A Review of ICT Shared Services in National Standards Bodies.

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Declaration

I declare that the work described in this dissertation is, except where otherwise stated, entirely my own work, and has not been submitted as an exercise for a degree at this or any other university. I further declare that this research has been carried out in full compliance with the ethical research requirements of the School of Computer Science and Statistics.

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Abstract

This paper reviews the role of ICT shared services in National Standards Bodies similar to the National Standards Authority Ireland (NSAI) at an International level. The critical success factors together with the underlying support structures and drivers are reviewed with regard to the adoption and implementation of ICT shared services for an organisation including government and 'not for profit' organisations.

The research gathered within this study and the results of the survey and interviews in the standards community indicates that the take up of shared services across different sectors is minimal with most organisations selecting in-house based solutions serviced locally or in private/shared cloud environments.

This paper seeks to identify and analyse the future demand for ICT shared services in the standards community and also examine if the take up of shared services to date has been successful. It will also examine the impact of ICT frameworks for ICT Managers in their decision making, management and review processes of shared services solutions.

The research data is both quantitative and qualitative primary data obtained through a survey of ICT Managers from National Standards Bodies and also face to face interviews with experts in delivery of ICT services in those standards bodies.

The analysis of this data indicates that one of the key Critical Success Factors for implementation of a shared services solution is to have a clear business case and for that business case to be shared by other similar organisations with similar schedules, budgets and ICT structures. This is reviewed further as part of the literature reviews and analysis of survey data and structured interviews within this paper.

The impact that using shared services has on both the internal structures and on the management styles is also reviewed and the study shows that while similar structures will assist in collaboration projects it is still not the main recipe for success. In other words without a common business case ICT management structures have no impact.

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List of Tables and Diagrams

Abbreviations

ICT	Information and Communications Technology
DJEI	Department of Jobs Enterprise and Innovation
NSAI	National Standards Authority of Ireland
NSB	National Standards Body
ISO	International Standards Organisation
IEC	International Electrotechnical Commission
CENELEC	European Committee for Electrotechnical Standardization
CEN	European Committee for Standardization
CIO	Chief Information Officer
EFTA	European Free Trade Association
SSC	Shared Services Centres
CSF	Critical Success Factor
NPO	Non-Profit Organisation
ETSI	European Telecommunications Standards Institute
HRSS	Human Resources Shared Services
HR	Human Resources
COBIT	Control Objectives for Information and Related Technologies
ITIL	Information Technology Infrastructure Library
CU	Credit Union
TCD	Trinity College Dublin
NZACU	New Zealand Association of Credit Unions
SSAAS	Shared Systems as a Service
SLA	Service Level Agreement

1.   Introduction

This research is an investigative study into the role of ICT shared services in National Standards Bodies at an international level and examines what the critical success factors are to establish a better framework for integration of shared services into existing IT service delivery models.

In the context of National Standards Bodies, shared services means the sharing of ICT infrastructure and resources meaning underlying ICT software, hardware and services between two or more bodies.

1.1   Research Question

This research will attempt to identify the critical success factors for ICT shared services within national standards development authorities. It examines the current status of existing shared services within the standards community and assesses if they have succeeded according to original objectives. This study reveals that there is a lot of research which examines the benefits of shared services as part of the initial decision making process but it would appear that little research has been done afterwards to critically assess the true success of these services.

This study examines the alignment of shared services to existing ICT service delivery models, the changing role of the ICT manager in the context of shared services and the growing impact of outsourced cloud services on the in-house shared services model.

This research is based on the above definition of ICT shared services and the focus of the research is on this type of shared service for standards bodies at an international level.

1.2   NSAI background Information

The National Standards Authority of Ireland (NSAI) is Irelands National Standards Body the following background information about NSAI will provide the reader with an insight into the objectives and functions of a typical NSB.

NSAI was setup as a public sector authority and is currently reporting in to the Department of Jobs, Enterprise and Innovation (DJEI). It was established by the Government as an independent statutory body on 14th April 1997 under the National Standards Authority of Ireland Act, 1996. NSAI (2015a)

The NSAI mission statement is:

> 'NSAI enables innovation, promotes trade, facilitates fair competition and
>
> protects consumers through measurement accuracy and the development,
>
> promotion and application of standards'
>
> NSAI (2015, p14)

The NSAI Strategic Plan, 2013-2015, NSAI (2015c) reports that the Authority provides services under a broad spectrum of activities and regimes, ranging from regulatory / enforcement services, public policy to commercial. The four main operational functions are;

> Standards
> Legal Metrology Services (Weights and Measures)
> Certification (including a US subsidiary)
> National Metrology Services

The main function of interest for this research is the Standards function which is also known as a National Standards Body in terms of the European (CEN/CENELEC) and the International (ISO/IEC) Standards bodies.

NSAI (2015) state that Standards are a set of criteria to ensure that products and services are designed to meet agreed minimum thresholds. Areas covered by a standard are the quality, performance design and environmental impacts of a product or service. The main objective of standards development is to create trust in the marketplace for products and services.

'International standards create a level playing field for Irish businesses selling into European and global markets. They help to facilitate international trade and enhance consumer confidence in products and services' NSAI (2015b, p16). The trust that standards create is essential to trade and that is why standards are so important to the Irelands enterprise and trade infrastructure.   Trust is ensured through the certification of a product or service against the agreed standard. This in turn lets the customer know that the product or services they wish to purchase has reached an acceptable level of quality. It offers protection to the business and also helps to instil confidence for the consumer overall.

This trust in products and services forms the foundation or 'pillars' of a healthier market which in turn helps to stimulate trade between domestic and overseas markets. Certification to standards is not always mandatory by law but it may be a stipulation of government contracts that the service or product complies with a given standard such as ISO9000. The authority reports also that the certification of standards has become more of a voluntary process in recent times with businesses participating in this process as a form of self-regulation. They state that the focus is now more on continuous improvement than strict compliance at a particular point in time with the needs of the customer and consumer being central. NSAI (2015a)

The removal of trade barriers is a key aspect of the work that NSAI carries out in conjunction with the Irish Government through its support of the Department of Jobs, Enterprise and Innovation.

Most of the standardization of products and services is voluntary but there are still some products and services that must comply with a European Directive under Irish Legislation. The purpose of these standards is to protect the public and the employee and they cover areas such as compulsory safety standards, Standards referenced in Statutory Instruments, Toy Safety Standards and Food Hygiene Standards. NSAI are the only authorised body in Ireland to perform those functions.

At a national level NSAI (2015a) states that they develop standards through a consultative process, which usually involves the following stages:

- Identify the need for a standard
- Define the scope of the standard
- Achieve consensus through consultation with other interested parties
- Publishing agreed standards
- Issue certification.

The process which involves the determination of standards must include the views of all stakeholders. The stakeholders involved depend upon the product or service under scrutiny but these might include Industry, Manufacturers, Distributors, Consumer groups, Governmental organizations and Research organizations.
Consensus on standards is achieved at a national level through a collaboration and consultation process. Consultative committees are formed which comprise of representatives across various sectors such as Accessibility, Construction, Electrical, Energy, Environmental, Food, Gas, Health, Health & Safety, Information & Communications Technology and Management Services. NSAI facilitate this process and ensure that there is a fair representation of stakeholders in the development process.

NSAI collaborates with industry and other similar bodies in standards development at both a European and International level and is a member of the European standards bodies (Cen , Cenelec) and also the International standards bodies (ISO , IEC). They also work closely with the European Free Trade Association (EFTA) and the European Union.

The product range covered under this standardisation process is extensive covering Toys, Pressure vessels, Electrical and electronic products, Building products and Industrial machines.

Standards are continually evolving as new information comes to light and new processes and products are developed so NSAI and the other NSBs are continuously collaborating together with industry in the development of new standards and sale of related standards.

1.3   ICT Systems background

National Standards bodies have a common goal to work together and work with local industry to develop and improve the overall standardisation internationally so it makes sense that they use the same ICT systems across all NSBs to achieve the goals and objectives.

Historically NSBs were setup with similar guidelines, procedures and reporting lines and links into the international (ISO/IEC) and European standards bodies (Cen/Cenelec) but over time local procedures and IT systems have evolved leaving a network of devolved standards bodies with independent structures and separate systems.

The adoption of the internet as a trusted means of data communication over the past 20 years has opened up opportunities for increased sharing of systems and a small number of strategic shared services systems have been developed and successfully released within this standards community over the past 10 years.

ISO (2015) have been the main provider of this service using their existing systems as the central model for the development of shared services systems to support national

standards bodies. The take up on these ISO based shared services systems (known as ISOlutions) has been highest for start-up NSBs from developing countries.

1.4   Why research shared services for national standards bodies?

This research is important in order to assess the overall status of shared services within the standards community and to understand why some shared service solutions are more or less successful than others. In this way Standards bodies can build on each other's experiences and work together better in line with the overall goal and objective of standards in the real world of business, public services and home communities. The processes and objectives of each NSB are very similar so it makes sense to work more closely together and share systems however this is not happening as a norm for most standards bodies so the question is why and what needs to be done to make shared services work.

It is worthwhile understanding how different key organisational factors such as the maturity of an organisations ICT framework, the role of the CIO and the decision making structure of an organisation can affect the success or failure of a shared services implementation.

It is also interesting to examine the relationship between shared systems and cloud or outsourced solutions and further examine the impact these delivery models and infrastructures have on the success or failure of a shared services solution.

All of this research can therefore lead to a better understanding of the way in which standards bodies currently operate their ICT systems and how their supporting ICT operations might be improved.

1.5   Scope and Limitations

The overall scope of this research paper is to review how shared services has been adapted and integrated into similar organisations and to analyse how successful the

shared services model has been for them. It will also analyse how successful it could be for national standards bodies in the future.

The survey and interviews will also provide a detailed insight into the current status of shared services systems in NSBs together with their supporting structures and future plans.

The main limitations of this study are the time and number of bodies to be included for practical purposes.

1.6   Roadmap of Chapters

Chapter 1 introduces the research topic and provides all the relevant background information on the research area. It describes the primary research question and associated sub-questions.

Chapter 2 is the literature review section and includes any relevant recent literature in the research field. By reviewing previous literature it develops a thorough understanding of what is meant by shared services and previous research in relation to the role of shared services in organisations and in particular government and not for profit (NPO) organisations. It critically analyses previous research and literature sources on management frameworks and critical success factors that are essential in the adoption of a shared service model.

Chapter 3 describes the methodology used to answer the research question. It provides details of the methodologies used/rejected and their underlying philosophies and appropriateness for this level of research. It describes how both the quantitative and qualitative primary data was obtained through an online survey and face to face interviews with selected NSBs.

Chapter 4 explains how the data from the research was analysed and interpreted. It

reports the findings of both the quantitative and qualitative research. Data from the survey and structured face to face interview is analysed and overall results are displayed in this section.

Chapter 5 contains the conclusions and identifies areas of commonality across standards bodies. It lists out some interesting new findings and sets out some future research possibilities.

2.   Literature Review

The purpose of this literature review chapter is to develop a detailed understanding of what is meant by shared services and to examine previous research in relation to the role of shared services within organisations similar to standards development bodies and 'not for profit' organisations at an international level.

The definition of shared services along with the critical success factors to standards development organisations will be researched and analysed.

This review will also focus on the decision making process for CIOs/IT Managers and possible frameworks aligned to ICT governance. The impacts of shared services on the traditional and current role of IT Managers including cost efficiencies will be analysed. The challenges facing shared services from alternative options other than in-sourcing such as cloud and outsourcing will also be researched and summarised based on published literature.

2.1   Defining shared services

According to Borman/Janssen (2012) Shared Services can be defined that instead of similar back-office services being provided at the level of individual business functions or units, they are aggregated within a single area and provided across the organisations.

Schulman et al (1999:9) also further define ICT Shared Services as a concentration of company resources performing similar functions with the sole purpose to reduce cost, improve efficiencies and at the same time delight the customer and enhance corporate value.

However while Schultz et al (2009) believes there has been a lot of interest in IT shared services over the period 1999 to 2009, he also maintains there was has been no attempt to provide an authoritative definition of the term Shared services. McBride et al (2013)

used this research from Schulman and Schultz above as the basis for examining managerial decision making in information technology shared services in Public Sector entities which will be used in this paper also to assess the decision making framework for both introducing, monitoring and assessing the benefits and success of IT Shared Services to an organisation.

It is important also to distinguish between outsourced and shared services. According to Corradini, (2005) outsourcing is a service provided by an independent third party, while a shared service is a proper function within a corporate group or a single organisation.

Shared Services is not a new concept and has been long used in both private and government based organisations worldwide. Ruggini (2006) reports that the earliest instance recorded was ,in 1961, when the Federal Advisory Committee on intergovernmental relations defined the term shared services specifically for government based organisations as cooperation at a local level using formal written contracts or informal verbal agreements.

These different definitions between outsourcing and shared services emphasise that unlike outsourcing, a shared service centre keeps the expertise and control within the organisation in a single central environment. Cloud computing covers both private and shared infrastructures and as such supports both outsourcing and shared services. Hodgkinson (2011) indicates that Cloud computing is the key to the growth and take-up of IT Shared Services and this will be assessed further as part of this paper.

2.2   Critical Success Factors for ICT Shared Services

Borman/Janssen (2012) asserts that Shared services have been heralded as a means of enhancing services and improving the efficiencies and as a result they have been embraced by the private sector and more recently the public sector. They report that implementation has proved to be difficult and the number of success stories has been limited. So far they do not full understand which factors are critical to success in the

development of these shared services arrangements. It appears from this that there will always be an overlap in the list of critical success factors for delivery of an IT solution whether it is a shared service solution or not so the first step will be to review existing literature for the CSF for all ICT projects and then remove/add to that list with regard to ICT shared services.

Bergeron (2003) claims that 50% of fortune 500 companies have established some form of shared service and an example of a success story from that review is from Myers Squib who claimed savings of $1.5 billion. There are also success stories from Reuters who achieved cost savings Rayner (2006) and Ford who reduced their finance department staffing from 14,000 to 3,000 - all from the introduction of shared services.

Previous research carried out by Borman/Janssen(2012) in defining and understanding the critical success factors for ICT shared services break it down into 3 categories:

Outcome
Process
Operating Environment

In their comparison of 2 case study organisations from the education sector the CSFs were further broken down and they conclude it is possible to identify and classify CSF's according to the three domains of outcome, process and operating environment regardless of contrasting objectives.

The Outcome success factors were broken down into the factors that were needed to deliver the outcomes e.g. a common requirement for a transaction based service offering with standardised processes. The Process success factors were grouped into the success factors that were needed to support the process at all stages such as committed senior leadership and evolutionary approach to rollout. The Operating Environment success factors were management structure, governance and cost management. The analysis of the two case studies showed that there were 13-15 different success factors which could

be grouped under these three main domains. There were seven similar factors but there
were also significant differences overall. The main difference was their originating
objectives with one focusing on efficiency and the other focusing on innovation which in
effect were opposite types of objectives. The study showed that it was possible to classify
critical success factors into the above three domains even though the success factors and
originating objectives were not the same.

2.3   Decision Making structures as a Critical Success Factor

Bozeman & Pandey (2004) report that managers must make crucial decisions on a daily
basis in both public and private sector which indicates that the decision making structure
and the processes are effectively key to how well the organisation works. However Nutt
(2005) noted that, while decision making in the private sector is smooth, within the public,
it is full of turbulence and distance. This research is very relevant when assessing the use
of shared services in standards organisations as most of the organisations are primarily
not for profit bodies or have structures that are rooted in public sector structures. NSAI is
a public sector body but not all standards bodies included in this research paper are public
sector bodies now.

The strength of the management decision making within organisations is also cited by
McBride/Hall/Okwaro (2013) as a critical success factor in the selection stages of a
shared services solution. Schwenk (1990) refers to three levels of management involved
in the decision making: Corporate, Tactical and Operational.

He states that in the private sector Corporate level decision making is with the Board of
Governors and the chairperson of the company; Tactical level decision making is with HR
Managers, ICT Managers, Operating Managers, Marketing Managers while Operational
level decision making is with supervisors team leaders and foremen. In the public sector
Corporate level decision making is with politicians such as ministers and government
secretaries; Tactical level decision making is with public sector managers and department
heads; Operational decision making is with team leaders and supervisors. Based on this

research by Schwenk (1990) it implies that the functions of tactical level managers is to
make tactical decisions based on competitive market but in the public sector according to
Dillon (2002) the legislative mechanisms and budgetary constraints also determine the
decision making process in public sector bodies. In this type of climate Bozeman &
Pandey (2004) claim they may have reason to work together or collaborate in different
areas in order to achieve their common objective which should in turn provide a common
improved service to the public as directed by its elected government. It implies therefore
that managers of these public sector bodies need to have common structured decision
making structures in order for shared services to succeed.

McBride et al (2013) review how decision making is the key to success of shared services
and in particular for working with other public or private sector bodies. Romzek and
Johnston (2002) report that success factors may be internal, external or personal but in
the case of public sector bodies they are subject to a lot more scrutiny from their
stakeholders.

This research on decision making in both public and private bodies implies that the
likelihood of private bodies being involved in shared services is low unless there is an
umbrella organisation imposing it. The likelihood of shared services between public
sector bodies should be higher though because of the common organisational objectives
and goals. This will be reviewed further in the case of standards bodies by identifying
common goals in order to define/assess their likely or historic successful outcomes in a
shared services project.

2.4   Frameworks for ICT Shared Services

Crump/Raja (2014) tried to assess the suitability of different service delivery models in the
face of economic pressures for Non Profit Organisations (NPO's) in the Wellington district
of NZ and their paper examines the readiness of 8 NPO'S in Wellington NZ to participate
and build on ICT shared services.

Feedback on shared services in the selected NPO's was gathered through the means of a quantitative survey under the following headings and with 8-10 key questions under each heading:

- Drivers
- Benefits
- Barriers
- Priorities
- Willingness to pay

This study highlighted the importance of not only establishing and agreeing the critical success factors up front but also of reviewing the success of shared services afterwards in the same way that projects/systems undergo post-implementation reviews.

It also highlighted the importance of setting time limits on these services too. The feedback from the NPO's indicated that they were favourably disposed towards shared services however based on this report there was no progress up to 2 years after the report.

It may highlight again that more incisive questions must be asked before deciding if a shared service can start and ultimately succeed. In the case of this study there was a need to follow up with face to face interviews in order to assess the true interest in shared services.

Murphy (2013) in his paper about the 'Application of Technologies and Organisational Forms to Government-Wide IT Initiatives' has put together a set of guidelines and recommendations based on his widespread research and practical experience in the IT sector. In particular his work on community computing (also known as Communities of Interest) can be used to establish a framework to assess, integrate and review Shared Services in the same way. In summary the recommendations from his advisory note are:

- Explore possibilities within existing communities of interest
- Build new environment incrementally

- Ensure appropriate governance structures are in place
- Ensure appropriate skilled resources are in place to provide support
- Seek out quick wins to get initial support – e.g. projects that give high payback, high visibility and are quickly implemented

The setup of a community of interest is therefore recommended and should be the foundation step when trying to implement or review shared services options. In the case of the standards community this network is represented by the European standards bodies Cen, Cenelec, ETSI and the International Standards Bodies ISO, IEC. The key to the success of any shared services within the standards community is to provide these services by building on the success of existing communities of interest. These communities are well established in the standards community and are already providing a platform for use of shared services as will be reviewed later in this paper.

Joha/Janssen(2014) examine the factors influencing the shaping of shared services business models and propose the use of a shared services business model rather than the generally accepted homogenous business model. The assumption being that all bodies have the same business model but in terms of shared services a shared services business models has to be agreed comprising of factors such as path dependency, legal/regulatory driver, customer orientation, target segment, strategic importance, ICT/business orientation, IT Governance structure, change strategy, degree of outsourcing, Integration potential, economic rationale and business value.

2.5 The impacts of shared services on the role of the CIO

Hodgkinson (2011) asks if your CIO is mature enough for shared services and this is the key question to be analysed further. He purports that it is too easy to turn to shared services and centralisation as the supposedly easy way to reduce costs and argues that the logic of consolidation, rationalisation and economies of scale is undeniable but making new organisational relationships work is another matter. He also cautions that an ICT Shared Services strategy will highlight weaknesses in a government's ICT organisation as part of the bottom line review.

Based on this analysis it would appear to be recommended that the strategies and current role of the CIO should be reviewed to assess their maturity and readiness to participate and be successful in a shared services arrangement. Smith in his book 'Straight to the Top: Becoming a world class CIO' outlines what the modern CIO must be and it essentially covers every key leadership and management skill as follows:

- The CIO has to have the ability to understand the business in detail and also know how technology can both support and enhance it.

- The CIO has to understand the business thoroughly and should sit on the board of directors with shared responsibility for profit generation/sustainability.

- The CIO develops and owns the ICT Strategy and must communicate it to the business unit and ICT staff as the roadmap for all ICT projects and activities within the organisation. The starting point in all plans is to take stock and assess the current status in detail and also agree and visualise the future needs and from that develop a set of short, medium and long term plans to get there.

- The CIO has to understand the complete business in order to develop and maintain an ICT Strategy that is aligned to the business strategy and can also provide competitive advantage. A key part of this process is the selection and maintenance of an applications portfolio that contributes to the overall profitability of the organisation.

2.5.1 The CIO as a change manager

Shared Services introduces change within an organisation at many different levels and McCracken/McIvor (2013) address this in their analysis of the transformation of a HR function to an outsourced shared services function within the public services in the UK. This study highlighted that while organisations may benefit from using external vendors to provide HR shared services (HRSS) arrangements there is still a need for all the internal stakeholders to be fully engaged in order fulfil the strategic objectives of the organisation

and the HR function. Effectively it means, that in order to succeed, shared services system need the same level of 'buy-in' as an in-house system would need from the end-user and the business so the CIO needs to facilitate this process carefully.

The role of the CIO in each of the standards bodies in the case study of this dissertation will also be described and analysed in terms of the traditional support role through to that of the mature/modern CIO who commands a strategic role at the board table rather than at the back office/support level. Some organisations are more IT dependent and literate than others and this should be reflected in how senior or embedded their CIO role is. The role of the CIO, based on Hodgkinson (2011) research, within each standards body and in terms of the 'CIO Maturity Framework' will form a key part in the data collection and analysis of the readiness and potential successfulness of shared services for the selected standards bodies.

2.5.2 Governance and Support Level Agreements

An expected outcome or benefit of a mature CIO framework is that a clear IT Strategy will be in place that is closely aligned to the business/organisation goals   There will also be good governance ensuring that the right decisions are made at the right level with the interest of the organisations stakeholders set at a premium level,   ISO 20000/COBIT/ITIL are all recognised good practice frameworks that should be in place if companies want to work together and share resources successfully.

The commonality of good practice across the sharing organisations is a natural ingredient for success and is one that is expected across the national standards bodies.

The type of service delivery models within potential shared services group is also important to understand and assess in order to ensure success of the proposed shared service. An example of different service delivery models would be centralized and decentralized. A centralised IT service delivery model is whereby all the IT Functions for the organisations are routed through a central IT function. Decentralised is when departments each have their own IT resources and systems. Organisations with different

types of service delivery models are less likely to succeed in a shared services project because of the different cultures and decision making levels.

According to Lagace et al (2013) standards and best practice are essential in order to function in the information world. The introduction of shared services to an organisation will bring with it additional organisational changes and challenges so the foundation of success will be having a structure based on common standards and good practice.

A Standard Management System according to ISO 20000 is summarised in the diagram below based on continuous improvement model of Plan, Do ,Check, Act by the management with key inputs on the left covering New/Change/Support Requirements from the Business (Internal customers) and External Customers. The target outputs/outcomes are on the right-hand side covering fulfilment of business needs through to customer/internal user satisfaction and process improvements.
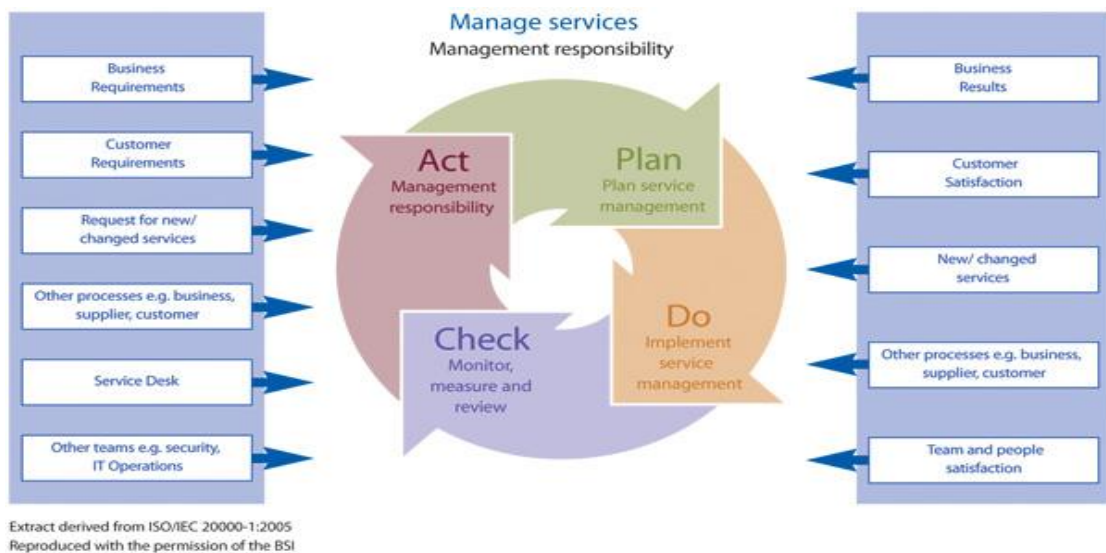

Extract derived from ISO/IEC 20000-1:2005
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Figure 1 ISO20000 Framework Chart

However even the best of governance frameworks could be challenged by shared services as revealed by Weill &Ross (2005). A loss or reduction in control would be perceived by most CIOs as the main impact on both the end user departments and the CIO. The shared service provider would effectively act as the moderator but in order that all the organisations can share the same system there would have to be compromises and agreement at both functionality and support levels. The potential loss of control has to be discussed and faced up to from the start so that unrealistic expectations are not raised. A separate governance structure needs to be setup for the shared services so that decision making is structured, open and transparent. Weill & Ross (2005) argue this case but also emphasise that IT governance is only effective if actively designed and not just the result of ad-hoc mechanisms (such as IT steering committees, office of IT architecture and service level agreements) to address challenges of the moment.

The setup and ongoing monitoring of a support level agreement is essential to address post implementation issues and to manage expectations from day 1. The cost of support will be shared by the organisations so it is important that this support is provided pro-rata based on agreed Service Level Agreements (SLAs). According to Robert (2009) the aim should be to get the right Service Level Agreement in place and he states that doing so not only requires the engagement of the organisation hosting the shared service but also the customers or local government organisations using the service. He continues to say that a two way accountability and communication structure is needed between service provider and the customer and that the SLA is the cornerstone of this 2-way communication.

2.5.3 Current and future impacts of Cloud Computing

Cloud Computing has become common practice in the past few years and now plays an accepted role in most IT service delivery models today. Shared Services and Cloud Computing compete in terms of offering reduced overheads and access to a broader set of skills and knowledge compared to in-house solutions.

Hodgkinson (2011) analyses and compares shared services to cloud computing in his article 'Cloud computing rains on shared services parade'. He believes that cloud computing will challenge the logic of shared services in the public sector. He refers to the Ovum that governments now seeking productivity and standardisation benefits of sharing should first look to cloud computing providers. He argues that the shortfalls of shared services are that a certain set of ingredients must be present to ensure success which includes compelling drivers to act, strong sustained leadership, and commonality of requirements, right people skills, collaborative problem solvers and adequate investment.

Unfortunately he reports though that these ingredients are often missing and the results are that organisations struggle to agree on common requirements, projects run over time Customisation of systems increases risk, One-size-fits-all services fail to meet all business needs, Service performance disappoints and costs are higher than expected.

Hodgkinson (2011) also claims that post implementation issues are more likely with a shared services solution where modest resources are pooled to deliver modest below par service levels. He advises that Cloud Computing is therefore the preferred option above other alternatives such as outsourcing of systems and in summary cloud computing offers low risk access to pooled investments with economies of scale within a shared infrastructure

He further claims that choices are then made to avail of the quality of product and service (better, faster, cheaper) rather than a joint commitment akin to socialism so in contrast cloud computing is compared to a capitalist structure where the consumer can control the market and improve service levels based on supply and demand.

Based on this research it could be deduced that cloud computing could be viewed as both an alternative to shared services and a mechanism to reduce the risk and cost of shared services.

In this study the use of cloud computing within standards bodies compared to shared services will be analysed further bearing in mind the above viewpoints and it is likely that based on this research by Hodgkinson (2011) that the future of existing shared services

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for standards bodies will be impacted based on the availability of alternative cloud or outsourced solutions.

Hasketh (2008) completed a detailed analysis of the decision making process on whether shared services should stay or go versus an outsourced or cloud solution. He reports the key findings of this research were that the true cost of back office ownership to those advocating a triple jump strategy is estimated to be at least $500 million. This comprises the associated costs of investment change programs, costs of shared services and additional operating costs over and above that offered by a third party service provider. Hasketh uses the term Triple jump strategy to mean a slow incremental change process starting internally with a managed transformation, then scaling to a shared services model before finally engaging a service provider to further leverage cost reduction and service quality. He refers to the Long jump strategy as when a firm outsource a process or service rather than owning themselves.

He breaks the decision making process into five stages:

1. Strategy formulation – executives consider role of service delivery in enabling their high level and overarching business strategy
2. Formulation of a business case – strategic drives could be recent acquisitions , share price or reducing top line costs
3. Alternative options need to be examined
4. A high level idea of the service delivery platform itself has to be designed with direct input from the executives rather the consultants
5. Bring the strategy to the market with Requests for information and Requests for proposals

Based on these studies it appears that there are real challenges for shared services and it is important that IT Managers review all options to ensure that the right decisions are made. It is no longer just a decision between separate in-housed solutions across different organisations versus shared services solutions pooled and controlled by these

organisations. It is now possible for organisations to share a common strategy, sign up to an outsourced or clouds based solution and still maintain the key aspect of local control.

These questions regarding cloud versus outsourcing versus shared services will be asked as part of the survey and structured interviews in this review and the outcomes of previous decisions will be further analysed.

2.6   Cost Reduction and Increased competitiveness

Cost reduction is undeniably one of the main drivers behind the introduction of shared services and in particular for public sector and government bodies both in Ireland and internationally in the past 10 years. A major example is the UK Government who published its strategy 'Transformational Government enabled by Technology' HM Government (2006) with shared services listed as one of its three main themes for improving service delivery.

Their plan by 2020 is to provide shared services for all government bodies using cloud based shared services known as G-AS and G-Cloud. The savings on this are estimated to be £4bn as outlined in their Operational Efficiency Plan.

Cost savings on shared services can only be realised in the long term (e.g. five to seven years) according to Smith et al, (2008) as both implementation and ongoing costs need to be considered against the previous solution. Also the fair distribution of these costs amongst the sharing organisations can be challenging so depending on the model agreed it may favour different types or sizes of organizations better.

The use of shared services can also increase the competitiveness of smaller bodies against larger organisations and corporates as per Paredes (2014) which references a case study of the New Zealand Association of Credit Unions. In this report the CIO, Deane Johns, talks about delivering shared services and more to its member organisations. They provide a full catalogue of shared systems and services to their members enabling them to engage with tier 1 suppliers and support service providers which they otherwise (as smaller entities could not have afforded). This is an excellent example for standards

bodies on how a structured set of shared services can be put in place and can operate successfully.

NZACU is cooperatively owned by 17 member credit unions, along with 5 associate members and represents over 200,000 New Zealanders. In the review by Paredes (2014) Deane Johns asserts that they are the envy of credit unions worldwide because of the strength of their structure and variety of systems. The use of this shared services strategy is core to their business strategy and therefore enables them to compete with the main New Zealand banks.

Their whole structure is built on a co-operative approach and it seems to work extremely well. An example is the mobile Banking App called 'AccessMobile' which the organisation released in May 2014. The app was downloaded 1,800 times in the first week without being advertised. Deane Johns (Paredes, 2014) reports it would have been impossible to create this app as individual CUs and it was only possible with the combined resources of each CU.

They also recognise the challenges of cloud computing but are looking to embrace the cloud computing and use it to their advantage rather than see it as a threat.

The approach Johns adopts in his CIO style is based on his business and non-technical background. He puts the business needs first and ensures that the IT team are in tune with the business needs by keeping in touch with the CUs and visiting them in person regularly. This ensures that the 2 way communication of the service provider and the customer is strong and successful. The IT team need to see what they are doing on a day to day basis and the management and staff of the credit unions need to know what the future shared services plans and developments are. In this example the business needs comes first and he states that 'At the end of the day it is not about machines and software. It is how that translates itself into being in front of what the business value you are going to provide the member'. This approach is applicable to all ICT implementations but based on this study it is a vital ingredient for a successful shared services implementation also.

3.   Methodology and Fieldwork

3.1   Introduction

This chapter will describe the choice of methodologies available to a researcher and then outline the reasons for choosing both a qualitative and quantitative approach as the most appropriate combination for this study.

In reviewing the various methodologies one has to consider that "Even though each method has its distinctive characteristics, there are large overlaps among them, the goal is to avoid gross misfits-that is, when you are planning to use one type of method but another is really more advantageous" Yin(2009). This was the basis of the research methodology chosen in this study.

Saunders also describes a research methodology as a structured framework used to describe, explain and justify the various methods for conducting research (Saunders, Lewis, & Thornhill, 2009).

The combination of the pragmatic advice from the TCD research module and readings from Saunders et Al and Yin helped to form the structure for this research study.

This research is an investigative study into the role of ICT shared services in National Standards Bodies examining their critical success factors and how to establish a better framework for integration of shared services into existing IT service delivery models. The approach and supporting methods chosen had to support this research question and ensure that all the 'what', 'why' ,'how', and 'where' questions as outlined by Yin(2009) in his Case Study Research is covered adequately.

The rest of the chapter describes how the research strategy was implemented using a combination of surveys and interviews for data collection followed by the analysis of these data sources and review of the challenges faced and overcome in doing this.

Finally the lessons learnt and the ethical approval procedures are reviewed and analysed as part of the research process.

3.2   Research Methodologies

There were 5 methods of data collection considered as follows

1. Experiment,
2. Survey,
3. Archival Analysis,
4. History,
5. Case Study

Using the 3 conditions listed by Yin (2009):

(1)   the type of research question

(2)   the extent of control an investigator has over actual behavioural events, and

(3)   the degree of focus on contemporary as opposed to historical events

The table below enabled the decision making process on the most appropriate method:

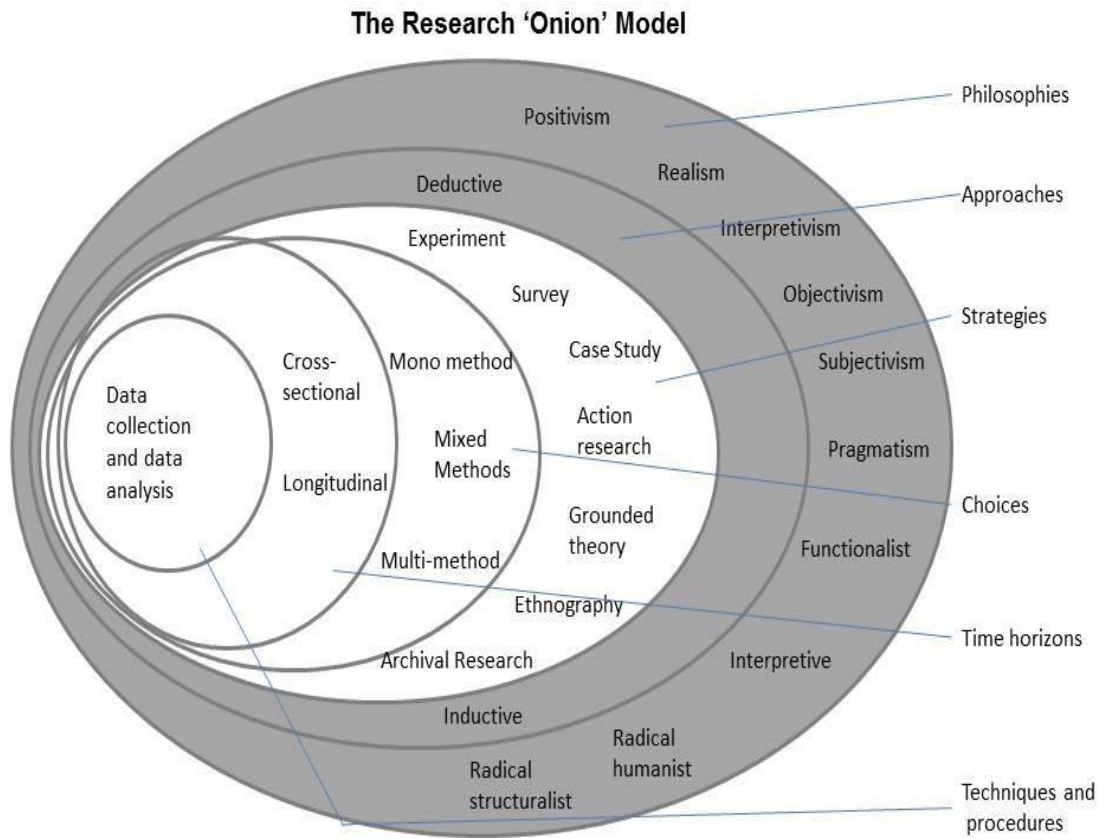| METHOD	(1) Form of Research Question	(2) Requires Control of Behavioural Events	(3) Focuses on Contemporary Events
Experiment	How, why	Yes	Yes
Survey	Who, what, where, how many, how much	No	Yes
Archival Analysis	Who, what, where, how many, how much	No	Yes/no
History	How, why	No	No
Case Study	How, why	No	Yes

Figure 2 Relevant Situations for Different Research Methods, Yin R (2009)/COSMOS Corporation

The use of an Experiment method was ruled out immediately as not being appropriate for the research question which is a review of past present and future use of shared services in NSB. The form of the research question needs to cover 'Who, what, where, how many, how much'. For this research question the investigator cannot control the events and the events cannot be just focused on the present so Experiment was deemed an inappropriate research method for this study. Experiments are ideal for research questions that can be re-enacted in a laboratory environment and this research question did not fall into that category.

There was an overlap in all the other methods but Archival and History was ruled out on the basis that there would be little data available given the distinct timespan and focus of this research question. There was scope to open up the research to other similar sized organisations and compare them to how shared services was being adopted within the standards community but given the timespan of this research project it was not deemed practical to extend the research net so wide. In this case use of Archival and History methods could have been used in order to combine and compare the different data sources.

A Survey method was used to collect the more quantitative questions covering the 'Who, what, where, how many, how much' scenarios and the use of a structured interview was used to collect feedback on the more incisive 'How, why' scenarios.

The research 'onion' as displayed in Figure 3 also assisted in determining the appropriate methodology for this research question:

The Research 'Onion' Model

Positivism — Philosophies

Deductive

Realism

Experiment — Approaches

Interpretivism

Survey

Objectivism — Strategies

Cross-sectional   Mono method   Case Study

Subjectivism

Data collection and data analysis

Mixed Methods   Action research

Pragmatism — Choices

Longitudinal

Multi-method   Grounded theory

Functionalist

Ethnography

Archival Research   Interpretive — Time horizons

Inductive

Radical humanist

Radical structuralist — Techniques and procedures

Source: Saunders, Lewis and Thornhil 2009.

Figure 3 The Research 'Onion' Model

Using the research onion model the research question can be categorised as a study covering both a positivist and interpretivist philosophy requiring a deductive approach a combination of survey/case study strategies using mixed methods over a cross section using survey tools and interviews techniques to collect and analyse the data.

3.3   Data Collection

The design of the survey and the questions asked had to take into consideration the geographical spread of the respondents and the possible language barriers. Initially most of the questions were being held back for the interview but on reflection it was decided that most of the basic information could be gathered using online survey methods – in this case SurveyMonkey was used. The advice of Galesic/Bosnjak (2009) in their paper correlating questionnaire length with participation and response quality which found that longer questionnaires produce a poorer response rate was considered so the questions were simplified and any incisive detailed questions were reallocated to the interview method.

The completion time was targeted at 20-30 minutes and this was stated in the survey cover letter and introduction.

The user was presented with possible answers in the majority of questions and where details were required the level of detail was not mandatory in that the user could respond in simple points or expanded text. The flexibility was made available to them via the use of some free text answer formats whereby they could limit/expand their answers depending on the combinations of data confidentiality and availability of that information to the participant at that given time. This style of question was included based on the advice of Saunders that surveys containing some "open" questions can be both exploratory and descriptive (Saunders 2009). This allowed some free format input from the participant and the gathering of additional data where possible.

A free-text narrative option was also included at the end of the questionnaire as an incentive for submission of additional information not requested already within the survey.

Although it was expected that an online survey would elicit more response than a paper based one the participants were allowed respond via the online format or via an offline PDF form. Based on research by Baruch and Holtom (2008) which found that electronic surveys received a response rate equal to or greater it was felt that a paper based survey

only would not be suitable. The survey was also targeted to ICT Managers in busy
organisations and in different countries so their ICT profile and busy timetable had to be
considered.

The survey questions were grouped into subjects based on the main issues that were
revealed by the literature review:

- Organisational Profiles
- IT Service Delivery Model
- IT Managers Role/Background
- Past/Future plans for IT Shared Services versus Cloud/Outsourced options
- IT Governance/Decision making structures/cost effectivess

Online Surveys have increased in volumes over the past few years with the number of low
priced 'easy to use' survey packages in the public domain and as a result managers within
organisations are not as interested in participating in surveys in particular if there is no
gain for them.

As a result most online surveys tend to offer incentives such as access to a white paper or
attendance at a talk however in this study the investigator tried to interest the participant
on the basis that this was area of special interest to this distinct standards community only
and therefore the sharing and analysis of information would benefit each ICT Manager
within their individual organisations or NSBs. Most of the participants were already
personally know to the investigator and this was expected to be an advantage in getting a
better response rate. Also the group met annually and this survey was timed to coincide
ahead of this meeting. However there were still a number of issues around data security
and confidentiality that were cited as reasons for not responding which was disappointing
and outside the control of the invited participants and the investigator. Several email
reminders and phone calls had to be issued and they were effective for a number of
cases.

3.4   Survey and Interview data sample

A group of ICT managers from 30 different NSBs in countries around the world were
invited to participate in the survey and a smaller subset of NSBs were requested to
participate in follow-up face-to-face interviews. The common link was that all these
organisations were members of ISO (International Standards Organisation) and were also
members of a IT Management group that meets regularly to discuss and share ideas on
IT systems and practices for standards bodies.

3.5   Survey Analysis

The relevant survey statistics is reported on as part of the survey analysis covered under
the following headings:

- No of people the questionnaire sent to
- Distribution method (e.g. traditional mail, internal mail, email, web, in person)
- Volunteers or consent only
- Number of replies (complete/incomplete)
- Reasons reported for not participating

3.6   Survey and Interview process and schedule

The research design was conducted in March 2015 and ethical approval was sought and
received in April 2015.The survey request was issued in April and several reminders were
sent out before closure and completion of the surveys in July 2015. As at July 2015 there
were 10 responses received to the survey out of a list 30 NSBs invited.

Many NSBs needed clarifications and reassurances that fully anonymity was guaranteed
before participating while others had no issues with their identity being revealed.

4.   Findings and Analysis

4.1   Introduction

This chapter will analyse and review the data captured in the online survey and the follow-up interviews covering both the Quantitative and Qualitative approaches employed.

4.2   Quantitative Research Findings

4.2.1   Introduction

There were 30 questions broken into 4 sub sections with a combination of drop down lists and free text where appropriate. The following sections expand on the findings from these 4 main sub sections as follows:

- Organisation Profile
- ICT Service Delivery
- Past/Future Plans
- IT Governance/cost efficiencies

4.2.2   Organisation Profile

There were 12 questions in the survey categorised under Organisation Profile and the purpose of this was to analyse if organisation structure or profile had any impact on selection and success or failure of these shared services systems.

The responses to the size question indicate that 55% of NSBs who responded are in the small to medium sized category with number of full time employee staff count under 200 and the remainder are in the medium sized sector below 500 but above 200 employees.

The applied budget percentage across all NSBs for shared system services was in the range of 0 to 7 percent of total ICT Budget.
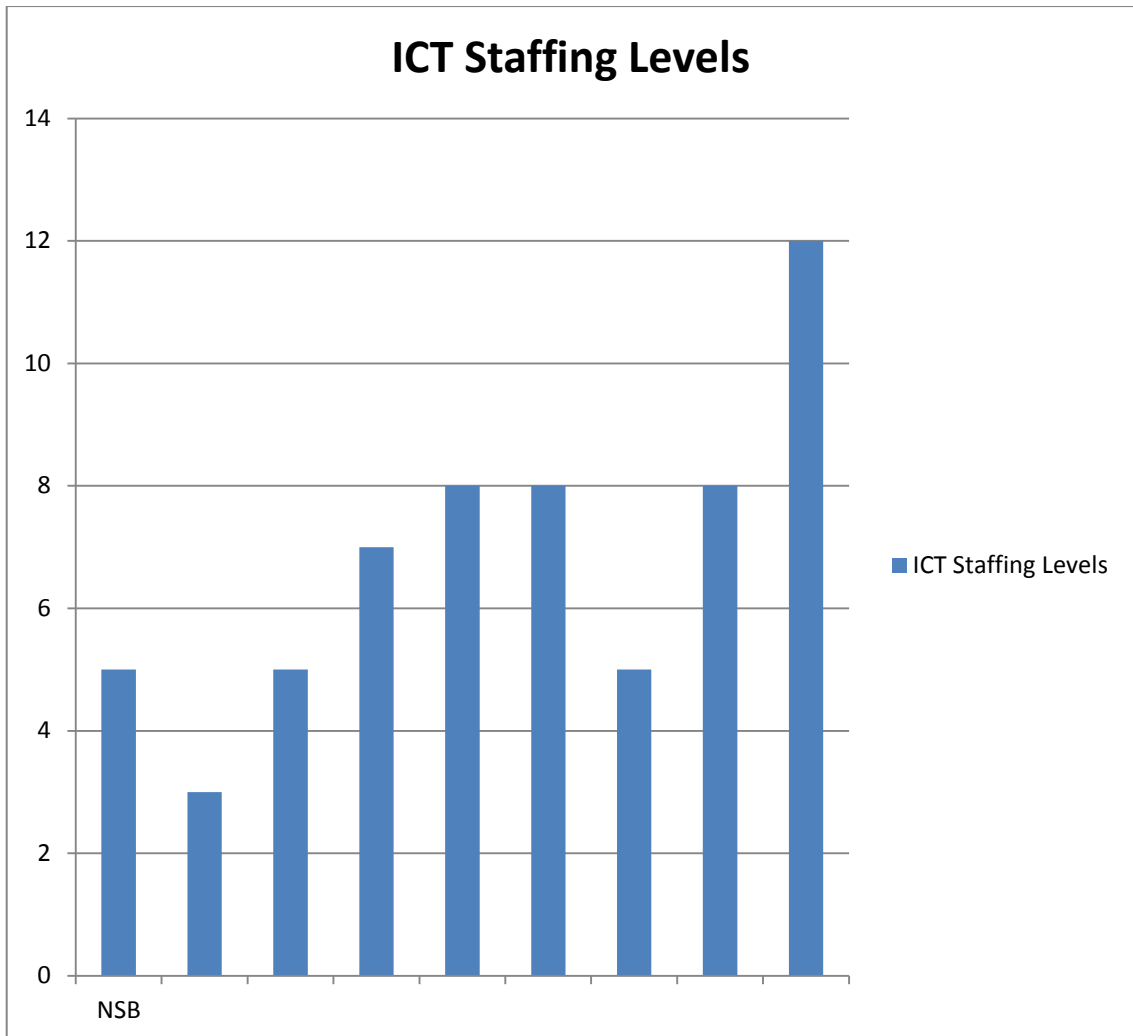
ICT Staffing Levels

Figure 4 ICT Staffing Levels in NSBs

ICT Staffing levels ranged from 3 to 12 full time staff as per above chart. This is relatively low given that most have listed in-house systems as their top platform. It could therefore imply that the future demands on these staff members could lead to a growth in the used of shared systems or cloud/outsourced solutions.

_____

The top ten applications in common across the surveyed NSBs covered the following
business functions:

1.   Customer Relationship Management
2.   Accounting
3.   HR
4.   Standard Sales and promotions
5.   Committee Management
6.   Email
7.   office automation
8.   Business Reporting
9.   Collaboration, Workflow and Document Management
10.   Draft Standards Commenting and Electronic balloting

The platforms selected were in-house, shared, and out-house/cloud. The total breakdown
for by platforms across the NSBs who responded was:

In-House   (30)
Cloud/out-house   (20)
Shared   (10)

The above statistic by platform confirms the current low take-up of shared services for this
group of NSBs and the reasons for this are examined later on.

The results of sector breakdown questions shows that most NSBs are based on a 'Not for
Profit' (NPO) model at 77% with 22% Private and 22% Public. The high percentage of
NPO organisations in the group could be viewed as a positive factor for the growth of
shared services within the NSB community because they have similar NPO objectives and
therefore would not be constrained by commercial competiveness.

The main business breakdown by function showed that the Standards Development function was common across all NSBs while certification and testing was only provided by 2 of the 6 NSBs:
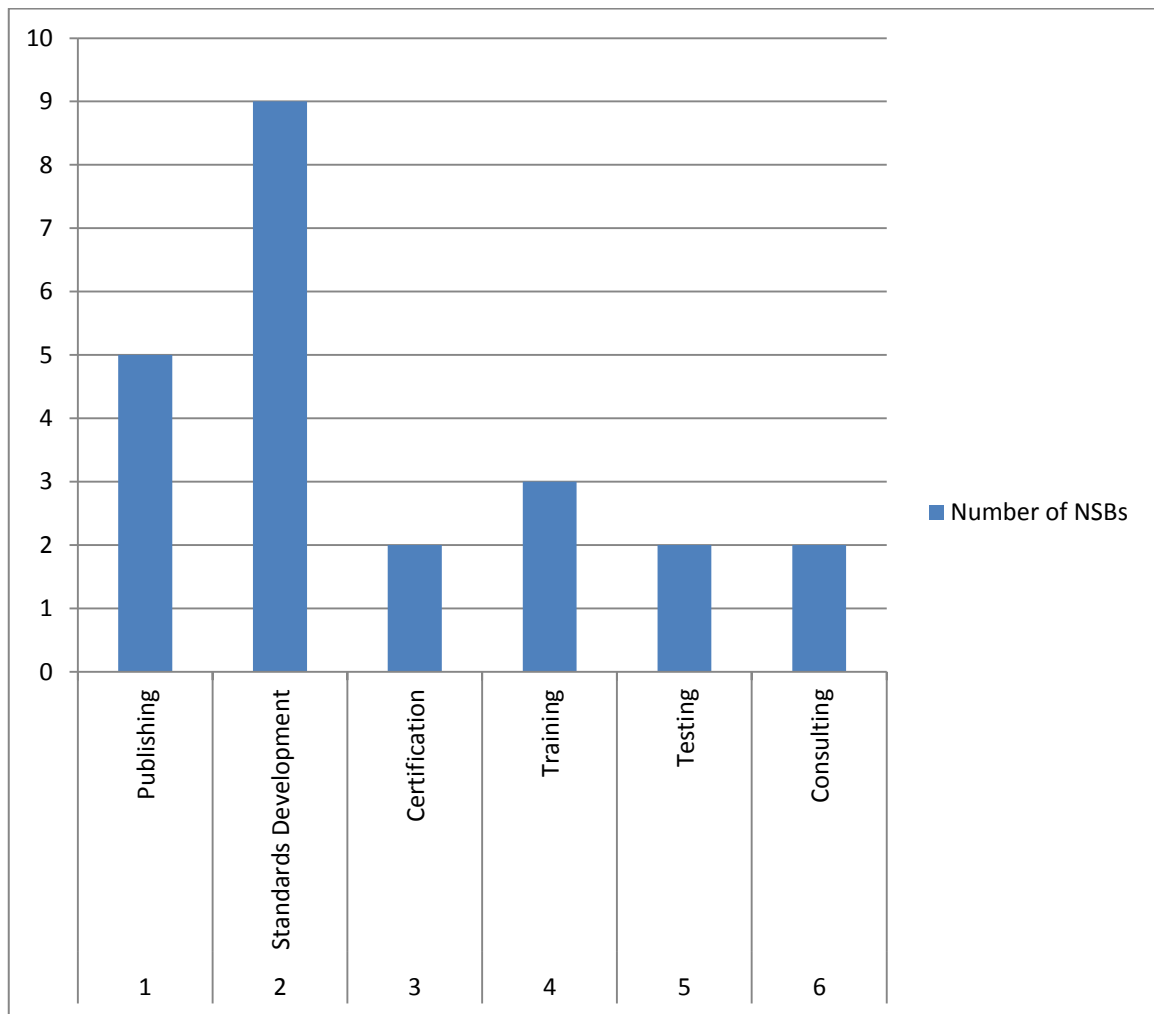

Figure 5 Functions by Number of NSBs

The critical success factors for shared services systems were queried as per chart below with a dropdown list provided for top 6 and participants were asked to give priority to each one in order of merit 1 to 6. In this case common business requirement was ranked on

average the highest with a 1.1 ranking average. Similar IT Governance was 2nd lowest
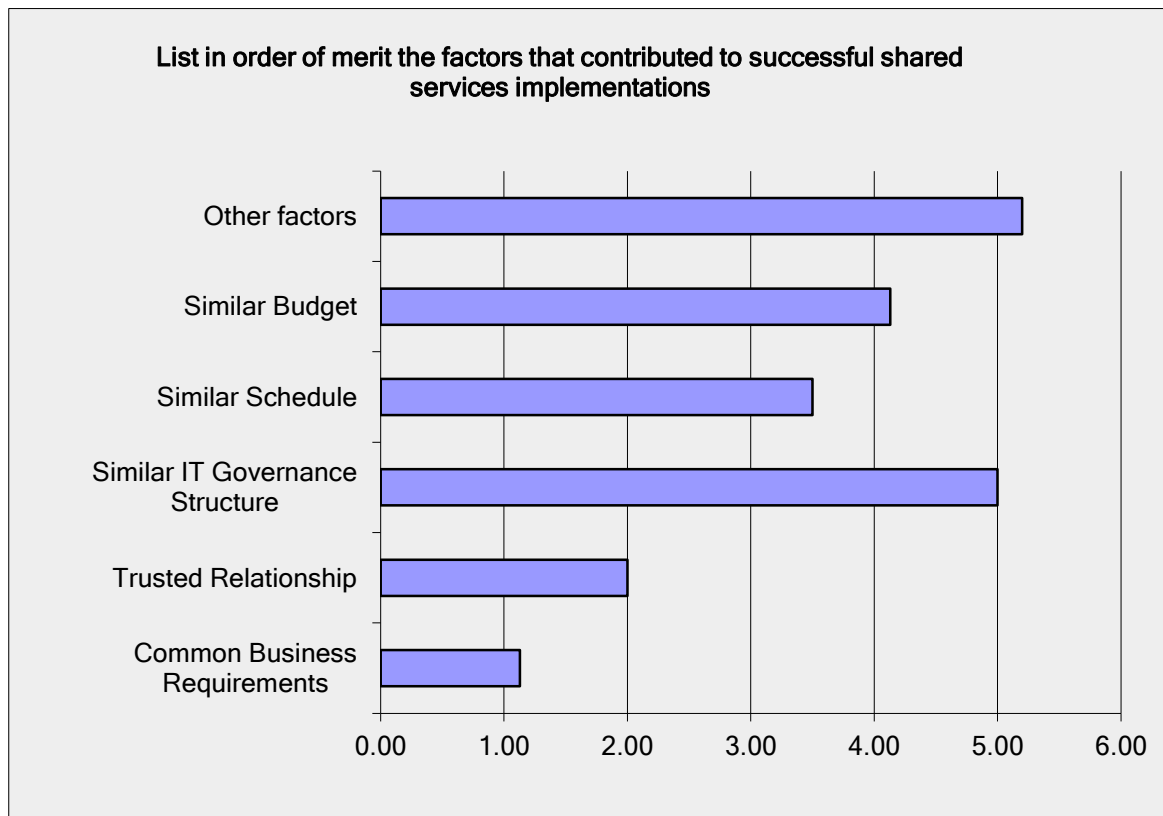with average ranking of 5 while other factors ranked lowest at 5.1:

Figure 6 Factors that contribute to success of shared services implementations

The other factors that contributed to the success of shared services implementations were
provided in free text format as follows:

- Investment
- Staff experience of similar services
- Standardisation of processes

- Focus on Project moving
- Established and mature solutions
- Sharing of ideas and open discussions
- Alignment of processes,
- Cultural change management
- Leadership

The factors that contributed to the failure or lack of take-up in shared systems was also queried with same format using dropdown list and section to expand on other unlisted factors also. The analysis of these responses below indicated that the lack of common business requirements was ranked highest and IT Governance was ranked lowest:
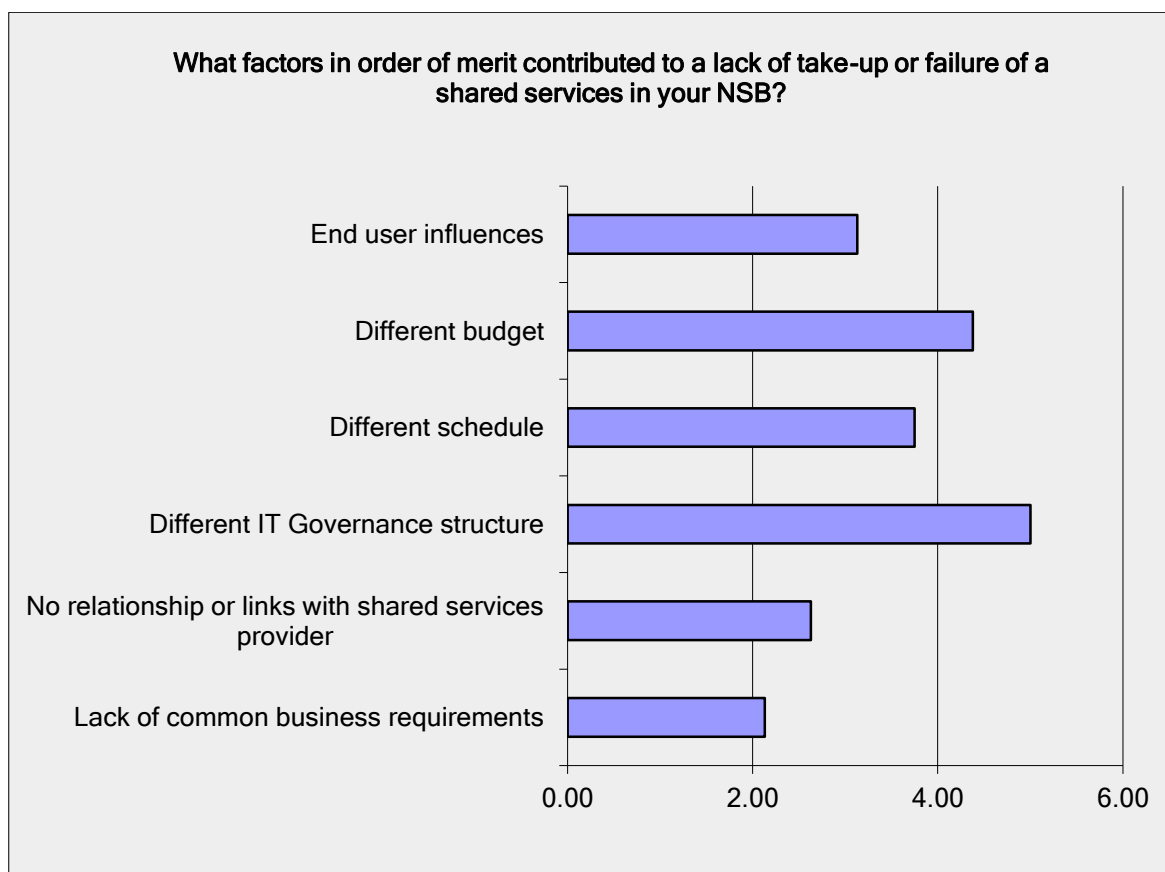

Figure 7 Breakdown of 'Failure Factors' by number of NSBs

It would appear from this feedback above that the participants are not convinced at this stage of the importance of the IT Governance and the impact of decision making within that structure albeit at a local or oversight level. However it was reasonable and expected that they ranked common business requirements highest.

The other factors listed were:

- Language differences
- Understanding of business implications
- Loss of control
- Lack of focus whereby normal day-to-day business takes priority
- Politics and possibly a lack of interest to share business models
- Proposals not communicated effectively
- Lack of flexibility of the provider in customizing needs
- Fragmentation of information
- Initial document disorganization
- IT Service Delivery Model
- IT Managers Role/Background
- Past/Future plans for IT Shared Services versus Cloud/Outsourced options
- IT Governance/Decision making structures

This extensive list of other factors which were provided using free text input shows the high interest level and understanding that the participants have in this area and these topics were discussed further in the face-to-face interviews.

Overall the analysis of the responses under Organisation Profile indicate a strong commonality across size, ICT staffing and structures, business functions and budget. The literature research would indicate that these NSBs are ideal for implementation of shared service systems but in reality the actual take-up of shared services within this community

is quite low based on this review with most preferring in-house or outsourced solutions within their own control.

4.2.3   ICT Service Delivery Model

The ICT service delivery model questions were designed to gather details about where the IT function lies within the organisation structure of each NSB and also to determine the influence (if any) of the different models on the decision making process for IT systems and in particular shared services systems.

The majority of IT Functions are centralised with 66% in this category, 11% are fully outsourced and 22% are federated. None reported a decentralised structure.
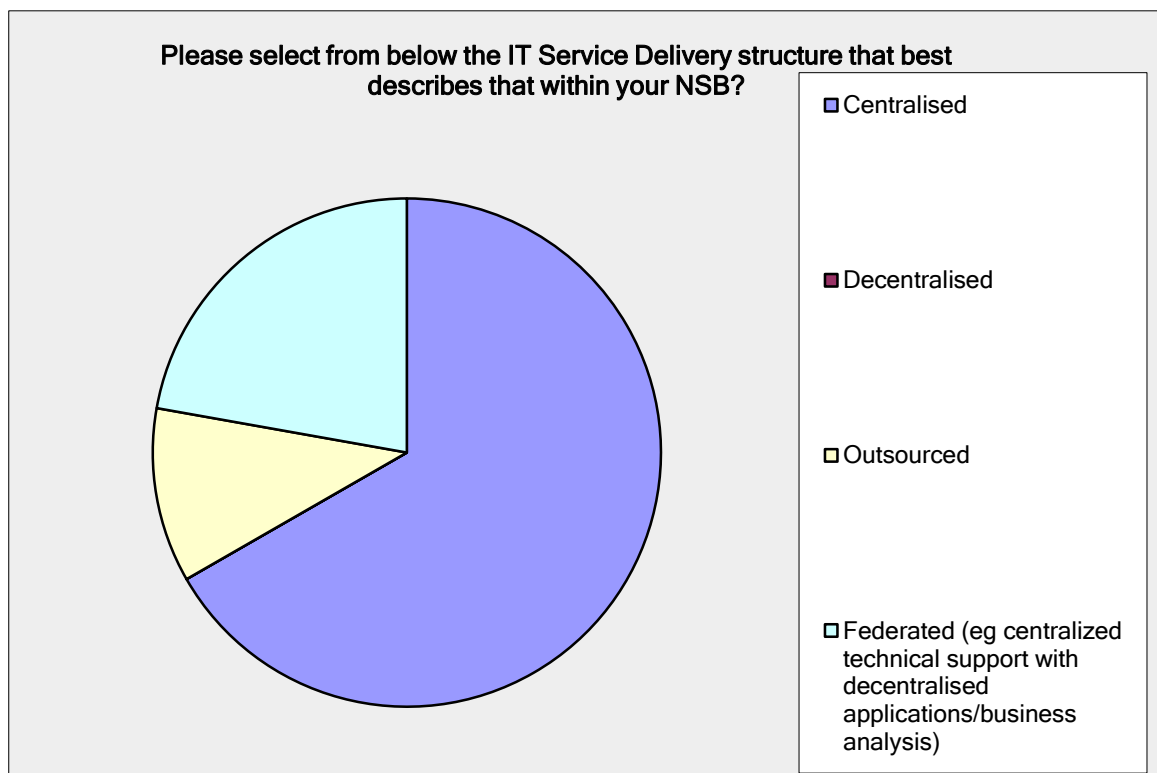
Figure 8 IT Service Delivery Model

The responses below indicate that IT management and decision making functions are mainly at senior management level with 44-56% in this category, 33% at Operational level and 11-22% at Board level. This is very positive and indicates the importance of IT within these NSBs:

Where does the ICT function fit within your organizational structure?

- ■ Board
- ■ Senior Management
- □ Operational Management

Figure 9 ICT Function within the organisation

The IT Governance responses below indicated a Consistent structure at 77% with 11% fragmented and 11% federated but none reported ad-hoc. The effectiveness of the structures in place was rated medium to high overall.

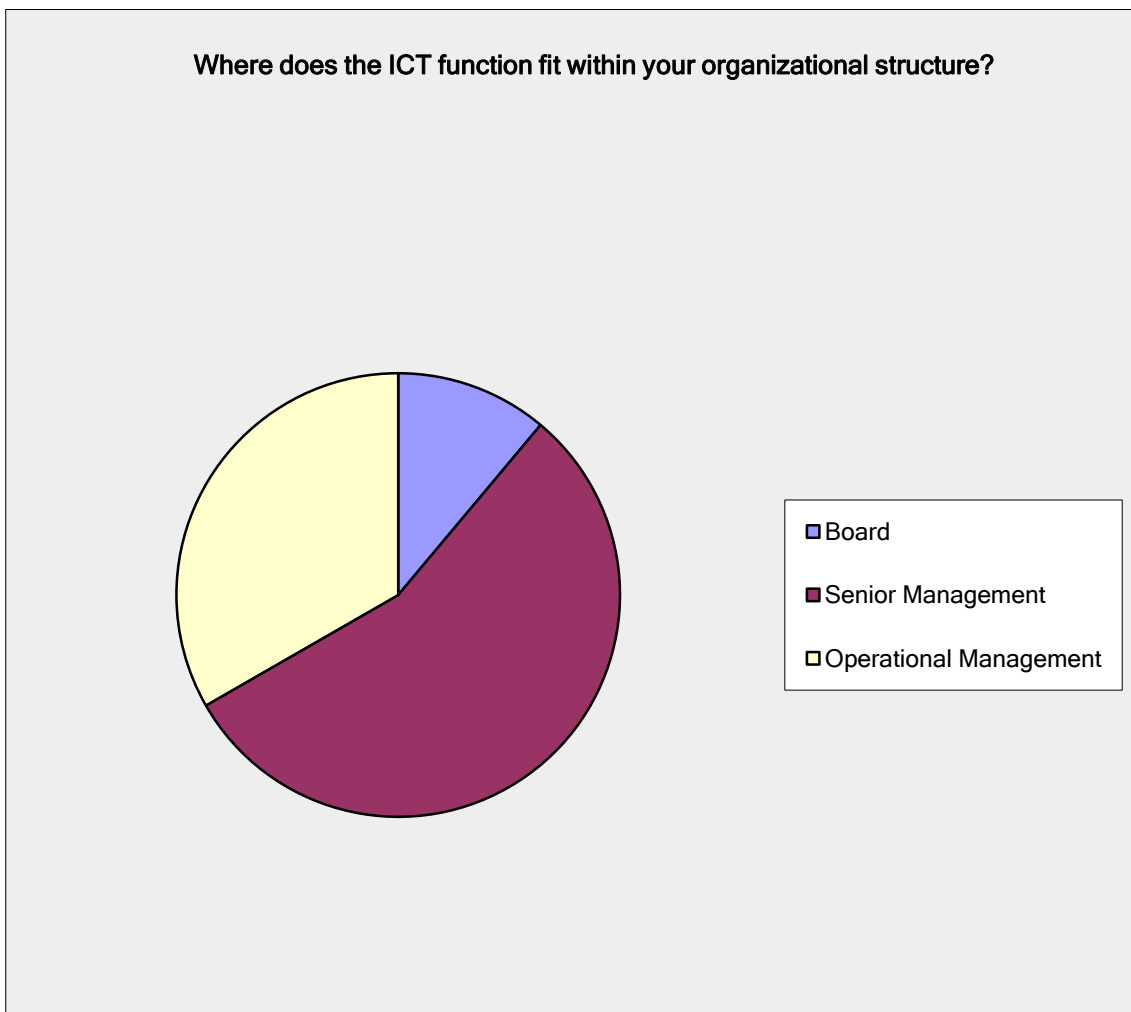The maturity of these ICT structures and the common governance structures across the NSBs surveyed should convert into a better readiness to adopt a shared systems strategy based on case study research in chapter 2 of this review however in reality that is not the case. Common governance structures with a strong ICT influence are positive ingredients but without the common business requirement they are meaningless. It also should be noted that the more mature the ICT structure is then the more likely they are to have existing systems in place and therefore they may not have the same need or necessity as for example that of a new standards body from a developing country.

4.2.4   Past/Future Plans for IT Shared Services

The purpose of this section of the questionnaire was to examine further what current and future plans were in place regarding ICT systems and whether they included shared services, cloud or outsourced in their planned portfolios. This would give some insight regarding the future of ICT Shared Services within the NSB Community.

As displayed in chart below all NSBs responded as having an IT strategy in place which is reviewed annually in most cases (55%):
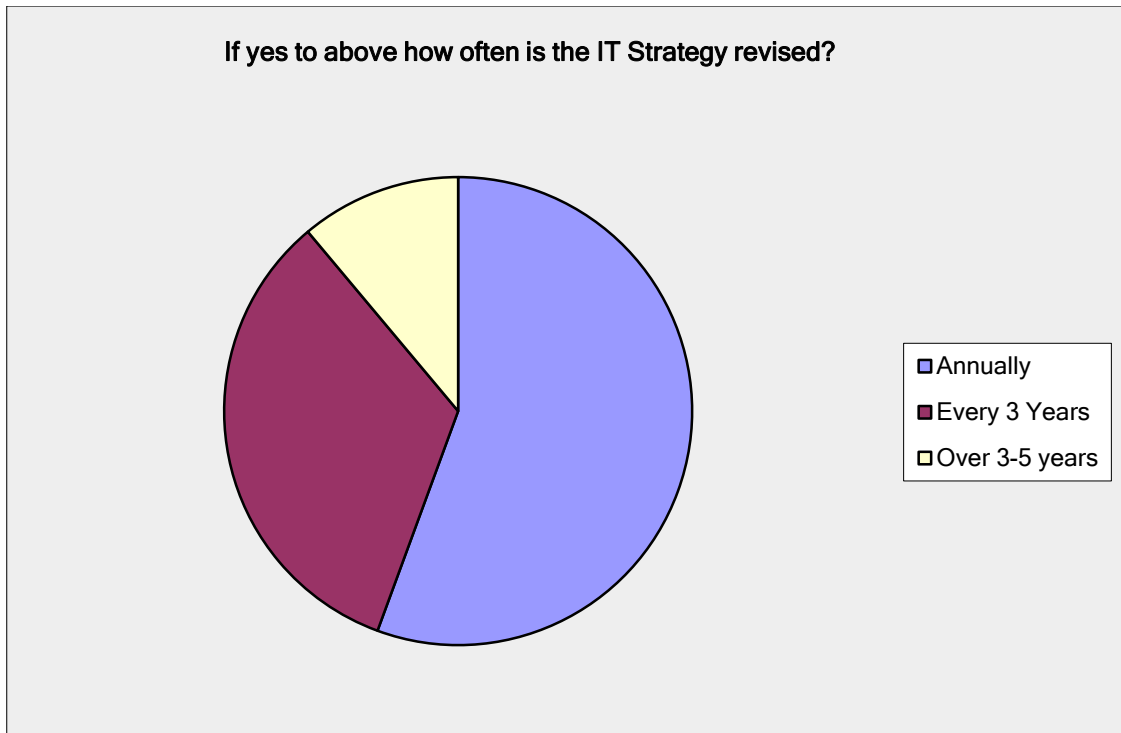
If yes to above how often is the IT Strategy revised?

Legend:
- Annually
- Every 3 Years
- Over 3-5 years

Figure 10 IT Strategy Revision frequency

They were also asked if shared services are included in their current IT strategy and 66% responded yes to this question which is in line with previous questions about shared services. However this is unusually low given the commonality of operations across all these NSBs highlighting yet again that the interest and take-up of ICT Shared Services options needs to be targeted and promoted more within this sector and the barriers reviewed and addressed further before shared services can expand and succeed.

Questions 23 to 30 focus more closely on the critical success factors of current, future and past shared service implementations within NSBs with reference and comparison to other platform such as cloud and outsourcing also.

The question 'What is proportion rating of existing it Systems in your NSB? 1 being largest and 4 being smallest' shows that Shared Services rated 'high' (3) on the ratings scale 1-4 as follows:
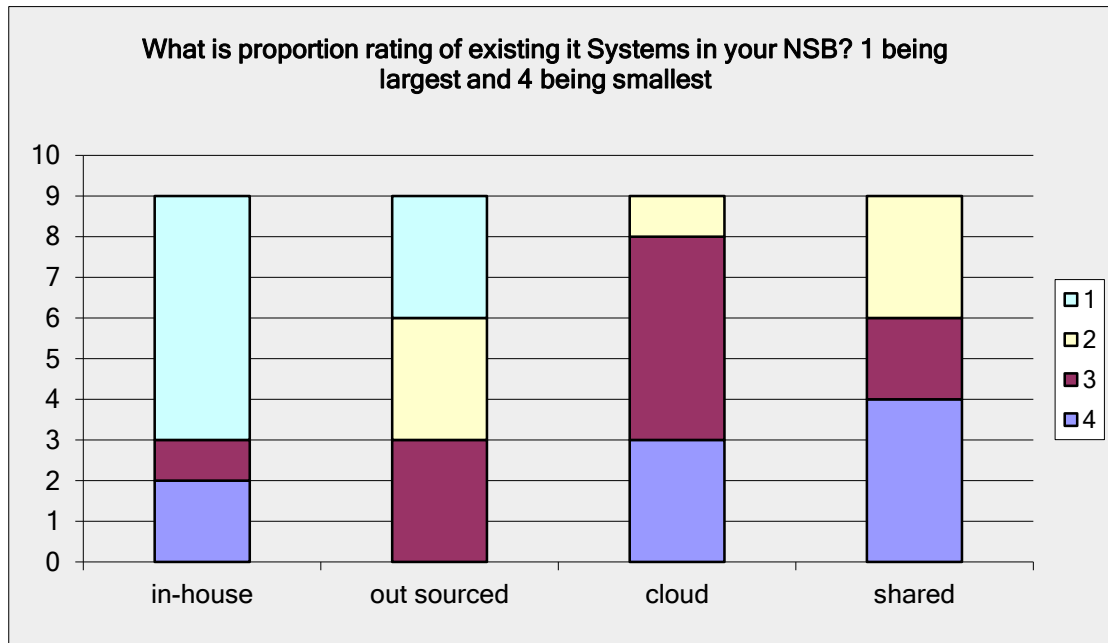
Figure 11 Proportion of ICT Systems (In-House/Out Sourced/Cloud//Shared)

The majority of number 1 ranking systems went to In-house (6) and Outsourced (3) with zero rating for cloud and shared.

From this we can see that shared services compared to other options , In-house/outsourced/cloud is ranked 2 to 4 with the majority ranking the shared systems as lowest(4) with 3 NSBs rating it 2nd and 2 NSBs rating it 3rd. Overall it shows that the most important ranking is to in-house systems.

The next chart illustrates the 'usefulness of the shared systems' within these NSBs and shows an increase in ratings in that 3 NSBs rated them 'Very Useful' and 6 rated them useful and no NSB rated them 'Not Useful' .

Question 26 further delves into the usefulness aspect by putting forward an open question as to why shared systems fall short and the answers reported 'lack of flexibility' highest with 4 NSB entering this and 'change/adaptivity' was cited the reason by 3 other NSBs. Limited functionality and lack of ongoing investment/governance were each cited by other NSBs

The drivers and barriers to the success of shared systems was explored further in questions 27 to 28 in an attempt to delve further into the experiences both positive and negative by the surveyed NSBs.

The results in the following chart show that top drivers for participating in shared services implementation were to provide improved services and to save money as follows:
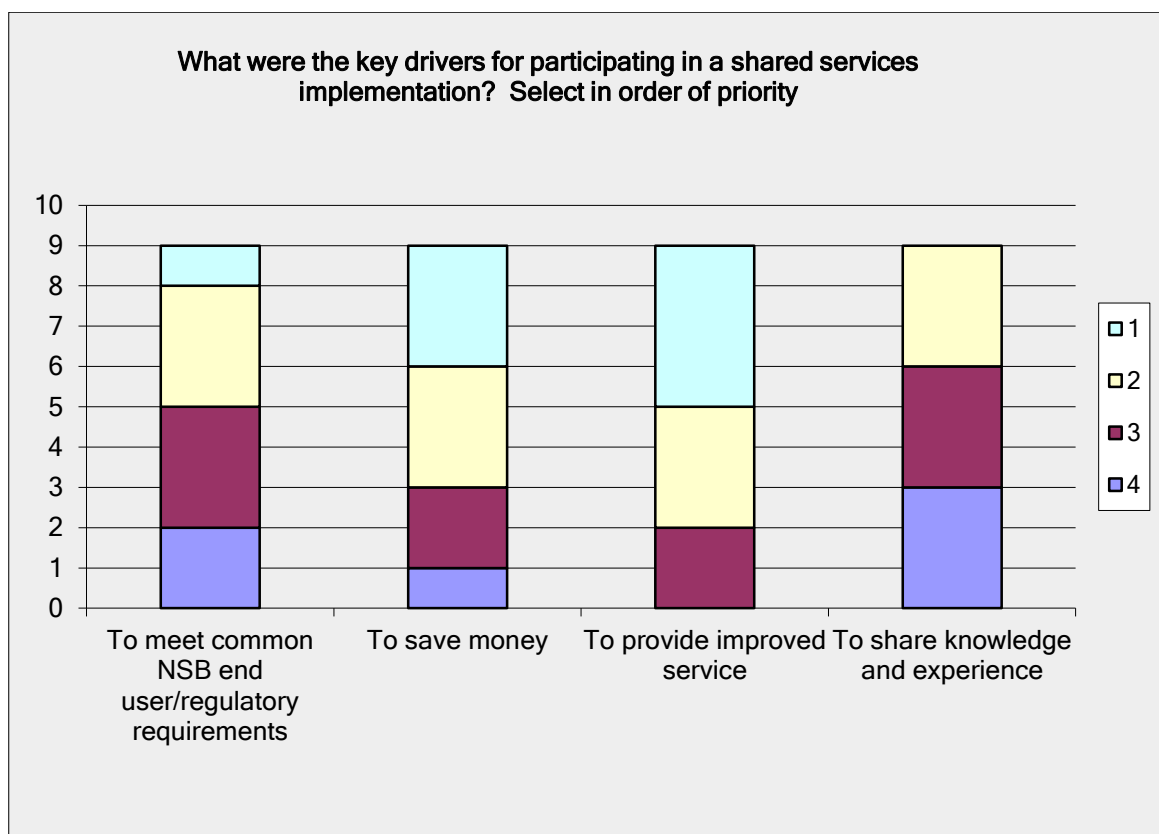
Figure 12 Drivers for Shared Services Implementations

The following chart shows the results to the question on barriers to participating in a shared services implementation and the responses show that all 4 barriers are rated 1-2 by most NSBs which indicates that Loss of Control followed by Incompatible Schedule and No Common Need are the most likely barriers to participation in a shared services implementation:
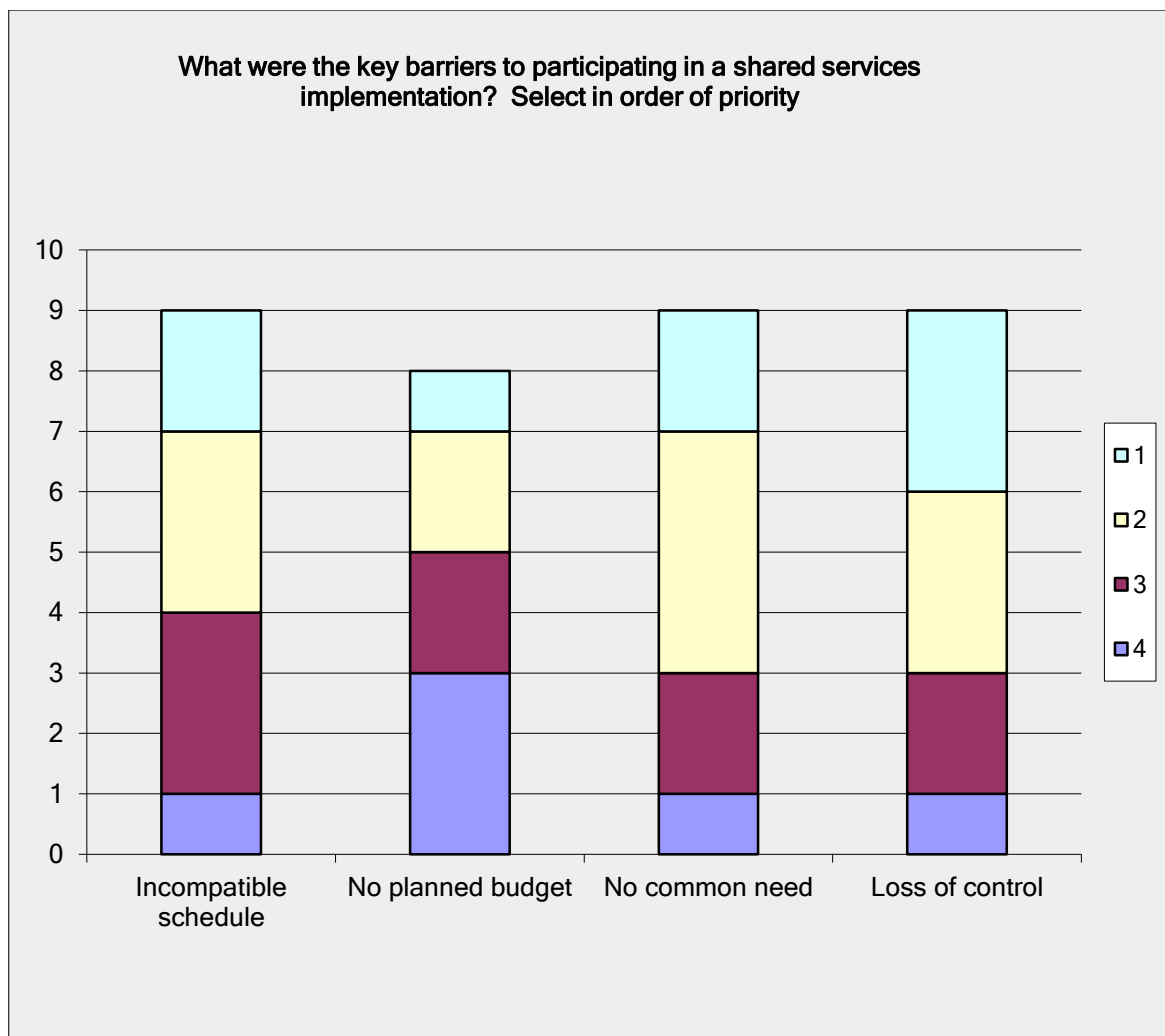
Figure 13 Barriers to Shared Services Implementations

Questions 29 and 30 were more open questions in an attempt to find out how the design and participation in ICT shared services could be improved. 'Flexibility', 'Simplicity' and 'Modularity' were listed as key factors more than once in the response to the question 'Imagine you are designing a shared service solution what factors would you consider in the planning and design?'

The responses from the NSBs regarding how to increase participation show that promotion and increased awareness of existing systems and benefits of future collaborations are the main suggestions.

Overall this shows that future take-up of shared systems is reliant on systems being well promoted at senior management levels and that system design should be flexible, simple and modular.

4.2.5   IT Governance/Decision making structures

This section focused on the ICT role and decision making levels within an NSB regarding selection of ICT systems.

The response to Question 20 in the questionnaire indicates the influence that ICT governance has on the decision making process for IT systems in general as follows:

List in order of merit the factors that contributed to successful IT implementations
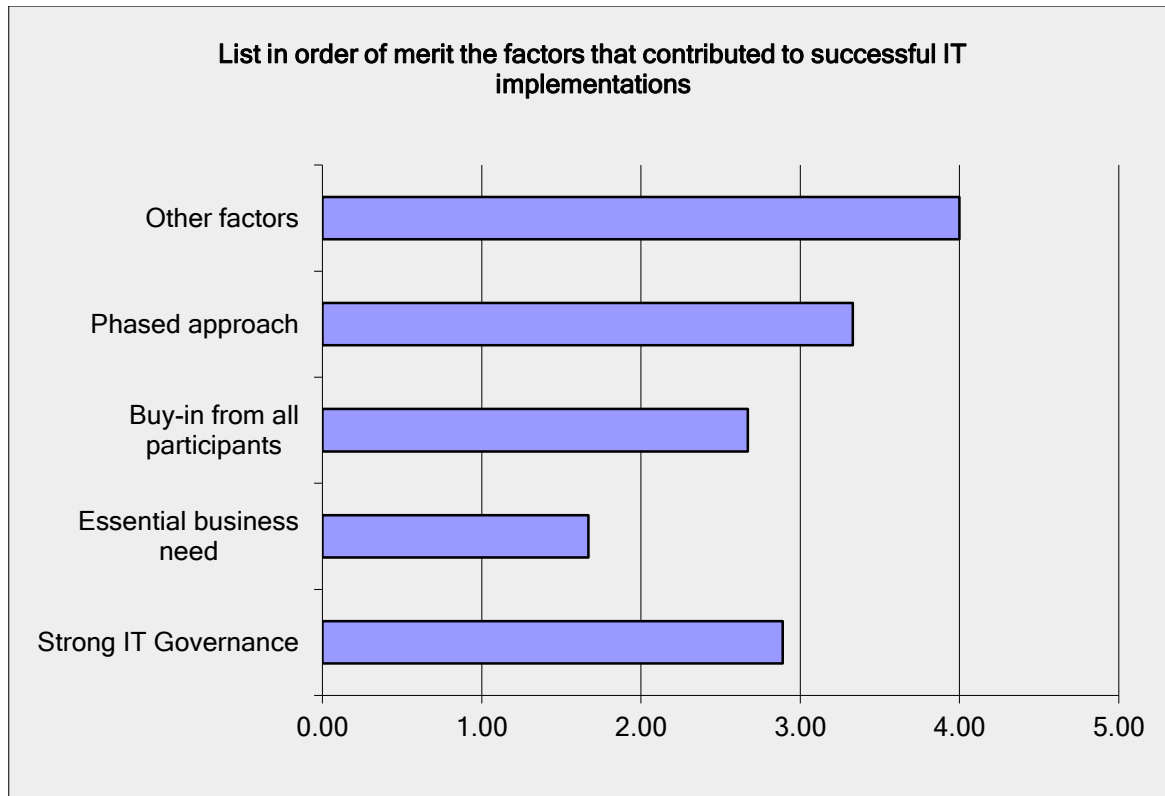
Figure 14 Shared Services Success Factors

In this sample of NSBs, strong IT governance is cited 3rd on the order of merit for factors contributing to the success of an IT implementation with other factors and a Phased approach ranked higher.

The position of the IT function and the level of decision making in the organisation is relatively high overall with the majority of NSBs holding an IT function/decision making at either Board or Senior management level. This indicates the importance of IT to these NSBs and their IT maturity levels.

Based on the responses of this survey it could be inferred that this group of 'ICT mature' NSBs are less likely to get involved in a shared services implementation because there is a high likelihood that they have already invested in the solution they need and their plans

are more driven by the immediate business needs than the longer term cost savings and efficiencies.

4.3   Qualitative Research Findings

4.3.1   Background Details

The purpose of the follow-up semi-structured interviews was to confirm the researchers and participants understanding of the survey questions and to delve into the answers provided in more detail in order to elicit a more in-depth understanding of the role of ICT services in the relevant NSB.

The persons interviewed were IT Managers or Business Analysts who had also completed or assisted in completion of the survey.

The interview questions were broken into 3 sections and aligned to the survey questionnaire as follows:

1. Organisation Profile
2. IT Governance/Service Delivery/IT Managers Role/efficiencies and their impact on choice of system Platforms
3. Current/Planned use of ICT Shared Services compared to other platforms

4.3.2   Organisation Profile

The size of the organisation was discussed and whether size should influence the decision on shared systems. 2 of the NSBs said that size of the NSB was a factor while the other 2 said it wasn't really a factor except when they looked at the wider number of external participation which in one of the NSBs covered 20k users. In this case, access to shared systems by a small NSB to support a large population of participation was very important. On that basis it would seem that size in relation to the actual number of end

users and budget available is a key factor when seeking a solution and in particular a shared services solution.

The top ten systems were discussed and in particular the rationale behind their selection. In one case they would have preferred if shared systems had been available when the selection process took place but at the time none were available so they had to proceed with a bespoke solution similar to ones in use by other NSBs. 2 of the 4 NSB's said that their incoming generating functions had opted for in-house systems as they could maintain more control in that way and they were unwilling to share systems with competitors.

All NSBs said they would like to increase their budget for shared services systems providing a good business case remained for their increased use. One NSB who was outside of the Eurozone was concerned at increased costs due to exchange rate issues so in their case an increased budget for same service was not attractive and might encourage them to revert to a similar in-house system where they can control the costs using local resources.

The most recent shared services system selection which was common to 2 NSB's was successful because they both had same business need, schedule and budget and the shared solution had been tested and in use by other trusted NSB's. This was an example of a shared solution that was working well for now.

One of the NSBs had moved some of their key standards development systems away from a shared services solution in order to ensure full local integration and also to benefit from local development skills that were also required for other functions besides the standards development function. 3 out of the 4 NSBs stated they would prefer to keep their critical systems in-house but 1 of those 3 stated that the option to convert to a local installation of shared service system could address that barrier.

It was considered that in this case a local NSB could sign up to a shared service solution and invest in this for a few years but still have option to revert to an in-house solution if local support or customisations became an issue later on.

IT Staffing was considered to have an impact when deciding on a solution by 3 of the 4 NSBs but 1 said it didn't as they would just contract staff as needed if they wanted to develop an in-house solution so in that case IT staffing had no impact. The other 3 believed that local staffing and support did have an impact and it made sense to have shared access to these resources if no local skills available and vice versa if local skills were available.

The business sector was discussed and it was agreed by all 4 NSBs that given the specialist business sector of the NSBs within each country that business sector did have an impact on selecting or investing in a shared services development. In this case there are no off-the shelf solutions available so cost and integrity of systems with shared support is most economical and effective when NSBs agree on a shared solution.

The relationship between business sector and platform was discussed further and it was agreed by all NSBs that the income generating functions were less likely to opt for shared solutions (e.g. sale of standards and certification services) compared to the more collaborative functions (standards development and public commenting)

4.3.3   IT Governance/Service Delivery/IT Managers Role/efficiencies

The success and failure of shared systems was discussed following an agreed list of questions and with direct reference to the survey also.

The NSB representative was asked to expand on the prioritisation of critical success factors and any other factors in relation to a successful shared services implementation.

One NSB cited a shared services solution that was implemented but questionable as to its success as it was a mandatory local government mandate and although they did not want the system they are still 'obliged' to use it. In this case it is questionable as to the real 'success' of this implementation.

Common business requirements and trusted relationships was agreed as the critical success factor while 'end user influences' was seen as being the critical failure factor by all 4. One NSB referred to an example of a shared services system that was available to

public sector bodies in the past 3 years but after review by other functions within the same organisation they were unwilling to change and adapt to accommodate use of the same shared system. In this case reluctance to change is also the critical failure factor. Other factors which lead to failure to implement shared solutions were unclear business requirements and ongoing scope creep.

The impact of IT governance within an NSB was discussed by asking the NSB what impact IT Governance and in-house Service delivery models had on the selection of shared services. In this case the impact ranged from 'not much' in one case to very important in the other 3 whereby maturity of the IT governance model is seen as being important to the success or failure of a shared services implementation and support from senior management to board level is deemed essential. It was noted by 1 NSB that this ensures that the business always come first when looking at the best solution whether in-house, cloud or shared.

There was one NSB out of the 4 NSB's who had included shared services as a target in their IT strategy but the other NSB's did not refer to shared services in their strategy specifically. The overall strategy in their cases was to pick the best solution regardless of platform to support the business.

All 4 NSBs representatives were involved in the decision-making process for IT Systems with 1 at operational level, 2 at senior management level and 1 at board level.

4.3.4   Current and Planned use of ICT Shared Services

The Proportion of shared services to other services in the NSBs was discussed and it varied greatly from 5% to 50%. However in the case of the NSB with 5% shared services they are looking at replacement options and are considering a switch over from their in-house solutions to the more mature shared services offering in the next 12 to 18 months if a cost effective business case can be made to their organisation.

All 4 NSBs were very positively disposed to future shared services options as it was their belief that this is the most cost effective and efficient way to deliver IT solutions to meet

their common business requirements. All 4 would be increasing their budgets and one of the 4 NSBs envisaged an increase to 50% for shared services solutions.

Other possible Shared Services solutions were explored and suggestions put forward were Language Translation and collaboration/authoring tools similar to cloud office.

The open ended question regarding design of a new shared services system was posed to all 4 NSB representatives and they were asked to expand further on the factors they would make sure is considered when planning and designing a shared services system for standards bodies.

Factors briefly discussed were the need to have a real business requirement with an agreed scope from the business first.

One NSB was very strong in saying that good ideas and systems sell themselves so it is important when designing a system to ensure that the early deliverables are successful in meeting the agreed requirements and therefore that leads to further trust and increased participation.

Another NSB cited that the impact of the system on the end users from both a cultural and political perspective has to be considered and managed from the beginning with involvement from end users in all stages of the design and acceptance.

4.4 Survey Analysis

The following table provides details of the Survey Analysis data as follows:

No of people the questionnaire sent to	30
Distribution method (e.g. traditional mail, internal mail, email, web, in person)	email
Volunteers or consent only	Volunteers with consent
Number of replies (complete/incomplete)	10
Reasons reported for not participating	Mainly time constraints and confidentiality issues

Figure 15 Survey Analysis Data

5.   Conclusions and Future Work

5.1   Introduction

This chapter will provide conclusions from the research carried out and will aim to demonstrate that the research questions have been answered. It will also examine the commonality of the research results alongside future and interesting findings that may of interest in the future. The limitations of this research study will be outlined and possible research options in this area for the future will be introduced.

5.2   Conclusions

The main conclusions from this study are that while the interest level is high amongst the NSBs surveyed there is still a relatively low take-up of shared services solutions overall with the majority of NSBs opting for in-house solutions.

The main reasons for this points to the nationalised and devolved structure of NSBs and the lack of a centralised decision making structure to incorporate all NSB's. The setup of a centralised decision making body representing the ICT long term strategic requirements is the answer to the research question with regard to 'what the critical success factor for ICT shared services systems in NSBs is'.

At present the decision making for suitable ICT solutions is made at a local national level so the business objectives of the individual NSB business normally take priority. In this case study the decision making structure is the main challenge and addressing this challenge is the critical success factor for the future of shared services in the standards community. It is very unlikely that shared services will increase their position within the standards development ICT portfolio without a centrally agreed directive for all NSBs towards the use of shared services systems so the current decision making structure has to change.

It appears that the main factor preventing take-up of shared services within the surveyed group is that most have already invested in in-house solutions so it is only when they decide to upgrade these systems that they review shared services solutions as an option.

Usually it is too late at that stage and a simple upgrade to the in-house system will more than likely meet the needs of the business. Therefore take-up of shared services is unlikely to happen for these NSBs as long as the ICT decision making is made at a local NSB level rather than a central overseeing level such as at ISO or European Commission.

In the meantime the biggest growth in use of shared services is likely to be for NSB's who are in start-up as they have no systems in place so it makes sense for them to opt for existing shared services provided their budget allows for it. There is hope however that these systems form the foundation stone and will evolve into a fully integrated shared services suite as their functionality and flexibility mature. This will then open the gateway into common shared services suite of ICT systems for all NSBs with agreed decision making and governance structures in place to support them.

The feedback from the survey and interviews show that the NSBs would most likely opt for a shared service solution if they met their business need but without a central controlling body to take the lead on this there is unlikely to be any significant progress in this area. Therefore the long term success of these systems will depend on having a new ICT oversight and decision making body in place which develops and oversees an ICT strategy to include the priorities and business objectives of all NSB's.

At this stage it is not practical or realistic for a small number NSBs to take the initiative without the support of an overall governing body. In order to progress from the current status there is a need for an overall agreement or shared system strategy to be in place to ensure that shared systems are developed and deployed in a worthwhile and effective manner.

5.3   Commonality of Findings

It is reasonable to infer that based on the voluntary aspect of the survey in this study that the participation in this survey was based on a common interest in shared services so therefore most of the views reflected are the views of bodies that are more amenable and interested in ICT shared services and less negative views are not being represented.

The survey request was sent to over 30 national standards bodies but reminders and follow-ups were only sent to those more personally known to the researcher. There were only 10 responses out of 30 which could indicate that the majority of NSBs are not really interested in ICT shared services or don't have the time to dedicate to it even if they are. However the most common aspect across all NSBs was the relatively low budget percentage allocation to shared services and although they were very receptive to shared services it was only in use for 1 or 2 systems.

There is substantial commonality amongst the NSB's under the headings Organisation Profile, ICT Decision Making Structures and resourcing Budgets so as a community they are more likely to work together better on a shared services project.

The survey analysis was limited to the group requested to participate and subsequently it was narrowed down to those who replied so it may not be the true picture if all NSBs . A true picture would be for all NSBs to respond in order to get the complete picture both positive and negative.

The data collection methods used sought to combine the use of a mixture of both quantitative and qualitative methods. This research study is focused on the behavioural aspects of ICT Managers and their roles within the organisational so the combination of survey questions and semi-structured interviews allowed for the use of the interpretative philosophy which according to (Saunders et al, 2009) is the most suitable philosophy for business and management research.

5.4   New and interesting findings

The appointment of a dedicated resource with objectives set by the Chief Executive officer was raised as a possible means to raise awareness of ICT Shared Services within NSBs. This type of approach usually works in large corporates and civil service structures when directives are given from the top down and objectives such as cost savings are agreed as common clear objectives.

The 'order of business' on a day-to-day basis usually dominates but it was interesting to understand this and acknowledge that the only way to break out of that mould is to

restructure and re-focus and ideally this is done as part of the cyclical strategy development process within each organisation.

Feedback gathered regarding use of Measurement and Frameworks for success when selecting implementing and reviewing shared services also showed that they have little or no impact on the success or failure unless the business case is strong and that the budgets/schedules can support it. However there was a common view amongst participants in this research study that while frameworks added to the success probability they were not seen as the most important ingredient.

5.5   Lessons learned

In retrospect it would have been better to introduce this survey in person either face-to-face or via conference link in order to elicit more interest in the survey and to prevent the level of reassurances needed after issuing the survey request.

The original plan was to hold a focus group session attended by ICT Managers from each NSB and elicit views from the group using the survey questions as the central point. Unfortunately this was not possible due to confidentiality and logistical reasons. The data collected would have more in-depth and cross sectional views using this technique and would have been more time efficient.

The time lag from start of the survey to completion of the survey was high in relation to the overall project time and response level was low considering the reasons for not responding.

Also it would have created a better dimension to compare the level of shared services in use within a closed sector compared to other sectors but the time factor did not make this a viable option.

5.6   Future Directions

The findings of this research study has highlighted that the future direction of shared services is in the use of current technologies such as cloud based infrastructures in order to reduce overheads and increase accessibility and speed up delivery.

The 'packaging' of the shared services concept needs to be updated to make it more interesting and innovative and perhaps it could be given the new name SSAAS (shared systems as a service' in line with most services being offered today

The future directions plan for international standardisation also needs to address the current barriers of competing requirements and conflicting schedules and embrace the cost reduction and speed to delivery incentives of sharing ICT systems.

However the overall business strategy for National Standards Bodies will probably need to include adoption of ICT Shared Services as a key directive if the future of ICT Shared Services is to be preserved otherwise the NSB's will continue to develop and diversify and become even more territorial and competitive.

It appears from this study that NSBs need a central leader or co-ordinator to ensure that shared service objectives are set and delivered on. Ideally this objective should be set by ISO or IEC senior management or government boards.

The successful implementation of ICT Shared services can only be achieved if it is incorporated into the overall business strategy of each national standards body and their overseeing bodies. Otherwise the normal order of business will always take priority when planning for the future.

The future of shared services within the standards community relies on the setup of a flexible franchise style structure which will enable NSBs to sign up and adapt to the ICT shared systems model more easily and quickly. The sharing of resources and intelligence to support and develop these systems will lead to more proven and tested systems with reduced overheads and delivery lead times for standards bodies overall. This in turn will lead to better systems to support the standardisation process worldwide.

The more immediate future of ICT Shared services in NSBs may rely on the success of the more recently established NSBs in developing countries and how well the current shared services model meets their growing needs. As their needs grow there will be an increasing demand to outsource the management of the shared services system to dedicated shared services provider which could then become the provider of the aforementioned franchise solution.

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Appendices

Appendix A – Copy of Survey sent to each NSB

A review of ICT Shared Services in NSB's

Welcome to the survey to review IT shared services in NSBs

Thank you for taking the time to participate in this survey which should take approximately 30 minutes to complete.

This research is an investigative study into the role of ICT shared services in National Standards Bodies at an international level. It will examine how critical success factors can be used to establish a better framework for integration of shared services into IT service delivery models.

It will also examine existing shared services within the standards community to see if they have succeeded according to original objectives. It will also examine the alignment of shared services to existing ICT service delivery models, the changing role of the ICT manager in the context of shared services and the growing impact of outsourced cloud services on the in-house shared services model.

As a fellow ICT Manager/Administrator you are invited to complete this survey and your participation is on a voluntary basis only. The researcher is also an ICT Manager of an NSB and is using this network to support this research study.

A smaller representative group of 5 will be selected for follow-up interviews in person or via web conference in June 2015

All information gathered will be used for the sole purpose of this academic research project and will be destroyed after the study is complete. The interviews will be recorded in audio format.

The benefits to the participant is that the NSB ICT Managers may use shared experiences to improve frameworks for the selection , implementation and review of ICT Shared services .

The Data Protection Act will apply and be strictly adhered to where appropriate.

Declarations from the researcher:
•The results of this study are for academic purposes only and will be used for that purpose only.
•Each participant will be able to withdraw from the survey or interview and also have option to omit individual responses without penalty.
•On request a summary report may be circulated to participants on the conclusions/recommendations of this study
•Full anonymity will be preserved whereby individual names of participants, organisations or 3rd parties will not be referenced in this study
•Any inadvertent discovery of illegal activities will be reported in compliance with Irish state laws.
•Direct quotations will be verified for their contextual appropriateness
•No audio recordings will be made available to anyone other than the research/research team, nor will any such recordings be replayed in any public forum or presentation of the research. All such recordings will be deleted after the study.

Declaration by participant:

•I am 18 years or older and am competent to provide consent.
•I have read, or had read to me, a document providing information about this research and this consent form. I have had the opportunity to ask questions and all my questions have been answered to my satisfaction and understand the description of the research that is being provided to me.
•I agree that my data is used for scientific purposes and I have no objection that my data is published in scientific publications in a way that does not reveal my identity or the identity of my organization.
•I understand that if I make illicit activities known, these will be reported to appropriate authorities.
•I understand that I may stop electronic recordings at any time, and that I may at any time, even subsequent to my participation have such recordings destroyed (except in situations such as above).
•I freely and voluntarily agree to be part of this research study, though without prejudice to my legal and ethical rights.
•I understand that I may refuse to answer any question and that I may withdraw at any time without penalty.
•I understand that my participation is fully anonymous and that no personal details about me will be recorded.
•I understand that if I or anyone in my family has a history of epilepsy then I am proceeding at my own risk.
•I have received a copy of this agreement.

A review of ICT Shared Services in NSB's

*1. Do you agree to the above terms?

☐ Yes

☐ No

A review of ICT Shared Services in NSB's

Organisation Profile

The purpose of this page is to gather profile data about your organisation which could be related to ICT Shared Services.

Each question is optional. Feel free to omit a response to any question; however the researcher would be grateful if all questions are responded to

2. NSB Country

[   ]

3. What is the size of your NSB

○ under 200 employees

○ 201-500 employees

○ over 500 employees

4. Please provide list of top 10 IT Systems in your NSB and specify if in-house//out-house/shared service/cloud

[   ]

5. Enter no of full time equivalent ICT staff in your NSB

[   ]

6. What percentage of your NSB's annual budget is spent on ICT shared services?

[   ]

7. Which of these sectors does your NSB belong to?

☐ Public

☐ Private

☐ Not for profit

☐ Other

[   ]

8. Please list your main business functions

[   ]

A review of ICT Shared Services in NSB's

9. List in order of merit the factors that contributed to successful shared services implementations

	Common Business Requirements

	Trusted Relationship

	Similar IT Governance Structure

	Similar Schedule

	Similar Budget

	Other factors

**10. What other factors contributed to the successful implementation of a shared services
solution in your NSB?**

11. What factors in order of merit contributed to a lack of take-up or failure of a shared services in your NSB?

	Lack of common business requirements

	No relationship or links with shared services provider

	Different IT Governance structure

	Different schedule

	Different budget

	End user influences

**12. What other factors contributed to lack of takeup or failure of an implementation of a
shared services solution in your NSB?**

A review of ICT Shared Services in NSB's

IT Service Delivery structure in your NSB

These questions will assist in providing an insight into your existing IT Service delivery structure and the supporting IT Governance procedures. IT Governance in this context are oversight and monitoring structures/procedures to ensure that IT Projects are aligned to the business strategy and requirements and are selected/delivered and used in line with this agreed set of procedures and protocols. The analysis of this information will attempt to see if there are any links between the types of service delivery models and the success or failure of a shared services implementation.

Each question is optional. Feel free to omit a response to any question; however the researcher would be grateful if all questions are responded to

13. Please select from below the IT Service Delivery structure that best describes that within your NSB?

○ Centralised

○ Decentralised

○ Outsourced

○ Federated (eg centralized technical support with decentralised applications/business analysis)

Other (please specify)

14. Which of the following best describes the IT Governance structure in your NSB?

○ Ad Hoc

○ Fragmented

○ Consistent

○ Best Practice

Other (please specify)

15. How would you rate the strength of IT Governance in your NSB?

○ High   ○ Medium   ○ Low   ○ No Influence

16. Do you have an IT Strategy in place

17. If yes to above how often is the IT Strategy revised?

○ Annually

○ Every 3 Years

○ Over 3-5 years

A review of ICT Shared Services in NSB's

18. Are Shared Services included in the current IT Strategy?

A review of ICT Shared Services in NSB's

IT Systems Selection Background

This section will gather information on the key drivers and critical success factors for successful ICT implementations in general and then will focus on key drivers and critical success factors for ICT shared systems specifically

Each question is optional. Feel free to omit a response to any question; however the researcher would be grateful if all questions are responded to

19. Select the key drivers for use of ICT Systems in general within your NSB

○ Improve efficiency and performance

○ Be more competitive

○ Reduce costs

○ Other (please specify)

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[                                    ]
```

20. List in order of merit the factors that contributed to successful IT implementations

[ ]	Strong IT Governance
[ ]	Essential business need
[ ]	Buy-in from all participants
[ ]	Phased approach
[ ]	Other factors

A review of ICT Shared Services in NSB's

Decision Making/ Management structure of your NSB

The purpose of the next 2 questions is to understand what level of importance ICT has in your NSB and at what level are ICT decisions made.

Each question is optional. Feel free to omit a response to any question; however the researcher would be grateful if all questions are responded to

21. Where does the ICT function fit within your organizational structure?

⭕ Board   ⭕ Senior Management   ⭕ Operational Management

22. At what level is the IT Manager involved in the decision making structure within your NSB?

⭕ Board   ⭕ Senior Management   ⭕ Operational Management

A review of ICT Shared Services in NSB's

Shared Services Questions

The following questions will attempt to gather an insight into how ICT shared services might be more successful and beneficial for your NSB both now and in the future.

Each question is optional. Feel free to omit a response to any question; however the researcher would be grateful if all questions are responded to

23. What is proportion rating of existing it Systems in your NSB? 1 being largest and 4 being smallest

	1	2	3	4
in-house	◯	◯	◯	◯
out sourced	◯	◯	◯	◯
cloud	◯	◯	◯	◯
shred	◯	◯	◯	◯

24. What additional shared service systems would be beneficial to NSBs?

[   ]

25. How useful are existing shared service systems to your NSB?

◯ Very Useful   ◯ Useful   ◯ Not Useful

26. In what way do existing shared services systems fall short?

[   ]

27. What were the key drivers for participating in a shared services implementation? Select in order of priority

	1	2	3	4
To meet common NSB end user/regulatory requirements	◯	◯	◯	◯
To save money	◯	◯	◯	◯
To provide improved service	◯	◯	◯	◯
To share knowledge and experience	◯	◯	◯	◯

28. What were the key barriers to participating in a shared services implementation? Select in order of priority

	1	2	3	4
Incompatible schedule	◯	◯	◯	◯
No planned budget	◯	◯	◯	◯
No common need	◯	◯	◯	◯
Loss of control	◯	◯	◯	◯

A review of ICT Shared Services in NSB's

29. Imagine you are designing a shared service solution what factors would you consider in the planning and design?

30. What are your suggestions to increase participation in existing shared service options?

Appendix B Copy of Interview Questions in Face to Face interviews

Review of ICT Shared Services in National Standards Bodies

Interview Questions

This interview will expand on the survey questions as follows in semi-structured format in order to encourage further discussion and to elicit more ideas and feedback .

Each question is optional. Feel free to omit a response to any question; however the researcher would be grateful if all questions are responded to

Organisation Profile

Size - What is the size of your NSB

 – Does size impact on your organisation and systems design?

Regarding the Top 10 Systems - What was your rationale for selecting the platform to support these systems?

In relation to Budget for ICT Shared services - Would you like to increase/decrease that budget and do you foresee any difficulties doing this?

Staffing - Does this staffing structure have any impact on your decision making strategy when selecting ICT systems?

Business Sector - Given the business sector you belong to does it have any impact on your decision making strategy when selecting ICT systems?

Business Functions – Given the breakdown of system delivery platforms by business function, do you see any relationship between business function and the platform chosen?

IT Governance/Service Delivery Models/IT Managers Role and their impact on choice of system platforms

Could you expand on the prioritisation you placed on the critical success factors below from the survey and any other factors and explain them in relation to your shared service implementation please?

Common Business Requirements

Trusted Relationship

Similar IT Governance

Similar Schedule

Similar Budget

Could you expand on the prioritisation you placed on these factors from the survey below and any other factors and explain them in relation to shared service implementation that was not taken-up or failed please?

Lack of common business requirements

No relationship or links with shared services provider

Different IT Governance structure

Different Schedule

Different Budget

End user influences

What influence do you believe your IT Governance and service delivery model had on the take-up and success or failure of a shared services ICT solution?

Does you IT Strategy set out any objectives towards the use of ICT shared services and to what extent?

How would you distinguish the selection process and decision making criteria for IT systems in general against the same process for IT Shared Systems. What are the key differentials?

What impact does your organisational structure have on the decision making process for IT Systems and what part do you play in this process?

Current and planned use of ICT Shared Services compared to other platforms

Can you please summarise again the proportion of ICT Shared Services to other services in your NSB?

Do you plan to increase/decrease use of ICT Shared Services

What other ICT Shared Services would be useful?

Can you please discuss further the key drivers for take-up of existing shared services

Can you expand on factors that that prevented you from joining up with other proposed shared services options?

Imagine that you are part of a committee of people designing shared service systems for standards bodies

      a. What are the factors that you will make sure your committee considers in planning and designing these services?

      b. What are the things that you are sure would attract IT Managers/Super Users with responsibilities like yours to these services?

      Remember, these can be in many areas: costs, integrity, and quality of service.

Can you discuss further how participation in shared services projects can be increased?

How can existing shared services be made more beneficial to NSB's and how might NSB's achieve this as a group?

What are your suggestions for shared service options that could be offered to encourage more participation?

      c. To what extent should end-users be involved in the decision making process

      d. What should the service designers keep in mind to make these services very high quality?

Is there anything else we haven't discussed yet that you think is important for NSBs to know about selection and implementation of shared services options?