strong> (Ease of use)</td>
<td>N/A FGQ8 IQ4</td>
<td>N/A FGQ8 IQ5</td>
<td>Q21 N/A IQ19</td>
</tr>
<tr>
<td><strong>ATTITUDE TOWARDS USE</strong> (Opinion)</td>
<td>Q6 N/A IQ5</td>
<td>N/A FGQ1 IQ16</td>
<td>Q22 N/A IQ16</td>
</tr>
</tbody>
</table>

**KEY:** Q = Questionnaire; FG = Focus Group; SSI = Semi Structured interview
Chapter 4 - Findings and Evaluation

Introduction

This chapter presents the findings from the research methods chosen in chapter 3. The findings are structured and presented by the elements of the conceptual framework (Exhibit 11) and then by research method.

Demographic Profile of Port Health Authorities Completing Self-Completion Questionnaires

Of the 41 respondents 33 were APHA members and 8 were non APHA members. The number of people employed by each of the authorities is as follows:

How many port health staff does your authority employ?

- 0 to 5: 83%
- 6 to 10: 10%
- 10+: 7%
Demonographic Profile of Staff Participating in Semi Structured Interviews

The SSI interviewees consisted of 7 men and 2 women all employed by authorities who are members of APHA.

Demographic Profile of Staff Participating in Focus Group

The FG participants consisted of 3 women and 6 men, all employed by authorities who are members of APHA.
Source (Your Authority)

Self-Completion Questionnaire Results

Q1. Please rate the extent to which your authority shares knowledge with other port health authorities.

The extent to which your authority shares knowledge with other authorities

- Regularly: 41%
- Sometimes: 37%
- Rarely: 18%
- Never: 4%
Q7. Are you aware of any barriers within your authority that prevent people from sharing knowledge?

Are there any barriers within your authority that prevent people from sharing knowledge?

- Yes 41%
- No 59%

What are the barriers that prevent your authority from sharing knowledge?

- Communication methods are not effective
- The relationship between authorities is competitive
- The culture does not facilitate knowledge sharing
- Knowledge is viewed as a source of power
- Officers do not share knowledge

Bar graph showing the distribution of responses for each barrier.
Q9. Does your authority have the ability to store knowledge so that it can be re-used?

<table>
<thead>
<tr>
<th>Ability to store and retrieve knowledge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>88%</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td>5%</td>
</tr>
<tr>
<td>Don't Know</td>
</tr>
<tr>
<td>7%</td>
</tr>
</tbody>
</table>

The majority of authorities’ stored information by way of a computerised database such as Excel and Authority Public Protection (APP). The SIMS database was also used by three of the responding authorities’. The remainder of authorities stored knowledge in guidance documents and written files.
Q13. Does your authority subscribe to the Ship Inspection Management System (SIMS)?

![Pie chart showing 29% Yes and 71% No for SIMS subscription.]

Q14. How often is SIMS used within your authority to enter ship inspections onto the database?

![Bar chart showing frequency of SIMS use. Regularly has the highest count, followed by Occasionally, Rarely, and Never.]

Number of authorities
Semi-Structured Interview Results

IQ2. From your experience, how would you describe the current level of knowledge sharing between port health authorities?

The majority of interviewees felt that the current level of knowledge sharing was extremely low and restricted only to the sharing of knowledge in extremes. Phrases such as “quite poor”, “pretty poor” and “not as good as it could be” were used to describe knowledge sharing in its current form.

“The sharing of knowledge between authorities is practically nil. Sure, there is still a commitment to share knowledge on an emergency basis or where there are serious conditions but these are extreme conditions and not the routine”

When asked why knowledge was shared only in extremes, interviewees explained that felt there was “little point” in telephoning the next port to inform them that a ship was in good condition. Time constraints due to competing workloads were also stated as a reason for this. Additionally, two of the interviewees felt that problems were created as a result of differing opinions towards ship inspection, with some authorities viewing it as less of a priority than other areas of work, thus leading to limited commitment towards knowledge sharing.
IQ7. 41% of responding authorities believed that barriers to knowledge sharing exist. In your experience, what are the barriers that you face in your authority, that prevent you from sharing knowledge with others?

The majority of interviewees felt that the absence of guidance from government and international organisations (such as the WHO and Food Standards Agency (FSA)) acted as a substantial barrier to knowledge sharing. As a result of this, it was felt that there was “no national consistency” or “agreed method of sharing knowledge between authorities”. In a local government context it was generally agreed that there was a lack of organisational goals between authorities and varying levels of priority given to the ship inspection function due, to the lack of accountability of the International Health Regulations. When asked why this was, interviewees explained that they are audited on all other areas of work and therefore these areas were considered to be of greater priority.

“Where an authority has a border inspection point, ship inspection may be of lower priority, but only because that’s an option”

“There is a lack of accountability; a system for sharing knowledge would be put into place, if it was a requirement”

The majority of interviewees also felt that the absence of a suitable communication method acted as a barrier to knowledge sharing. Currently it is felt that there is no known and proven method for knowledge to be shared between authorities.

Additionally, a number of interviewees stated that the relationship between authorities acted as a barrier to knowledge sharing with “competition”, “poor
response” and “difficulty contacting certain ports” being cited as the main reasons for this. However, one interviewee stated that he had “never experienced this to be a problem”.

IQ8. 47% of respondents agree that, within their authority, officers tend not to share the knowledge they require. Can you comment upon this?

A number of interviewees agreed that within port health authorities’, officers did not share the knowledge that they acquired. This they felt was due to knowledge being viewed as “a source of power” or as “an asset”. One interviewee asked “where do we share this?” as it was felt that there were little opportunities to do so.

Of the remaining interviewees, the majority believed that historically this was the case within local authority but was no longer evident. However, the majority of interviewees agreed that in the current economic climate this was likely to increase with “people seeking to protect their job” and “...watching their own backs”.

IQ9. How would you describe the culture of port health authorities in relation to knowledge sharing?

Mixed views were obtained in relation to this question. Some interviewees believed that there was a historic culture of not wanting to share knowledge between authorities. Other interviewees believe that culture is dependent upon the authority, with some authorities “having a long term commitment” to
knowledge sharing and others having “a lack of will to share” or “lack of understanding of why they should share”. One interviewee felt that those authorities with a good culture would change “when they realised that no one is sharing with them”.

IQ14. SIMS is due to be withdrawn from the 1st April 2011. In the absence of SIMS, how does your authority propose to share ship inspection knowledge with other authorities?

The majority of interviewees said that in the absence of SIMS they would revert to using telephone and email to share knowledge with other authorities. However, this would only be for extreme cases (where a problem has been identified). For one of the interviewees this would involve no change as their authority had never used SIMS.

Additionally, one authority had:

“Made a start on recording inspection details electronically in order to make them easier to share with other authorities

And was;

“Considering developing a web based database to share their inspections with other limited parties”. 
Focus Group Results

FGQ2. In the main, authorities that do share knowledge for shipping only share knowledge in extremes. Why is this?

This question fit into more than one area of the cross mapping matrix. To avoid repetition, the results of this question will be presented and discussed on page 60.

Commentary

The SCQ revealed that 41% of authorities shared knowledge on a regular basis. SSI participants however, felt that this figure related only to the sharing of knowledge in extremes. The SCQ also identified that only 29% of respondents had subscribed to the SIMS system. Of those that had subscribed, 40% had rarely entered inspections and 33% had never done so. In the absence of SIMS the focus group revealed that authorities would revert back to the sharing of knowledge in extremes via telephone and email communication.

The SCQ also identified that 41% of respondents felt that barriers existed, with 47% agreeing that within their authority officers tended not to share the knowledge they gained and 42% believing that communication methods are not effective. However, only 10% of respondents felt that the relationship between authorities acted as a barrier by being competitive rather than collaborative. The SSI data concurred with communication methods but failed to list the other barriers identified, within the questionnaire, instead listing relationship issues and a lack of guidance and accountability as barriers. These data were
confirmed by the FG. This concurs with the findings of Rashman et al (2009) and Hartley and Bennington (2006) who referred to knowledge sharing as the ‘poor cousin’ of audit as a means of improving service and highlighted that a lack of articulated theory may preclude knowledge sharing.

Differing cultures within and between authorities appear to exist, preventing in some cases, officers from sharing knowledge with others. Organisational culture is a key determinant in the success of knowledge sharing initiatives. Trust and solidarity must exist in order for a successful knowledge sharing culture to be established (Goffee and Jones, 2003). Although not all authorities believed this to be the case, some identified that knowledge was seen as a source of power and was likely to become more so in the current economic climate. Where varying levels of commitment to organisational goals exist, knowledge may be viewed as tradable or as a source of power (Bailey, 2002) (Goh, 2002).
Recipient (Other Authorities)

Self-Completion Questionnaire Results

Q2. Please rate the extent to which other port health authorities share knowledge with you/your authority.

The extent to which other authorities share knowledge with your authority

- Never: 2%
- Rarely: 27%
- Sometimes: 42%
- Regularly: 29%

Q8. Are you aware of any barriers that prevent other port health authorities from sharing knowledge with you?

Are you aware of any barriers that prevent other authorities from sharing knowledge with you?

- Yes: 29%
- No: 71%
Q15. How often does your authority use SIMS to access other authorities’ inspection reports?

How often is SIMS used to access inspection reports?

- Regularly
- Sometimes
- Rarely
- Never

Number of authorities
Q16. In your opinion, are there enough authorities using SIMS for the system to be successful?

Are Enough Authorities Using SIMS?

- Yes: 0%
- No: 61%
- Don't Know: 39%

Semi Structured Interview Results

IQ2. From your experience, how would you describe the current level of knowledge sharing between port health authorities?

This question fit into more than one area of the cross mapping matrix. To avoid repetition, the results of this question will be presented and discussed on page 51.
IQ14. SIMS is due to be withdrawn from the 1st April 2011. In the absence of SIMS, how does your authority propose to share ship inspection knowledge with other authorities?

This question fit into more than one area of the cross mapping matrix. To avoid repetition, the results of this question will be presented and discussed on page 54.

**Focus Group Results**

*FGQ2. In the main, authorities that do share knowledge for shipping only share knowledge in extremes. Why is this?*

Focus group participants felt that there were a number of reasons why knowledge was only shared in extremes. Time constraints were considered to be a limiting factor under the current regime, as it would take a considerable amount of time to share all knowledge gained from ship inspections via phone and email. Another problem relating to this was provided by one officer who stated;

“There is often a problem with knowing where a ship is going next. Therefore knowledge is lost and there is no mechanism for retrieval”.

Other group members confirmed that this was “often the case”, especially in the current economic climate where ships captains had not been given their next destination, as no orders had been received. In cases like this it was explained that even where a problem had been identified it would be difficult to share knowledge with other authorities, and unless the ship returned to that port, the
knowledge would be lost. When asked why this was, it was stated that there was no effective method of storing inspection knowledge so that it could be accessed by other authorities in the future. It was recognised within the group that SIMS had been designed to overcome this however; it had failed to do so.

“There is no method of storage and retrieval for ship knowledge, unless the ship is imminently coming to your port...therefore at the moment it would be useless and you would be drowning in information that would never be looked at if it was received by email”

The group also felt that, in the absence of a protocol, knowledge sharing was “almost dependent upon the individual officer” with some officers being “keen to share” knowledge and others being “less keen” or “unwilling” to do so. When asked why the Regulators Compliance Code had not been adhered to participants stated that they felt there “was a lack of understanding” across port health authorities as to what the code meant and how the principles should be adhered to.

FGQ3. 90% of port health authorities believed that greater knowledge sharing between port health authorities would be beneficial. How could this be achieved?

Focus group participants felt that there was a need for a knowledge sharing protocol to be developed (covering what should be shared and how). This they felt would ensure that “everyone was singing from the same hymn sheet” and encourage knowledge sharing to take place.
There was also a general consensus amongst the group that the development of a web site “where everyone can go and easily retrieve information” would enable greater knowledge to be shared. The shipping AIS web site was suggested as an example of the type of website that the group felt would be beneficial, as this was considered to be “accessible” and “easy to use”.

Commentary

The SCQ indicated that only 29% of respondents believed that other authorities shared knowledge with them on a regular basis, whilst 42% believed that knowledge was shared with their authority sometimes. However, only 29% of questionnaire respondents were aware of any barriers that prevented these authorities from sharing knowledge, with 53% of these agreeing that port health authorities do not have an effective method for communicating all knowledge. This was confirmed by the focus group which also identified that although some authorities shared knowledge, there was no protocol detailing what should be shared and by what means. This was credited as one of the reasons why knowledge was not shared regularly. FG participants also identified a lack of ability to effectively store, capture and re-use knowledge (Xu and Quaddus, 2005). Thus, poor absorptive capacity, rather than motivation to share, also acts as a barrier (Greenhalgh et al, 2004). All FG participants agreed that a simple web site that was accessible to all authorities would remove this barrier along with the need for authorities to only share extremes of knowledge. The SCQ also identified that not enough authorities were considered to be using SIMS for
the system to be successful. Only 7% of those who had signed up to the system were using it on a regular basis to access other authorities’ inspection reports.

**Relationship Characteristics (Relationship)**

**Q10. Please rate the extent to which you believe that knowledge sharing is influenced by the relationship between authorities.**

![Pie chart showing the distribution of responses to Q10.](chart.png)

- **Never** 0%
- **Not really** 35%
- **Somewhat** 44%
- **Very much** 21%
Q11. To what extent does the relationship between APHA and non APHA members act as a barrier to knowledge sharing?

\[\text{Relationship Between APHA and Non APHA Members and Knowledge Sharing}\]

- Never: 5%
- Very much: 5%
- Somewhat: 38%
- Not really: 52%

Q17. Please rate the following statement according to your agreement with them.

SIMS and Relationships

- SIMS overcomes barriers between authorities
- A good relationship results in knowledge being viewed as more beneficial
- Relationship affects how knowledge on SIMS is viewed
Semi-Structured Interview Results

IQ10. 68% of responding authorities believe that knowledge sharing is influenced by the relationship between authorities. Can you comment upon this?

Some interviewees had firsthand experience of this and stated issues such as “trust”, “political issues” and “competition” as the causal factors along with a “silo mentality”. Others had not witnessed this for themselves but had heard anecdotally that certain ports were “difficult to deal with”. The remaining interviewees were generally surprised at this as they felt that they had established good relationships with certain authorities and given the means to do it, would be able to do so on a larger scale. However, it was felt that some authorities did not want anyone to know what they did and so were resistant to contacting others. Despite this, it was generally accepted that knowledge would be shared where there was a risk to health.

“We wouldn’t hesitate to share knowledge if there was something to be expressed. It is more important than relationships”.

Focus Group Results

FGQ1. The main barriers, identified within this study, that prevent port health authorities from sharing knowledge with each other are; the relationship between authorities; communication methods and unwillingness of individuals to share knowledge. What is your opinion of this?

This question fit into more than one area of the cross mapping matrix. To avoid repetition, the results of this question will be presented and discussed on page 96.

FGQ4. What can be done to overcome the relationship barriers that exist between authorities?

A number of participants felt that relationship barriers could be overcome by developing a better understanding of each authority. When asked how this could be achieved it was suggested that regular meetings should be organised. One focus group member disputed this suggestion however stating that this was “not always practical” due to the geographic location of authorities and suggested that local groups already existed in the form of Port Liaison Networks (PLAN) which, were often poorly attended.
**FGQ10. Relationship has been identified as a barrier to knowledge sharing.**

*How can a system such as SIMS address this barrier?*

The group did not believe that a system such as SIMS could act to overcome relationship issues alone. However, there was a suggestion that use of knowledge stored within this style of system could develop and reinforce professional respect for colleagues in other authorities which were perceived to be working in a similar way.

**Commentary**

65% of questionnaire respondents believed that relationship affected knowledge sharing, with 43% stating that the relationship between APHA and non APHA members acted as a barrier. Comments received from the SSI indicated that these issues were created by competition, lack of trust and political issues. A strong culture of collaboration and cooperation between organisations is required for knowledge sharing to be successful (Hartley and Bennington, 2006).

Competition appears to exist between certain authorities, preventing knowledge from being shared, except where a risk to health exists. Hartley and Bennington (2006) believe that this has resulted from the governments focus upon league tables and audit processes. A low level of trust is also evident in some cases. The level of trust between individuals has a direct bearing upon knowledge sharing (Cong and Pandaya, 2002). Where there have been prior satisfactory social interactions, employees are more likely to share knowledge (Ardichvili *et*
al., 2003). This may account for the fact that some of the SSI respondents felt they had developed good relationship with certain authorities.

60% of the SCQ respondents felt that SIMS was unable to overcome relationship barriers. Despite this, 56% did not believe that relationship affected the way in which the SIMS database was viewed and 59% felt that knowledge would not be perceived as more beneficial, if from an authority with which there was a good relationship. These data concur with the findings of Peters (1992); Davenport and Prusak (2000) and Hendriks (2001) who believe that IT is no more than a crucial enabler in the knowledge sharing process.

‘Only people can take the central role in knowledge creation; computers are merely tools, however great their information processing capabilities may be’

Reid et al, (2004:199)

The FG supported this by stating that they did not believe that system such as SIMS could act to overcome relationship issues alone but may reinforce professional respect.
Communities of Interaction (Communication Methods)

Self Completion Questionnaire Results

Q3. What communication methods do you currently use to share knowledge with other port health authorities?

Communication methods used for knowledge sharing

- Other
- Meetings
- SIMS
- Internet
- Email
- Telephone

Number of authorities

Q4. Are these communication methods sufficient for sharing the knowledge gained from ship inspections?

Sufficiency of Communication Methods

- Yes 68%
- No 32%
Of the 41 respondents, 68% believe that the current methods of communication are sufficient for sharing the knowledge gained from ship inspections. The main reason provided by respondents who did not consider these methods sufficient was that there is little opportunity to share detailed information. Comments made include: “meetings are for general issues” and “for individual ship inspection we do not send emails or make phone calls, or have meetings”. The main theme that emerged from these comments was that ship inspection knowledge is only shared where a problem has been identified.

“it is not feasible to do for every inspection undertaken therefore we concentrate only on inspections where problems found. i.e. no opportunity to share info from good inspection results”

“Knowledge is only shared in extremis”

A small number of respondents also felt that communication methods were either not sufficient due to the time and financial commitment required or the number of people required to take part, to make communication successful.

“...not enough ports are using SIMS and increasingly because of costs are not attending meetings”.

Q7. Are you aware of any barriers within your authority that prevent people from sharing knowledge?

This question fit into more than one area of the cross mapping matrix. To avoid repetition, the results of this question have been presented on page 48.
Q8. Are you aware of any barriers that prevent other port health authorities from sharing knowledge with you?

This question fit into two more than one area of the cross mapping matrix. To avoid repetition, the results of this question have been presented on page 57.

Q18. How do you rate SIMS as a method for communicating knowledge across port health authorities when used:

a) Alone?

![SIMS as a Communication Method When Used Alone](image-url)
b) *With other methods of communication?*

**SIMS as a Communication Method When Used Alongside Other Methods**

- **Excellent**: 0%
- **Poor**: 42%
- **Average**: 23%
- **Good**: 35%

**Q19. Can SIMS be used as a communication method for sharing all aspects of knowledge gained from ship inspections?**

**SIMS and The Sharing of All Types of Knowledge**

- **Yes**: 34%
- **No**: 26%
- **Dont know**: 40%
Semi-Structured Interview Results

IQ1. What methods of communication are available to port health authorities to share this knowledge?

All interviewees identified the following methods as being available to port health authorities when sharing ship inspection knowledge:

- telephone
- email

Some authorities also listed:

- faxes
- letters
- meetings

Additionally, a number of interviewees listed SIMS as an available method as they were unaware that the system had been withdrawn.

The majority of respondents stated that in the absence of SIMS only extremes of knowledge would be shared as it is not practical to use other methods to share knowledge from all inspections.

IQ11. A number of authorities believe that communication methods act as a barrier to knowledge sharing. What can be done to reduce this barrier?

Interviewees universally agreed that a computer system based upon SIMS principles would act to overcome this barrier. However, it was felt that for the system to be successful it must be “easier to use” and “more user friendly”.

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“Email and phone is ok but takes time to do. Having an electronic method is the way to go, backed up by phone to clarify as necessary”.

A number of interviewees also felt that the amount of information entered onto the system could be reduced with one interviewee stating that with SIMS there were;

“Too many yes and no answers, with not enough ability for free text”

This was reiterated by another interviewee who felt that “room for personal notes” should be provided. It was also generally agreed that for this communication method to be successful it should be made “easily accessible” and “PC based”.

IQ17. 34% of respondents believed that SIMS could be used to communicate all types of knowledge (from ship inspection). In the absence of SIMS, how will personal experience and knowledge be shared?

The majority of interviewees felt that there was only limited scope within the SIMS system to share personal experience and knowledge as responses were in the main limited to yes and no. In the absence of SIMS however, it was generally agreed that this type of knowledge would not be shared at all.
Focus Group Results

FGQ9. Communication methods were identified as a barrier to knowledge sharing. What can be done to remove this barrier?

The majority of focus group participants felt that the creation of a “simple to use”, “easily accessed by all” web site would act to overcome this barrier. It was also generally agreed that such a site should harness programmes that people are familiar with using such as word or excel.

“My view would be that it would be very easy, so that everyone could use programmes that they already know how to use”

Participants felt that technology had moved on since the development of SIMS and as a result the programme could be made more user friendly with the potential to “see at a glance when a ship was last inspected” and have the option “to look deeper” into inspection findings. The possibility of adding scanned documents and attaching these to files was also suggested.

All participants felt that a web site would enable the risk rating of inspections, compliance with the law and allow more streamlined, targeted inspections to occur.

“The benefits would be; risk rating of inspections, compliance with the law and streamlined, targeted inspections without duplication of effort”
Commentary

SCQ results show that 68% of respondents agreed that available communication methods were sufficient for sharing knowledge. However, the FG participants believed that in the absence of SIMS, these methods would only be sufficient for sharing extremes of knowledge.

The SCQ identified that 50% of respondents felt SIMS was poor when used alone and 42% of respondents felt SIMS was poor when used in conjunction with other methods. Despite this, all SSI respondents identified a SIMS style system as being able to remove the barriers caused by communication methods. This was confirmed to an extent by FG participants who identified a simple to use, easy to access web site as a solution. The SCQ also identified that only 34% of respondents believed that SIMS could be used to communicate both tacit and explicit knowledge. This was confirmed by the FG participants who believed that the opportunities to share tacit knowledge via SIMS were limited. In the absence of SIMS it was considered that there was no effective mechanism for sharing tacit knowledge. Hislop (2002) identified that the mechanisms required for the sharing of tacit and explicit knowledge are as different as the types of knowledge. The sharing of tacit knowledge via use of IT he believes is incredibly difficult, if not impossible (Hislop, 2002).
Policy and Practice (Legislation and Guidance)

Self-Completion Questionnaire Results

Q5. How has the introduction of legislation and guidance (such as the Hampton Report/Regulators Compliance Code) impacted upon the amount of knowledge that is shared between port health authorities?

Impact of Hampton Report upon knowledge sharing

- Increased 20%
- Decreased 0%
- Not Changed 80%
Self-Completion Questionnaire Results

Q20. In your opinion, how effective is SIMS at enabling authorities to meet their obligations under the Regulators Compliance Code/ Hampton Report?

Semi-Structured Interview Results

IQ13. Whilst required by law, no detailed guidance has been provided specifying how knowledge should be shared between authorities. Does this act as a barrier to knowledge sharing?

All interviewees agreed that the absence of detailed guidance on knowledge sharing acted as a barrier. When asked why this was, interviewees stated that the absence of a definitive guidance had lead to “too many different standards across the world” and the creation of a situation where authorities can “choose not to participate” in knowledge sharing.

“The World Health Organisation brought these Regulations into place, but with no method of communication... APHA need to make contact and tell them that it is not working”
“Historically knowledge sharing has not happened and will continue to not happen as long as there is no agreed method for sharing”

Overall, interviewees felt that the introduction of guidance would “iron out grey areas”, “create a consistent working relationship across port health authorities” and “prompt and improve knowledge sharing”. Whilst all interviewees felt that the introduction of guidance would act to remove this as a barrier, a number of interviewees felt that unless “participation was statutory” it would not occur.

IQ15. A number of the questionnaire respondents believed that SIMS was not an effective method of meeting the knowledge sharing requirements of the Regulators Compliance Code. How could this be addressed?

The majority of interviewees were surprised at the SCQ had revealed this, as they felt that SIMS was capable of meeting the requirements of the Regulators Compliance Code. When asked why they thought others did not agree it was unanimously stated that for the system to be effective at meeting the requirements of the Code it must be used by the majority of ports.

“In practice I would agree. In principle it should have worked... SIMS does and did have the capability of meeting Hampton but no support”

A number of interviewees went further than this to suggest that a “global, universal system” is required rather than being restricted to the UK “as this limits the systems scope”.

Whist the majority of interviewees believed that the system could be effective if adopted by all, a number of them were of the opinion that unless the system
was made compulsory this would not happen. It was also a common belief that if the system had been introduced by a government agency such as the FSA or WHO more ports would have been willing to use it.

**Focus Group Results**

*FGQ5. If ship inspection was auditable against the law (International Health Regulations), what impact would this have upon the sharing of ship inspection knowledge?*

The majority of focus group participants felt that knowledge sharing would become more important if ship inspection became auditable. It was generally felt that currently port health authorities “were not accountable” for ship inspection and as such everyone has their own style of doing things. A parallel was drawn with imported food inspection, which the group felt was generally more important due to the possibility of being audited by the Food and Veterinary Office (FVO).

> “Ship inspection is the poor relation to imported food. Imported food comes first. Anything else falls behind due to pressure from importers and the threat of being audited”
FGQ11. How can port health authorities comply with the principles of Hampton without a system such as SIMS?

The majority of focus group participants felt that in the absence of SIMS, it would be extremely difficult to achieve the principles of Hampton. On a local level it was felt that individual authorities would continue to operate their own risk assessments using past inspection reports as a basis for this.

**Commentary**

Only 20% of SCQ respondents believed that the level of knowledge sharing had increased following the introduction of legislation. However the FG revealed that if ship inspection was auditable, knowledge sharing would become more important. Thus, audit and inspection is viewed as having a greater impact upon an authorities’ reputation (Hartley and Bennington, 2010).

Absence of detailed guidance on how to share knowledge was seen to act as a barrier and had resulted in some authorities not sharing knowledge at all. The government assumed that knowledge would be shared on a voluntary basis; however the absence of guidance appears to have lead instead to confusion and inconsistency. This further substantiates the work of Rashman *et al*, (2009) and Hartley and Bennington (2006) whose work highlighted this as a potential barrier.

The SCQ identified that only 22% of responding authorities believed that SIMS was effective at meeting the requirements of the Regulators Compliance Code, with 48% believing that it was somewhat effective. This was confirmed by the
SSI but was attributed not to the SIMS system, which was considered capable of meeting the requirements, but to the lack of authorities using the system. In the absence of the SIMS, all FG participants agreed that complying with the code would be extremely difficult. As one of the elements of the technology acceptance model, perceived usefulness is hypothesized as having a direct impact upon attitude towards use. Thus, if people believe that a system is of little use, they are unlikely to use it, despite what it may be capable of achieving. This also concurs with the findings of Davenport and Prusak (2000) who identified that many projects have failed to live up to expectation due to an excessive focus upon IT resulting in the neglect of social and cultural factors.
Outer Context (Social, Political, Environmental)

Self-Completion Questionnaire Results

Q12. In the context of the current economic climate, is money likely to become a barrier to knowledge sharing?

Semi-Structured Interview Results

IQ6. In the current economic climate, local authorities are being required to do more for less. What affect will this have upon knowledge sharing?

The majority of interviewees believed that the sharing of knowledge would become more important as it would enable savings to be made in terms of ‘cost’ and ‘time’ by allowing resources to be ‘targeted’. However, it was universally recognised that without an effective method of communication, this would not be possible.

“If a method of sharing knowledge re ship inspection was available and provided sufficient detail, then a lot of unnecessary work or duplication could be avoided. If a ship did not merit inspection then it would not be
inspected. However, a commonly accepted risk rating system would be required in order to be able to make a judgement”.

It was widely believed that in the absence of a suitable communication method, the amount of knowledge shared would decrease, as using methods such as telephone and email were considered time consuming. However there was still a commitment to sharing knowledge where a problem had been identified.

IQ12. How does the complicated political environment in which port health authorities operate affect knowledge sharing in practice?

One interviewee believed that politics resulted in “knowledge being withheld for political ends” and “competitive strategies, preventing certain aspects of knowledge from being shared”. Overall however, there was a general consensus that politics did not affect knowledge sharing.

IQ20. How do you see current economic factors affecting the use of a SIMS style system?

The majority of interviewees believed that the current economic climate would prohibit many authorities from subscribing to a SIMS style system due to cost. However, there was a general belief that if the system could “demonstrate that it worked and saved time by risk rating” or “reduced costs by allowing inspections to be targeted properly” authorities would be willing to pay for the system. Despite this, some interviewees felt that the system would need to be made “more cost effective” before authorities would consider subscribing.
“If it was to succeed, it would need to dovetail into existing technology and therefore be of limited cost. Even then it would be an uphill struggle to persuade people to invest even a small amount of money after the failure of the SIMS system”

Focus Group Results

FGQ6. What is your attitude towards the introduction of a system for knowledge sharing, if it were introduced by a government or international organisation such as the World Health Organisation?

The majority of participants believed that the introduction of a knowledge sharing system would be viewed as more beneficial if introduced by an international organisation such as the WHO. When asked why this was, participants stated that they felt it would introduce a greater level of consistency across port health authorities (particularly if introduced worldwide) and would not be affected by the politics created as a result of some authorities not being APHA members.

“Everyone would do the same thing, it would introduce consistency”

Commentary

The SSI results demonstrate that in the current economic climate knowledge sharing is likely to become more important, as it is seen as a method by which authorities can target resources and prevent duplication. Despite this, 42% of
SCQ respondents revealed that money was likely to become a barrier to knowledge sharing. This was confirmed to an extent by FG participants, who identified that in the current economic climate, unless a system such as SIMS could demonstrate that it enabled authorities to effectively target resources, it was unlikely that authorities would be able to justify the cost.

It appears that authorities would be more likely to subscribe to a knowledge sharing system if it were introduced by the government or an international organisation such as the WHO as there is a general opinion that this would introduce more consistency, especially if introduced worldwide. This is in contrast to the governments theory which assumes authorities will choose to share knowledge via means of databases and websites without any articulated theory on how this should be done (Rashman et al, 2009) (Hartley and Bennington, 2006).

Politics appears to have little impact upon the knowledge sharing process, despite the complicated political environment in which port health authorities often operate.
**Perceived Usefulness (Usefulness)**

**Self-Completion Questionnaire Results**

*Q6. In your opinion, would greater sharing of knowledge between port health authorities be beneficial?*

This question fit into two areas of the cross mapping matrix. To avoid repetition, the results of this question have been presented on page 94.

**Q23. How does your authority plan to use SIMS in the future?**

The majority of respondents indicated that they were not currently using SIMS and had no plans to start. Reasons provided included; “does not serve a useful function in its present form”, “too difficult to use efficiently”, “SIMS requires further development to be effective” and “cost”.

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<th>How does your authority plan to use SIMS in the future?</th>
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A small number of respondents indicated that whilst they were currently using SIMS they planned to stop. The main reason given for this decision was that SIMS in its current format is not effective and further development is required before its use will be considered. A number of respondents also indicated that they would not subscribe to the system until a PC version became available as the PDA version was considered too difficult to use.

**Semi-Structured Interview Results**

*IQ3. Only 46% of responding authorities share knowledge on a regular basis.*

*As it stands is knowledge sharing useful?*

The majority of interviewees felt that at its current level, knowledge sharing was not useful. In fact, three of the interviewees were surprised that the level of knowledge sharing was even this high. There was a general consensus that this figure related in the main to the sharing of knowledge where a problem vessel had been identified and even this was of limited value. Overall it was believed that a more consistent approach would be required to make use of knowledge sharing for the risk assessment of vessels.

“If 46% of authorities are sharing knowledge I would like to see some of it...This brings to question what people understand knowledge sharing to mean and what the knowledge to be shared consists of”

One interviewee however disagreed, stating;

“I wouldn’t think that every inspection was beneficial, just a prior warning system with alerts etc”
IQ5. *When knowledge is shared with your authority, is it used?*

All interviewees confirmed that they would use knowledge if it was shared with their authority and the ship was destined for their port.

When asked if they had the ability to store this information for future use, some of the authorities stated that they would be able to store this within ship specific file notes or within a database. Other authorities would be unable to recall this information in the future unless they themselves had inspected the vessel.

IQ18. *Is a computer system a useful tool in the sharing of knowledge across port health authorities?*

This question was answered as part of IQ11. Presented on page 73.

**Focus Group Results**

FGQ7. *How useful is knowledge sharing currently?*

All participants felt that knowledge sharing was useful and stated that when knowledge of a problem was shared with their authority, it was used. Concern was raised by a number of members in the group that not every authority shared knowledge.
Commentary

Knowledge sharing is considered to be beneficial however, at its current level it is considered to be of limited use. Despite this, there is a consensus that knowledge gained from other authorities is used.

68% of SCQ respondents stated that they had no plans to start using SIMS. The majority of whom attributed this to the fact that SIMS was either not effective in its current format or was too difficult to use. Despite this, the majority of SSI participants indicated that a computer system would be a useful tool in facilitating knowledge sharing. Only a relatively small proportion of questionnaire respondents subscribed to SIMS therefore these questions were answered according to perception. This corresponds with the findings of Davis et al (1989), who believe that perceived usefulness and perceived ease of use directly affect a person’s attitude towards use of a system and in turn the acceptance of that technology.
Perceived Ease of Use (Ease of Use)

Self-Completion Questionnaire Results

Q21. In your opinion, how easy is SIMS to use?

Semi-Structured Interview Results

IQ4. How easy is it to share knowledge between port health authorities?

The majority of interviewees felt that it was easy to share knowledge of problem inspections via use of the telephone or email. This was facilitated by the provision of a contact list in the APHA handbook. However, when asked how easy it would be to share the knowledge gained from all inspections, the majority of interviewees felt that this would be “cumbersome”, “time consuming” and “difficult”.

“Currently the sharing of all ship inspections would take a serious amount of time”
IQ5. *When knowledge is shared with your authority, is it used?*

This question fit into more than one area of the cross mapping matrix. To avoid repetition, the results of this question have been presented on page 89.

IQ19. *69% of authorities believed that SIMS was difficult to use. If SIMS was easier to use would it have been more successful?*

The majority of interviewees felt that if SIMS had been “easier”, “simpler” and “quicker” to use it would have been more successful and may have overcome some of the resistance towards adoption of the system.

“SIMS had become so slow to use that it was actually quicker to go and see the ship than wait for the web site”

However, interviewees also stated that this success would only be limited, without the support of more ports. There was also a perception from some interviewees that “people wanted the system to fail for fear of change”.

A number of interviewees stated that in addition to being made easier to use, the system should be made “more flexible” with “less yes and no answers” and “more flexibility to add free text”. Concern was also raised by one interviewee as to the suitability of the standard paragraphs used and their enforceability in court.
Focus Group Results

FGQ8. How easy is it to share ship inspection knowledge between authorities?

The majority of participants felt that it was not practical to share knowledge between port health authorities unless a problem had been identified. When asked why this was, the majority of participants agreed that it would be too onerous in terms of time and would not be practical.

“Currently it would not be practical and it would be incredibly time consuming”

Commentary

Both the SSI and FG participants considered the sharing of knowledge in extremes to be easily achievable. However, the sharing of anything more than this was considered difficult and impractical due to the amount of time that it would currently take.

69% of SCQ respondents believed that SIMS was difficult to use (17% very difficult and 52% difficult). This was confirmed by the SSI respondents who felt that if the system had been easier, simpler and quicker to use, it would have been more successful. Again, as the majority of SCQ respondents were not SIMS users, responses are based upon perception, thus confirming the work of Davis et al (1989) by establishing that perceived ease of use has a direct impact on both perceived usefulness and attitude towards use.
Attitude Towards Use (Opinion)

Self-Completion Questionnaire Results

Q6. In your opinion, would greater sharing of knowledge between port health authorities be beneficial?

Would greater sharing of knowledge be beneficial?

- Yes: 90%
- No: 10%

Q22. What is your opinion of SIMS?

Opinion of SIMS

- Effective tool for knowledge sharing: 12%
- Effective tool with other communication methods: 20%
- Further development is required before SIMS is effective: 57%
- Not an effective tool for knowledge sharing: 11%
Semi-Structured Interview Results

IQ5. When knowledge is shared with your authority is it used?

This question fit into a number of areas in the cross mapping matrix. To avoid repetition, the results of this question have been presented on page 89.

IQ16. What is your attitude towards the use of a SIMS style system for the sharing of knowledge?

All interviewees had a positive attitude towards a SIMS style system of knowledge sharing. However, the majority felt that such a system should be PC based rather than PDA based as with SIMS. A simple to use web site was suggested by a number of interviewees as “user friendly” and “cost effective” way of sharing knowledge.

Some interviewees felt that a SIMS style system had the potential to “serve a huge number of purposes” and would act to; “manage the quality of inspections”, “provide an auditable system” and “enable a risked based inspection programme to be developed”. One interviewee, though a supporter of this style of system, was concerned however that such a system could be used as “a method by which to dilute port health”.
Focus Group Results

FGQ1. The main barriers, identified within this study, that prevent port health authorities from sharing knowledge with each other are; the relationship between authorities; communication methods and unwillingness of individuals to share knowledge. What is your opinion of this?

The majority of focus group respondents agreed that these barriers prevented knowledge from being shared between port health authorities. It was felt that knowledge sharing was “dependent upon the individual” as there was no agreed protocol for knowledge sharing across port health authorities. Relationship was also perceived to be an important barrier that affected sharing between certain ports;

“There is a historic problem of sharing between certain authorities...ports often vie for trade, which impacts upon everything they do”

Overall however, it was considered that whist these barriers did exist; they were not the main cause of the problem. Instead the group believed that a fundamental misunderstanding of the reasons for sharing knowledge and a perception that there was little benefit in doing so were the main causes.

“There is a poor understanding of Hampton, a number of authorities are not willing to acknowledge that it exists, others are paying lip service to Hampton Principles”
Commentary

90% of SCQ respondents believed that greater knowledge sharing would be beneficial. However, 57% of respondents believe SIMS needs further development before it can be effectively used. Despite this, all SSI participants believed that a SIMS style computer system could be used for the sharing of knowledge. This finding demonstrates yet another linkage to the work of Davies et al (1989) in that respondent’s attitude towards use of the system would increase if ease of use and usefulness are improved.

The FG confirmed that relationship; communication and the unwillingness of individuals to share acted as barriers to knowledge sharing. The FG also identified a fundamental misunderstanding of the reasons why knowledge should be shared as a substantial barrier to knowledge sharing.
Revised Conceptual Framework

**Policy and Practice Content**

- **Outer Context**
- **Source** (organisation, social network unit)
- **Recipient** (organisation, social network unit)
- **Relationship Characteristics**

**Communities of Interaction**

- **Perceived Usefulness**
- **Perceived Ease of Use**
- **Attitude towards use**
- **Technology Acceptance**
Chapter 5 – Conclusions

Introduction

The following conclusions have been drawn from the findings presented in chapter 4 and are discussed in relation to the elements of the conceptual framework. They are presented in order of importance with the most important first.

Policy and Practice (Legislation and Guidance)

The absence of a knowledge sharing protocol appears to act as a significant barrier to knowledge sharing. Whilst required by law, the government's assumption that knowledge will be shared on a voluntary basis has lead to the creation of confusion and inconsistency, which has acted to preclude some authorities from sharing knowledge at all. However, even if this were resolved, audit is still viewed as being of greater importance and therefore greater time is allocated to those functions that are subject to this. This is unlikely to change unless a greater emphasis is placed upon knowledge sharing as a method for improving performance or the legislation was made auditable.

Despite evidence to suggest that SIMS is capable of meeting the requirements of the Regulators Compliance Code, there is still a degree of scepticism as to its effectiveness. However, this it is believed is due to the limited number of people using the system rather than the system itself. Any system designed to meet the requirements of the Code will be limited in its effectiveness, unless the majority of ports use it. Whilst the system is voluntary this is unlikely to happen however,
results indicate that people would be more likely to adopt the system if introduced by a government or international organisation.

Communities of interaction (Communication Methods)

A range of communication methods are used by PHAS to share knowledge, however in the absence of SIMS, there is evidence to suggest that these methods are only sufficient for the sharing of knowledge in extremes. Whilst SIMS was viewed as a poor system when used alone or alongside other communication methods, it appears that SIMS as a concept is correct. Support for the creation of a simple website was evident as an alternative to SIMS but based upon the same principles.

There is evidence to suggest that a computer system such as SIMS is incapable of being used for the sharing of both tacit and explicit knowledge. This is concurrent with previous research and suggests that alternative mechanisms are required for the sharing of this knowledge. However, even if alternative mechanisms were provided it is expected that only a limited number of people would be willing to share this knowledge with others.

Relationship Characteristics (Relationship)

The relationship between authorities has been identified as another significant barrier to knowledge sharing. This appears to result from competition, lack of trust, political issues and to a certain extent, the relationship between APHA and non APHA members. However, this barrier is less evident where a risk to
health exists. Whilst a SIMS style system was not considered capable of overcoming this barrier there is evidence to suggest that relationship factors would not taint the way in which knowledge was viewed when stored upon a computer system such as this. This implies that whilst relationship barriers exist they would not be exacerbated by a computer system.

**Recipient (Other Authorities)**

There is evidence to suggest some ports share knowledge regularly; however the frequency of knowledge sharing appears to depend largely upon the port. There is also evidence to suggest that barriers act to prevent knowledge from being shared.

Another important barrier appears to result from authorities’ inability to capture and store knowledge relating to ships, which may enter their port in the future but are not imminently due. This appears to have resulted in only extremes of knowledge being shared, due to the impracticability of sharing all knowledge. Despite SIMS being designed to overcome this barrier, it appears there are not currently enough authorities using the system for it to be successful. In addition, those authorities that have subscribed to it do not appear to be utilising this feature. However, there is evidence to support the creation of a simple web based programme to enable the storage of this knowledge.
Source (Your Authority)

Evidence suggests whilst some authorities share knowledge on regularly, this is restricted only to the sharing of knowledge in extremes. This also appears to be true for those authorities subscribing to SIMS as there only appears to have been limited use of the system.

Organisational culture appears to influence the sharing of knowledge in some authorities. Evidence suggests that this is as a result of low levels of trust and a belief that knowledge is power. However, it appears that this is not true for all authorities.

Outer Context (Social, Environmental, Political)

Whilst identified that knowledge sharing would become more important in the current economic climate, it was considered that the cost of doing so would prevent knowledge sharing from occurring. However, evidence suggests authorities would be able to justify the cost of a knowledge sharing system, if it could demonstrate that it enabled authorities to effectively target resources.

It appears authorities would be more likely to subscribe to a computerised knowledge sharing system if it was introduced by a government organisation as it is felt that this would lead to a greater degree of consistency, especially if introduced worldwide.
Perceived Usefulness (Usefulness)

There appears to be a direct link between perceived ease of use and actual use of the system. However, although SIMS is considered not effective and difficult to use there is general support for the creation of a computer system as a tool for knowledge sharing.

Perceived Ease of Use (Ease of Use)

Evidence suggests the sharing of all knowledge from ship inspection would be extremely difficult. Although introduced to assist with this, SIMS is considered to be difficult to use and as a result has prevented a number of authorities from using the system.

Attitude Towards Use (Opinion)

Despite overall support for a computerised knowledge sharing system, there is scepticism as to the ability of SIMS to effectively do this. Evidence suggests that although greater knowledge sharing between PHAS would be beneficial, SIMS needs further development before it can be used successfully.

In addition to those barriers already discussed, there is some evidence to suggest that both a misunderstanding of why knowledge should be shared and the unwillingness of individuals to share act as barriers in the knowledge sharing process.
Suggestions for further research

Further research is required on the relationship between individual port health authorities and how relationship barriers can be overcome.

More in depth research is required as to the creation of a web based system for knowledge sharing including what knowledge should be included and how this should be presented.

Additional research is required in relation to the sharing of knowledge on an international basis to achieve consistency with ship inspection across the world.

Additional research is required into how tacit knowledge can be shared between authorities.

Research into the feasibility of PHAs falling under the jurisdiction of one government department (or interdepartmental committee), to streamline governance, information sharing and associated auditing.

Mortality

Prior to conducting the semi-structured telephone interviews and focus group the SIMS system was withdrawn. As a result of this, these research methods were used to assess how, in the absence of this system, authorities would share knowledge and weather the system could have been a successful tool for knowledge sharing.
Chapter 6 – Recommendations

The following recommendations are presented in order of importance, with the most important first.

1. A knowledge sharing protocol should be developed to establish exactly what knowledge should be shared between authorities and the reasons for this. This would remove any confusion and work to achieve consistency between authorities within the UK. Ideally this should be produced by, or in conjunction with, those agencies responsible for governing port health (such as the FSA and WHO). The APHA should lead on this project, working closely with these organisations and PHAs to provide a clear, workable agreement. An agreed risk assessment document, defining the criteria for ship inspection, may assist authorities to justify the time taken to share knowledge by allowing resources to be accurately allocated as a result.

2. Devise a memorandum of understanding (MOU) to develop a common line of action between PHAS. This should be drafted by APHA in association with PHAs to commit these authorities to a minimum level of knowledge sharing. PHAS that are APHA members should be required to adhere to this understanding as part of membership terms, those who are not members may choose to sign an agreement.

3. The APHA should lobby the organisations responsible for port health (i.e. FSA, Department of Health, WHO), to provide detailed guidance on the mechanisms by which they expect knowledge to be shared. The
The provision of such guidance would assist a consistent approach to knowledge sharing across PHAs and provide a foundation on which a system of knowledge sharing can be developed and used by all authorities. This guidance would also seek to address the problem of some authorities choosing not to share knowledge at all.

4. Undertake an audit of available communication systems (including the APHA website) to establish their ability to act as a community of interaction for knowledge sharing. Consideration should be given to SIMS to establish if this system could be salvaged and amended to effectively meet the needs of PHAs, in a way that is simple and easy to use. An analysis of the costs associated with re-establishing SIMS should be considered alongside the costs of developing a new system. A consultation document should be sent to PHAs in the UK with recommendations, resulting from the review. This document should include projected costs and benefits associated with the use of any system and seek to gain the views of those who would be using the system.

5. Establish what aspects of the knowledge sharing protocol can be achieved via electronic communication. Consideration should also be given as to whether it is possible to share all knowledge via one system or if supplementary mechanisms are required.
6. The APHA should develop an electronic communication system to be used in conjunction with existing communication systems, for the sharing of knowledge. This system could be used by PHAs to implement the risk assessment system, allowing effective allocation of resources and offsetting the cost of signing up to any such system. It may be beneficial to initially limit the amount of information shared on such a system to make the system easy to use.

7. The APHA should consider a mechanism by which to encourage all member (and non member where possible) authorities to adopt the electronic communication system. This may result from the association making the systems subscription fees part of annual membership fees. This would require careful consideration as to the elasticity of demand (i.e. how sensitive is the demand for the product) as an increase by too much could lead to a reduction in the number of APHA members. However, if the electronic system is considered effective at allowing the targeting of resources thus resulting in cost saving, or improving the service/speed of service offered authorities may be willing to pay more.

8. A review should be conducted of the port liaison networks (PlaN), to establish why some are more successful than others. Findings of this review should be used to improve those networks that are failing, thus providing a forum for relationships to be built between authorities.

9. Consideration should be given as to the provision of training relating to knowledge sharing and its requirement by law.
10. The APHA should lobby the government to raise the profile of PHAs. Local government reform has lead to authorities being unable to allocate the resources required to the PH function with many authorities focusing their efforts upon imported food over ship inspection as a result. By raising awareness of the importance of PH to central government, additional resources may be made available, thus allowing ship inspection to become a greater priority.

The following implementation plan (Exhibit 12) provides an outline of the actions required, estimated costs involved and timescales required.
<table>
<thead>
<tr>
<th>Task No.</th>
<th>Task</th>
<th>Actions</th>
<th>Lead Person</th>
<th>Time Required</th>
<th>Expected Completion Date</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>To develop a knowledge sharing protocol in order to remove confusion and create consistency between PHAs.</td>
<td>1. Contact agencies responsible for PH and seek assistance in producing a protocol to meet the requirements of legislation. 2. Seek the involvement of PHAs in the UK. 3. Develop draft protocol. 4. Consultation of PHAs on the draft protocol 5. Presentation of final document to the APHA board.</td>
<td>APHA Chief Executive</td>
<td>6 months</td>
<td>1st January 2012</td>
<td>£4038 est. Cost of 1 full time staff member for 6 months £1923 est. Cost of Chief Executive for 2 weeks £250.00 est. stationary cost £500.00 est. travel expenses £262.80 est. telephone and Internet. £100.00 est. postage</td>
</tr>
<tr>
<td>2.</td>
<td>Develop a risk assessment document, allowing PHAs to effectively target resources via use of knowledge sharing</td>
<td>1. Develop draft risk assessment in conjunction with PHAs across the UK. 2. Consultation of PHAs on the draft protocol. 3. Presentation of final document to the APHA board. 4. Seek agreement of PHAS to use risk assessment.</td>
<td>APHA Chief Executive</td>
<td>6 months</td>
<td>1st August 2012</td>
<td>£4038 est. Cost of 1 full time staff member for 6 months £961.54 est. Cost of Chief Executive for 1 week £250.00 est. stationary cost £500.00 est. travel expenses £262.80 est. telephone and Internet. £100.00 postage</td>
</tr>
<tr>
<td>3.</td>
<td>Develop a MOU between PHAs for knowledge sharing</td>
<td>1. Develop draft MOU 2. Consultation of PHAs on the draft MOU 3. Amend APHA terms of membership and present to board. 4. Roll out MOU to PHAs.</td>
<td>APHA Chief Executive</td>
<td>6 Months</td>
<td>1st January 2012</td>
<td>£4038 est. Cost of 1 full time staff member for 6 months £2884.00 est. Cost of Chief Executive for 3 weeks £250.00 est. stationary cost £500.00 est. travel expenses £262.80 est. telephone and Internet. £200.00 est. postage</td>
</tr>
</tbody>
</table>
4. **Undertake a review of available communication systems**

| 1. | Identify existing communication systems that are capable of being manipulated in order to act as a community of interaction for knowledge sharing. |
| 2. | Consider if SIMS can be used to fulfill this requirement. |
| 3. | Undertake a cost based analysis for each communication system taking into account the cost of establishing the system and the projected cost to users. |
| 4. | Produce a consultation document, to be sent to all authorities, detailing available options and the projected benefits and cost of each system. |

**APHA Chief Executive**  
6 Months  
1st August 2012  
£16,153 est. Cost of 1 full time staff member for 6 months  
£2884.00 est. Cost of Chief Executive for 3 weeks  
£250.00 est. stationary cost  
£500.00 est. travel expenses  
£262.80 est. telephone and Internet  
£200.00 est. postage costs

5. **Establish what needs to be included in any knowledge sharing system.**

| 1. | Conduct research in order to assess what should be shared via a knowledge sharing system (seeking views of PHAs and compliance with the law). |

**APHA Chief Executive**  
3 Months  
1st August 2011  
£8076 est. Cost of 1 full time staff member for 3 months  
£961 est. cost of chief executive for 1 week  
£131.40 est. telephone and internet

6. **Develop an electronic communication method, to be used alongside other available communication systems.**

| 1. | Develop a communication system using the results of the consultation document. |
| 2. | Pilot communication system |
| 3. | Amend as required |
| 4. | Launch system |
| 5. | Provide training on how to use the system. |
| 6. | Review after 6 months |

**APHA Chief Executive**  
12 Months  
1st July 2012  
Not yet known. Cost should be limited in order to reduce the on costs to the user who in the current economic climate would need to justify the cost against projected benefits’. Lower cost are likely to encourage a greater number of users.

7. **Review Port Liason Networks (PlaN)**

| 1. | Contact secretary of each network to discuss how effective the network is currently in terms of attendees etc. |
| 2. | Visit each network to assess the similarities and differences alongside areas for improvement and good practice. |
| 3. | Assess feasibility of network and implement changes where required. |

**APHA Chief Executive**  
3 Months  
1st July 2012  
£800 travel costs  
£450 hotel fees  
£100 food/subsistence  
£1923 est. Cost of Chief Executive for 2 weeks  
£8076 est. Cost of 1 full time staff member for 3 months
|   | Develop training for PHAs on knowledge sharing | 1. Devise training course  
2. Arrange speakers  
3. Arrange venue  
4. Invite PHAs  
5. Hold training event | APHA Chief Executive  
1 month  
1st July 2012 | The course should be organised on a low cost basis with the aim of covering APHAs expenses. |
|---|---|---|---|
2. Establish committee to lobby government.  
3. Contact ministers. | APHA Chief Exec  
Ongoing  
Ongoing | Unknown at this time |
Appendices

Appendix 1 – Letter to Accompany Self Completion Questionnaire

Dear Colleague,

Re: MBA Research

I am currently in the final year of my Masters in Business Administration at Bolton University. For my dissertation I am conducting research into knowledge sharing between port health authorities. The study focuses specifically upon the knowledge gained from ship inspections and aims to identify the current level of knowledge sharing, the barriers which prevent knowledge from being shared and the effectiveness of the Ship Inspection Management System (SIMS) as a tool for the sharing of knowledge.

As part of my research I have chosen to distribute a questionnaire to each Port Health Authority within the UK for the Chief Port Health Officer/ manager to complete.

It would be greatly appreciated if you could spare the time to complete the attached questionnaire. The questionnaire will take approximately 5 minutes to complete.

Questionnaires are completely anonymous and any information provided will be treated in the strictest confidence. It will not be possible for anyone to identify your individual response and all information provided will be used only for its intended purpose of answering the research question.

Please answer each question by placing a tick in the box provided. Additional comments may be made in the box on the final page. Once complete please return using the enclosed stamped address envelope.

I am also hoping to complete a number of telephone interviews in order to explore further the answers provided in the questionnaires. If you would like to take part in a telephone interview please contact me via the email address below.

Yours sincerely

Andrea Smith

andreasmith@manchesterpha.org.uk
Appendix 2 – Self Completion Questionnaire

The purpose of this questionnaire is to ascertain your views on knowledge sharing and the use of SIMS as a tool to facilitate this. Please read each question carefully and tick the answer that most accurately reflects your view.

About your authority

How many port health officers/ technical officers does your authority employ?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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<tbody>
<tr>
<td>1-5</td>
<td></td>
</tr>
<tr>
<td>6-10</td>
<td></td>
</tr>
<tr>
<td>10+</td>
<td></td>
</tr>
</tbody>
</table>

Is your authority a member of APHA?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

Section 1 – Current level of knowledge sharing

1. Please rate the extent to which your authority shares knowledge with other port health authorities.

<table>
<thead>
<tr>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Regularly</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Please rate the extent to which other port health authorities share knowledge with you/your authority (please tick as appropriate).

<table>
<thead>
<tr>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Regularly</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3. What communication methods do you currently use to share knowledge with other port health authorities? (please tick all that apply)

<table>
<thead>
<tr>
<th>Method</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone</td>
<td></td>
</tr>
<tr>
<td>Email</td>
<td></td>
</tr>
<tr>
<td>Internet</td>
<td></td>
</tr>
<tr>
<td>Sims</td>
<td></td>
</tr>
<tr>
<td>Meetings</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

If other please specify _________________________________________________

4. Are these communication methods sufficient for sharing the knowledge gained from ship inspections?

<table>
<thead>
<tr>
<th>Response</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

If the answer is ‘no’, why not? (Otherwise please go to question 5)

____________________________________________________________________

____________________________________________________________________

5. How has the introduction of legislation and guidance (such as the Hampton Report/Regulators Compliance Code) impacted upon the amount of knowledge that is shared between port health authorities?

<table>
<thead>
<tr>
<th>Impact</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The level of knowledge sharing across port health authorities has increased.</td>
<td></td>
</tr>
<tr>
<td>The level of knowledge sharing across port health authorities has decreased.</td>
<td></td>
</tr>
<tr>
<td>The level of knowledge sharing across port health authorities has not changed.</td>
<td></td>
</tr>
</tbody>
</table>

6. In your opinion, is the sharing of knowledge between port health authorities beneficial?

<table>
<thead>
<tr>
<th>Response</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>
Section 2 – Barriers to Knowledge Sharing

7. Are you aware of any barriers within your authority that prevent people from sharing knowledge?

| Yes | No |

If ‘no’ go to Question 8

If yes, please rate the following statements according to your level of agreement with them.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Within my authority, officers tend not to share knowledge they acquire.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Within my authority, individuals are reluctant to share knowledge because they view knowledge as a source of power.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The culture of my organisation does not facilitate knowledge sharing.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within my authority, the relationship between port health authorities is considered to be competitive rather than collaborative.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The communication methods available to my authority for knowledge sharing are not effective</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

8. Are you aware of any barriers that prevent other port health authorities from sharing knowledge with you?

| Yes | No |

If ‘no’ go to Question 9

If yes, please rate the following statements according to your level of agreement with them.
Port health authorities are reluctant to share the knowledge they have with other port health authorities.

The culture of port health authorities is one that does not facilitate knowledge sharing.

Port health authorities have a competitive rather than a collaborative relationship.

Port health authorities do not have an effective mechanism for the communication of knowledge between authorities.

9. Does your authority have the ability to store knowledge so that it can be re-used?

Yes
No
Don’t know

If yes, how is this done?

__________________________________________________________________
__________________________________________________________________
__________________________________________________________________

10. Please rate the extent to which you believe that knowledge sharing is influenced by the relationship between authorities?

Never | Not Really | Somewhat | Very Much


11. To what extent does the relationship between APHA and non APHA members act as a barrier to knowledge sharing?

<table>
<thead>
<tr>
<th>Never</th>
<th>Not Really</th>
<th>Somewhat</th>
<th>Very Much</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

12. In the context of the current economic climate, is money likely to become a barrier to knowledge sharing?

Yes
No
Don’t know

Section 3 – SIMS

13. Does your authority subscribe to the Ship Inspection Management System (SIMS)

Yes
No
If ‘no’ go to Question 16

14. How often is SIMS used within your authority to enter ship inspections onto the database?

<table>
<thead>
<tr>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Regularly</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

15. How often does your authority use SIMS to access other authorities’ inspection reports?

<table>
<thead>
<tr>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Regularly</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

16. In your opinion, are there enough authorities using SIMS for the system to be successful?

Yes
No
Don’t know
17. Please rate the following statements according to your level of agreement with them.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>The relationship between individual authorities has an impact upon how the knowledge shared on the SIMS database is viewed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Port health authorities are more likely to view the information stored on the SIMS database as beneficial if it is from a Port Health Authority with which there is a good relationship.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIMS overcomes the relationship barriers that exist between authorities.</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

18. How do you rate SIMS as a method for communicating knowledge across port health authorities when used:

   a) Alone?

<table>
<thead>
<tr>
<th>Poor</th>
<th>Average</th>
<th>Good</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

   b) With other methods of communication?

<table>
<thead>
<tr>
<th>Poor</th>
<th>Average</th>
<th>Good</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

19. Can SIMS be used as a communication method for sharing all aspects of knowledge gained from ship inspections?

   Yes  
   No   
   Don’t know
20. In your opinion, how effective is SIMS at enabling authorities to meet their obligations under the Regulators Compliance Code/ Hampton Report?

<table>
<thead>
<tr>
<th>Not Effective</th>
<th>Somewhat Effective</th>
<th>Effective</th>
<th>Very Effective</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

21. In your opinion, how easy is SIMS to use? (if you have never used the system please rate according to your perception of ease of use)

<table>
<thead>
<tr>
<th>Very Difficult</th>
<th>Difficult</th>
<th>Easy</th>
<th>Very Easy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

22. What is your opinion of SIMS?

| SIMS is an effective tool for the sharing of knowledge across port health authorities. |   |
| SIMS is an effective tool for the sharing of knowledge across port health authorities when used alongside other communication methods. |   |
| SIMS needs further development before it can be used to effectively share knowledge between port health authorities |   |
| SIMS is not an effective tool for the sharing of knowledge between port health authorities. |   |

23. How does your authority plan to use SIMS in the future?

| The authority plans to continue using SIMS |   |
| The authority plans to stop using SIMS |   |
| The authority plans to start using SIMS |   |
| Other |   |

If other please state:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
If you have any additional comments in relation to this questionnaire please place them in the box below.

Thank you for taking the time to complete this questionnaire.

Please return to: Andrea Smith, Manchester Port Health Authority, Dutton House, 46 Church Street, Cheshire, WA7 1LL
Appendix 3 – Semi-Structured Interview

Objective one – Current level of knowledge sharing

1. In order to comply with the International Health regulations it is often necessary for port health authorities to share knowledge with other port health authorities. An example of this may be where there has been a crew member suffering from a disease that is notifiable by way of maritime declaration of health or where a control certificate has been issued and requires additional steps to be taken.

In light of this, what methods of communication are available to port health authorities to share this knowledge?

2. From your experience, how would you describe the current level of knowledge sharing between port health authorities?

3. Only 46% of responding authorities share knowledge on a regular basis. As it stands is knowledge sharing useful?

4. How easy is it to share knowledge between port health authorities?

5. When knowledge is shared with your authority is it used?

6. In the current economic climate, with local authorities are being required to do more for less, how do you think this will impact upon knowledge sharing?

Objective two – barriers to knowledge sharing

7. 41% of responding authorities believe that barriers exist which prevent their authority from sharing knowledge. In your experience, what are the barriers that you face in your authority that prevent you from sharing knowledge with other authorities?

8. 47% of respondents agree that within their authority officers tend not to share the knowledge they acquire. Can you comment upon this?

9. How would you describe the culture of port health authorities in relation to knowledge sharing?

10. 68% of responding authorities believe that knowledge sharing is influenced by the relationship between authorities. Can you comment upon this?

11. A number of authorities believe that communication methods act as a barrier to knowledge sharing. What can be done to reduce this barrier?
12. How does the complicated political environment in which port health authorities operate affect knowledge sharing in practice?

13. Whilst required by law, no detailed guidance has been provided detailing how knowledge should be shared between authorities. Does this act as a barrier to knowledge sharing?

**Objective three – SIMS as a Tool**

14. SIMS is due to be withdrawn from the 1st April 2011. In the absence of SIMS, how does your authority propose to share ship inspection knowledge with other authorities?

15. A number of the questionnaire respondents believed that SIMS was not an effective method of meeting KS requirements of the reg compliance code how could this be addressed?

16. What is your attitude towards use of a SIMS style system for the sharing of knowledge?

17. 34% of respondents believed that SIMS could be used to communicate all types of knowledge (from ship inspection). In the absence of SIMS, how will personal experience and knowledge be shared?

18. Is a computer system a useful tool in the sharing of knowledge across PHAs?

19. 69% of authorities believed that SIMS was difficult to use. If sims was easier to use would it have been more successful?

20. How do you see current economic factors affecting the use of the SIMS system?
1. The main barriers, identified within this study, that prevent port health authorities from sharing knowledge with each other are: the relationship between authorities; communication methods and unwillingness of individuals to share knowledge. What is your opinion of this?

2. In the main, authorities that do share knowledge for shipping only share knowledge in extremes. Why is this?

3. 90% of port health authorities believed that greater knowledge sharing between port health authorities would be beneficial. How could this be achieved?

4. What can be done to overcome the relationship barriers that exist between authorities?

5. If ship inspection was auditable against the law (International Health Regulations), what impact would this have upon the sharing of ship inspection knowledge?

6. What is your attitude towards the introduction of a system for knowledge sharing, if it were introduced by a government or international organisation such as the World Health Organisation?

7. How useful is knowledge sharing currently?

8. How easy is it to share ship inspection knowledge between authorities?

9. Communication methods were identified as a barrier to knowledge sharing. What can be done to remove this barrier?
10. Relationship has been identified as a barrier to knowledge sharing. How can a system such as SIMS address this barrier?

11. How can port health authorities comply with the principles of Hampton without a system such as SIMS?
Bibliography


Maritime Knowledge Centre (2009) –“International Shipping and World Trade Facts and figures”, October 2009


