A SIMULATION APPROACH TO THE EVALUATION OF SHARED SERVICE CENTRES

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ABSTRACT

There is evidence that a lot of multi-nationals and other governmental companies have embarked on designing and building shared service centres.

There are both costs and benefits associated with the establishment of Shared Service Centres. Organisations are better served to ensure that they employ the best and most practical models to achieve their aims.

Various models have been used to enumerate the benefits and costs of Shared Service Centres. However, there is not enough research using alternate methods such as System Dynamics (SD[1]) modelling in evaluating Shared Service proposals.

There is a case to use an SD perspective as this is a less expensive and comprehensive way of evaluating a shared service proposal.

This research attempts to explore how an SD model can be developed and used as an inexpensive but effective way of complementing current approaches in evaluating an SSC proposal.

1. Introduction

1.1 Context of the Study

A Shared Service Centre (SSC) is: "A business unit that performs administrative transactions for numerous divisions or subsidiaries of the same company, rather than having those transactions conducted in every division or subsidiary". Deloitte Consulting (2003).

In essence a shared service provides back office functions such as finance and accounting/payroll /HR services. Shared Services are consolidated within one area to enhance service delivery (Longwood & Harris, 2007; Quinn, Cooke, & Kris, 2000; Ulbrich, 2006).

This definition has been buttressed in different ways by other writers and consultants such as Arthur Little (2005); ACCA (2002); Bearing Point (2007),Borman, M and Janssen, M (2013).

The primary motivation for having Shared Services are to reduce costs, improve processes, reduce headcount and also to be more customer focused; ACCA (2002), PWC Austria (2011), BearingPoint (2007), Bangemann (2009),Begeron (2003), Schulman et al (1999) and SAP (2004).

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[1] SD implies system dynamics and both are used interchangeably in this paper.

The advantages of SSC's[2] include; Process standardisation, information consistency etc. The disadvantages include: high staff turnover and difficult staff motivation; ACCA (2002).

1.2 What is the Problem?

- Current approaches for the design and build of SSC's compartmentalises the SSC model into various stages; PWC Austria (2011), BearingPoint (2007).
- Although, projects can be done in stages, the current existing literature review supports the notion that current approaches do not provide a holistic view of the interdependencies amongst all the various stages of the design and building of SSC's (See also 1.5 below).

1.3 Why is it a problem?

- Organisations have experienced financial losses due to badly designed SSC models. UK National Audit Office (2008, 2011), Computing.co.uk (2011).
- The payback time for an SSC can be as long as four to six years and it is important that organisations are very clear about their strategy and potential costs before they embark on the project ACCA (2002).

- The underestimation of the demands and requirements of large complex projects such as an SSC can have unintended consequences, on employee morale, customer relations etc.; (Sterman 1992), (UK National Audit Office (2008, 2011).

- Current "traditional" Investment appraisal methods do not lend themselves to the measurement of other benefits (Kennedy 2003) associated with SSC's.
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1.4 Research question and objectives

The main aim of this research is to explore how an SD[3] model can be developed and used as an inexpensive but effective way of complementing current approaches in evaluating an SSC proposal (See 2 below for further discussions). There are 6 main objectives in this research work which are enumerated in section 2 below.

1.5 CURRENT LITERATURE/THEORY

The current literature shows that current SSC models use a phased approach for the design and building of an SSC. What this implies is that they do not take into consideration (or to a lesser extent) the interconnectivity between/among the various stages. Thus there is a need to have a holistic view of the SSC architecture. The table below shows the gap analysis, identified in the current literature.

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[2] SSC's implies Shared Service Centres and both are used interchangeably in this paper.
[3] SD implies system dynamics and both are used interchangeably in this paper.

- **GAP ANALYSIS FOR THE USE OF SYSTEM DYNAMICS FOR THE SSC ARCHITECTURE**

GAP ANALYSIS FOR THE USE OF SYSTEM DYNAMICS FOR THE SSC ARCHITECTURE FRAMEWORK					
Issue	**Current SSC models**		**GAP analysis**		**System Dynamics (Causal Loop Diagram)**
Description	Current models use a more phased approach in the SSC Architecture framework. In effect a compartmentilsation approach is used		To understand the SSC Architecture framework better it is argued that a systemic approach is used. This is where System Dynamics can be valuable		It has been argued that in order to understand the impact of organisational design, organisations should be viewed and analysed as systems since they are involved in value creation
Who	PWC Austria (2011), Bearings Point (2007) etc.		This research work		This research work

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1.6 Why SD can be used
- There are many models relating to SSC's but there is very little that defines SSC's from a system dynamics perspective. SD provides a holistic and systematic approach to understanding dynamics within a system (Oliver et al 1997).
- In addition the reasons given under 1.3 above **"why is it a problem"** supports the use of SD as a tool.

1.7 Overview of Research Methodology (Paradigm. Methodology, Methods- See 4.2 below)
This research uses an interpretivism approach **(Research Paradigm)** , Case Study research is used (**Research Methodology)** and the **Research Method (Techniques)** is divided into 3 phases. This paper discusses the results related to the initial pilot study in phase 1**.**

The criteria below are used to judge the quality of the research design. The research design was modelled on Yin (2009) and Farquhar (2012) suggestions.

CRITERIA FOR JUDGING THE QUALITY OF THE RESEARCH DESIGN			
TESTS	**CASE STUDY TACTIC**	**PHASE OF RESEARCH IN WHICH TACTIC OCCURS**	**THIS RESEARCH**
Construct Validity	Use multiple sources of evidence	Data Collection	Three different respondents (expert opinion) used. In addition secondary data (financials used). Peer review of document
Internal Validity	Use Logic Models	Data analysis	Causal Loop Diagrams (gap analysis). Simulation: System Dynamics
External Validity	Use theory in single case studies	Research Design	Literature review
Reliability	Develop case study database	Data Collection	Case study database Developed (Questionnaires etc.)

1.8 UNIT OF ANALYSIS AND CASE STUDY CHOICE
The unit of analysis was a major multi-national company that had or had embarked upon multiple shared services in Europe and also around the globe.

1.9 Initial Work undertaken

A pilot study (phase1) was undertaken where 3 experts from this organisation provided responses to a questionnaire.

1.10 Initial Findings and Conclusion

The findings supported some of the theoretical assertions in the literature review, such as

1. Motives/reasons why the SSC was established
2. Phases of the SSC
3. Furthermore it also supported the impact of certain variables on the design of the SSC using a causal loop diagram (CLD) as designed by the researcher using his mental modes/literature review.
4. However it also identified the need to look at the establishment of the SSC from a holistic perspective and this is where the System Dynamics (SD) approach will be deployed.

2. Aims and Objectives.

The main aim of this research is to **explore how an** *SD* **model can be developed and used as an inexpensive but effective way of complementing current approaches** *in evaluating an SSC proposal.*

2.1 Objectives

This aim is accomplished via the specific objectives listed below

-   **OBJECTIVE 1:** To understand the factors and variables that impact on the design/build of an SSC using current SSC model approaches (SSC Life cycle).

-   **OBJECTIVE 2:** To discover whether an SD model has been used in the design of the SSC and whether it was beneficial.

-   **OBJECTIVE 3:** To explore how an SD model could be potentially developed and used as an inexpensive but effective way of complementing current approaches.

-   **OBJECTIVE 4:** To understand the reasons/motives of why the SSC was established and whether the benefits envisaged have been achieved.

-   **OBJECTIVE 5:** To discover whether the benefits envisaged using current *approaches (*SSC life-cycle phases/stages) have been achieved.

-   **OBJECTIVE 6:** To add to the existing SSC literature

2.2 System Boundary and time horizon

-   The system boundaries being studied are SSC's that have already been established.
-   The time horizon of the case study is up to 18 months from the SSC conceptualisation, design and build to implementation/post implementation.

2.3 Research Question

How can an SD model be constructed that can complement (offer advantages over) current approaches in the evaluation of a Shared Service proposal?

2.4 Research Strategy

Case Study (exploratory) is the strategy used in this research.

2.5 Outcome of the research - Who are the potential beneficiaries

- These are public and private sector organisations, including the unit of study that are considering embarking or have embarked on establishing an SSC.
- The research is expected to help provide a variety of policy intervention tool(s) for supporting decisions regarding the establishments of SSC's.
- This research work will also add to the limited body of research regarding the investment appraisal of SSC's using system based approaches.

2.6 Research Contribution to Knowledge. This research will contribute to knowledge by providing *a model that can be used as an inexpensive but effective way of complementing current approaches* *in evaluating an SSC proposal. In addition by taking the SD technique and applying it to the area of SSC's, contribution to knowledge is facilitated. This will also contribute to the existing body of literature as there is not enough literature written about SSC's; Janson et al (2006); Rohith (2013).*

3. Literature review

3.1 Shared Services Architecture

What is a Shared Services and why do we have them? See Section 1.1 above.

3.12   SSC's application in private and public sectors

SSC's have been applied in both private and public sectors. According to Bergeron (2003) about half of all fortune 500 companies have established a form of SSC

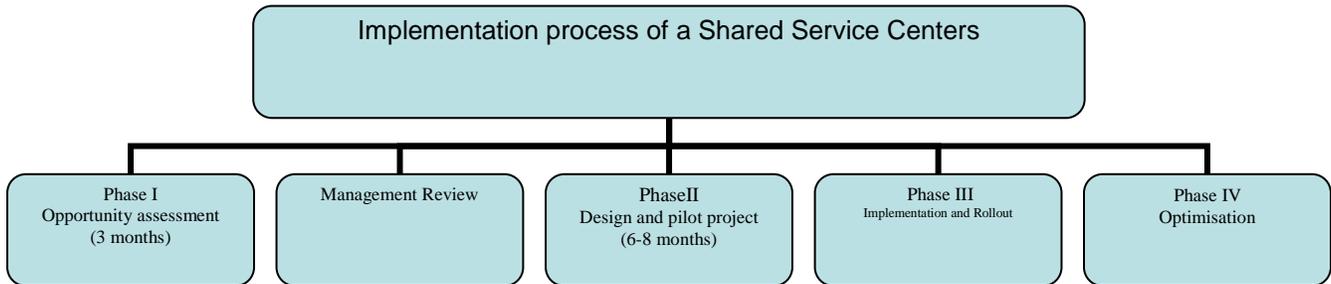**Shared Service models**

There are 3 main Shared Services models; PWC Austria (2011). These are **Regional, National** and **Global.**

STAGES OF THE SSC
There are 5 basic stages (including the management review) in the design/implementation of a shared service centre; PWC Austria (2011), BearingPoint (2007), Bangemann (2009), Deloitte (2011). These are shown in the diagram below

Figure 1 <u>**Implementation process of a Shared Service Centers**</u>

Implementation process of a Shared Service Centers

Phase I Opportunity assessment (3 months)	Management Review	PhaseII Design and pilot project (6-8 months)	Phase III Implementation and Rollout	Phase IV Optimisation

Source: PWC Austria-2011

- The Opportunity Assessment Phase defines the main base line for which the activities will be undertaken including the business case etc. This normally takes about 3 months

- Management Review allows management to review and provide authorisation, project funding, etc.

- The Design and Pilot Project, is the stage where detailed analysis, such as operating procedures, required staff levels; etc. are carried out. This normally take about 6-8 months

- Implementation and Rollout phase is the phase where the entire plan is rolled out to the organisation. This phase is determined in The Opportunity Assessment Phase.

- The optimisation phase is the phase that involves the continuous improvement of the shared services, technologies and re-engineering of the processes

The above model is similar to various models used by Bearing Point (2007), Deloitte and Touché (2005), Bergeron (2003), Bangemann (2005) and various other management consulting companies.

3.2 Benefits and disadvantages of SSC's

Benefits

PWC Austria (2011); JP Morgan Chase (2004) ACCA (2002), Janssen et al (2006); identify the benefits of Shared Service Centres as

- Involving a clear separation of responsibilities
- Effective Quality assurance
- Standardisation of processes
- A definition of acceptable quality standards
- Clearly defined customer supplier relationships based upon service level agreements
- Consistency of information
- Performance and control management via service level agreements
- Improved decision making

SAVINGS POTENTIAL

On average there are considerable savings that can result from having a shared service center PWC Austria (2011). This is shown in the Table 2[4] below

Table 1   SSC Savings by PWC Austria (2011)

Business Function	Finance	Human Resources	Procurement	IT
Target Costs	0.50%	0.20%	0.20%	0.60%
Median	1%	0.40%	0.30%	1%
Lowest Quartile	1.6%	0.90%	0.50%	2%
Savings Potential as a Percentage of Total Costs	30-50%	30-50%	25-40%	25-40%

SSC Disadvantages

Disadvantages of Shared Service Centres according to the ACCA (2002) include

- High Staff Turnover
- Culture and Communication challenges
- Challenges with motivating staff
- Lack of proper Plan implementation and management (The UK National Audit Office in 2008).

3.3 Areas of applications

The main areas of application include the following[5]

- Finance, Information Technology, Human Resources, Supply management and Customer Services.

3.3a Summary of Key criteria/variables in shared service centres

The literature review shows that the SSC models have certain common characteristics. These are Cost reduction and the aim of developing efficient processes. Therefore it is argued that the main tenets (characteristics) of the shared services are but not limited to (below)

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[4] Source: PWC Austria (2011)

[5] PWC Austria (2011), ACCA (2002), Bangemann (2009) Deloitte and Touche (2005)

Area	Activity
Selection of Service delivery model	Understand risks and benefits including the value chain of the organisation
Critical Success Factors	Vision, Strategy and Senior Management Support
SSC Phases (Stages)	Feasibility Stage, Design & Build, Pilot and Implantation /Post Implementation

3.4 Weaknesses in current SSC models

See Sections 1.2 (What is the Problem) and 1.3 (Why is it a problem) above**.**

3.5 The case for viewing SSC'S as Enterprises that create value and as systems

Given the current weaknesses inherent in the design and build of SSC's it is argued that SSC's should be viewed as systems that help organisations to achieve their aim of maximizing shareholder value etc. Models such as Michael Porter (1985) and the Enterprise Lifecycle (US Treasury 2000) are relevant in this respect.

Porter's (1985) VALUE CHAIN ANALYSIS

It is argued that the ultimate aim of SSC's are to provide value for their shareholders/owners or enterprise. They deliver this by meeting customer requirements etc. It is thus argued that there is a value chain associated with the creation, implementation and operation of an SSC. Porter's (1985) value chain depicts this clearly by arguing that all the various parts (primary and support activities) acting together provide or create value for the organisation. It is thus argued that this is applicable to SSC's.

Enterprise Lifecycle (ELC) [6]: The ELC (2000) opines that a life-cycle implies reviewing the system from beginning to end. Understanding these attributes helps to understand the system better and allows for designing, building and implementing a better enterprise

WEAKNESS OF THE ENTERPRISE LIFE CYCLE

Although the enterprise life cycle (ELC) lists out the variables of what drives the enterprise, it fails to look at the interdependency within the system. By using system thinking tools such as causal loop diagrams (CLD) one is able to better understand the ELC.

3.6 Organisations as systems.

To understand the system we need to understand the linkages among the various components of the system. It is only by doing this that we are able to prescribe better solutions for the system. Thus all the inputs, outputs, processes and feedbacks must be understood. (Clipper Organisation Solutions (2012))

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6 Source: Treasury Enterprise Architecture Framework. Version 1, July 2000   PP26; US Department of the Treasury Chief Information Officer Council

3.7 Strategy and Planning phase is important

To achieve an effective SSC, it is argued that strategy is key. Getting the strategy and planning right will help ensure a positive plan, design and execution.

If the strategy is wrong, it can have disastrous consequences for the organisation in terms of costs etc. Strategy sets out what direction and what the organisation needs to do; Grant (2005); Koch (2006). Kaplan et al (2004) uses the concept of the balanced scorecard, saying that Strategy can be measured. It is only by having a defined measurable strategy that the organisation can achieve its goals. They advocate that successful strategy execution involves 3 components

"Breakthrough results = Describe Strategy + Measure Strategy +Manage Strategy".

According to them "you cannot manage what you cannot measure"
They use strategy maps to depict the relationship between strategy and the common elements.

It is clear from the above discussions on strategy that an effective Strategy is key to delivering the SSC architecture.

3.8 A case for Systems Thinking

The above models support the view that to understand organisations one needs to examine the whole system and not only the individual parts. This enables one to design/build a better organization that creates value.

However these theories do not comprehensively address the cause/effect relationships within the system that can help explain and refine the system better. SD can help with this.

3.8a System Dynamics[7]

System Dynamics operates on the feedback and control approach, i.e. the system feeds back information and the information is used to control the entire system.

Sherwood (2002) has argued that "systems display characteristics that are properties of the system as a whole and are not characteristics of any of the individual components. Since these special properties exists only at the system levels no amount of study of the component parts can identify their existence"

System Dynamics operates on **2 basic tenets, which are** a pair of ideas

a. Information and resources

This is fundamental to system dynamics. Information is the non-physical means as compared to resources, which is physical. Resources are for example the products for a manufacturing company (physical) and Information is the basis by which the decisions on how best to optimise the resources or transform the resources are used.

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[7] See Appendix A for a description of hard and soft models.

b. Rates and levels (Flows and stocks)

Rates refer to the flow of resources within the system, which may give rise to an increase in the levels of the resources.

Forrester (1961) is the originator of the ideas of Systems Dynamics (SD). Other writers such as Wolstenholme (1982), Meadows (1972), Sterman (2000) have developed and used the tools and model types of SD.

3.8b CAUSAL LOOP DIAGRAMS[8] (CLD)

According to Sterman (2001), "to improve our ability to learn about and manage complex systems, we need tools capable of capturing the feedback processes, stocks and flows, time delays, and other sources of dynamic complexity. The tools must also enable us to understand how these structures create a system's dynamics and generate policy resistance. They must help us evaluate the consequences of new policies and new structures we might design. These tools include causal mapping and simulation modelling".

CLD's (Causal Loop Diagram's) are a means to show feedback structure within systems and system thinking helps us to simplify the complexity of real systems which evolve overtime Sterman (2000); Sherwood (2002). This helps to explain and predict the current and the likely future.

Understanding the chains of causality and the cause and effect relationships between/among the various variables within the system is key. A Causal Loop Diagram can be used in this respect.

3.9 Gap Analysis

It is clear from the above discussions that System Dynamics can assist in structuring and understanding organisations as systems. The diagram below shows the gap analysis identified in the literature review which supports the notion that SD can be used in the SSC architecture.
Figure 2 below depicts the Gap Analysis.

Figure 2

GAP ANALYSIS FOR THE USE OF SYSTEM DYNAMICS FOR THE SSC ARCHITECTURE FRAMEWORK					
Issue	**Current SSC models**		**GAP analysis**		**System Dynamics (Causal Loop Diagram)**
Description	Current models use a more phased approach in the SSC Architecture framework. In effect a compartmentilsation approach is used		To understand the SSC Architecture framework better it is argued that a systemic approach is used. This is where System Dynamics can be valuable		It has been argued that in order to understand the impact of organisational design, organisations should be viewed and analysed as systems since they are involved in value creation
Who	PWC Austria (2011), Bearings Point (2007) etc.		This research work		This research work

3.91 Justification for the proposed use of SD

- See Sections 1.2 and 1.3 above

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[8] Causal Loop Diagrams is referred to as CLD and it will be used interchangeably in this work

4. Research Methodology,Methods

4.1 Introduction

The basis for the methodology is derived from the objectives/propositions as espoused in section 2 above.

4.2 Overview of Research Paradigm. Methodology, and Methods

The table below shows the overview of the research approach adopted.

Table 2   RESEARCH APPROACH[9]

Area	Definition	This Research
Research Diagram	Philosophical framework governing how scientific research should be conducted	Interpretivism
Research Methodology	Approach to the process of research encompassing a body of methods	Case Study approach (Systems Thinking (ST) Simulation modelling encompassing knowledge elicitation
Research Methods	Broad Methods deployed to achieve the research methodology	Empirical Knowledge elicitation followed by Systems Thinking (ST) and simulation (System Dynamics)-CLD and Stock and Flows
Research Techniques	Techniques for data collection, analysis and knowledge representation	Questionnaire (sent by post/email/telephone interview and observation/discussions) followed by quantitative and qualitative analysis, leading to the construction of a qualitative ST/SD model and a quantified simulation (System Dynamics) model.

Research Paradigm: This research uses an interpretivism approach.
Table 3 below summarises this.

Table 3 Research Paradigm and Justification for the Interpretivism[10]

Positivism(Social Reality is singular, objective and not affected by the act of investigating it)	Interpretivism (Social Reality is in our minds and is subjective and multiple)	Justification (This research)	Conclusion(This research)
Use of Large Sample	Use of Small Samples	Small sample size 1-6	Interpretivism
Have an artificial location	Have a natural location	Have a natural setting (work place)	Interpretivism
Be concerned with hypothesis generation	Be concerned with generating theories	Mixed	Mixed
Produce precise quantitative data	Produce rich subjective data	Data is Mixed	Mixed
Produce results with high reliability but low validity	Produce results with low reliability but high validity	Validity of findings can be less prevalent as for an example responding to questions based upon their own subjective interpretations	Interpretivism

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[9] Adapted from Collis & Hussey (2009). Note that the columns justification and conclusion are my interpretations. See footnote 4.

[10] Adapted from Collis & Hussey (2009) "Business Research" A Practical guide for undergraduate and postgraduate studies. Note that the columns justification and conclusion are my interpretations

Allow results to be generalised from sample to the population	Allow findings to be generalised from one setting to another similar setting	Generalisations from one company to another (settings)	Interpretivism

Research Approach (Methodology)

Various writers such as Creswell (2014 and 2015), Cassell (2012), Casell et al (2009), Mertens (2014 and 2015), Syjka (2012),Trainor et al (2014), Sandelowsk (2015) , Mackenzie et al (2006), Johnson et al (2006),Horsburgh (2003), Barbour et al (2003), Barnham (2015), Baxter et al (2008) , Anderson (2010), Farquhar (2012), Yin (2009), Guba and Lincoln (1989) write about the various approaches to conducting qualitative research which are very similar in practice. ***Case Study Research*** is the strategy used in this research work.

4.3 Research Justification for the use of case study (Why the use of Case Study)

Case study (exploratory) research is relevant in this situation

- as there is a need to investigate the nature and background of why this multinational organisation embarked on an SSC;
- whether they used an SD model in their initial design and
- Are achieving the benefits as designed.
- There is also a scarcity of empirical evidence relating to SSC's; Janssen et al (2006), Rohith (2013) thus the need for an exploratory case study.
- Furthermore one will be dealing with a complex and broad phenomenon and the current existing knowledge is insufficient and does not allow the posing of potential unstructured/causal questions; Janssen et al (2006); Collis et al (2009); Yin R.K (2003,2009 and 2015), Farquhar (2012). We need to understand/explore the issues in the natural settings of the organisation.
- There is also a requirement to have access to in depth potential confidential/sensitive data.

4.4 Research Methods

PHASE 1:
1. Examine and review the current literature regarding the design and building of SSC's and also system dynamics.

2. Construct a questionnaire based upon the literature review. In addition construct a CLD model based upon the current literature and the researcher's mental modes. The aim is to validate the current existing shared service models and SD techniques as emphasised in the existing literature. The questionnaire was structured into 5 main areas that reflected the 5 objectives that were initially espoused.

3. A pilot study was undertaken with a major multinational company. The questionnaires developed were sent to 3 managers to obtain feedback. This was done in February-April 2013.

The 3 experts had a minimum of 12 years' experience per individual and had been heavily involved in designing and implementing SSC's at various stages. The researcher also has over 15 years of business and SSC experience

The survey was done based upon similar surveys done by the ACCA (2002), Deloite and Touché (2005) and the relevant literature regarding SSC's and SD (Yin 2009).

The aim was to help operationlise the objectives. In addition it will help to select the most important candidates for the CLD and select the correct questions to be asked.

4. The results received from the survey (expert opinion) was analysed in relationship to the literature review.

Questionnaire-design
The methods used builds upon survey work undertaken by the ACCA (2002) and Deloitte & Touché (2005). The theoretical framework discussed in the Literature review has heavily influenced the role of the case study and research design including the questionnaire (Yin 2009).
The questionnaire is structured to be able to address the specific objectives in Section 2.

The SD modelling technique
The model follows the basic characteristics of most SD models as defined by Oliver et al (1997) Sterman (2000).

CAUSAL LOOP DIAGRAMS
The dynamic characteristics of the system are defined through the qualitative modelling process using causal loop diagrams which applies logical descriptions of cause and effect.

SOFTWARE
The SD software "Vensim" was used for the CLD diagram.
The SPSS software was used to analyse the descriptive characteristics of the survey/questionnaire response.

4.5 Criteria for judging the quality of the research design[11]

The following 4 tests as identified by Yin (2009), Farquhar (2012) were used to judge the quality of this research work.
- Construct Validity- correctly identifying the operational measures for the concept of study
- Internal Validity- establishing causal relationships
- External Validity- Generalisability of the study
- Reliability- Repeatability of the study

This is summarised in section 1.7 above.

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[11] Adapted from Yin 2009

4.6 Ethical Considerations

The table below summarises the ethical considerations taken into account and how they have been addressed. This was addressed by obtaining

- Approval from the relevant university authorities before data was gathered
- Respondents were verbally informed and also on the questionnaire that all responses/information gathered are confidential.
- Data was kept on a safe hard disk and data is shared only on a need to know basis

4.7 SINGLE CASE STUDY

A single case study has been chosen because the study of an SSC is a typical case study and the current methodology appears to be similar for any SSC established.

In addition, the use of SD to evaluate an SSC proposal will be revelatory in nature. Yin (2009).

4.8 Unit of Analysis

A major multinational company was used.

5. INITITAL RESEARCH RESULTS AND DISCUSSIONS (LINKING DATA TO PROPOSITIONS)

The discussions are based upon the earlier objectives that were espoused and as they relate to the theory. (Yin 2009).

OBJECTIVE 1: (See 2 above) -ANALYSIS OF FACTORS INFLUENCING THE DESIGN/BUILD OF AN SSC IN RELATIONSHIP TO THE CONSTRUCTED CAUSAL LOOP DIAGRAM[12]

1. **Critical Success factors:** Respondents identified the following as factors that influenced the design of the SSC. Organisational Strategy, Support from Senior executives and effective Project Execution.

2. **Impact of factors on cost of SSC**: Human Resources, Good Infrastructure and Project Management were identified as factors that impact on the cost of an SSC.

3. **Impact of factors on design of SSC:** In addition respondents identified that the SSC variables/factors such as Infrastructure, Human Resources, Project Management, Costs/Benefits, Effective SSC design and Build has an impact on the design of the SSC and vice versa.

4. **Impact of strategy design on variables/factors**: Respondents mainly identified the SSC strategy design as impacting the SSC variables/factors such as Human Resources, Infrastructure, Effective SSC design and Project Management.

5. **Impact of variables on strategy design:** Respondents identified Human Resources, Effective SSC Design and Build and Infrastructure had an impact on the initial SSC strategy design in the establishment of the SSC.

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[12] See Figure 3 below for the Causal Loop Diagram

6. **Impact of strategy design on other variables/factors:** Respondents identified that the initial SSC strategy design had an impact on one or more of the factors in establishing the SSC such as Costs, Effective Organisation, and Benefits.

7. **Impact of other variables/factors on strategy design:** Respondents identified that SSC Costs, Company vision and effective organisation had an impact on the initial SSC strategy design in the establishment of the SSC**.**

This supports the initial argument relating to the interconnectivity (cause/effect relationship) of the variables as identified by this researcher in the CLD model (Figure 3).

In addition this supports the variables identified by the ACCA (2002); PWC Austria (2011); Bearings Point (2007); Kaplan et al (2004) Grant (2005) that impact on the design and build of an SSC although in their models the cause and effect relationships are not clearly depicted. (See table 4 below)

Table 4

FACTORS INFLUENCING THE DESIGN AND BUILD OF AN SSC			3 EXPERTS (PILOT STUDY)	
Area	Question	Factors	Survey Response	Percent
Criitcal Success Factors	Que 10. Which of these areas are the most critical success factors in the design and build of an SSC in your opinion? (Select all applicable variables)	Other-Strategy,Support from Senior Execs and Project Execution	Other-Strategy,Support from Senior Execs and Project Execution	66.7
		other-Strategy, Effective Project Execution	other-Strategy, Effective Project Execution	33.3
		Total	**Total**	**100.0**
Impact of factors on cost of SSC	Que 15. Please state whether any one or more of the below factors has had an impact on the costs of establishing the SSC. (HR, Infrastucture, Project Management, Effective SSC Design and Build, All ofthe above)	Human Resources	Human Resources	33.3
		Other-Infrastructure and Project Management	Other-Infrastructure and Project Management	33.3
		other-Project Management, Effective SSC Desgn	other-Project Management, Effective SSC Design	33.3
		Total	**Total**	**100.0**
Impact of factors on design of SSC	Que 16. Please state whether any one or more of the below factors has had an impact on the benefits derived in the establishment of the SSC. (HR,	Infrastructure	Infrastructure	33.3
		Other-Infrastructure, Effective SSC Design	Other-Infrastructure, Effective SSC Design	33.3
		All of the above	All of the above	33.3
		Total	**Total**	**100.0**
Impact of strategy design on variables/factors	Que 17: Please state whether the initial SSC strategy design had an impact one or more of the below factors in establishing the SSC. (HR, Infrastucture, Project Management, Effective SSC Design and Build, All ofthe above)	Other_ Infrastructure, Project Management and Effective SSC Design	Other_ Infrastructure, Project Management and Effective SSC Design	33.3
		other-Human Resource (HR)s, Infrastructure, Project Management	other-Human Resources, Infrastructure, Project Management	33.3
		other- Human Resources (HR) and Infrastructure	other-HR and Infrastructure	33.3
		Total	**Total**	**100.0**
Impact of variables on strategy design	18. Please state whether any one or more of the below factors has had an impact on the initial SSC strategy design in the establishment of the SSC. (HR, Infrastucture, Project Management, Effective SSC Design and Build, All ofthe above)	Infrastructure	Infrastructure	33.3
		Human Resources,Infrastructure and Effective SSC Design and Build	Human Resources,Infrastructure and Effective SSC Design and Build	33.3
		other- Human Resources (HR) and Infrastructure	other- Human Resources (HR) and Infrastructure	33.3
		0		
		Total	**Total**	**100.0**
Impact of strategy design on other variables/factors	19. Please state whether the initial SSC strategy design had an impact on one or more of the below factors in establishing the SSC. (costs, Benefits, Company Goals/Vision, Effective Organisation, All of the above)	All of the above	All of the above	33.3
		Costs, Effective Organisation, Benefits	Costs, Effective Organisation, Benefits	33.3
		Other-Costs,, Company Goals and Vision, Effective Organisation	Other-Costs,, Company Goals and Vision, Effective Organisation	33.3
		Total	**Total**	**100.0**
Impact of other variables/factors on strategy design	Que 20. Please state whether any one or more of the below factors has had an impact on the initial SSC strategy design in the establishment of the	All of theabove	All of theabove	66.7
		other-costs,company vision and effective organisation	other-costs,company vision and effective organisation	33.3
		Total	**Total**	**100.0**

- **OBJECTIVE 2: (See section 2 above)**

Respondents had never used an SD model in any of their SSC design approaches. The main tool used was a 6Sigma project methodology. This is understandable as this multinational Group mainly uses 6 Sigma as the project Management tool. However this goes to buttress the point that there is a scarcity of data relating to SSC's Janssen et al (2006) and that SD has not been used in the design of the SSC.

OBJECTIVE 3: (See section 2 above) A preliminary CLD was constructed from the relevant literature and the researchers mental modes (See Figure 3 below). Furthermore the questionnaire was used to

help document the initial understanding of the cause and effect relationships. The software Vensim was used to build the initial CLD.[13]

Figure 3

SSC CAUSAL LOOP DIAGRAM

Sun Jul 14, 2013 7:09PM

The definitions of the loops and the logic/flows such as (BO1, R1) are defined in Figures 9 and 10 below.

Figure 4

Balancing Loops Explanation	BO1	Well Defined Organisational Goals and Strategy	**+**	An Effective Strategy/ plan	**+**	Effective Project Management and Execution	**–**	Costs/Tangible/ Intangible	**+**	An Effective Strategy/plan		
	BO2	Well Defined Organisational Goals and Strategy	**+**	An Effective Strategy/ plan	**+**	Effective Human Resources and Execution	**–**	Costs/Tangible/ Intangible	**+**	An Effective Strategy/plan		
	BO3	Well Defined Organisational Goals and Strategy	**+**	An Effective Strategy/ plan	**+**	Effective SSC Design and Build	**–**	Costs/Tangible/ Intangible	**+**	An Effective Strategy/plan		
	BO4	Well Defined Organisational Goals and Strategy	**+**	An Effective Strategy/ plan	**+**	Effective Infrastructure	**–**	Costs/Tangible/ Intangible	**+**	An Effective Strategy/plan		
	BO5	Well Defined Organisational Goals and Strategy	**+**	An Effective Strategy/ plan	**+**	Ability to Build and Operate an Effective SSC	**–**	Ineffective Processes/Sys tems and Managements	**–**	Constraints /Pressure on Management	**–**	An Effective Strategy/plan

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[13] A (+) sign means there is a positive relationship and a (-) sign means a negative relationship.

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Figure 5

Reinforcing Loops Explanation	R2	Well Defined Organisational Goals and Strategy	+	An Effective Strategy/plan	+	Effective Project Management and Execution	+	Benefits/Tangible/Intangible	+	An Effective Strategy/plan				
	R3	Well Defined Organisational Goals and Strategy	+	An Effective Strategy/plan	+	Effective Human Resources and Execution	+	Benefits/Tangible/Intangible	+	An Effective Strategy/plan				
	R4	Well Defined Organisational Goals and Strategy	+	An Effective Strategy/plan	+	Effective SSC Design and Build	+	Benefits/Tangible/Intangible	+	An Effective Strategy/plan				
	R5	Well Defined Organisational Goals and Strategy	+	An Effective Strategy/plan	+	Effective Infrastructure	+	Benefits/Tangible/Intangible	+	An Effective Strategy/plan				
	R1	Well Defined Organisational Goals and Strategy	+	An Effective Strategy/plan	+	Ability to Build and Operate an Effective SSC	+	Effective Service Delivery	+	Profitability	+	Shareholder Value	+	An Effective Strategy/plan

Respondents largely agreed with the variables selected in the CLD. *This confirmed the argument in this research that it is important to understand the linkages between the variables and the system as a whole.* Furthermore this to a larger extent supports the theory by Porter (1985), The Enterprise Life Cycle; Sterman (2000); Sherwood (2011); Clipper Organisations (2012),

Feedback from respondents regarding the causal loop diagram shows that there is an interconnection between/amongst the various SSC stages. For example the announcement of the setting up of the SSC led various experienced staff to leave the company, before a replacement was found.

This would have been done in phase three of the SSC stages (per the literature review), which was too late as the business suffered and more temporary staff had to be recruited, which then increased costs further in addition to the loss of vital knowledge for the organisation. The causal loop diagram that was designed clearly showed the feedback between/amongst the various variables and this would have helped to minimise this type of risk.

Also cost was mentioned as a major variable of impact (100% response rate). This will help in redesigning the CLD in the next phase of the research.

- **OBJECTIVE 4: (See section 2)**

The following reasons/motives were established by respondents as the basis for the establishment of an SSC. Political, Strategic and Organisational, and Economic. Information Technology (IT) was not a factor/motive in the establishment of the SSC.

Furthermore the savings achieved for economic, political and Strategic and Organisational goals was somewhat mixed although all respondents agreed that there was some form of savings achieved.

However in terms of achieving the initial motives it appears most of the motives were achieved. See table 7 below. However most respondents emphasised that cost (100% response rate) was an essential factor. . This is in accordance with the findings of Janssen et al (2006); PWC Austria (2011), ACCA (2002), Deloitte and Touché (2005) regarding the motives for establishing

Table 5

AREA	OBJECTIVE/MOTIVE	WAS/THIS AN INITIAL MOTIVE		WAS THE MOTIVE ACHIEVED		WHAT PERCENTAGE OF THE TARGET MOTIVE WAS ACHIEVED	
		Percentage Agreed	Percentage Disagreed	Percentage Agreed	Percentage Disagreed	Percentage Agreed (>51%)	Percentage Agreed (<51%)
Political	Involving a clear separation of responsibilities	100		100		100	
	Performance and control management via service Level Agreements	100		100		67	33
	Improved decision making	66.7	33.3	66.7	33.3	66.7	33.3
Economic	Finance cost reduction	100		100		100	
	HR cost reduction	100		33.3	66.7	33.3	66.7
	IT cost reduction	33.3	66.7	100		100	
	Procurement Cost reduction	33.3	66.7	33.3	66.7	33.3	66.7
Strategic & Organisational goals	Clearly Defined customer/supplier relationships based upon Service Level Agreements	100		100		100	
	A standardisation of processes	100		100		33.3	66.7
	Quality Assurance	100		100		100	
	Consistency of information	100		33.3	66.7	33.3	66.7
	A concentration of the organisations main processes (Key Core Processes	100		100		100	
	A definition of acceptable Quality Standards	100		100		100	
Technical motives	Quality IT backup		100	66.7	33.3	33.3	66.7
	Access to IT facilities		100	66.7	33.3	100	

OBJECTIVE 5: (See section 2 above)

- Phase 1 (Opportunity Assessment Stage). Majority of respondents claimed that this phase lasted less than 3 months; 51 to 70% of the duration was achieved on time.
- Management Review: Majority of respondents claimed that this phase lasted less than 3 months; 21 to 50% of the duration was achieved on time.
- Phase II (Design and pilot project): Majority of respondents claimed that this phase lasted more than 12 months; 51 to 70% of the duration was achieved on time.
- Phase III (Implementation and Rollout): Majority of respondents claimed that this phase lasted more than 12 months; 21 to 50% of the duration was achieved on time.
- Phase IV (Optimisation): Majority of respondents claimed that this phase lasted more than 12 months; 51 to 70% of the duration was achieved on time.

COST SAVINGS ANALYSIS
- The overall target cost reduction was up to 50% of current costs at the time of the transition. Given that the main activities that were moved into the SSC were finance functions, the savings achieved were somewhat mixed, ranging from less than 20% to 50%. PWC Austria (2011) asserts that the savings potential for a finance function would be 30-50% of targeted costs. Although there were savings made it is still not enough to justify the PWC Austria (2011) stance.
- In addition a review of secondary data (statutory accounts) of the organisations that were transferred showed that the savings achieved was mixed and not substantial. We can therefore say that although there were savings the results are inconclusive.

TIMELINE FOR SSC PHASES/STAGES

The opportunity assessment stage took less than 3 months and this is in consonance with the PWC Austria (2011) model.

- It is noted that the design and pilot stage took over 12 months. This again is different to the PWC Austria (2011) assertion that this stage takes 6-8 months. It may be noted that there are complexities in every organisation and this may have accounted for the difference. This again supports the notion that the multinational organisation is a complex phenomenon and supports the choice of a case study research approach and understanding the interconnections among the variables. SD technique is useful in this regard.

6. Recommendations/Conclusions and summary

The Conclusions drawn from this research is that the results obtained mainly supports the theory (ies) regarding the objectives espoused in this research.

However, there were some areas where the results did not support the theory. This was for example the IT motives, cost savings and also the Design and build stage, which took over 12 months.

This then calls for a holistic understanding of the whole SSC system and this is where SD comes into place.

The constructed Causal Loop Diagram (CLD) in this research which was confirmed by the respondents clearly demonstrates the cause/effect relationship between/amongst the SSC variables.

The lessons for Policy makers is that, it is important to understand the linkages and interconnections between/among the SSC variables in order to make informed decisions about the design and build of the SSC.

6.1 Further Research

The pilot findings provide a basis for expanding the sample size and adding more multiple sources to provide further credence to the research undertaken.

6.2 Research Limitations

Due to the nature of case study based research, the research cannot provide definitive conclusions that will be applicable in all circumstances.

Bibliography

1. ACCA (2002); Cacciaguidi-Fahy S; Currie J; Fahy M; Research Report No. 79 "Financial Shared Services Centres: Opportunities and Challenges for the Accounting Profession" Certified Accountants Educational Trust, London, 2002.

2. Acoff Russell L.; Sasieni Maurice W (1968) Fundamentals of operations research New York [etc.] : John Wiley & Sons,

3. Anderson, Claire(2010); Presenting and Evaluating Qualitative Research; *American Journal of Pharmaceutical Education.*Nov2010, Vol. 74 Issue 8, p1-7. 7p.

4. Andrew Allan, March (2002)   Medical Consumers Association Inc. "Some notes on an Economic Model for building a business case for increased government support of Oral Health Service http://teeth.8m.com/emodel.htm Last accessed 19/11/2011.

5. Barbour, Rosaline S.; Barbour (2003), Michael; Evaluating and synthesizing qualitative research: the need to develop a distinctive approach; *Journal of Evaluation in Clinical Practice.*May2003, Vol. 9 Issue 2, p179-186. 8p.

6. Barnham, Chris (2015); Quantitative and qualitative research; *International Journal of Market Research.* 2015, Vol. 57 Issue 6, p837-854. 18p. 2

7. Baxter Pamela; Susan Jack (2008; Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchershttp://www.nova.edu/ssss/QR/QR13-4/baxter.pdf   Last accessed 26/12/2015

8. Broadbaker.com; System Dynamics and Modelling http://www.broadbaker.com/systdynmodeling.html ; Last accessed 19/11/2011.

9. BearingPoint Inc. (2007) "Shared Services Transforming business models through shared services"

10. Bergeron, B. (2003). Essentials of shared services. New Jersey: Wiley.

11. Bogdan, R.C., & Biklin S.K. (1998). *Qualitative research for education: An introduction to theory and methods.* (3rded.) Boston: Allyn and Bacon.

12. Borman, M., & Janssen, M. (2012). Reconciling two approaches to critical success factors: The case of shared services in the public sector. International Journal of Information Management.

13. Borman, Mark; Janssen Marijn (2013); .Similarities and Differences in Critical Success Factors across Context and Time: An Examination in the Setting of Shared Services; e-Service Journal. Fall 2013, Vol. 9 Issue 1, p85-105. 21p.

14. Cassell, Catherine; Bishop, Victoria; Symon, Gillian; Johnson, Phil; Buehring, Anna (2009); Learning to be a qualitative management researcher ; *Management Learning.*Nov 2009, Vol. 40 Issue 5, p513-533. 21p.

15. Creswell John W (2014); Research Design: (4th edition). Thousand Oaks; CA: Sage Publications

16. Cassell Catherine (2012); What is good qualitative research?

    http://www.methods.manchester.ac.uk/medialibrary/docs/gqr.pdf   Last accessed 26/12/2015

17. Clipper Organisation http://www.psclipper.com/OrganizationasaSystem.asplast accessed 9/9/2012.

18. Checkland P., (1981) Systems Thinking, Systems Practice, John Wiley and Sons, New York

19. Collis, J.; and Hussey R, (2009) 'Business Research Methods' A Practical Guide for undergraduate and postgraduate students; Third Edition; Palgrave Macmillan

20. Computing.co.uk "Cost concerns and staff loyalty deter public sector CIOs from sharing services Friday 27 May 2011 11:04 http://www.computerweekly.com/news/1280097363/Cost-concerns-and-staff-loyalty-deter-public-sector-CIOs-from-sharing-services
    Last accessed 19/11/2011

21. Computing.co.uk (21 Jul 2011) "Bill for DfT's replacement shared service centre could top £750m" http://www.computing.co.uk/ctg/news/2095703/dfts-replacement-shared-service-centre-gbp750mLast accessed 19/11/2011
    "
22. Deloitte and Touché 2005 "Shared Service in a global economy Expanding the shared services value proposition

23. Deloitte Research 2003 "The Future of Shared Services"

24. Eden, C., Ackermann, F., and Cropper, S. (1992) 'The Analysis of Cause Maps', Journal of Management Studies, 29: 309-324.

25. Forrester, Jay W (1961) Industrial Dynamics. Waltham, MA: Pegasus Communications

26. Grant R. M (2005); Contemporary Strategy analysis; Fifth Edition; Blackwell Publishing.

27. Egon G. Guba and Yvonna S. Lincoln, Fourth Generation Evaluation, Newbury Park, CA: Sage Publications, 1989

28. Horsburgh, Dorothy (2003); Evaluation of qualitative research; Journal *of Clinical Nursing.* Mar2003, Vol. 12 Issue 2, p307-312. 6p

29. Johnson, Phil; Buehring, Anna; Cassell, Catherine; Symon, Gillian(2006); Evaluating qualitative management research: Towards a contingent criteriology; International Journal of Management Reviews. Sept, 2006, Vol. 8 Issue 3, p131, 26 p.

30. Jonker, J and Pennik, B (2010) 'The Essence of Research Methodology' A Concise guide for Masters and Phd Students in Management Science.

31. Kennedy (2003) An Extended Taxonomy of System Dynamics Models of Information Systems Investment Appraisal

32. Kaplan R. S, Norton, D.P (2004) ;   "Strategy Maps Assets into Tangible Outcomes" HBS Press+

33. Koch R. (2006), "How to create and deliver a winning strategy" FT Prentice Hall.

34. Mackenzie, N. &Knipe, S. (2006). Research dilemmas: Paradigms, methods and methodology. *Issues In Educational Research*, 16(2), 193-205. http://www.iier.org.au/iier16/mackenzie.html

35. Marijn Janssen, Anton Joha (2006) ; Motives for establishing shared service centers in public administrations " International Journal of Information Management 26 (2006) 102–115"

36. Marciniak, Robert (2013); Measuring Service Satisfaction in Shared Service Organizations; In World Congress on Administrative and Political Sciences, Procedia - Social and Behavioral Sciences. 28 June 2013 81:217-223

37. Meadows D (2009) "Thinking in Systems" Earthscan Publishing.

38. Mertens D.M (2014); "Research and Evaluation in education and psychology" (4th edition). Thousand Oaks, CA: Sage

39. Mertens, D.M. (2005). Research methods in education and psychology: Integrating diversity with quantitative and qualitative approaches. (2nd Ed.) Thousand Oaks: Sage.

40. McDowell J (2011); Shared services centers can drive significant savings; Healthcare Financial Management: Journal Of The Healthcare Financial Management Association; 2011 Jun; Vol. 65 (6), pp. 118-22, 124;

41. McKeen, James D.; Smith, Heather A (2011); Creating IT Shared Services: Communications of the Association for Information Systems. 2011, Vol. 29, p645-656.12p 1

42. National Audit Office (2008) "Shared services in the Department for Transport and its agencies "http://www.nao.org.uk/publications/0708/shared_services_in_the_departm.aspx Publication date: 23 May 2008. Last accessed 19/11/2011

43. National Audit Office Press Release 21 October 2011" Shared services in the Research Councils"http://www.nao.org.uk/publications/press_notice_home/1012/10121459.aspx. Last accessed 19/11/2011

44. Leeza Osipenko (2005) "System dynamics in early health technology assessment (ehta):prenatal screening technology (eli-p complex)"

45. Longwood, J., & Harris, R. G. (2007). Leverage Business Process Outsourcing Lessons to Build a Successful Shared Business Service Organisation. Stamford: Gartner

46. Oliver, D., Kelliher, T., Keegan, J. Engineering Complex Systems with Models and Objects. New York: McGraw-Hill 1997.

47. Pidd Michael (1996) Tools for thinking : modelling in management science / Chichester [England] ; New York : Wiley, 0471964557 ISBN (cloth)

48. Porter E. Michael (1985) Competitive Advantage Creating and Sustaining Superior Performance" Free Press.

49. PWC Austria (2011) Shared Service Center* "Better, cheaper, faster "Reach your goals faster through the bundling of skills

50. Raudla, Ringa; Tammel (2015); Kaide. Creating shared service centres for public sector accounting; Accounting, Auditing & Accountability Journal.2015, Vol. 28 Issue 2, p158-179. 22p.

51. Rohith Ramphal (2013); A literature review on shared services; African Journal of Business Management Vol. 7(1), pp. 1-7, 7 January, 2013

52. SAP AG 2004 "SHARED SERVICES"SAP White Paper

53. Sandelowski, Margarete; A matter of taste: evaluating the quality of qualitative research; In Nursing Inquiry. June 2015, Vol. 22 Issue 2, p86, 9 p

54. Schulman, D. S., Dunleavy, J. R., Harmer, M. J., & Lusk, J. S. (1999). Shared Services: adding value to the business Units. New York: Wiley.

55. Seddon John (2008); "Systems Thinking in the Public Sector".Triarchy Press

56. Sherwood Dennis (2002); "Seeing the Forest from the trees; A manager's guide to applying systems thinking" Nicholas Brealy Publishing

57. Sterman, John (2000) Business Dynamics: Systems Thinking and Modeling for a Complex World. Irwin McGraw-Hill. (Pp859-61).

58. Sterman, John (1992). Business Dynamics: Systems Dynamics Modelling for Project Management; Massachusetts Institute of Technology

59. Sterman, John D. (2001). "System dynamics modeling: Tools for learning in a complex world". California management review 43 (4): 8–25

60. Szyjka, Sebastian (2012); UNDERSTANDING RESEARCH PARADIGMS: TRENDS IN SCIENCE EDUCATION RESEARCH: Problems of Education in the 21st Century. 2012, Vol. 43, p110-118. 9p

61. Trainor, Audrey A.; Graue, Elizabeth(2014); Evaluating Rigor in Qualitative Methodology and Research Dissemination; Remedial & Special Education; Sep2014; 35(5): 267-274. 8p.

62. Trbovich, Patricia (2014); Five ways to incorporate systems thinking into healthcare organizations; Biomedical Instrumentation & Technology, 2014 Sep 2 Suppl 2; 48 31-36. 6p

63. Quinn, B., Cooke, R., & Kris, A. (2000). Shared Services: Mining for Corporate Gold. Harlow: Prentice-Hall.

64. Wallace BB (2011); The value of shared services; Healthcare Financial Management: Journal Of The Healthcare Financial Management Association [HealthcFinanc Manage], ISSN: 0735-0732, 2011 Jul; Vol. 65 (7), pp. 58-62;

65. Valentinov, Vladislav; Hielscher, Stefan; Pies, Ingo (2015); Nonprofit organizations, institutional economics, and systems thinking; In Symposium: Financial System and Development in China, Economic Systems. September 2015 39(3):491-501

66. Wolstenholme E. F.; The Journal of the Operational Research Society; System Dynamics in Perspective ; Vol. 33, No. 6 (Jun., 1982), pp. 547-556

67. Yin, R.K (2009) Case Study Research: Design and Methods, 4th edition, Thousand Oaks, CA: Sage