

**Defining the role of the business analyst:  
The Business Analysis Service Framework**

HENLEY BUSINESS SCHOOL

THE UNIVERSITY OF READING

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## Declaration

I confirm that this is my own work and the use of all material from other sources has been properly and fully acknowledged.

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Debra Paul

February 2018

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## **Publications and Presentations**

### **Academic conferences and journals**

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### **Books**

Girvan, L. & Paul, D. 2017. *Agile and Business Analysis*, Swindon, BCS.

Cadle, J., Paul, D. & Turner, P. 2014. *Business Analysis Techniques, 2<sup>nd</sup> Edition*, Swindon, BCS.

Paul, D., Cadle, J. & Yeates, D. 2014. *Business Analysis, 3<sup>rd</sup> Edition*, Swindon, BCS.

Thomas, P., Paul, D. & Cadle, J. 2012. *The Human Touch*, Swindon, BCS.

### **Presentations at practitioner conferences**

Paul, D., 2017, *Keynote: Recognition and Relevance: Two Sides of the BA Story*, BA Camp, Vienna, 2017

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Paul, D., 2013, *Keynote: Business Analysis: The Third Wave*, Business Analysis Conference Europe, London, 2013

## **Abstract**

This thesis reports on an empirical study into business analysis (BA), a professional IS discipline. This subject is deemed relevant for investigation for three reasons: the volume of BA practitioners employed worldwide; the continuing problems reported regarding IS project outcomes; and the lack of empirical research that has been conducted into BA. A key area of concern for IS projects is the definition of requirements, an area that falls within the BA remit. However, there is limited extant literature concerning BA and there is ambiguity with regard to the business analyst role. Role theory (Solomon et al. 1985) suggests that a lack of role clarity can diminish performance and cause uncertainty on the part of practitioners and customers. Therefore, the aim of this research is to clarify the role of the IS business analyst and offer a service definition that will support the effective conduct of BA work.

A conceptual framework for this study, adapted from the work of Pettigrew et al (2001), is used to examine the business analyst role from four dimensions: the organisational and personal context for BA; the content of IS projects; the process standards, skills and techniques for performing BA; and the outcomes from BA. Case study research has been carried out to explore perspectives on BA. The case is the Business Analysis Manager Forum (BAMF), a professional organisation for managerial-level business analysts. Selected BAMF representatives, all designated BA specialists, shared their experiences and observations regarding the business analyst role, activities and work practices.

The data provided by the BA specialists was analysed using template analysis in order to identify themes within the data. Service science provided a theoretical basis for examining the activities performed by business analysts, the skills and techniques used, and the potential for value co-creation with business stakeholders. This enabled the identification and definition of the core services offered by business analysts. The study resulted in the development of two artefacts that are intended to support understanding and recognition of BA: the Business Analysis Service Framework, which defines six services and their corresponding activities, techniques and value proposition; and the business analyst T-shape, which has applied the T-shaped professional concept (Spohrer and Maglio, 2010) to define the skills and techniques required of professional business analysts. These artefacts are proposed as a means of clarifying the business analyst role for practitioners, their business stakeholders and future researchers and, as such, offer a positive contribution to BA theory and practice.

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## List of abbreviations

BA	Business analyst
BAMF	Business Analysis Manager Forum
BASF	Business Analysis Service Framework
BCS	BCS, the Chartered Institute for IT
BDN	Benefits dependency network
CATWOE	Customer, Actor, Transformation, Weltanschauung, Owner, Environment
CRUD	Create, read, update, delete
IIBA	International Institute for Business Analysis
IS	Information system
IT	Information technology
MC	Mini-case
POPIT	People, organisation, process, information and technology
PM	Project manager
SDLC	Systems development lifecycle
SFIA	Skills Framework for the Information Age
SSM	Soft Systems Methodology
UAT	User acceptance testing
VI	Validation informant
WSLC	Work systems lifecycle
WSM	Work systems method

# 1 Introduction to the study

## 1.1 Chapter introduction

This study is concerned with the role of the business analyst within an information systems (IS) context. This chapter explains the motivation and context for the study, and the practitioner and theoretical viewpoints. The chapter also identifies the aims and objectives to be achieved, and discusses the approach followed to research the study topic and develop a contribution to both theory and practice.

## 1.2 The context for this study

The IS function has become increasingly integrated within organisational operations since its inception in the mid-1950s, and has responsibility for delivering vital services and enabling innovation (Petter et al., 2012). The services provided by the IS function are central to the success of many organisations but concerns have been expressed about the quality of delivered information systems and failure rates are described as ‘uncomfortably high’ (Ashurst et al., 2008).

In 2013, the Financial Times commented:

*There are several ways the US Air Force could have wasted \$1.1bn. It could have poured tomato ketchup into 250m gallons of jet fuel or bought a sizeable stake in Bear Stearns. Instead it upgraded its IT systems.*

*Financial Times  
18th September 2013*

While many reasons are suggested for IS project failure (Schmidt et al., 2001), requirements definition is a major issue on IS projects (Al-Ahmad et al., 2009; McManus and Wood-Harper, 2007) due to the difficulties in understanding and defining IS requirements (Alter and Browne, 2005; Lindquist, 2005; Wand and Weber, 2002; Schmidt et al., 2001).

Requirements definition is critical for information system success (Appan and Browne, 2010; Hickey and Davis, 2004) yet is a source of problems in 31% of projects (Nelson, 2007). Key issues with requirements arise from the lack of domain knowledge within the user and developer communities (Schmidt et al., 2001) and a lack of understanding of the business context into which the IS will be deployed (Al-Ahmad et al., 2009). While there have been many initiatives aimed at improving the quality of information systems, poor communication between the technical and business staff is a key issue to be addressed (Mance, 2013).

Dissatisfaction with an IT-centric approach and a focus on bridging the communication gaps between the business and IT staff, has resulted in the introduction of the IS business analyst role which has a remit to bridge business and IT change (BCS, 2017). While business analysis was a recognised discipline within the financial services industry prior to its introduction to the IS industry, it now has a distinctive place within IS projects. The IS business analyst is the subject of this study. For the purposes of brevity, the role is referred to as 'business analyst' and the discipline as 'business analysis' throughout this thesis.

### **1.3 IS business analysis in practice**

Business analysis is concerned with clarifying and describing requirements for IS solutions. Definitions of the business analyst role place it within the business context, taking a holistic view of IS to encompass broader aspects, such as the personnel and processes, that must be changed if a solution is to deliver beneficial outcomes (IIBA, 2015). Jakob (1986) identified that business analysis practitioners should have an understanding of the business and the ability to elicit business information.

There are increasing numbers of business analysts employed within organisations. For example, Lloyds Banking Group (LBG) employs 2925 business analysts within the UK (source: LBG August 2013), and there are 544,400 IT business analysts employed across the US (CNN Money, 2013).

Evidence of the prevalence of business analysis may be seen from the following initiatives:

- There are numerous online practitioner journals and websites devoted to the subject of business analysis IIBA BA Connection (IIBA, 2017a), BA Times (BA Times) and Analysts Anonymous (Assist Knowledge Development, 2017).
- Many books within the practitioner literature are devoted to the subject of business analysis (e.g., Blais, 2011; Cadle et al., 2014; IIBA, 2015).
- Business analysis conferences are held regularly in locations as diverse as London, Bulgaria, India, the US and Australia (e.g., IIBA Bulgaria, 2017; IRM UK, 2017).
- There are international professional bodies offering certifications (e.g., BCS, 2017; IIBA, 2017b); 100,000 individuals worldwide hold BCS business analysis qualifications (BCS, 2017).

The volume of employed business analysts, publications, online resources and events, reflect the significance of business analysis within the IS context. However, there is limited empirical research regarding business analysis and the role of the business analyst. One of the primary motivations for this study is to extend the extant business analysis literature and

clarify the business analyst role by conducting empirical research into business analysis work.

## **1.4 Theory relevant to IS business analysis**

The literature recognises that organisational practice can move ahead of academic research (Bartunek et al., 2001) and this appears to be the case for business analysis. While there is extensive research into the role and work practices of the systems analyst role, which is to be expected given the long history of systems analysis work, this is not the case for the business analyst role. Some researchers have assumed that the term 'business analyst' is principally an updated name for the systems analyst role (Vashist et al., 2010; Gullemette and Pare, 2012) and there is limited recognition within the literature that these are distinct roles with different aims and work practices. This is further complicated by the overlap between business analysis and systems analysis with regard to activities such as requirements analysis (Prasarnphanich et al., 2016). Vongsavanh and Campbell (2008) have explored the differences between the business and systems analyst roles, concluding that while there are areas of overlap, there are also significant differences and further research is required into business analysis.

Notable research into business analysis has included:

- The internal business consultant role at BP where 'analysts are viewed as actively seeking to redesign or optimize business operations, not merely translating existing procedures into technical systems' (Cross et al., 1997, p.408).
- The role of the business analyst as distinct from that of the systems analyst (Vongsavanh and Campbell, 2008).
- The barriers to effective business analysis (Wever and Maiden, 2011).

Much IS research is focused on the delivery of software rather than business outcomes, revealing a limited view that is likely to constrain organisations and prevent the achievement of performance goals. This is consistent across the literature where frequently there seems to be an assumption that requirements are elicited and defined for the sole purpose of developing or enhancing software (Appan and Browne, 2012; Cox et al., 2009; Hickey and Davis, 2004; Holmström and Sawyer, 2011; Pitts and Browne, 2007) rather than considering the broader business context within which software is deployed.

Within the literature, there is recognition of the importance of taking a holistic approach to IS projects and ensuring that solutions address business issues and deliver the desired business outcomes. Examples of such research include:

- The relevance of business systems thinking to the outsourced development of IT solutions (Feeny and Willcocks, 1998; Willcocks et al., 2007).
- The development of Soft Systems Methodology (SSM) (Checkland, 1981; Checkland, 2000) and the application of systemic thinking to analyse and improve problematic business situations.
- The socio-technical approach, which emphasises the importance of taking a holistic view and considering the business context for a proposed technological change. This ensures that the interdependencies between technology and the relevant work system are considered (Klein, 2014) and that technological solutions are analysed and implemented with due regard to process and personnel factors (Lyytinen and Newman, 2015).

However, there is little recognition of business analysis and the business analyst role within the literature, confirming the need for empirical research as identified by Vongsavanh and Campbell (2008).

## 1.5 The pilot study

The original research aim for this study was to extend the extant business analysis literature, and improve business analysis practice, by clarifying how business analysis outcomes aligned with IS project success measures. The research question at this point was:

***'How does business analysis contribute to the success of information systems projects?'***

A pilot study was undertaken between October 2013 and March 2014 to validate the research question and the proposed research design. The research design applied the case study method and involved the collection of data from semi-structured one-to-one interviews.

Three interviews were conducted with highly experienced business analysts, all of whom were business analysis (BA) specialists meeting pre-defined criteria regarding their knowledge, experience and authority with regard to business analysis (see section 1.7). The data collected during these interviews was analysed using template analysis. Relevant literature was reviewed with the aim of clarifying the need for research into the area identified by the research question, i.e., the contribution of business analysis to IS success. Similarly, the results from the data analysis were reflected upon. The research approach for the pilot study is described in further detail in chapter four, sub-section 4.7.1.

This process revealed that there is a more significant issue with regard to business analysis than had been identified originally. It appeared from the pilot study results that there is an

issue with the recognition and awareness of business analysis and that this is having an impact upon the quality of business analysis practice within IS projects. The results suggest that the role of the business analyst is not clearly defined either in the literature, where there seemed to be a limited understanding of business analysis and there is evidence of conflation with the systems analyst role, or in the definitions offered by the professional bodies. The pilot study also identified that this lack of clarity had the potential to diminish the quality of the work undertaken by business analysts. The data collection and analysis for the pilot study is discussed in further detail in chapter five, sub-sections 5.5.3 and 5.6.1.

Having identified that the business analyst role required clarification, and that this is a prerequisite for investigating the relationship between business analysis and IS success, the aim for this research, and the question to be addressed, were reconsidered. This resulted in the definition of a revised research aim, question and objectives; these are discussed in section 1.6.

## **1.6 The research aim and objectives**

Two professional bodies, IIBA and BCS, offer definitions of business analysis and the business analyst role but, given the limited empirical research into business analysis and the observations obtained during the pilot study, it is questionable whether these definitions provide sufficient clarity. Role theory (Biddle, 1986; Solomon et al., 1985) suggests that if there is insufficient clarity with regard to a role then there may be problems associated with role ambiguity and a lack of role congruence.

Therefore, the overall aim of this study is to improve the clarity of the business analyst role by conducting empirical research into business analysis and developing a service framework for the business analysis discipline. This framework is based upon patterns of business analysis activity across organisations and IS projects, and is intended to support improvements in business analysis practice through the identification of relevant standards and techniques.

The corresponding research question for this study is:

***‘What are the services, work practices and value propositions offered by business analysis within the context of IS projects?’.***

The following sub-questions clarify each element of the research question:

- What is the service offered by business analysts to the organisation, which individual services comprise this service offering, and what activities do they perform when providing this service?



- How do business analysts conduct business analysis work?
- Why is business analysis relevant and useful to IS projects?

Correspondingly, the following research objectives (RO) have been defined to answer the research questions and clarify the outputs to be delivered by this study:

- RO1: The role (what is done): define the business analysis service through the identification of a set of clear, distinct services that business analyst practitioners provide to their organisations and list the activities that business analyst practitioners undertake in order to offer these services. Achieving this research objective is fundamental to this study because the services and activities have the potential to offer a clear, organised structure that comprises the framework for business analysis work. This is advantageous from two perspectives: enabling communication with customers and other stakeholders; and supporting career development for practising business analysts.
- RO2: The work practices (how business analysis is conducted): construct a taxonomy of the standard techniques, models and skills that may be used to perform the business analysis activities effectively. The definition of the standards to be applied during business analysis is intended to support business analysis practice in two ways: to establish suggested standards that have the potential to improve the consistency of the business analysis processes and deliverables; and to assist practitioners in their personal development by providing a clear statement of the skills they should attain.
- RO3: The rationale (why business analysis is required): provide a clear and accessible definition of the value proposition for each business analysis service in order to explain why the service is beneficial to the organisation. The evaluation of the value propositions for business analysis offers a means of clarifying to business and IS stakeholders the rationale for utilising business analysis services. The value propositions also aim to increase the business analysts' understanding of why their work is relevant and how they should contribute to the success of IS projects.

## **1.7 The research design and method adopted**

A four-dimensional conceptual framework has been used to structure and guide this study. This framework comprises the context, concept, process and outcomes dimensions and has been adapted from the work of Pettigrew et al (2001). The case study method (Stake, 1995; Yin, 2013) has been adopted as the means of exploring business analysis. The Business Analysis Manager Forum (BAMF), a networking

organisation for business analysts working at a managerial or senior level, is the case investigated during this research. Embedded 'mini-cases' (Stake, 2006) have been selected from the BAMF membership to provide a collective representation of the BAMF. These mini-cases are BA specialists and, accordingly, fulfil the following three criteria:

- Knowledge: each of the mini-cases holds certifications in business analysis.
- Decision-making role: each of the mini-cases has experience of conducting business analysis in a senior or managerial capacity.
- Experience: each of the mini-cases has a minimum of 10 years' experience of business analysis work. 10 years or more experience in a given domain is an indicator of expertise (Ericsson et al., 2007).

The data collected from these interviews has been analysed using template analysis in order to uncover themes that address the research questions. The emergent service science theory (e.g., Spohrer and Maglio, 2010; Vargo et al., 2010) provides a basis for analysing the findings in the data and developing a service framework for business analysis - the Business Analysis Service Framework (BASF). The BASF provides guidance relevant to the three research objectives by defining the services, activities, techniques and value propositions relevant to business analysis work.

## **1.8 The structure of this thesis**

A structure has been adopted for this thesis that presents the context and findings in a logical manner. The intention is to enable the reader to recognise the relevance of the research and the application of the theory developed with regard to business analysis. The structure, including the chapters and the relationships and dependencies between them, is represented in Figure 1.1.

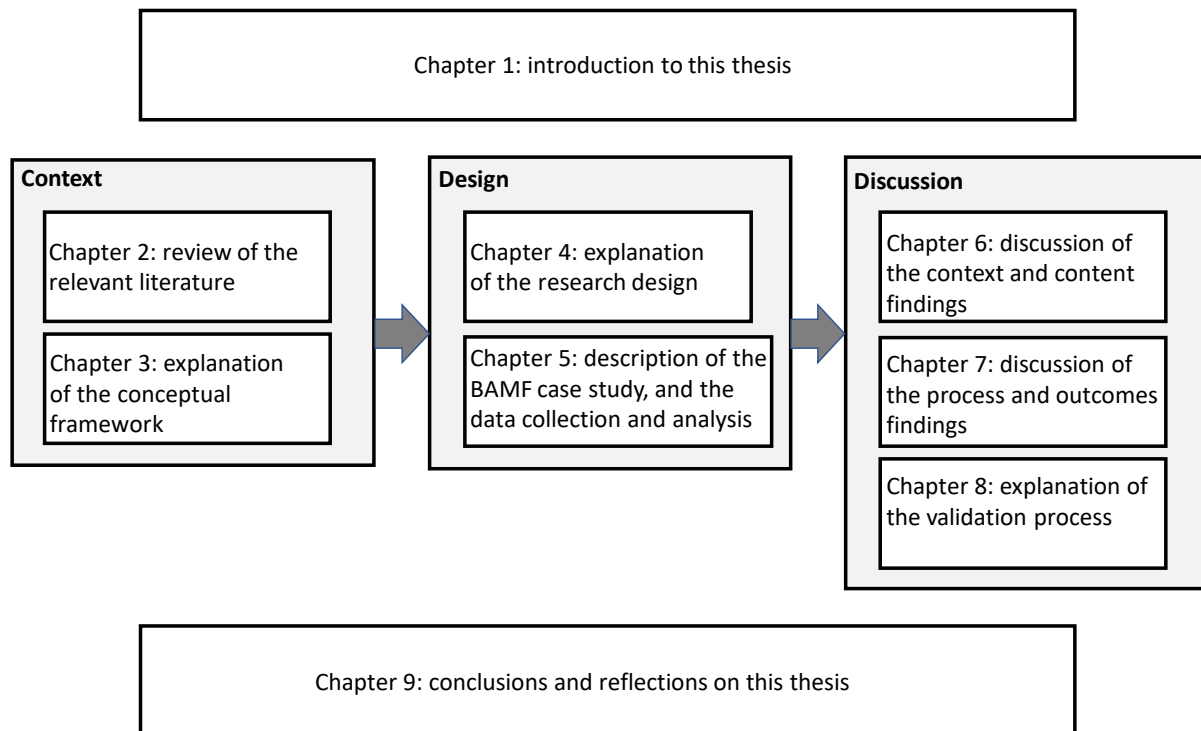
**Figure 1.1: Structure of this thesis**

Figure 1.1 illustrates how the chapters of this thesis address different aspects of the research. Each of the remaining chapters within this thesis are explained in overview in Table 1.1.

**Table 1.1: Structure of this thesis**

Chapter number	Chapter description
Chapter two	Review of the extant literature including: role theory; IS roles, projects and success measures; the socio-technical approach.
Chapter three	Explanation of the conceptual framework (context, content, process, outcomes) and the theories applied to the findings in the empirical data, including: service science; soft systems methodology; requirements engineering.
Chapter four	Explanation of the research design including the philosophical stance of the researcher and the rationale for the research design. This chapter clarifies the reasoning for the selection of the case study method and describes the research process in overview.

Chapter five	Description of the BAMF case study and profiles of the selected mini-cases. The research activities to undertake the data collection and data analysis are described in detail.
Chapter six	Discussion of the findings within the context and content dimensions of the conceptual framework. This chapter explains the initial development of the BASF through the identification of the core business analysis services and the activities undertaken in the delivery of those services. The process to triangulate those services is also described.
Chapter seven	Discussion of the findings within the process and outcomes dimensions of the conceptual framework. This chapter explains the further development of the BASF. Two elements of the BASF are discussed in this chapter: the identification and analysis of the skills and techniques applied when performing business analysis; the identification of value propositions for business analysis that align with the measures applied to evaluate the success of IS projects. A business analyst T-shape is developed to represent the skills and techniques required of a professional business analyst. The process to triangulate the skills, techniques and value propositions for business analysis is also described.
Chapter eight	Explanation of the validation process including the validation informants, their comments and the resultant reworking of the BASF.
Chapter nine	Description of the contribution to theory, practice and research methods made by this study. Reflections on the study.

## 1.9 Chapter summary

This chapter explains the IS context that led to the development of the business analyst role and the current issues regarding business analysis. These factors underpin the rationale for this study. Particular concerns are as follows:

- The lack of extant empirical research into business analysis and the conflation of business analysis with systems analysis, increases the risk of the business analyst

role being misunderstood, both by business analysis practitioners and their stakeholder colleagues.

- The absence of a clear definition of the business analyst role has implications for business analysis work practice and the standard of business analyst performance.
- The issues identified regarding a key aspect of business analysis, IS requirements definition, have the potential to impact negatively upon IS projects.

The primary aim for this study is to conduct empirical research into business analysis in order to contribute to theory and practice through clarifying the business analyst role and work practices. The process adopted to achieve this aim and address the research question and objectives has been summarised in this chapter.

Chapter two describes the literature review conducted for this study.

## 2 Literature review

### 2.1 Rationale and structure of this chapter

A pilot study to explore the contribution of business analysis to IS project success was conducted at the outset of this research. The findings from the pilot study identified that there is a lack of recognition of the business analyst role within organisations and it is possible that this is related to a lack of role clarity. In the light of these findings, this research is concerned to explore and clarify the role of the business analyst.

Therefore, this chapter discusses the extant academic literature that is concerned with the following areas: role theory; definitions of IS roles, including the business analyst role; the IS context for business analysis work, including socio-technical theory; problems with IS projects; and measures of IS project success. The aim of this chapter is to review any strengths and weaknesses within the literature and identify where further research is needed.

This chapter is organised using the following structure:

- Section 2.2: role theory and IS roles; a review of the literature concerned with role theory, the business analyst role and other IS roles.
- Section 2.3: the IS context for business analysis; a review of the literature concerned with the characteristics of IS and the socio-technical context for information systems.
- Section 2.4: IS projects; a review of the literature concerned with the drivers for IS projects, the problems associated with IS projects and the areas of business analysis work.
- Section 2.5: the IS function; a review of the literature concerned with the role, capabilities and customer focus of the IS function.
- Section 2.6: measuring IS success; a review of the literature concerned with evaluating IS success.
- Section 2.7: chapter summary; key conclusions from the review of the literature.

### 2.2 Role theory and IS roles

This section examines the literature that is concerned with role theory, the existing role definitions for relevant IS roles and the role of the business analyst. The purpose of this

section is to consider the nature of role definitions and the implications for practice where they are unclear.

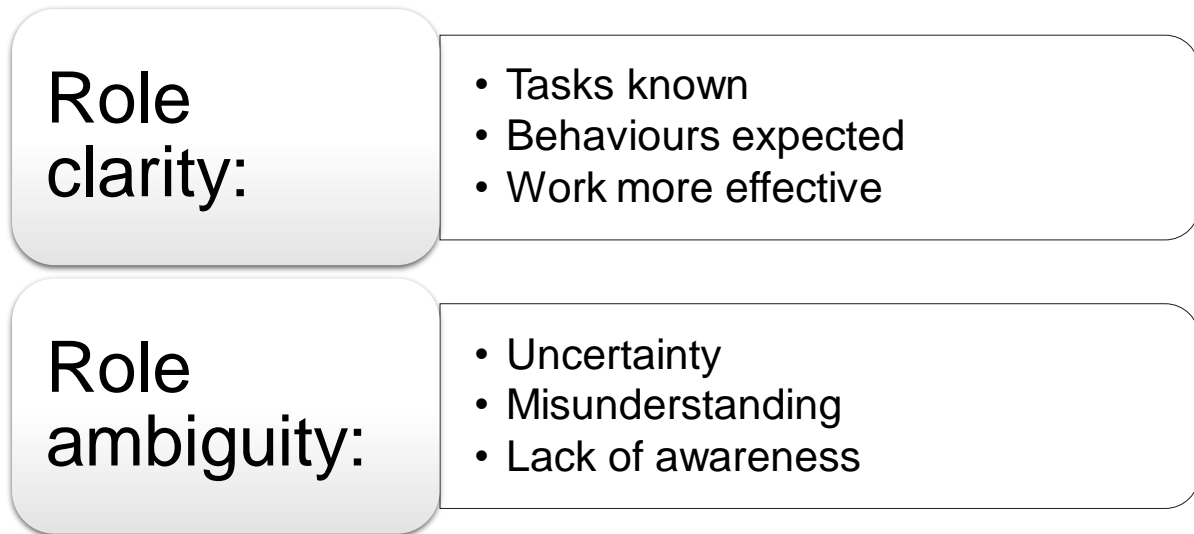
### **2.2.1 Role theory and role definition**

Role theory is concerned with the nature of roles. These are defined social positions held and performed by individuals (Biddle, 1986). Three aspects pertaining to role theory are the patterns of social behaviours, the identities assumed by the participants and the expectations for the behaviours (Biddle, 1986). Role theory assumes that successful service provision requires role participants to be able to accomplish defined role behaviours (Broderick, 1998). The literature explores several strands of role theory including the functional perspective, which is concerned with people occupying roles that are concerned with the performance of specific functions, and organisational role theory, which is associated with social positions within organisations. Katz and Kahn (1978) suggest that the study of role behaviour takes place within the context of a relevant social system.

Role ambiguity occurs where the information required to perform a job or task is not available (Onyemah, 2008) and the expectations required to drive behaviour are ill-defined (Biddle, 1986). Where there is role ambiguity, work effectiveness is said to decrease (Hall, 2008). The provision of a clear definition of a role is necessary as there is a positive effect on performance if workers are clear about what they should do in performing their role (Henderson et al., 2016; Jonas, 2010). However, this can be problematic because many role definitions do not offer the clarity that effective performance requires.

Role clarity is defined as 'the extent to which individuals clearly understand the duties, tasks, objectives and expectations of their work roles' (Henderson et al., 2016, p.1718). The lack of clarity about a role has been identified as a risk factor on software development projects (Jiang and Klein, 2000). Research shows that it is difficult to have role clarity when a role is complex and involves working within a complex team structure (Henderson et al., 2016). Given the variety and complexity of many IS roles, including the business analyst role, it is to be expected that difficulties arise when attempting to clarify these roles. The differing impacts of role clarity and role ambiguity are summarised in Figure 2.1.

Figure 2.1: The impacts resulting from role clarity and role ambiguity



Where actors identify with a role, they adopt behaviours that have been defined as relevant for that role (Solomon et al., 1985). Role identity occurs where an actor identifies with a role and wants to conduct the work of the role well and apply the expected behaviours. This can apply to an individual or to a group where an actor identifies with the community that has responsibility for the work of the role (Solomon et al., 1985). Role consensus concerns the extent to which people agree on the behaviours associated with a role; role conformity concerns the extent to which there is compliance with expected behaviours. This is more likely to occur where an individual's behaviour may be observed and another person has the power to impose sanctions if the behaviour is not as expected (Biddle, 1986).

Solomon et al define the concept of role congruence; this may be either intra-congruence, where the actor's view of the role aligns with that of the employing organisation, or inter-congruence, where the actor and customer agree on the behaviours expected of the role. Where actors wish to adopt the behaviours relevant for a role, a lack of congruence or misalignment can occur if the role and its attendant behaviours are not clearly defined (Solomon et al., 1985). This suggests that where the behaviours expected of the role are unclear, both the actor and the customer will need to engage in defining the behaviours if role congruence is to exist. Role discrepancy arises if there is a clear expectation of behaviours by one party and this is not fulfilled by the other (Broderick, 1998). Where actors have incompatible expectations regarding the behaviours to be demonstrated by role participants, this can lead to role conflict, which can contribute to performance and commitment issues within organisations (Biddle, 1986). Role conflict and role ambiguity have



been identified as factors that may increase tension when performing a role and contribute to low levels of job satisfaction (Bedeian and Armenakis, 1981). Further, Katz and Kahn (1978) suggest that the members of a given 'role-set' may be judged according to the level of performance demonstrated by other members. Therefore, poor performance on the part of some role participants may contribute to perceptions of poor performance regarding the entire role set.

The pilot study for this research identified that there is concern regarding the lack of recognition of business analysis as a distinct role within IS projects. This issue has resulted in unclear expectations on the part of project stakeholders and inconsistent behaviours on the part of business analysts. Role theory clarifies that role ambiguity and role discrepancy may result in role participants failing to comply with expected behaviours and that this may have a broader impact upon the perception of the entire role-set. This highlights the relevance of a clear role definition that offers a basis for role identity and role congruence. The definitions of IS roles, including the business analyst role, and the level of clarity they offer, are discussed in the following sub-sections.

### **2.2.2 Prior research into IS roles**

The IS function has suffered from much role ambiguity and role conflict (Sumner et al., 2006). In addition to business analysis, there are numerous specialist disciplines employed within an IS function including project management, software development, software testing and service management. Each specialism offers competencies that are utilised by the IS function when delivering IS services to the organisation. However, while specialisms such as IS project management have maturity in terms of working practices and have been subject to extensive research, business analysis is a less mature discipline and there is limited research devoted to this work.

Given the complexity of many of the roles within the IS function, a role definition may contain specific references to the tasks for which the role is responsible in order to provide the clarity required. For example, the Association of Project Management (APM) describes the project manager role as follows:

*Project management is the application of processes, methods, knowledge skills and experience to achieve a project's objectives.*

*The project manager is responsible for day-to-day management of the project and must be competent in managing the six aspects of a project, i.e. scope, schedule, finance, risk,*

*quality and resources. Well-developed interpersonal skills such as leadership, communication and conflict management are also vitally important. (APM, 2012, p.12)*

This definition provides a context for the role, 'achieve a project's objectives', and then defines the overall area of responsibility and the required areas of professional and interpersonal competence. This approach to role definition aids role clarity, and enables practitioners to appreciate the required role behaviours and stakeholders (such as customers) to understand the corresponding role expectations.

A task-based approach to role definition is available for some IS roles. In the case of the project manager role, there is a definition comprising a detailed list of the activities that are the responsibility of the project manager (Cadle and Yeates, 2008), and a detailed definition of the specific processes through which project management is accomplished (PMI, 2013).

Similar definitions for other IS roles are available. For example, Jonas (2010) defines the project portfolio manager role through the application of role clarity and role significance attributes and uses a process view to define the tasks for the portfolio manager role. Another definition of the portfolio manager role comprises a list of twelve tasks (PMI, 2017).

The role of the systems analyst has been the subject of much academic research (e.g., Lerouge et al., 2005; Chakraborty et al., 2010; Alter and Browne, 2005; Pitts and Browne, 2007). The systems analyst role is acknowledged to be a technology-focused role (Cunningham and Finnegan, 2004) and this is reflected in the following systems analyst role definitions.

*System analysts are service providers who are required to work closely with users for the purpose of defining, developing and implementing computer-based systems (Green, 1989, p.115).*

*A systems analyst is a problem-solving specialist who works with users and management to gather and analyse information on current and/or future computer-based systems....the systems analyst, working with other I/S personnel, defines the requirements that are used to modify an existing system, or to develop a new system. The systems analyst identifies and evaluates alternative solutions, makes formal presentations, and assists in directing the coding, testing, training, conversion, and maintenance of the proposed system. (Misic and Graf, 2004, p.32)*

It is notable that Misic and Graf offer a task-based definition that helps to provide clarity with regard to the systems analyst role by defining:

- The focus of the work: the computer system.
- The tasks to be conducted: defining requirements, identifying and evaluating options, directing the development and deployment of the computer system.

Within the IS function, roles such as that of the project manager and systems analyst are long-established and have been the subjects of much research. They are also roles for which the scope and focus tend to be clearly defined. This has resulted in role definitions that are specific and a body of research literature that is concerned with the varying dimensions of the work conducted by these roles. Given that the IS function is an internal service provider, those occupying roles such as that of the project manager and systems analyst are required to participate in service encounters when conducting their work. The existence of role clarity for these roles increases role congruence (Solomon et al., 1985), thereby helping the internal business customers to predict the actions to be performed. Improved clarity also helps the business analyst to understand the behaviours that are expected and, therefore, enable increased conformity with role expectations (Biddle, 1986).

The need to clarify IS roles is evident from the extant research. Examples of literature exploring IS roles is shown in table 2.1 below.

**Table 2.1: Research into IS roles**

<b>Author</b>	<b>IS role</b>	<b>Title</b>	<b>Key findings</b>
Lerouge et al (2005)	Systems Analyst	Exploring the Systems Analyst Skill Set: Perceptions, Preferences, Age and Gender.	Systems analysis requires a combination of skills. Systems analysts prioritise different aspect of the skill set. Promotion of the entire skill set and the systems analyst role is required.

Sumner et al (2006)	Project Manager	Exploring the Linkage Between the Characteristics of IT Project Leaders and Project Success	Characteristics of IT project leaders. The importance of leadership skills to IT project managers.
Jonas (2010)	Project Portfolio Manager	Empowering project portfolio managers: How management involvement impacts project portfolio management performance	An understanding of the impact of management involvement, the managerial tasks of portfolio management and project portfolio management success criteria
Peppard et al (2011)	Chief Information Officer (CIO)	Clarifying the Ambiguous Role of the CIO	The identification of five distinct CIO roles and the context when each of the roles is applicable.
Filippov et al (2014)	Project Portfolio Manager	Exploring the Project Portfolio Manager's Role: Between a Data Manager and a Strategic Advisor	The lack of academic research into the project portfolio manager role and the impact this has on the understanding and recognition the role attracts.
Ko and Kirsch (2017)	Project Manager	The Hybrid IT Project Manager: One Foot Each in the IT and Business Domains	The role of the project manager is expanding to incorporate business knowledge. This may increase the success of IT projects and improve user satisfaction.

There are concerns regarding the clarity of role definition for some IS roles, for example, with regard to the project portfolio manager (Filippov et al., 2014). The literature regarding the business analyst role definitions is discussed in the next sub-section.

### **2.2.3 The business analyst role**

There have been many initiatives aimed at improving the quality of information systems with some contributing to the development of business analysis as a specialist discipline. For example, socio-technical theory (further described in sub-section 2.3.2) emphasises the importance of a holistic approach, and a combined focus on both the technological solution and the social context within which the technology will be used (e.g., Doherty, 2014; McLeod and Doolin, 2012; Mumford, 2006). Markus (2004) also clarifies the need to identify integrated solutions that combine both technological and organisational changes.

Poor communication between the technical and business staff is a key issue to be addressed on IS projects (Mance, 2013). Dissatisfaction with an IT-centric approach to addressing business problems, and an increasing recognition of the need to focus on bridging the communication gaps between the business and IT staff, led to the development of the business analyst role in the late 1980s as a means of addressing these issues (Jakob, 1986).

A role that takes both an IT and business perspective is not a new concept although the terminology used is varied and often inconsistent. Langefors (1978) suggests the need for an Infological Systemeer role performed by analysts with a focus on the information requirements of individuals affected by a new IS. Tillquist (2000) identifies the need for 'planners' within the IS function who may assess proposals and translate ideas into actionable plans for organisational change.

The distinctions between IS roles is sometimes unclear within the literature. A collective term 'IS developer' is used to refer to a range of roles, including analysts, on IS projects (Cecez-Kecmanovic et al., 2014). Requirements Engineering, a formal approach to eliciting and analysing business and technical requirements, is said to be carried out by 'IS developers' (Holmström and Sawyer, 2011), and during IS development, interactions are said to occur between 'developers and users' (Petter et al., 2013). In these cases, the characteristics and activities of the 'developer' role are unclear, and raise questions about the scope of the work undertaken. The term 'developer' appears to encompass the work of the business analyst but fails to distinguish between the role to define what an IS should provide and the role to develop the IS.

A review of the literature relating to Agile IS development, provides a similar picture. The Dynamic Systems Development Method (DSDM) views the business analyst role as bridging the project governance and development teams (DSDM Consortium, 2016) whereas in two of the most commonly-used methods, Scrum<sup>1</sup> and eXtreme Programming (XP) (Beck, 2004), there is no business analyst role and ‘developer’ is again used as an all-embracing term. Research into Agile practices on IS projects, refers to the business analyst role as that of someone acting as a ‘surrogate customer’ (Ramesh et al., 2010). This is unhelpful when attempting to determine what the business analyst on Agile IS projects should do or even if the role is required at all.

Given that role clarity is key to dyadic service encounters (Solomon et al., 1985), and given the need for the IS function to collaborate with its business stakeholders, the use of terms such as ‘developer’ to include several IS roles is ambiguous and raises concerns about role identity, clarity and congruence. The use of alternative terms to designate an analyst role or to offer different definitions of the business analyst role is similarly unhelpful.

Examples within the literature, where terms that refer to the business analyst role or activities that fall within business analysis are discussed, are summarised in table 2.2 below.

**Table 2.2: References to business analysis work**

Source	Terms used for roles conducting analysis
Langefors (1978)	Identifies the Infological Systemeer role involving ‘a new kind’ of analyst, with a focus on the needs of the individuals affected by the new IS.
Newman and Robey (1992)	Comments that the business analyst is a category of designer who provides an interface between programmers and the users.
Tillquist (2000)	Suggests that the definition and design of required organisational changes necessitates the involvement of ‘planners’ to provide subject matter expertise. Identifies that ‘consultant intermediaries’ are important in the process of effecting IT-enabled business change as they are able to translate strategic initiatives into actions.

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<sup>1</sup> <https://www.scrumalliance.org/why-scrum/scrums-guide>

Cunningham and Finnegan (2004)	Identifies the Business Information Manager role to provide the interface between IT specialists and end users.
Markus and Mao (2004)	Uses the term 'developer' to encompass systems development work, including the elicitation of requirements.
Alter and Browne (2005)	Describes the work of the systems analyst as covering both social and technical aspects of IS projects.
Holmström and Sawyer (2011)	States that Requirements Engineering is carried out by 'IS developers'.
Petter et al. (2013).	Suggests that relationships and interactions during IS developments occur between 'developers and users'.
Cecez-Kecmanovic et al. (2014).	Uses a collective term 'IS developer' to refer to a range of roles, including analysts, on an IS project.
Filippov et al (2014)	References the need for portfolio managers to 'shape' projects in order to achieve strategic objectives and states that they are operating as 'business analysts'.

In these examples, there is little clarity offered about business analysis and there is the potential for confusion regarding the responsibilities of the role and the work that should be performed.

Confusion between the systems analyst and business analyst roles is also apparent within the literature. Gullemette and Pare (2012, p.534) conflate these two roles, commenting that 'systems or business analysts usually serve as the interface between the business units and the IT function'. Lerouge et al (2005) state that the systems analyst and business analyst are different roles, however, do not clarify in any detail the differences between them. They also identify the need to investigate the roles performed by IS professionals in order to clarify the skills required to conduct the work. Where research recognises the differences between the systems and business analyst roles (Vongsavanh and Campbell, 2008), further research to distinguish between these roles is recommended.

It is instructive to consider the definitions that purport to clarify the business analyst role. BCS, The Chartered Institute for IT, recognises business analysis as a distinct IS discipline,

and awards professional certifications in business analysis from entry to expert level (BCS). BCS provides the following definition of business analysis and the business analyst role:

*Business analysis brings a balanced understanding of requirements and delivery capabilities allowing for sharper decision making and improved business processes. As a result, the role of the business analyst has become absolutely critical to successful transformation and business growth (BCS, 2016).*

This definition lacks role clarity in the following aspects:

- It provides very little information about the tasks conducted by business analysts although it may be inferred that they involve requirements and business processes.
- The reference to 'a balanced understanding of requirements and delivery capabilities' is vague and ambiguous; for example, what is 'a balanced understanding'? what are 'delivery capabilities'? how does this 'balanced understanding' help decision-making?
- There are no indications of the role behaviours that might be expected from a business analyst.
- It asserts that the business analyst has become absolutely critical within the context of business transformation and growth but does not justify or explain this assertion. There are no defined outcomes that might form a basis for a value proposition.

In summary, the BCS definition does not provide guidance to business analysts that will enable them to understand the extent of their role, or help other roles within the IS function or other organisational domains to work with business analysts.

A further definition of the business analyst role is offered by the International Institute of Business Analysis (IIBA), suggesting:

*Business analysis is the practice of enabling change in an enterprise by defining needs and recommending solutions that deliver value to stakeholders. Business analysis enables an enterprise to articulate needs and the rationale for change, and to design and describe solutions that can deliver value (IIBA, 2015).*

Again, role clarity is lacking as follows:

- There is little information about the tasks conducted, with only vague references to business analysis work, such as 'defining needs and recommending solutions'.



- The phraseology is confusing, for example 'enables an enterprise to articulate needs' is incomprehensible – how can an 'enterprise' articulate something?
- There are two statements affirming that solutions 'deliver value' which, in the light of research concerning value co-creation (e.g., Lusch and Nambisan, 2015), cannot be justified.
- There are no indications of the role behaviours that might be expected from a business analyst.
- The value proposition is unclear given that the outcomes from business analysis appear to be that it enables change, and helps an enterprise to articulate its needs and rationale, and design and describe solutions.

In summary, the IIBA definition is unclear and ambiguous, offering little that will clarify the role of the business analyst. It could also be argued that it offers a level of abstraction that could describe any IS project role. BCS and IIBA are the professional bodies that represent the business analysis practitioner community worldwide. However, the definitions they offer raise more questions than answers.

Definitions provided within the literature are more specific yet identify a key problem with business analysis: the nature of the role depends upon whether an individual business analyst is based within a business or technology group (Vashist et al., 2010; Vongsavanh and Campbell, 2008). Similarly, Sefyrin (2012) reports that business analysts investigate current processes and define business requirements, but may be allowed to become involved in technical solutions if they have IT experience.

Jakob (1986), states that business analysts elicit information from the system users and communicate this information to designers in such a way that both groups are able to understand and agree. However, Jakob (p.312) also offers a more detailed view of business analysis as a 'methodology' stating that business analysis encompasses the following:

- 'a clearly structured and rigorous approach applied to the understanding of the business',
- 'involvement of the users during the lifetime of the project, both in the provision of the information and in the validation of the analyst's understanding', and
- the use of tools that aid communication by providing 'a common language for users, analysts and designers'.

While this definition offers a clearer view about the work of the business analyst, it remains at an overview level and further specific information is required if business analysts are to

have a clear role identity and the issues arising from role ambiguity are to be overcome. Given the importance of role clarity discussed earlier, and the definitions currently available, it is evident that there is a need for a clear and comprehensive definition of the business analyst role.

There is a large number of practising business analysts and many business analysis resources are available, suggesting that the business analyst role has significant prominence within organisations. For example:

- There are several international professional bodies, including BCS and IIBA, that offer professional certifications.
- There are numerous practitioner publications (e.g., Blais, 2011; Cadle et al., 2014; IIBA, 2015; Paul et al., 2014) and online resources<sup>2</sup> devoted to business analysis.
- Business analysis conferences are held in diverse locations<sup>3</sup> such as London, Bulgaria, India, the US and Australia.
- A search of the social media site 'LinkedIn' (May 2016) returned over 1,700,000 people with the job title 'business analyst'.

However, it appears that business analysis practice has developed further than is evident from the academic literature, and the practitioner definitions lack clarity and consistency. This is discussed in the next sub-section which examines business analysis activities.

#### **2.2.4 Business analysis activities**

There is limited extant academic literature concerning business analysis work practices. Vongsavanh and Campbell (2008) explored the differences between the business and systems analyst roles, however, this study was limited to only eight interviewees. Vongsavanh and Campbell identified a set of business analysis tasks as shown in Figure 2.2.

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<sup>2</sup> e.g., <http://www.modernanalyst.com>, <http://www.batimes.com>

<sup>3</sup> e.g., <http://www.irmuk.co.uk/ba2016>; <https://balkanbaconference.org/>; <http://www.baconvention.com/>

**Figure 2.2: Tasks performed by business analysts (Vongsavanh and Campbell, 2008)**

Mediator between the business and IT staff	This is said to be the 'major task' (p. 1063).
Requirements elicitation and refinement	This is also considered to be a 'major task' for business analysts (p.1063).
Solution design	Business analysts with a technical background were more likely to be involved in this task.
Tasks such as accounts, process and data analysis	These are said to depend upon the background of the business analyst.

Practitioner literature such as the IIBA Guide to the Business Analysis Body of Knowledge (BABOK) (IIBA, 2015) suggests that business analysis work is concerned with the following knowledge areas:

**Figure 2.3: Knowledge areas from the IIBA BABOK (IIBA, 2015)**

Business Analysis Planning and Monitoring	organising and co-ordinating business analysis work.
Elicitation and Collaboration	eliciting information from stakeholders, and communicating and collaborating with them.
Requirements Lifecycle Management	managing the requirements from their origin to resolution.
Strategy Analysis	identifying strategic business needs and enabling the fulfilment of the need.
Requirements Analysis and Design Definition	analysing, modelling and validating the requirements.
Solution Evaluation	assessing the performance of a solution once it is in use and identifying potential changes to enable the realisation of the value.

The Business Analysis Process Model (Paul et al., 2014) adopts a different view, identifying a series of activities within an overarching strategic context. These activities are shown in figure 2.4:

**Figure 2.4: Stages from the Business Analysis Process Model (Paul et al., 2014)**

Investigate situation	investigating a problem or opportunity in order to uncover the root cause.
Consider perspectives	identifying, analysing stakeholders and their different viewpoints on a situation.
Analyse needs	building a conceptual view of a desired future business system.
Evaluate options	identifying options and considering their feasibility to address the business situation.
Define requirements	developing a documented set of requirements through their elicitation, analysis, modelling, validation and management.
Deliver changes	supporting the deployment of the solution and reviewing the benefits to enable their realisation.

The Skills Framework for the Information Age version 6 (SFIA6) (The SFIA Foundation, 2015) offers a skill definition for business analysis. This identifies the areas of activity shown in Figure 2.5.

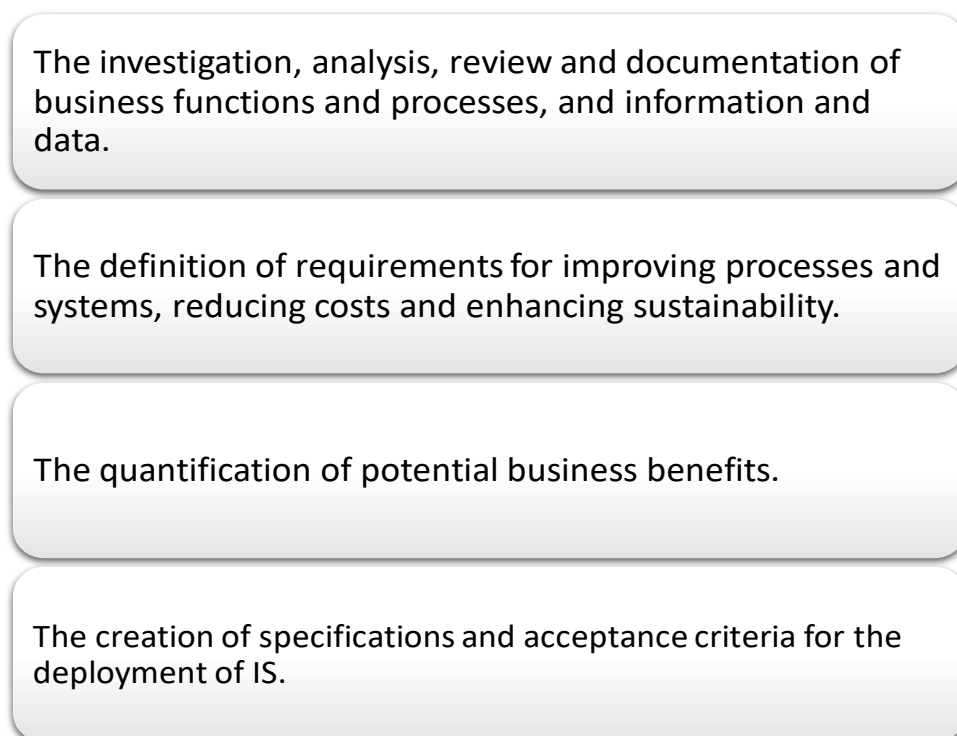
**Figure 2.5: SFIA6 areas of business analysis activity**

Table 2.3 provides a summary of the tasks identified within these definitions and offers a comparison between each definition.

**Table 2.3: Summary of defined business analysis tasks**

	<b>Vongsavanh and Campbell</b>	<b>IIBA BABOK</b>	<b>Paul et al</b>	<b>SFIA6</b>
Strategy analysis		<b>X</b>		
Situation investigation			<b>X</b>	<b>X</b>
Planning and monitoring		<b>X</b>		
Stakeholder liaison/ mediator	<b>X</b>		<b>X</b>	
Requirements definition	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
Solution design	<b>X</b>			
Option evaluation			<b>X</b>	<b>X</b>
Solution evaluation		<b>X</b>		
Change delivery			<b>X</b>	

These four frameworks – three of which derive from the practitioner literature – reflect the inconsistency with regard to the business analyst role. While there is some overlap, there is only one common task across all four sources – requirements definition. The inconsistencies evident within this table suggest there is a need to investigate further the business analyst role and provide clarification of the work business analysts conduct.

## 2.2.5 Section summary: role theory and IS roles

This section has examined research into role theory and the definitions offered for specific IS roles, including that of the business analyst. This review of the literature has identified that a lack of role clarity has implications for role identity and congruence, whereby the behaviours exhibited by role practitioners and expected by co-workers do not align.

There appears to be a gap in the literature with regard to the business analyst role when considered in the light of the definitions of other IS roles, such as that of the systems analyst and project manager. There is a recognition within the literature that the business analyst role needs further investigation (Vashist et al., 2010; Vongsavanh and Campbell, 2008) in order to extend understanding and improve the alignment between business analysis practice and academic research.

The definitions offered by the professional bodies with concern for business analysis, are unclear and provide limited guidance on the focus of business analysis work and the activities required of business analysis practitioners. Where business analysis tasks are identified, there is little correspondence between the activity sets causing even greater ambiguity.

The next section examines the IS context within which business analysis work is undertaken.

## 2.3 The IS context for business analysis

This section reviews the IS literature that is concerned with the nature of systems, the characteristics of an IS, distinguishing between IT and IS, and the socio-technical approach to developing IS.

### 2.3.1 The nature and characteristics of systems

The term 'system' presents challenges due to the ambiguity of its meaning and use within the IS context (Alter, 2008a). A taxonomy of systems offered by Checkland (1981) defines four types of system that may be identified :

<b>Natural systems</b>	Systems that originate from the physical world of the universe.
<b>Designed physical systems</b>	Systems that are physical items that have been designed to fulfil a specific purpose.
<b>Designed abstract systems</b>	Systems that are not physical artefacts but exist to order the thinking of humans.

**Human activity systems**                      Systems that are observable sets of activities that have an underlying rationale.

The systems that are the concern of the IS function are within Checkland's human activity system category. An alternative term, 'work system', is suggested by Alter (2008a, p.451), who defines a work system as:

*a system in which human participants and/or machines perform work (processes and activities) using information, technology, and other resources to produce informational products and/or services for internal or external customers*

Alter clarifies that an IS should be viewed as a particular type of work system, where the focus is on capturing, processing and distributing information. Another definition extends this, stating that an IS is 'a set of interrelated components that collect (or retrieve), process, store, and distribute information to support decision making and control in an organisation' (Laudon and Traver, 2011, p.15). Ward and Daniel (2012, p.17) concur with this definition stating that 'information systems are the means by which people and organizations, utilizing technology, gather, process, store, use and disseminate information'.

Ward and Daniel note that there are both technological and social dimensions to an IS; the social dimension is concerned with how IS are used by individuals and their organisations. The literature suggests that it is not possible to deliver an IT system alone as there is always the need to consider the impact on people, their work and the organisational culture (Dwivedi et al., 2015).

The term 'system' is often used in an imprecise way; it may refer to an IT system or an IS but often the distinction is not clarified. The confusion that exists between IT and IS is a challenge to the success of the IS domain (Paul, 2007), and has an impact upon the work of the IS professionals and the nature of the solutions provided.

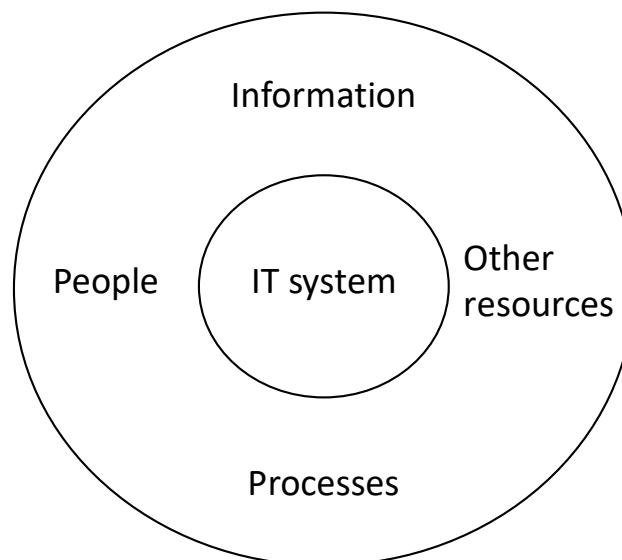
When considering the role of the business analyst, it is necessary to identify that an IS encompasses people, processes, information and other resources in addition to technology. The recognition that these aspects form part of, and are integrated within, an IS, is a key tenet of business analysis and is a clear differentiator from the IT system focus of the systems analyst (Green, 1989; Misic and Graf, 2004). As discussed in sub-section 2.2.3, the differences between the business analyst and systems analyst roles are not always explicit and have been conflated within the literature.

Evidence of this confusion is manifest in the requirements engineering literature which tends to focus on the IT system (e.g., Appan and Browne, 2012; Cox et al., 2009; Hickey and

Davis, 2004; Holmström and Sawyer, 2011; Pitts and Browne, 2007) rather than IS. The IT system focus is at odds with the integration of people, process and technology improvements and the co-ordination of changes across the four dimensions of Leavitt's diamond and the business system diamond (Hammer and Champy, 1993). The assumption of an IT solution also conflicts with holistic thinking concerning human activity systems (Checkland, 1981; Checkland and Scholes, 1999), and the application of socio-technical theory to IS projects (e.g., Alter, 2008a; Baxter and Sommerville, 2011; Doherty and King, 2005; Ghaffarian, 2011).

The importance of positioning IS, such that it supports and enables business success, is represented in the IS Strategy Triangle (Pearlson and Saunders, 2012) which identifies the co-dependency between the technological and people aspects (IS strategy) and the structure and process aspects (Organisational Strategy). This multi-dimensional view corresponds with Leavitt's diamond (Leavitt, 1965) and the business system diamond (Hammer and Champy, 1993), reflecting the need for IS projects to extend beyond IT to ensure that a holistic work system is defined and delivered. This view of an IS is represented in Figure 2.6.

**Figure 2.6: Representation of an IS**



Failing to clarify the scope of an IS, has the potential to cause confusion, reduce clarity and increase the ambiguity regarding the business analyst role. The conflation with the systems analyst role and the use of the generic term 'developer' to encompass many IS roles, as discussed earlier, also risk compounding this issue.



The need to consider the broader business context within which an IT system will be deployed aligns with the socio-technical approach; this is described in the next sub-section.

### **2.3.2 Socio-technical systems thinking**

Socio-technical research developed during the 1950s through work conducted by the Tavistock Institute (Trist, 1981). Some of the key principles defined during the emergence of socio-technical research were concerned with the work system, the work of the group rather than the individual, and the need for the group to have broad skills and to apply their own internal controls rather than be subject to external supervision.

These early principles for socio-technical systems were concerned with 'the joint optimization of the social and technical systems' (Mumford, 2006, p.321) and ensuring the well-being of the individual worker. Accordingly, they emphasised the rights of employees (Ghaffarian, 2011; Mumford, 2006) and the need for them to be involved in the activities to improve the work system. This 'humanistic' approach remains a key principle for socio-technical design although, since the 1980s, the focus on organisational efficiency has been more evident within IS projects (Mumford, 2006, p.321). While a focus on people is relevant to IS practice, the focus for this research is on the contribution of business analysis to the organisation and the delivery of successful outcomes from IS projects.

Socio-technical theory offers a philosophy, comprising a process and principles, rather than providing a methodology that can be followed (Mumford, 2006). Cherns (1976) suggested specific design principles to support those involved in designing socio-technical systems. These principles include:

- Minimal critical specification and, where possible, inspection incorporated within production
- Information provision where needed
- Systems of social support that reinforce the organisation structure
- Reiterative design

It is notable that some original socio-technical design principles remain relevant to current IS approaches. For example, the principles of minimal critical specification and reiteration align within current Agile approaches such as Scrum (Scrum Alliance). Clegg (2000) extended and organised these principles within three categories.

- Meta-principles: the world view statements concerning socio-technical design. This concerns why a socio-technical design is necessary.

- Content principles: the content that forms socio-technical designs. This concerns what is done to conduct socio-technical design.
- Process principles: the approach to conducting socio-technical design. This concerns how socio-technical design work is done.

These categories correspond with the business analysis definitions discussed earlier in this chapter and also align with the conceptual framework adopted for this study and described in chapter 3.

The definitions of the business analyst role state that it addresses business needs and is concerned with business requirements. Therefore, the focus is on the entire IS rather than just the IT system. This approach aligns with the socio-technical research view of systems being formed by two independent but interacting dimensions - the social and the technical (Bostrom and Heinen, 1977). Socio-technical research states that these two elements need to be aligned if the required goal of a work system is to be achieved (Trist, 1981).

Socio-technical theory proposes that beneficial outcomes from IS projects emerge from a combination of technical, behavioural and organisational validity (Newman and Robey, 1992) and that effective organisational change results from socio-technical processes (Luna-Reyes et al., 2005). In essence, to support the delivery of desired business outcomes, an IS must be analysed and improved from both the technological and social/organisational perspectives (McLeod and Doolin, 2012). Similarly, the literature suggests that a relationship exists between the application of socio-technical theory, where the concerns encompass technical, process and behavioural elements, and benefits management research, where the realisation of benefits is dependent upon the delivery of both business and technical changes (Doherty, 2014). This highlights the need for IS projects to take a holistic view and focus on the social and technical aspects in order to achieve successful outcomes.

Business analysts work closely with stakeholders to represent their perspectives on the situation under examination. They may analyse perspectives by considering the different 'world views' held by stakeholders with regard to an IS (Checkland, 1981). This is supported by the socio-technical literature. Alter (2008a) identifies that the socio-technical nature of an IS results in the involvement of people, such as customers and participants, who may hold different perspectives. Clegg (2000) defines the need to understand the world views that are present and ensure that a new system meets the business needs of managers and end-users. It is also recognised that stakeholder perspectives are often in conflict with each other (Lim et al., 2005), and it is important to manage such conflicts as their continuation is likely to have a negative impact on IS projects (Barki and Hartwick, 2001).

The focus on purely technical, rather than the socio-technical, aspects of IS projects is recognised as a reason for their failure (Doherty and King, 2005). Orlikowski (2000) comments that it is not sufficient just to consider the technology when developing an IS as the technology does not itself offer material properties; these must be perceived from how the technology is 'instantiated in practice'. Similarly, Baxter and Somerville (2011) state that there is a problem with IS project approaches that focus on the technological solution because they fail to consider the complex relationships between the organisation, people, processes and the IT system. The fundamental concept underpinning the socio-technical approach is that the social and technical aspects are interrelated and dependent upon each other (Clegg, 2000), and it is only by understanding this, and applying socio-technical principles, that the quality of IS will improve and result in enhanced organisational performance. This suggests a clear alignment between the socio-technical approach and the holistic view applied by business analysts.

Alter (2013) contends that the socio-technical tradition is to separate the social from the technical rather than adopt a systems thinking approach that views them as integrated elements within one system. However, socio-technical systems thinking is said to offer a means of integrating technology with social systems (Davis et al., 2014) and thereby aid the development of complex organisational systems.

The relevance of systems thinking has been recognised within the IS domain for many years and the business analysis practitioner guidance (Cadle et al., 2014; IIBA, 2015), identifies systems thinking and the Soft Systems Methodology (SSM) (Checkland, 1981; Checkland and Scholes, 1999) as relevant approaches. Business systems thinking is identified as a core competence for defining and delivering business requirements (Willcocks et al., 2007, p.127). However, there remains a need to clarify the applicability of socio-technical systems thinking when defining the business analyst role and the corresponding business analysis work practices.

### **2.3.3 Section summary: the IS context for business analysis**

This section has reviewed the literature concerned with the terms 'system' and 'information system', and the socio-technical context for IS. The review has identified that the use of the term 'information system' can cause confusion as it is sometimes interpreted to refer solely to an IT system. However, for the purposes of this research, an IS is clearly defined as referring to the broader work system which, while encompassing the IT system, also includes the people, process and organisational aspects as defined by Alter (2008a) and Ward and Daniel (2012).

There is extensive literature that explores socio-technical principles and systems thinking, and their relevance to IS work. However, while the application of socio-technical principles and systems thinking has the potential to be highly relevant to business analysis, research is required to clarify the applicability of this approach.

The next section of this chapter considers IS projects, their rationale and issues, and the role of the business analyst with regard to IS success.

## **2.4 IS projects**

The IS project provides the context for business analysis work. This section discusses the literature concerned with the motivations for IS projects and the problems regarding IS project success. The role of the business analyst with regard to IS projects is examined in order to consider how business analysis might help initiate IS projects and address IS project problems.

### **2.4.1 Initiating IS projects**

Organisations are subject to external forces, such as political and economic factors, and business domain forces such as customer expectations and competitor actions (Johnson et al., 2007; Porter, 1980). To survive and prosper, organisations need to review these external forces and ensure their capability is sufficient to respond and take advantage of the opportunities offered. Capability encompasses the collection of processes, systems, skills and structures the organisation possesses that enable the delivery of the organisation's services to customers (Ward and Daniel, 2012). The organisation's suite of information systems contribute significantly to the available capability, supporting the achievement of organisational improvements in areas such as cost efficiency and competitive advantage (Johnson et al., 2007). Their effective development and use can be vital to an organisation's continued growth or even survival.

Operational changes are delivered through changing any or all of the elements that enable an organisation's capability, including the IS. While the delivery and management of the information delivered by IS are critical to organisational competitiveness and success (Johnson et al., 2007), it is also important that other areas, such as the operational processes, are both defined and deployed effectively (Johnson et al., 2007), and that additional factors, such as job and task definitions, are considered and changes made where required (Markus, 2004). Therefore, continued organisational success requires IS projects to be initiated such that all of the factors to be addressed are clearly understood. This can only

be achieved if the rationale and business requirements for the IS project are investigated and defined.

The work to determine the changes to be made in order to respond to external forces and other change catalysts, is important and must be performed in a considered way by a team of change specialists covering a range of roles (Johnson et al., 2007). While there is considerable research into the IS project manager role and its focus on IS project planning and resourcing, the change determination activities require investigative and analytical skills. There is a need for specialists who are able to define the work to execute strategic initiatives (Cha-Jan Chang and King, 2005) and conduct a realistic evaluation of proposed changes (Tillquist, 2000). The definitions of the business analyst role discussed earlier in this chapter suggest that this is where this responsibility may lie.

The next sub-section discusses the problems reported with IS projects.

## 2.4.2 Problems with IS projects

IS project failure has been an ongoing issue for many years. The standard of delivered information systems continues to be deemed disappointing (Cecez-Kecmanovic et al., 2014) resulting in organisations being subject to significant risks when undertaking IS development. The CHAOS summary (The Standish Group, CHAOS Summary for 2010, 2010) reports on IT projects and states that in 2000 only 28% of IT projects were categorised as 'successful' and, although subsequent surveys reported a small increase in the proportion of successful projects, this peaked at 35% in 2006 and fell back to 32% in 2008. It is also recognised that the issues associated with IT projects are complex and rarely a consequence of technical matters (Clegg et al., 1997); the human and organisational factors involved in a broader IS perspective are critical when considering the success or failure of projects.

The CHAOS results are consistent with other research, summarised in table 2.4.

**Table 2.4: Research into IS project failure/success rates**

Paper/author	Findings regarding the rate of IS project problems
Information technology: a study of performance and the role of human and organizational factors. (Clegg et al., 1997)	The rate of IS projects that did not meet their performance objectives was between 80 and 90%.

Information systems project post-mortems: Insights from an attribution perspective. (Pan et al., 2007)	Case study research into a UK public sector organisation found that an estimated 60% of completed projects had not met the original objectives.
A survey of information systems development project performance. (Wright and Capps, 2011).	The level of IS projects that are 'overwhelming failures' is 20 – 30%; 30% to 60% of IS projects are 'partial failures'.
Benefits Management: How to Increase the Business Value of your IT Projects. (Ward and Daniel, 2012).	Reported that their research has shown that approximately 30% of IS/IT projects may be said to be 'completely successful'.

A comprehensive study of areas that increase the risk of failure of IS projects (Schmidt et al., 2001) identifies 14 key factors. A similar set of factors is offered by Hughes et al (2016). Several of these factors are of particular concern to business analysts. In particular, the need to facilitate relationships between business and IT stakeholders and the clear definition of requirements.

Requirements definition is cited frequently as a major issue on IS projects (Al-Ahmad et al., 2009; McManus and Wood-Harper, 2007) and the inherent difficulties in understanding and defining IS requirements is a primary cause of IS problems (Alter and Browne, 2005; Lindquist, 2005; Wand and Weber, 2002; Schmidt et al., 2001). The lack of well understood and defined requirements is linked to customer dissatisfaction with delivered systems (Browne and Rogich, 2001). A survey of 99 IT projects identifies requirements determination as a source of problems in 31% of projects (Nelson, 2007).

Similarly, research shows that the requirements definition activity is critical for IS success (Appan and Browne, 2010; Hickey and Davis, 2004) and that one of the key issues with requirements arises from the lack of domain knowledge within the user and developer communities (Schmidt et al., 2001). Given that the business analyst role began to emerge in the late 1980s (Jakob, 1986), the continuing IS project issues related to requirements is a concern and is considered in further detail in sub-section 2.4.3.

Other relevant problems with IS projects include a lack of understanding of the impact upon the business system into which the IS will be deployed (Al-Ahmad et al., 2009), and a failure to recognise that a new IS should change how an organisation works (Peppers et al., 2003) rather than focusing solely on IT change. This reflects IS project practice where there is often an assumption that a software application is to be built (Alter, 2010). However, this is a limited view that is likely to constrain organisations and prevent the realisation of business benefits.

Concerns regarding the focus on the IT system rather than the broader IS, corresponds with socio-technical research (discussed in sub-section 2.3.2) which suggests that addressing both the technical and social aspects are necessary for IS success. Doherty and King (2005) perceive IT change to be the catalyst for broader, organisational changes and comment that the latter are necessary for there to be a beneficial impact upon the organisation. A lack of consideration of the organisational impacts from new or enhanced IT systems, and a failure to take appropriate actions, is a major contributory factor in the lack of IS success (Ashurst et al., 2008). Clegg et al. (1997) suggests that one of the key reasons for the failure of IS projects concerns the inadequate attention paid to the contextual aspects such as the organisation and the people engaged to conduct the work, and identifies weaknesses in several areas including the definition of user requirements and the level of involvement of the users of the system. In a similar vein, Markus (2004) states that as many as 75% of organisational change projects that involve technology, fail due to the resistance encountered when the people required to conduct the work are overlooked and neglect to adopt new ways of working.

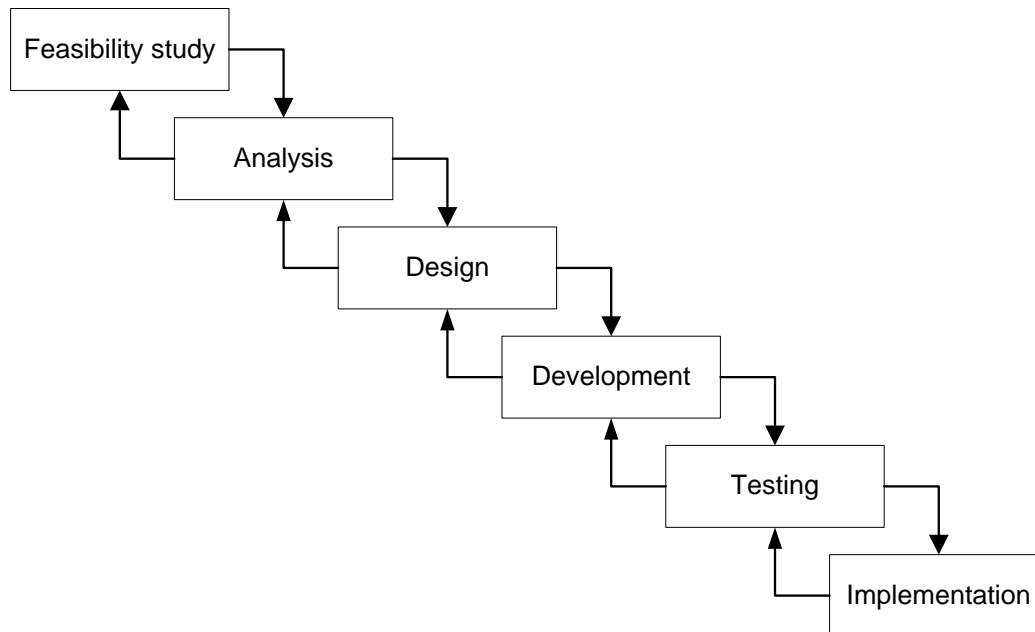
These explanations of poor IS success rates indicate the need to consider how issues relating to requirements definition and stakeholder engagement, and the changes required to the broader human activity system, may be addressed. The definitions of the business analyst role discussed in sub-section 2.2.3 suggest that these are aspects of business analysis work. However, empirical research is needed to explore this further and address issues with role clarity and congruence.

The role of business analysis within IS projects is discussed in the next sub-section.

### **2.4.3 Business analysis within IS projects**

IS development projects have traditionally applied the systems development lifecycles that are based upon the Waterfall model (Royce, 1970). The Waterfall model represents a linear set of activities that are conducted sequentially (Grenci and Hull, 2004). An example of this lifecycle is shown in Figure 2.7.

**Figure 2.7: Example 'waterfall' lifecycle (Paul et al., 2014)**



Variants of this model are available (Cadle and Yeates, 2008) for use in specific situations, for example:

- The V model establishes the link between requirements and testing.
- The Incremental model provides a basis for the development and deployment of the system in increments that are based on sets of requirements.
- The spiral model (Boehm, 1988) establishes the development of IS through the use of evolutionary prototypes whereby detailed requirements evolve during the development process.

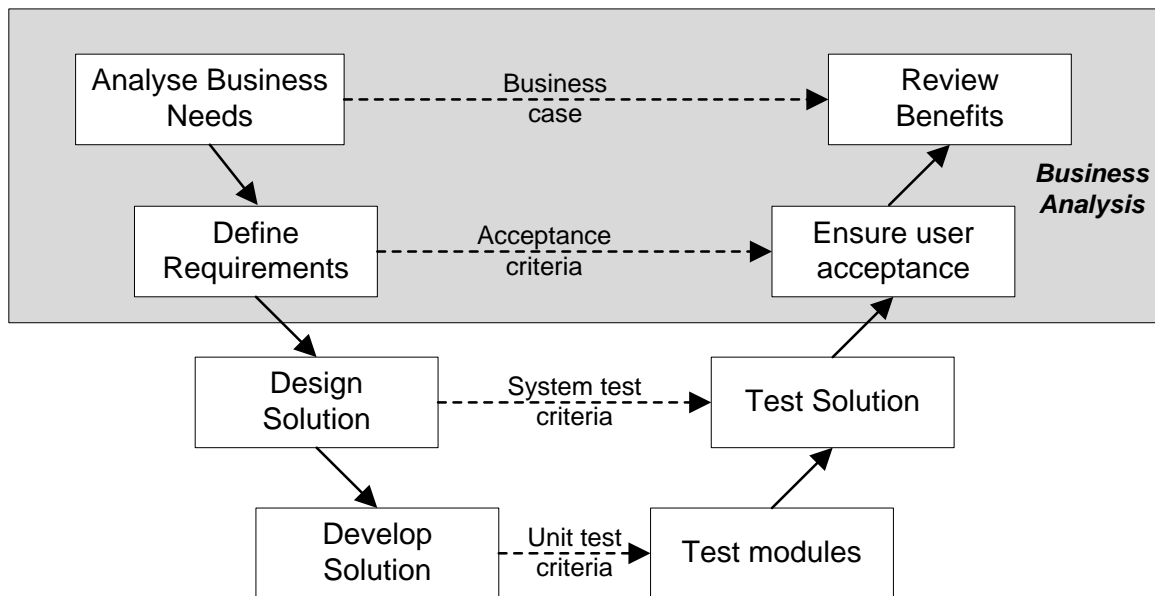
All variants identify a requirements analysis stage. However, while these models have been adopted widely for several decades, they focus on the development of an IT system without consideration of the wider work system or the potential for meeting requirements through non-automated means (Alter, 2008a). This is consistent across the literature, where there appears to be an assumption that requirements within an IS context are elicited and defined for the purpose of developing or enhancing IT systems (Appan and Browne, 2012; Cox et al., 2009; Hickey and Davis, 2004; Holmström and Sawyer, 2011; Pitts and Browne, 2007). Chakraborty et al (2010) focus on the analyst/end-user interaction for the IT requirements and Mathiassen et al (2007) state that the purpose of requirements documentation is to provide a blueprint for software development.

An extended version of the V model (Paul et al., 2014) suggests a link between the analysis of the business needs and the benefits review, and the definition of requirements and the



acceptance of the solution by the business staff. This diagram also offers an overview of the business analysis domain within the context of the V model.

**Figure 2.8: Extended V model (Paul et al., 2014)**



Although this model also focuses on the delivery of an IT system, it offers a clear representation of the tasks that may be undertaken by business analysts. This not the case where the Agile<sup>4</sup> approach is adopted on a project.

The emergence of Agile has implications for the business analyst in addition to the role ambiguity discussed in sub-section 2.2.3. The Agile principles focus on the relationship and conversations between the software developer and the end user, by implication removing the need for an analyst to perform the translator role (Vongsavanh and Campbell, 2008). This raises questions about the need for business analysts within an Agile project environment.

The Agile manifesto refers to 'working software' rather than the more holistic IS of which the IT system is an element. The implication is that a 'developer' may conduct any analysis work required for the determination of the requirements to be delivered by an IT system. This raises two issues:

- The use of the generic term 'developer' suggests that specialist analysis skills are not required where an IS project uses Agile.
- The focus on a software product rather than an IS suggests that any analytical

<sup>4</sup><http://agilemanifesto.org/>

activity is limited to IT requirements definition.

While the Systems Development Lifecycles (SDLCs) discussed above may include business analysis activity, this is not clear and there is a focus on the development of IT systems rather than the more holistic IS. The literature offers lifecycles that move beyond this limited focus on IT systems. Alter (2013) proposes the Work Systems Life Cycle (WSLC), which focuses on the development of the holistic work system rather than just the technical product, and the Work Systems Method (WSM), which encompasses the WSLC and offers a broader basis for the analysis activity than the technically-focused SDLCs described above. The WSM offers synergies with business analysis and the adoption of a holistic view of IS.

#### **2.4.4 Section summary: the IS project context for business analysis**

The literature reviewed in this section is concerned with the initiation of IS projects, the problems with IS projects and the factors leading to these problems. There is a recognition that specific skills are required to initiate projects but there appears to be a gap in the literature concerning the role that has this responsibility. The factors leading to problems with IS projects include areas such as poor-quality requirements and difficulties with stakeholder relationships. Both of these areas fall within the business analysis domain.

The ambiguity with regard to the business analyst role is compounded by the confusion regarding the nature of requirements and the question of whether they are concerned solely with the IT system or relate to the holistic IS. A determinist approach to requirements definition, whereby there is a limited focus on an IT solution, risks overlooking the dimensions that are necessary for an IS to function successfully and may result in requirements that are ambiguous or incomplete.

Research is needed to investigate business analysis and determine the activities that may support the successful initiation and conduct of IS projects.

The next section discusses the role of the IS function and the skills and services it offers to the organisation.

## **2.5 The IS function**

The role of the IS function is of increasing importance but requires clarity of purpose and the availability of relevant capabilities. This section discusses the IS function, its development and the role it takes in supporting the rest of the organisation. This is particularly important for business and IT alignment, a key concern for many CIOs and senior IT managers (Kappelman et al., 2017).

### 2.5.1 The role of the IS function

The Information Systems (IS) function has moved through several phases of development over the last few decades (Petter et al., 2012). Whereas the IS function was established to provide data processing capability and operated originally as a distinct and separate department offering specialist expertise, it has become increasingly integrated within organisational operations, gaining responsibility for delivering vital services and enabling success (Cha-Jan Chang and King, 2005). Research suggests that business leaders may view the IS function as a business partner (Luftman et al., 2012), and the IS function must work in partnership with the business units if the delivered systems are to support business needs (Davenport and Stoddard, 1994; Gullemette and Pare, 2012). Business analysis has the potential to play a key role in supporting a partner model by engaging with business stakeholders and uncovering the holistic requirements to be delivered by the IS projects.

While the services offered by the IS function are central to the success of many organisations, questions remain about the contribution made by the IS function (Hirschheim and Klein, 2012). This is largely due to the widespread concerns discussed earlier about the standard of the IS delivered to the internal customers and the 'uncomfortably high' (Ashurst et al., 2008, p.353) failure rates.

The different roles offered by the IS function are said to determine the extent of the organisational support offered and the nature of the IS/business relationship (Gullemette and Pare, 2012). This distinction may be clarified by comparing two of the Gullemette and Pare profiles for the IS function:

- The 'Systems Provider' profile defines a reactive role providing a limited focus on the development of IT applications.
- The more proactive profile of 'Partner' has a remit of 'active partner in business transformation and organisational innovation'.

The comparison of these two profiles reflects some of the IT and IS confusion discussed in sub-sections 2.3.2 and 2.4.2. The different profiles also reflect the ambiguity surrounding the business analyst role, raising the question of whether the focus should be on IT systems analysis or the provision of a holistic analysis service with a focus on the IS as defined in sub-section 2.3.1. The importance of a role that can take a business-focused view of IS requirements is supported by a longitudinal study (Cross et al., 1997) of the transformation of the IS function at BP, which states that the traditional systems analyst role, with its emphasis on IT system specification, needs to evolve into that of 'business consultant' if the

IS function is to meet the needs of the organisation rather than just focus on delivering IT systems.

The partner role of the IS function cannot be achieved if there is a lack of the required capability, including business analysis capability. The capabilities required of the IS function include the skills and knowledge provided by the IS specialists (Cha-Jan Chang and King, 2005). To operate as a collaborative partner, research suggests that the IS function will need to employ specialists who have business, technical and interpersonal skills (Feeny and Willcocks, 1998; Gullemette and Pare, 2012; Lee et al., 1995) in order to bridge business and technical matters, and be able to engage with the business staff.

An additional aspect of the partner role for the IS function concerns the view of the customer. Several approaches to IS development have emerged since the early work in the mid-1950s, culminating in a style which emphasises communication and collaboration (van Reijswoud et al., 1999). The development of an IS should recognise the needs of the people who are to use it (Checkland and Scholes, 1999); this affords relevancy to an IS such that it is potentially valuable to an organisation and its customers. However, this requires the IS function to include a role that understands the organisational culture (Taylor-Cummings, 1998), is able to provide the interface between the business-focused and technical groups within an organisation (Westfall, 2012), and facilitates communication with customers.

The central role played by IS within organisations has increased the need for alignment between the business requirements and the delivered systems. Business productivity, cost reduction, and the achievement of business and IT alignment are key concerns for many Chief Information Officers (CIOs) (Luftman and Derksen, 2012; Luftman et al., 2012) and the relationship between the IT and business functions is an important factor in the delivery of IS success. However, Luftman and Derksen (2012) comment that despite CIO efforts to work closely with business areas in order to align IT projects with business needs, there has been only limited progress in achieving this.

Research identifies the importance of collaboration between the IS and business functions so that technology innovations address business needs and lead to improved business performance (Lee et al., 2008). Should the collaboration between business and IT fail, the IS will be disconnected from the needs they are to address, resulting in a negative impact upon business performance.

IS staff who understand the business and have close relationships with the business staff, are key enablers of business/IT alignment (Lee et al., 2008). This alignment requires the IS function to provide capabilities such as the ability to develop effective IT-business

relationships (Ross et al., 1996). Definitions of the role indicate that business analysts facilitate communication between the business and IT stakeholders and are able to support business/IT alignment by building effective stakeholder relationships.

The intersection of business and technical capability appears to be within the business analyst role as defined in sub-section 2.2.3. Empirical research is required to determine the skill requirements of business analysts such that they may support the role of the IS function and enable business and IT alignment.

### **2.5.2 Section summary: the IS function**

This section has reported on the partner role of the IS function and has highlighted that this role, plus the desired business and IT alignment, requires capabilities that extend beyond technology to include interpersonal skills and an understanding of business. It is suggested in practitioner literature that the skills required of business analysts encompass all three areas (Rollason, 2014). Empirical research is required to explore further these skill requirements and their application when delivering the IS function partner service.

The evaluation of IS project success is discussed in the next section.

## **2.6 Measuring IS success**

This section discusses the literature that is concerned with the mechanisms for measuring the success of IS projects and considers how business analysis may contribute to successful IS project outcomes.

IS projects are initiated to achieve a specified business goal or objective. While much literature exists that is concerned with the levels of IS project failures, and the root causes of problems, extensive research has also been undertaken into the nature of IS success. This literature seeks to understand how IS project success is defined as this differs depending upon the viewpoint from which outcomes are assessed.

### **2.6.1 Key research papers on measuring IS success**

IS project performance is said to be a 'multi-dimensional construct' that is determined by both business and project decision making (Yetton et al., 2000). Success measures for project managers relate to the delivery of projects within the triple constraint of 'time, cost and quality' (OGC, 2003), yet Nelson (2005) asserts that these 'process-related criteria' need to be supplemented by criteria that are concerned with outcomes related to learning, value and use, if the evaluation is to be comprehensive.

While timescale and budget are tangible elements to assess, the evaluation of business outcomes is much more subjective. Jenkin and Chan (2009) comment that the project management approach to assessing project success is limited in that it does not attempt to ensure project and strategic alignment. In essence, the delivery of a system within the required timescale and budgetary constraints provides one measure of IS success, but this does not guarantee that the system has offered any potential for the realisation of organisational value.

The mechanisms that determine IS success are 'elusive to define' (DeLone and McLean, 1992) and this is borne out by the range of measures defined by researchers. Table 2.5 summarises some of the key research studies in this area and the measures identified for assessing IS success.

**Table 2.5: Summary of research regarding evaluation of IS success**

Title	Research Method	Measures of success
<b>Multi-dimensional assessment</b>		
Evaluating information systems projects: a multi-dimensional approach.  (Fitzgerald, 1998)	Theoretical.	Eight dimensions: <ol style="list-style-type: none"> <li>1. Identifying costs.</li> <li>2. The contribution to business strategy.</li> <li>3. Analysis of benefits.</li> <li>4. Second order effects.</li> <li>5. Flexibility.</li> <li>6. Implementability.</li> <li>7. Risk.</li> <li>8. Testing the business idea.</li> </ol>
<b>Alignment of business and IS</b>		
Eight Imperatives for the New IT Organisation  (Rockart et al., 1996)	Empirical study in fifty firms plus a comparative study across four countries.	Eight "imperatives": <ol style="list-style-type: none"> <li>1. Achieve two-way strategic alignment.</li> <li>2. Develop effective relationships with line management.</li> <li>3. Deliver and implement new systems.</li> <li>4. Build and manage infrastructure.</li> <li>5. Reskill the IT organisation.</li> <li>6. Manage vendor partnerships.</li> <li>7. Build high performance.</li> </ol>

Title	Research Method	Measures of success
		8. Redesign and manage the federal IT organisation.
Achieving and Sustaining Business-IT Alignment (Luftman and Brier, 1999)	Survey of 500+ firms in 15 industries plus interviews and observations.	Strategic competitive advantage derives from alignment. Strategic alignment model used to determine the strengths and weaknesses in the business-IT relationship.
Alignment between Business and IS strategies: A study of Prospectors, Analysers and Defenders (Sabherwal and Chan, 2001)	Two surveys. 164 senior respondents:  62 CEO and CIO respondents	Alignment between business strategy and IS strategy is reflected in perceived business performance.
IS project alignment – a process perspective (Jenkin and Chan, 2009)	Case studies; analysed using organisational metaphors (for example, the mechanistic 'organisation-as-machine'). Nine projects across two organisations.	Importance of strategic alignment for business success. Link between project alignment and strategic alignment. Learning and adaptation to change required for project alignment.
<b>Information systems performance</b>		
Information Systems Success: The Quest for the Dependent Variable (DeLone and McLean, 1992)	Theoretical	I/S Success Model categories:  1. System Quality. 2. Information Quality. 3. Use. 4. User Satisfaction. 5. Individual Impact. 6. Organisational Impact.

Title	Research Method	Measures of success
<p>The DeLone and McLean Model of Information Systems Success: a Ten-Year Update</p> <p>(DeLone and McLean, 2003)</p>	<p>Theoretical - review of 100 articles.</p>	<p>Updated I/S Success Model. Key differences:</p> <ul style="list-style-type: none"> <li>• Addition of service quality.</li> <li>• Expansion of 'Use' to include 'Intention to use'.</li> <li>• Merger of impacts into 'Net benefits'.</li> <li>• Addition of feedback loops from net benefits.</li> </ul>
<p>Measuring the Performance of Information Systems: A Functional Scorecard</p> <p>(Cha-Jan Chang and King, 2005)</p>	<p>Two surveys. 346 systems users in 149 organisations; &gt;80% from middle and upper management.</p>	<p>Three dimensions:</p> <ol style="list-style-type: none"> <li>1. Systems performance.</li> <li>2. Information effectiveness.</li> <li>3. Service performance.</li> </ol>
<p>Project Retrospectives: Evaluating Project Success, Failure, and everything in between</p> <p>(Nelson, 2005)</p>	<p>72 project retrospectives</p>	<p>Six criteria:</p> <p>Project-related: Time, Cost, Product (quality).</p> <p>Outcome-related: Use, Learning, Value.</p>
<p>A Multi-Project Model of Key Factors Affecting Organisational Benefits from Enterprise Systems (ES).</p> <p>(Seddon et al., 2010)</p>	<p>130 customer presentations from two conferences.</p>	<p>Six factors:</p> <ol style="list-style-type: none"> <li>1. Functional fit.</li> <li>2. Overcoming organisation inertia.</li> <li>3. ES-enabled integration.</li> <li>4. Process optimization.</li> <li>5. Access to information.</li> <li>6. Investment in ES business improvement projects.</li> </ol>
<p>Information System Success: The Quest for the Independent Variable</p> <p>(Petter et al., 2013)</p>	<p>Theoretical - review of 600 articles; 140 in detail.</p>	<p>IS Success Model enhanced by 43 additional variables to influence success.</p>



Title	Research Method	Measures of success
<b>Business benefits</b>		
Managing the Realization of Business Benefits from IT investment (Peppard et al., 2007)	Longitudinal study 20 organisations; 15 case study organisations.	Benefits Dependency Network defines: <ul style="list-style-type: none"> <li>• Delivery of business benefits via IS/IT and business changes.</li> <li>• Delivery of business benefits enables achievement of business objectives.</li> </ul>
Improving the impact of IT development projects: the benefits realization capability model (Ashurst et al., 2008)	Study of project documentation from 25 projects; survey of 15 project managers.	Delivery of business benefits through practices that support the effective management of benefits.

Measures within these papers that relate to a business analyst perspective include the following:

- Achieving 'functional fit' (Seddon et al., 2010) is predicated upon the clear definition of business and functional requirements.
- Several categories in the IS Success Model (DeLone and McLean, 2003), such as information quality and user satisfaction, can only be delivered if the business needs are understood and a well-formed set of requirements defined.
- The Benefits Dependency Network illustrates clearly the link between the IS/IT, enabling changes and business changes (Peppard et al., 2007; Ward and Daniel, 2012). These changes are based upon an accurate understanding and definition of the business and IT requirements.

It is notable that where these researchers have engaged with individuals, they have been predominantly at an executive or managerial level, both within IS and the business; the views of business analysts have not been sought. Given the responsibility of the business analyst to engage with the business community to determine their requirements, it may be argued that there is a need to research the views and experiences of business analysts regarding the nature of IS success.

Having reviewed the proposed approaches to evaluating IS success, the IS success Model and Benefits Dependency Network have been examined further in the light of the business analyst role and work practices. These frameworks are discussed in the next sub-section.

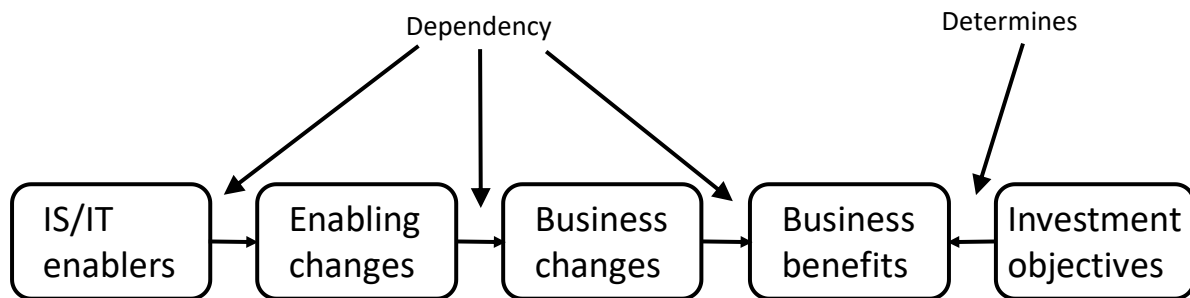
### **2.6.2 IS success frameworks**

The IS success model (DeLone and McLean, 2003) is widely cited as defining relevant variables upon which IS success is dependent. However, the language adopted within this model suggests that the success factors identified relate to the IT system rather than the broader IS. For example, two of the variables are 'use' and 'user satisfaction' which indicate usage of an IT system rather than participation within a business system. The ultimate goal, identified by DeLone and McLean, concerns the realisation of 'net benefits' but, as the variables relating to the holistic business system are not defined, it is difficult to uncover the nature of the net benefits in any detail. It is notable that DeLone and McLean (2003, p.16) state that each step in their model is a 'necessary, but not sufficient, condition for the resultant outcome' from which it may be inferred that additional variables relating to the broader business context may be required to deliver the net benefits.

Petter et al (2013) state that there is a need to investigate how the success factors may be achieved. The business analyst role, as defined in sub-section 2.2.3, has the potential to contribute to the achievement of these factors.

A further measure of IS success concerns the realisation of business benefits. Organisations invest in information systems but sometimes fail to assess whether or not the predicted benefits have materialised and the investment was worthwhile (Clegg, 2000). A benefit is defined as an 'advantage on behalf of a particular stakeholder or stakeholder groups' (Ward and Daniel, 2012, p.70). Research concerning benefits management places IS firmly within the business context, highlighting the need for holistic analysis that encompasses both IS and organisational changes if business benefits are to be realised.

The Benefits Dependency Network (BDN) (Peppard et al., 2007; Ward and Daniel, 2012) provides a taxonomy linking the IS and business changes with business objectives. The BDN emphasises the dependencies between specific categories of change: the IS/IT changes, the enabling changes and the business changes. An overview of the BDN structure is shown in Figure 2.9 below.

**Figure 2.9: Overview of the Benefits Dependency Network (Ward and Daniel, 2012)**

The business changes provide the means for realising business benefits which ultimately support the achievement of business objectives. Therefore, the BDN indicates that the route to business benefits and objectives necessitates the adoption of a holistic view as this ensures that the IS/IT, enabling changes and business changes, and the dependencies between them, are defined.

While the BDN suggests what needs to be in place for the realisation of benefits, there is again a question about who is responsible for this work and how might it be done. The BCS definition of business analysis discussed in sub-section 2.2.3 indicates that business analysis has a role to play in achieving business benefits and meeting strategic objectives. Clarification of the business analyst role would help to identify where business analysis may contribute to the delivery of business benefits through the identification of the elements defined within the BDN.

### 2.6.3 Section summary: measuring IS success

This section has reported on the range of measures identified within the literature for evaluating the success of IS projects. Perceptions of the value offered by an IS solution may be based upon evaluation criteria that are largely intangible, for example, ease of use or the level of user satisfaction. The achievement of business objectives through the realisation of business benefits, offers a more tangible measure of the value realised from an IS. Whether intangible or tangible measures are to be applied, there is the potential for business analysis to contribute to the success of IS projects by supporting the identification and achievement of these measures.

Concerns were raised earlier in this chapter about the need to clarify the business analyst role, the activities performed and the skill requirements. The examination of the means of evaluating IS project success has identified that while relevant factors are identified within the IS success model and the BDN, the means of achieving them is less clear. Business analysis has the potential to contribute to the success of IS projects through working with

business stakeholders to clarify the means of achieving the IS success factors and the changes required to realise business benefits. However, the business analysis activities and skills needed to do this require research.

## **2.7 Research proposition**

In conducting this literature review, it has become apparent that there is a gap in the literature regarding the role of the business analyst and how this is instantiated in practice.

This lack of understanding has the potential to impact negatively upon IS projects.

Conversely, the clarification of business analysis has the potential to contribute towards the success of IS projects.

BCS and IIBA have provided definitions of the business analyst role but have failed to clarify the tasks and work practices such that they enable greater recognition of business analysis and define what should be expected of a business analyst. While IIBA have offered a more detailed view of the tasks undertaken by business analysts, these tasks lack alignment with other definitions.

The literature highlights that the purpose of information systems is to enable the delivery of improved organisational performance through IS improvement and, to achieve this, the IS function must offer capability in several areas. Yet, while research into the problems associated with requirements definition has indicated the need for business requirements to be considered, the literature focuses in the main on defining requirements for IT systems and lacks sufficient consideration of the holistic IS. If the IS function is responsible for meeting business needs by delivering information systems that enable organisational success, it follows that there should be IS professionals with the necessary skills, who are able to take a holistic view, investigate and analyse business needs, and define business requirements.

The specific areas of concern identified are:

- A lack of clarity regarding the business analyst role with the potential for a lack of role identity on the part of business analysts and role ambiguity on the part of business customers.
- Confusion with the systems analyst role and the resultant potential for duplication and ambiguity of analysis work. This also raises inconsistencies regarding the business analysis tasks and whether they focus on the IT system or the holistic IS.
- The skills required of business analysts for them to support the IS function effectively.

- Limited, if any, appreciation of the relationship between business analysis and the factors for IS success and the realisation of business benefits.

Given the gaps in the literature with regard to business analysis, the aim of this study is to improve the clarity of the business analyst role by conducting empirical research into business analysis and developing a service framework for the business analysis discipline. Accordingly, the research question for this study is defined as follows:

***‘What are the services, work practices and value propositions offered by business analysis within the context of IS projects?’.***

There are three elements within this research question each of which has been investigated within the literature. The following sub-questions provide clarification of each element of the research question:

- What are the services offered by business analysts and what activities do they perform when providing these services?
- How do business analysts conduct business analysis work?
- Why is business analysis relevant and useful to IS projects?

The following objectives provide a basis for answering the research question and sub-questions, and for clarifying the outputs to be delivered by this study:

- RO1. The role (what is done): identify a set of clear, distinct services that business analyst practitioners provide to their organisations and list the activities that business analyst practitioners undertake in order to offer these services.
- RO2. The work practices (how business analysis is conducted): construct a taxonomy of the standard techniques, models and skills that should be used to perform the business analysis activities effectively.
- RO3. The rationale (why business analysis is required): provide a clear and accessible definition of the value proposition for each business analysis service in order to explain why the service may be beneficial to the organisation.

## **2.8 Chapter summary**

This chapter has discussed the extant literature pertaining to business analysis within an IS context.

In doing so, the possible relationship between the ambiguity of the business analyst role and problems experienced by IS projects has been highlighted. Further, the skill requirements of

business analysts and how these skills align with the service offering of the IS function have been explored. During this review, gaps in the literature with regard to business analysis have been identified revealing that the recognised phenomenon where practice appears to be ahead of theory (Bartunek et al., 2001) applies to business analysis.

The research question and objectives, defined in section 2.7, have been formulated in order to address this literature gap, develop theory regarding business analysis and improve business analysis practice.

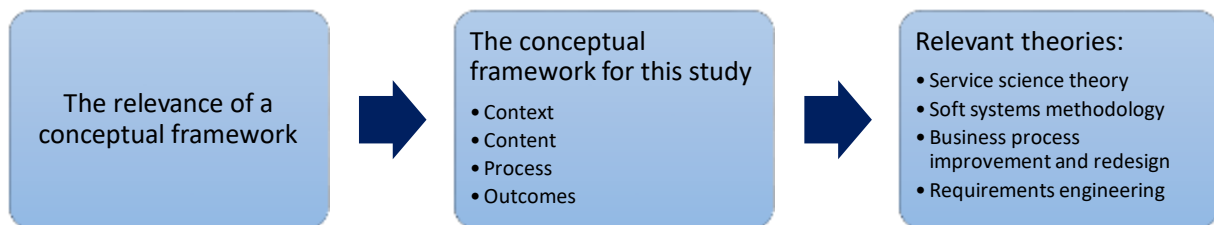
Chapter three defines the conceptual framework for this study, and identifies the relevant theories used to conduct the research into business analysis and address the research aim, question and objectives.

## 3 Conceptual Framework

### 3.1 Rationale and structure of this chapter

This chapter explains the conceptual framework that has been applied when conducting this study. This includes the key academic theories employed within this framework. The framework was used to design and undertake the data collection and analysis, and to support the inductive development of theory. The chapter is structured as shown in Figure 3.1.

**Figure 3.1: Structure of chapter three**



The overview content of this chapter is as follows:

- Section 3.2: the need for a conceptual framework; a discussion of the relevance of the conceptual framework to a research study.
- Section 3.3: the selection and development of the conceptual framework; a review of possible frameworks considered for use in this study; an explanation of the Pettigrew and Whipp model, why it has been adapted for this study and the context, content, process, outcomes dimensions; the application of these dimensions to this research.
- Section 3.4: the business analysis maturity model; a description of a model developed to evaluate the maturity of business analysis practice at individual, team and organisational levels.
- Section 3.5: service science theory; a review of service science theory including the development of service science, service-dominant logic, value co-creation, resource integration and the role of the end-user; a discussion of the application of service science as a framework for understanding the nature of the business analysis service and the co-creation of value for an organisation.
- Sections 3.6 to 3.8: a review of the literature relevant to business analysis practice; the Soft Systems Methodology (SSM), Business Process Improvement and Redesign, and Requirements Engineering.

- Section 3.9: chapter summary; the conclusions drawn from the conceptual framework discussion.

### **3.2 The need for a conceptual framework**

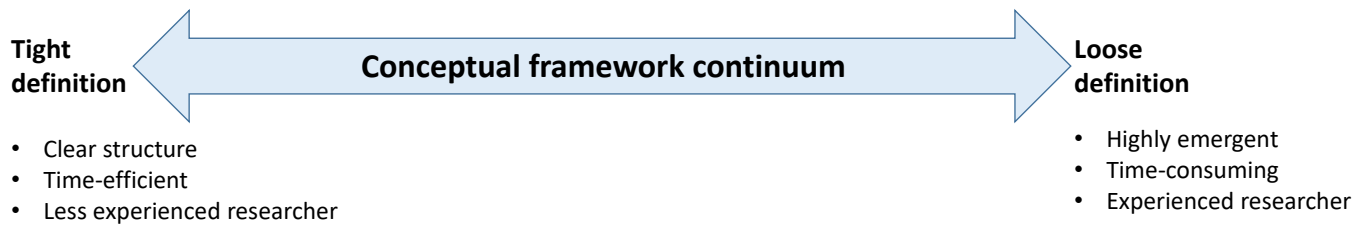
A conceptual framework is essential to guide the research that will address the research problem (Saldana, 2011; Sekaran and Bougie, 2009). It provides a basis for exploring the aspects relevant to the research problem and gives a structure to the research approach. The foundation offered by the conceptual framework offers a structure for the research that can clarify the variables or perspectives and the associations between them. Within quantitative research projects, the conceptual framework identifies the variables to be investigated and the nature of the associations between them, and leads to the identification of the hypotheses to be tested. This is not the case with regard to qualitative studies where an inductive research strategy is applied. Instead, an inductive approach to research and theory development requires the identification of the elements of the conceptual model and the associations between them but does not clarify the nature of the associations nor lead to the development of hypotheses. Rather, an inductive approach establishes descriptions and definitions that help to answer the research questions and achieve the research aims (Blaikie, 2007).

A conceptual framework may be designed such that the structure is pre-defined in detail and there is little scope for the emergence of concepts, or it may be very loosely defined (Miles et al., 2013). Where the framework is less prescribed and offers the possibility of emergence, this may require a lengthy period of time devoted to the research. Miles et al recommend that the less experienced researcher uses frameworks that are clearly defined as this provides a clear direction and focus for the research.

This is reflected in the conceptual framework continuum represented in Figure 3.2.



Figure 3.2: Conceptual framework continuum



The researcher develops a conceptual framework through taking into account aspects such as personal background and goals, and the prior research available in the literature. Having reviewed the literature relevant to the business analysis discipline, and given the personal context, the researcher is able to formulate ideas about why the subject requires research, what aspects are of interest and how this might be developed further (Ravitch and Riggan, 2012). This understanding provides a means of developing a conceptual framework that will guide the research strategy, design and methodology.

In this research project the conceptual model has been developed to reflect the 'epistemological, theoretical and methodological premises' of the researcher (Saldana, 2011, p.81), and has been used to guide the research project. The development of the conceptual model for this research project and the relevant theories are described below. The ontological, epistemological and methodological premises are discussed in chapter four.

### 3.3 The development of the conceptual model

#### 3.3.1 The research aim, questions and objectives

The aim of this study is to improve the clarity of the business analyst role by conducting empirical research into business analysis and developing a service framework for the business analysis discipline. The research question defined for this study is:

***'What are the services, work practices and value propositions offered by business analysis within the context of IS projects?'***

The following sub-questions provide clarification of each element of the research question:

- What are the services offered by business analysts and what activities do they perform when providing these services?
- How do business analysts conduct business analysis work?
- Why is business analysis relevant and useful to IS projects?

The following objectives have been defined to address the research question and sub-questions, and clarify the outputs to be delivered by this study:

- RO1. The role (what is done): identify a set of clear, distinct services that business analyst practitioners provide to their organisations and list the activities that business analyst practitioners undertake in order to offer these services.
- RO2. The work practices (how business analysis is conducted): construct a taxonomy of the standard techniques, models and skills that should be used to perform the business analysis activities effectively.
- RO3. The rationale (why business analysis is required): provide a clear and accessible definition of the value proposition for each business analysis service in order to explain why the service may be beneficial to the organisation.

### 3.3.2 Review of existing conceptual frameworks

In considering the conceptual framework to apply to this research project, it was important to utilise a conceptual framework that enabled the examination of business analysis from several perspectives and ensure that the dimensions set out in the research objectives were explored.

The models discussed in table 3.1 below were considered as a basis for this research project but were rejected as they did not have sufficient alignment with the research question and objectives. The rationale for considering these frameworks, and the reasons for their rejection, are set out in table 3.1.

**Table 3.1: Role and organisational analysis frameworks considered for this study**

Name and author	Dimensions	Reasons for consideration and rejection
Five factors for comparing CIO roles (Peppard et al., 2011)	Five factors used to describe and compare the CIO roles. The factors are: <ul style="list-style-type: none"> <li>• Scope of the role</li> <li>• Issues critical to success</li> </ul>	This framework was derived from research concerned with an IS role and the issue of role ambiguity. Therefore, it offered factors that applied directly to the business analyst role and enabled the description of different aspects of the role.  The factors related to the research objectives are as follows:

	<ul style="list-style-type: none"> <li>• Performance metrics</li> <li>• Challenges</li> <li>• Relationship with peers (the CxOs in the case of the CIO)</li> </ul>	<ul style="list-style-type: none"> <li>• The scope allowed for the exploration of the tasks conducted by business analysts.</li> <li>• Performance metrics would be related to the value proposition for business analysis.</li> <li>• Issues critical to success and challenges would have enabled the investigation of the concerns related to role recognition.</li> <li>• Relationship with peers would have been relevant given the need for business analysts to work with stakeholders.</li> </ul> <p>However, the framework lacked factors that were concerned with the skills, processes and techniques of a role. It was felt that these aspects, which relate to research objective two, are vital elements. Therefore, this framework was not adopted.</p>
<p>The McKinsey 7-S Framework (Peters and Waterman, 1982)</p>	<p>Seven interconnected dimensions of organisations:</p> <ul style="list-style-type: none"> <li>• Strategy</li> <li>• Structure</li> <li>• Systems</li> <li>• Style</li> <li>• Skills</li> <li>• Staff</li> <li>• Shared Values</li> </ul>	<p>This framework was considered because it would offer a basis for taking a systemic view of business analysis, having a range of dimensions with which to examine the business analyst role. It also offers a breadth of coverage and a basis for investigating specific aspects of the business analyst role, such as the skills and systems, that relate to the research objectives. However, the organisational focus raised two issues:</p> <ul style="list-style-type: none"> <li>• dimensions such as 'strategy' and 'structure' were not relevant to this study</li> </ul>

		<ul style="list-style-type: none"> <li>• some dimensions would have required significant adaptation in order to analyse the stated objectives concerning role definition and rationale.</li> </ul> <p>Therefore, this framework was not adopted.</p>
<p>The Human Performance System (Harmon, 2014; Rummler and Brache, 2012)</p>	<p>Five factors used to analyse human performance:</p> <ul style="list-style-type: none"> <li>• Activity standards</li> <li>• Activity support</li> <li>• Consequences</li> <li>• Feedback</li> <li>• Skill, knowledge and capability</li> </ul>	<p>This framework is used to improve organisational performance through process re-design. It is relevant to this research into business analysis because it offers a holistic view of job performer analysis. The five factors consider aspects that relate to the research objectives as follows:</p> <ul style="list-style-type: none"> <li>• Activity standards, skill, knowledge and capability, and feedback, are all concerned with research objective two.</li> <li>• Consequences align with analysis of the value proposition offered and therefore relate to research objective three.</li> </ul> <p>However, the definition of the activities conducted is not included within this framework as there is an assumption that each activity, and the related performance, is considered separately. While this would be beneficial, this framework does not provide a specific basis for exploring research objective one. Therefore, this framework was not adopted.</p>

### 3.3.3 The context, content, process, outcomes framework

The findings from the pilot study into business analysis were considered when evaluating the possible frameworks to guide this study. One of the key findings from the pilot study was that there were concerns regarding the recognition of the business analyst role and the lack of role clarity that may contribute to this. While many of the frameworks considered incorporate dimensions that relate to tasks and skills, they do not prescribe consideration of a context for the work. However, this is felt to be highly relevant to this study and, therefore, a conceptual framework would need to incorporate a context dimension.

The Pettigrew and Whipp framework has been identified as highly relevant within organisational change research (Kuipers et al., 2014) and has been applied to IS research concerned with the delivery of business benefits (Ward and Elvin, 1999). Ward and Elvin modified the Pettigrew and Whipp (1991) dimensions of strategic change, extending the original context, content, process framework to include two further dimensions of intent and outcomes. The importance of outcomes is also defined in a later study (Pettigrew et al., 2001).

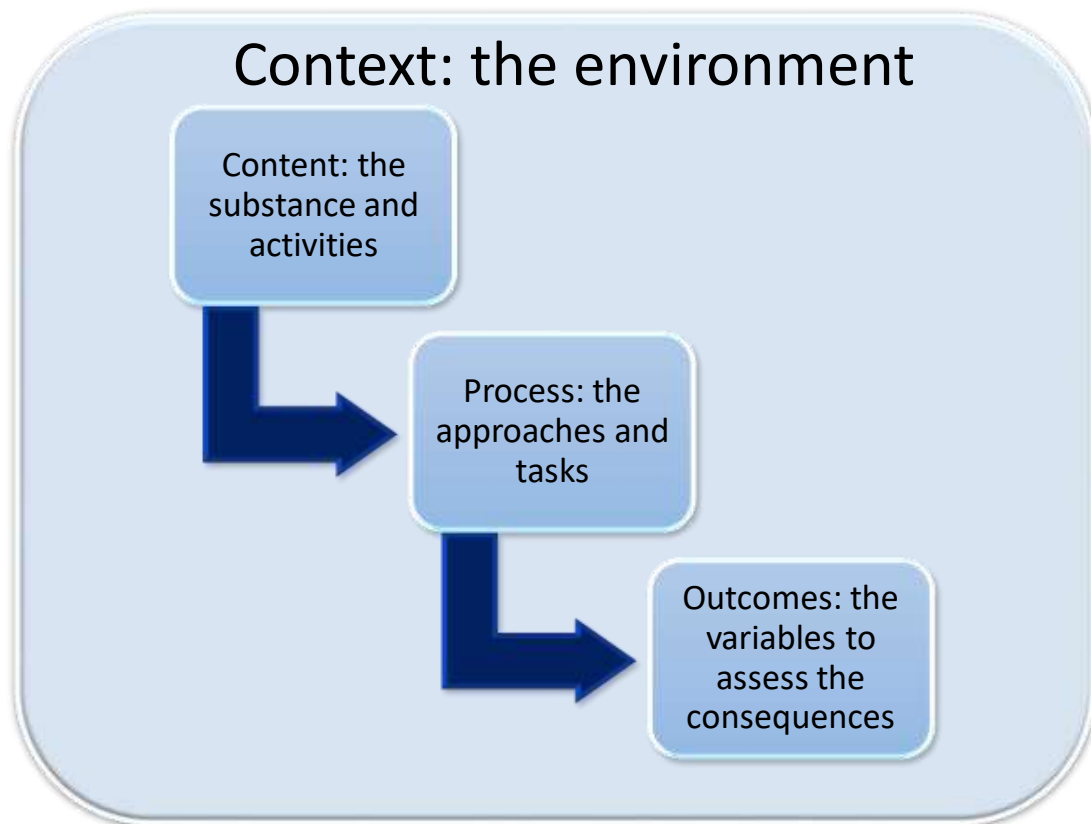
Four dimensions of this framework (excluding Intent) have also been defined in further detail (Armenakis and Bedeian, 1999; Kuipers et al., 2014) as follows:

- Context: the environment within which the organisation functions.
- Content: the substance and activities of organisational change initiatives.
- Process: the approaches and tasks for implementing change initiatives.
- Outcomes: the variables used to assess the consequences of organisational change initiatives.

These dimensions and definitions are represented in Figure 3.3.

**Figure 3.3: The context, content, process, outcomes framework**

**(Armenakis and Bedeian, 1999; Kuipers et al., 2014)**



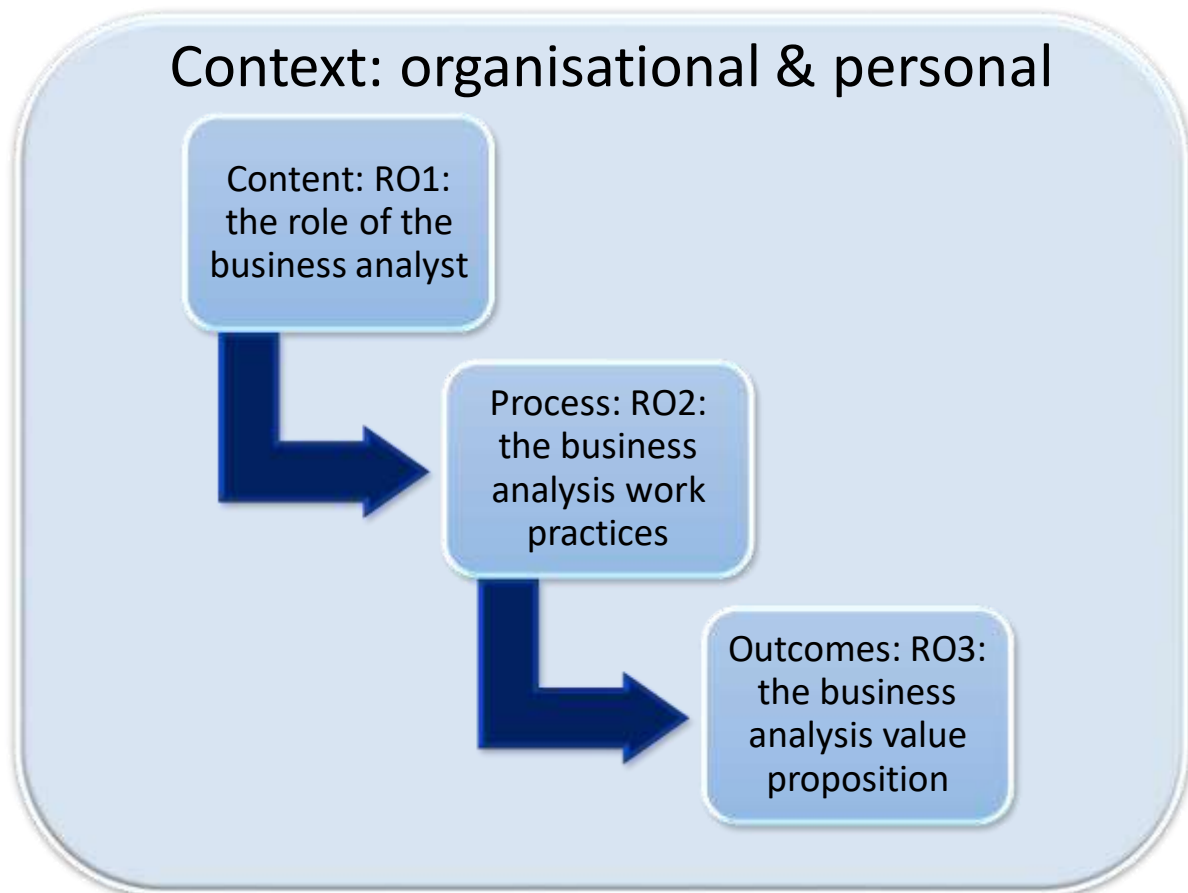
Given that the role of the IS business analyst is the focus of this research and that the role is performed within an organisational context, it was important to apply a conceptual framework that incorporated both organisational and role-specific aspects. The pilot study had identified that business analysis work is broad in scope and requires investigation and definition if role clarity is to be attained. Therefore, the content of the work, and the processes and skills applied, are relevant dimensions. Further, having explored the literature regarding IS, and having found that problems with requirements are clearly indicated as factors contributing to IS failures and challenges, the need to connect IS business analysis with project outcomes was also identified as an important area of study.

The fifth area offered by Ward and Elvin in their modified framework, concerns the Intent dimension. This was felt to be of less relevance to this research, because the outcomes dimension addresses the success measures relevant to IS business analysis.

Therefore, the context, content, process and outcomes dimensions were adopted as the conceptual framework to guide this research in order to:

- Provide a formal structure within which data could be collected and analysed.
- Offer a structure that aligns to the organisational and role aspects of this study.
- Correspond with the research question and objectives, as shown in Figure 3.4.

**Figure 3.4: The context, content, process, outcomes framework mapped to the research objectives**



### **3.3.4 Adaptation of the context, content, process, outcomes framework**

The framework has been adapted and applied to the study of business analysis as follows:

- **The context:** this dimension is concerned with the environment for the research topic. There are two contextual aspects: the personal context that relates to individual business analysts, and the organisational context for business analysis work, whereby the business analysis function is viewed as an internal service provider to the rest of the organisation. Context is inextricably linked with the resultant actions in a change situation (McLeod and Doolin, 2012; Pettigrew et al., 2001). The Business Analysis Maturity Model (BAMM) (Paul et al., 2014),

described in sub-section 3.3.5, was used as a contextual framework for identifying the level of maturity of each Business Analysis Practice within each organisation. The BAMM is relevant to this study because it focuses on three dimensions of business analysis work across different levels of project scope.

- **The content:** this dimension has been defined within the context of change initiatives and focuses upon the activities that result in changes to processes and systems, in other words, 'what the change is about' (Kuipers et al., 2014, p.8). The content dimension within this research project concerns the nature and scope of business analysis work. Service science theory (e.g., Lusch and Nambisan, 2015; Maglio and Spohrer, 2008; Spohrer and Maglio, 2010) was applied during the data collection and analysis for the content dimension. This enabled the clarification of the business analyst role through the definition of the business analysis service offering. The context and content elements of the study address research objective 1 – the role of the business analyst within the IS function for an organisation.
- **The process:** Kuipers et al (2014) define the process dimension as being concerned with the processes devoted to the implementation of change. However, this has been adapted for this research to consider the processes concerned with the analysis of business situations and the subsequent definition of required changes. This dimension encompasses the activities conducted by business analysts, the techniques applied when conducting these activities and the skills required to do this. Techniques provided by standards organisations such as IIBA, OMG and PMI, and the literature relating to business analysis standards such as the SSM (Checkland, 1981; Checkland and Scholes, 1999) and Requirements Engineering (e.g., Cadle et al., 2014; Robertson and Robertson, 2013), were applied during the data collection and analysis for the process dimension.

Several taxonomies were considered with regard to business analysis skills:

- the categories applied by Misic and Graf (2004) for systems analysts; these were interpersonal and communication skills, and analytical and technical skills
- an alternative taxonomy for systems analyst skills applied by Dennis et al (2015) comprising technical, business, analytical, interpersonal, management and ethical
- the personal qualities, business knowledge and professional techniques



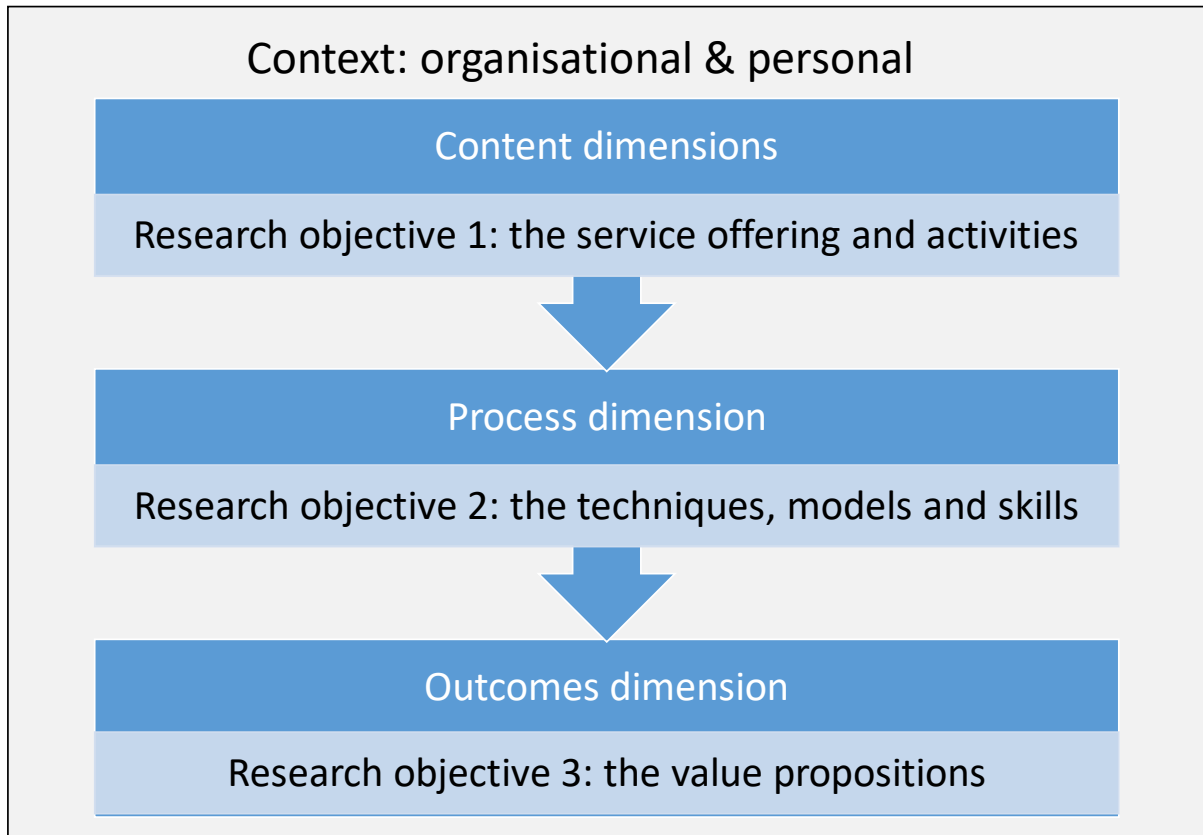
categorisation provided by Rollason (2014). This categorisation has been selected because it aligns well with the other taxonomies and is used within the BAMF Expert BA qualification scheme (BAMF, 2012). It is possible to subsume categories suggested in the alternative taxonomies such that 'interpersonal and communication skills' are included within 'personal qualities', and 'technical skills' within the 'professional analysis techniques'. Given the business context for business analysis it was considered important to include business knowledge as a skill category.

The process dimension addresses research objective two: the work practices applied in business analysis.

- **The outcomes:** outcomes from IS projects are evaluated typically in terms of whether or not the project may be deemed successful. Kuipers et al (2014, p.11) comment 'whether the change can be considered a success also depends on the definition of success'. While the literature offers a range of criteria for evaluating the outcomes from IS projects, this study defined success in line with an organisational view of value. This concerned the ways in which the business analysis standards and work practices may contribute to the realisation of business benefits from IS projects. Accordingly criteria were derived from the IS success model (DeLone and McLean, 2003) and the benefits dependency network (Peppard et al., 2007; Ward and Daniel, 2012) to form value propositions. The outcomes dimension addresses research objective three: the value propositions offered by business analysis.

The extended and adapted version of the context, content, process, outcomes conceptual framework is represented in Figure 3.5 below. This figure shows the specific areas of business analysis that have been researched within each dimension.

Figure 3.5: The context, content, process, outcomes framework adapted for this research



### 3.3.5 Theories selected to support the business analysis research

Several theories relate to the work of the business analyst. These theories offer standard principles, processes and techniques that have the potential to clarify business analysis. They were used in this study to help guide the data collection and analysis, within the structure offered by the conceptual framework.

The aspects of these theories that are relevant to business analysis are described in the following sections:

- Section 3.4: The Business Analysis Maturity Model
- Section 3.5: Service Science theory
- Section 3.6: Systems thinking
- Section 3.7: Business Process Redesign
- Section 3.8: Requirements Engineering.

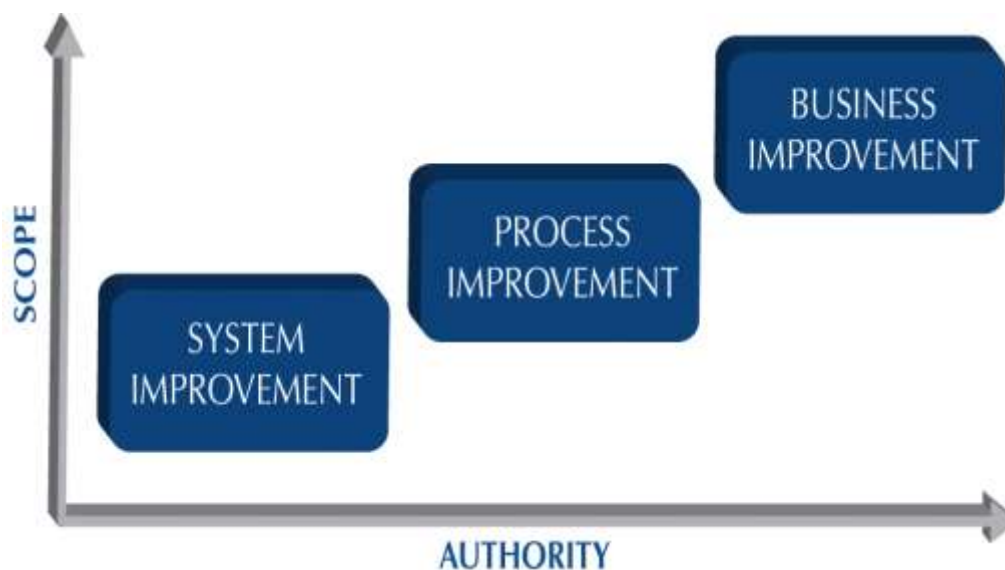
### 3.4 The Business Analysis Maturity Model

The Business Analysis Maturity Model (BAMM) (Paul et al., 2014) was developed by a team of consultants working at Assist Knowledge Development Ltd (AssistKD<sup>5</sup>). The consultants each had several years of experience of working with business analysts from AssistKD customer organisations and, during this time, conducted regular discussions with the analysts regarding the nature of their project work.

Although based upon ad hoc business research, the BAMM was developed to summarise the observations made by business analysts regarding their work. The focus of the model is to reflect the trajectory of maturity of business analysis work practices; the level of maturity may be considered for an individual, an organisation or the business analysis profession. It is based upon two axes: the extent to which the scope of the work has been defined; the level of authority held by the business analyst.

The BAMM is shown in Figure 3.6 below.

**Figure 3.6: Business Analysis Maturity Model**



The levels of the BAMM are as follows:

- System improvement is concerned with defining the requirements for an IT system. The project scope has been defined to a significant extent and there is a limited level of authority available to the business analyst team. This is typically where business analysis activity begins within an organisation and is also the start

<sup>5</sup> [www.assistkd.com](http://www.assistkd.com)

point for many business analysts in their careers.

- Process improvement involves business analysis work that is cross-functional and is concerned to improve the business processes. There is greater authority available to the analysts as the project content and scope may be extended. This typically reflects the development of business analysis within an organisation such that the analysts are empowered to take a broader view, beyond the IT system requirements.
- Business improvement is concerned with the provision of consultancy to the business. At this level, the analysts have significant authority and are focused on identifying changes that are needed to improve the business operation. They may be involved in defining the scope of business change projects.

### **3.5 Service science theory**

Service Science, Management and Engineering (SSME) or Service Science, Management, Engineering and Design (SSMED), is the title given to a body of work that is concerned with the research and deployment of service systems. SSME is often abbreviated to 'service science'.

Business analysis is an IS discipline that offers a service to customers who are usually employed within the same organisation. Service science has been selected as a theoretical lens through which to explore the role of the business analyst for the following reasons:

- The service perspective corresponds well with the nature of business analysis work given the focus on customer collaboration.
- Service science clarifies what is meant by 'value' and the means of realising value through service. This offers a theoretical basis for analysing business analysis work and the outcomes achieved from business analysis.
- Consideration was also given to applying the Soft Systems Methodology (Checkland, 1981) as a means of exploring the business analysis role. While this would have provided a means of analysing business analysis activities and performance measures, the customer perspective is not as well-defined as that offered by service science.

Therefore, service science is the primary theory used to analyse the data collected in this study. This has enabled the development of theory relating to business analysis through addressing the research question and objectives.

The key characteristics of service science that are relevant to business analysis are discussed in the remainder of this section.

### 3.5.1 The development of service science

Service science is an emergent body of knowledge dedicated to examining the nature of 'service' and the interactions between entities engaged in the co-creation of value from the delivery of service. Service science has been defined as the study of value co-creation (Maglio et al., 2010) and is interdisciplinary in that it brings together and builds on other disciplines (Spohrer and Maglio, 2010). It aims to improve and innovate the business systems that deliver service (Spohrer and Maglio, 2008).

Service has been defined as:

*'the application of competences for the benefit of another' (Vargo and Akaka, 2009, p.32) .*

Recognising the nature of service involves a shift in world view, requiring an understanding of goods as a tangible component of a delivered service (Maglio et al., 2010) with value being realised not by the receipt of goods but by the use to which they are put. In other words, the service is derived from using the goods (Vargo and Akaka, 2009). This changes the focus from value delivery through the exchange of goods or services (*value-in-exchange*) to the realisation of value through the use of the delivered goods or services (*value-in-use*).

The overarching aim of service science is to understand how service systems interact to deliver service (Maglio et al., 2010). Therefore, the concept of service may be applied in many contexts, including the context of IS delivery which is the focus of this thesis. Alter (2008b) suggests that the concept of service, and a service system that delivers service, may be applied to any organisation or entity because of the application of competences for the benefit of others. Therefore, it is apposite to define business analysis as a service system and to consider the underlying purpose and required competences.

It is also instructive to recognise that business analysis interacts with other service systems, both internal and external to the organisation, so may be viewed as participating in a service ecosystem. An ecosystem may be defined as 'a community of interacting entities' (Lusch and Nambisan, 2015, p.161) or as a network of interacting service systems (Vargo and Akaka, 2009). These entities or service systems may be organisations or individuals that work together, developing capability and building effectiveness (Iansiti and Levien, 2004; Moore, 1993). Service ecosystems may be seen as emergent structures that are created by actors and provide a basis for offering service and co-creating value (Lusch and Nambisan, 2015). Therefore, business analysts may be seen as skilled actors in a service system that

interacts with other service systems to co-create value. Service science theory provides a basis for conceptualising business analysis as a service system that integrates actors, skills, activities and resources to deliver a value-proposing service.

### 3.5.2 Service-dominant logic

Service science researchers propose the need to reconsider the distinction made between products and services, suggesting that customers require 'service' and that customers have to make use of the delivered service (whether in the form of products or services) if they are to realise value for themselves or their organisation (Vargo and Akaka, 2009). This offers a new paradigm – Service-dominant logic (SD-logic) – which challenges the more traditional goods-dominant logic (GD-logic) view. SD-logic sets out the principles and concepts that underlie service science (Vargo and Lusch, 2004) and has been suggested as the foundation of service science (Maglio and Spohrer, 2008; Maglio et al., 2010).

SD-logic is distinguished from GD-logic. In GD-logic the goods are the mechanism for value delivery through a medium of exchange; in SD-logic tangible products are perceived as the means through which service is provided (Vargo and Akaka, 2009) and are viewed as having the potential to offer a required service and thus the potential for value.

If SD-logic is applied within the context of the IS industry, a technology product (comprising hardware and software) may be seen as a means of delivering a service to customers, who may be internal or external to the organisation. However, the computer system does not ensure value is realised; it is only valuable to the extent that it enables value co-creation (Lusch and Nambisan, 2015).

SD-logic focuses on 'service-for-service exchange' (Lusch and Spohrer, 2012), which is concerned with an exchange of knowledge and skills in order to deliver service. A distinction is also made between the term 'services' and the 'service' that is fundamental to SD-logic; *services* are individual units that deliver an output whereas *service* is concerned with collaborating to provide something that is beneficial for an entity (which could be an organisation, department or individual) and thereby jointly create value (Lusch and Nambisan, 2015).

This concept of service-for-service exchange may be considered within the business analysis context; if information systems are to be developed that have the potential for value co-creation then there has to be activity that enables service-to-service exchange to take place.

### **3.5.3 Actor-to-actor exchange**

In essence, SD-logic is concerned with the exchange of service (Vargo and Lusch, 2004; Vargo and Lusch, 2008) and rather than focusing on the goods or services offered by an organisation, instead focuses on the beneficial outcome (the service) provided by one party for the benefit of another (Lusch and Nambisan, 2015). These parties are sometimes called entities or actors. Therefore, there is an actor-to-actor (A2A) exchange, with a focus on offering a service with the potential for beneficial outcomes rather than having a focus on the delivery of tangible or intangible outputs.

This A2A view aligns with the shift in customer perceptions of information systems. During early IS developments, the key success measure was the delivery of an IT system that provided the required functionality and met speed and accuracy requirements (Petter et al., 2012). However, despite meeting the defined requirements, the beneficiaries may not have perceived any value to have been delivered from the IT system. Petter et al define eras of IS work and suggest that, currently, IS developments concentrate on meeting customer needs in order to offer value. The service world view has identified that it is the experience that the customer receives, and the customer's subjective perception of that service, that will determine the extent of the value received (Hastings and Saperstein, 2014).

The importance of a customer focus and the activities required to co-create value are at the heart of the business analysis approach. This requires A2A interactions in order to conduct business analysis activities such as investigate business situations, determine business needs and evaluate options for improvement (Paul et al., 2014).

### **3.5.4 Resource integration**

Resources, and the integration of resources, are fundamental to SD-logic (Vargo et al., 2010). Categories of resource have been defined as 'people, technology, organizations, and shared information' (Maglio and Spohrer, 2008, p.18). Co-creation of value occurs through resource integration (Edvardsson et al., 2010) with the deployment of two types of resource: 'operand' and 'operant' resources. The former are tangible, static resources that are acted upon in order to achieve a beneficial result. The latter are dynamic, intangible resources that act upon both operand and other operant resources (Vargo and Lusch, 2004). Customers typically function as operant resources, having a role in the co-creation of both service innovation and value realisation (Edvardsson et al., 2010; Vargo and Lusch, 2004).

Within the IS context, the primary operant resources are the skills of the IS practitioners, including business analysts, while the operand resources are those that enable the activities

required to deliver the service. These are likely to include resources such as digital support tools that assist the efficient working of the analysis and development teams. Therefore, the skills of the business analysts are operant resources that utilise the operand resources (the support tools) and work with other skilled operant resources (the customers) to co-create value.

If resource integration is to work effectively and support the co-creation of value, it is necessary to understand which skills are required of the operant resources so that the required service may be developed and value may be co-created. This is a contextual issue so requires understanding of the business analysis service provision and the operant and operand resources required.

Operant resources have been defined as dynamic and a source of competitive advantage (Lusch and Nambisan, 2015). Therefore, within the IS context, the skills of the business analyst have the potential to support value co-creation and offer beneficial outcomes that may result in competitive advantages for the organisation.

### **3.5.5 Value co-creation**

The concept of 'value co-creation' is fundamental to service science. Value is perceived as co-created by the entity offering the service and the beneficiary or customer of the service. Vargo and Lusch (2004) state that value is determined by the customer, who has to participate in the process to create it; the assessment and co-creation of value is the responsibility of the customer (Lusch et al., 2010). Similarly, Lusch and Nambisan (2015) contrast the delivery of value with the offering of a value proposition, clarifying that it is not possible for organisations to deliver value, rather, they are limited to offering a value proposition. No entity, such as an organisation or internal function, can state that they 'deliver value' as value has to be co-created; instead, the entity can provide service that has a value proposition.

The concept and constitution of a value proposition is ambiguous (Skålén et al., 2015) although, fundamentally, it is a statement of what is offered to customers by a firm or service provider. The nature of the offering differs depending upon whether SD-logic has been applied. Skålén et al observe that the application of GD-logic causes the value proposition to be concerned with the value that will be delivered, the nature of which has been determined without customer involvement. However, in the case of SD-logic, the need for customer co-creation of value is a key element. Therefore, value propositions connect service systems by stating the nature of the value that is offered, and the resource integration that is required for value co-creation to take place (Vargo and Akaka, 2009).

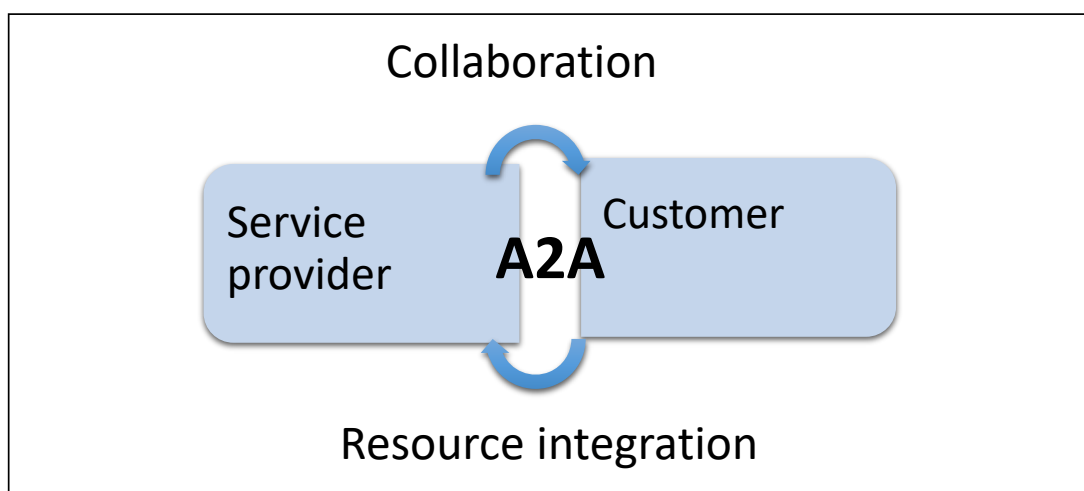


Lusch and Nambisan (2015) suggest that a stated value proposition offers an opportunity for customers to engage with the organisation in order to co-create the proposed value. The engagement between the service supplier and the customer is vital if value is to be realised (Vargo et al., 2010). Equally important is the clarification of the roles in value co-creation if misaligned expectations on the part of the beneficiaries of the delivered service are to be avoided (Lusch and Nambisan, 2015). This issue corresponds with the problem of business analyst role ambiguity, where the role is not clearly defined causing incompatible role expectations (Onyemah, 2008).

The distinction between *value-in-exchange* and *value-in-use* (Vargo and Akaka, 2009; Vargo and Lusch, 2004), discussed in sub-section 3.5.1, where value is not achieved through the delivery of tangible goods or intangible services but realised through the use of a delivered service, reflects the need for customers to participate in co-creating value and assess whether they have obtained value (Edvardsson et al., 2010). An organisation can propose value to customers but value realisation requires the customers to make use of the offering proposed (Vargo et al., 2010). This distinction clarifies that an organisation's products or services are not automatically valuable (Lusch and Nambisan, 2015); value occurs when the service offering is found to be useful by the customer or any other beneficiary. The social context for value co-creation also requires consideration (Edvardsson et al., 2011) as this has an impact upon the role involved in value co-creation and the nature of value.

A summary process for value co-creation is shown in Figure 3.7 below. This figure provides a representation of two entities – the service provider and the customer – integrating resources and collaborating in an actor-to-actor exchange, in order to co-create value.

**Figure 3.7: Value co-creation through actor-to-actor exchange and resource integration**



This new paradigm has the potential to have a significant impact upon how managers run their organisations. Whether supplying products or services, they now need to see the organisation as an entity that offers service and this requires a profound change in world view (Johnson et al., 2007; Maglio et al., 2010).

Given that a service organisation may be an internal department rather than a separate company, service science may be seen to offer a basis for understanding the relationship between the IS function and its customers. Further, the service concept is relevant to the business analyst role as it has a focus on collaborating with stakeholders in order to understand their needs and value perceptions, and enable the co-creation of value.

Value co-creation may be viewed within the IS project context as encompassing the processes and activities conducted by business analysts and their business stakeholders. This customer-provider collaboration extends from the initiation of an IS project through to its deployment, operation and realisation of business benefits. However, to achieve this requires the business analyst, as an operant resource, to possess the requisite skills and knowledge. Service science theory has developed the concept of the T-shaped professional as a means of categorising and clarifying the skill requirements for a specific discipline. This concept is discussed in the next sub-section.

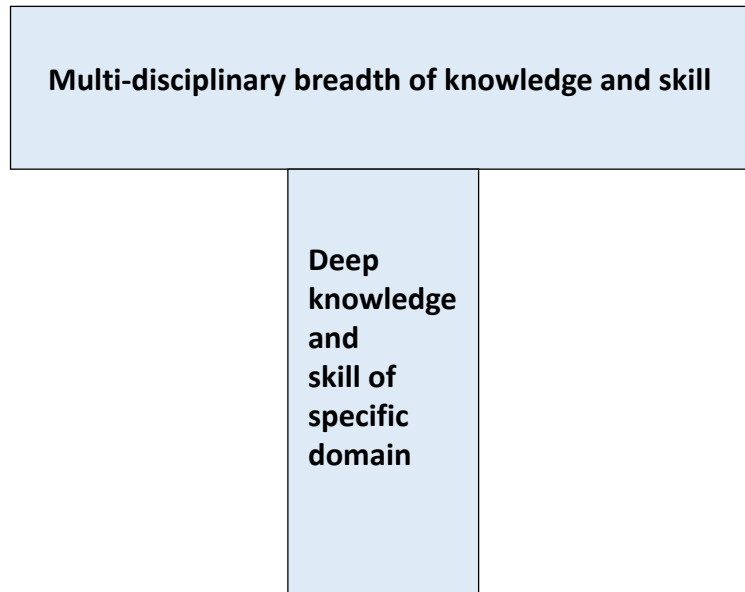
### **3.5.6 The T-shaped professional**

The development of service science theory has revealed the importance of highly-skilled individuals who can adapt to different situations because of the range of skills they possess (Spohrer and Maglio, 2010). These individuals are known as 'T-shaped professionals' because they hold deep skills in their particular specialist discipline and service system, and broad skills across other disciplines and systems. This allows them to provide extensive knowledge and skill to solve problems within their own domain and communicate effectively with actors representing other areas.

The T-shaped skill set enables such individuals to handle the complex service issues often encountered within organisations (Bitner et al., 2008). Accordingly, the development of T-shaped professionals has been identified as highly important for service organisations (Spohrer et al., 2010).

The T-shaped professional concept is represented in Figure 3.8 below.

**Figure 3.8: The T-shaped professional concept (Spohrer and Maglio, 2010)**

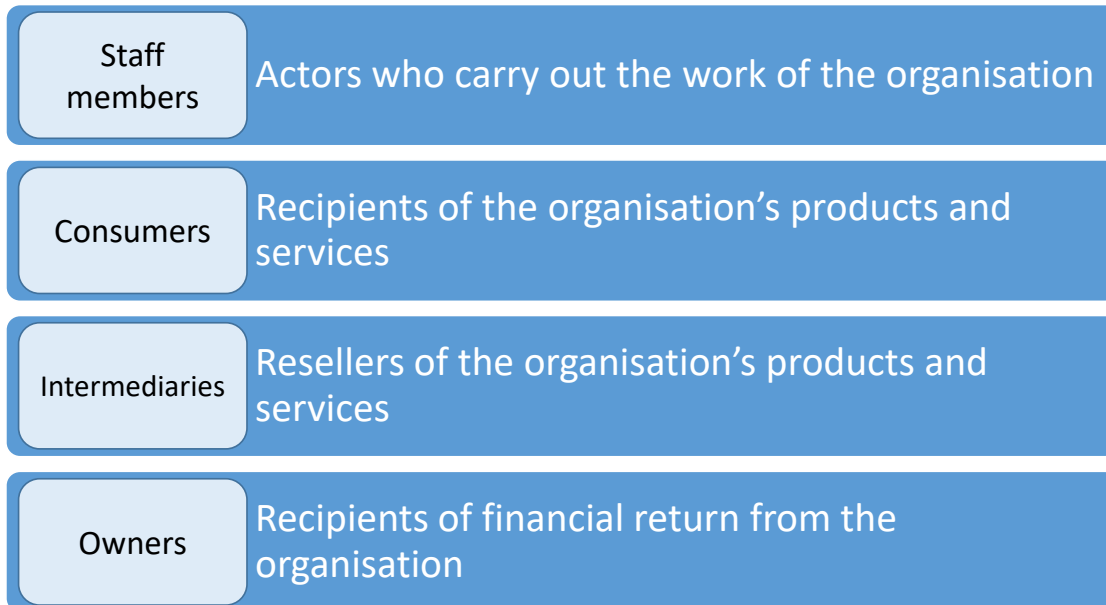


The horizontal bar of the T-shape has also been defined as representing the skills required to interact with those from another 'expertise community' (Gorman, 2010, p.669).

### **3.5.7 The customer role in the development and delivery of service**

The involvement of customers in the service development process is necessary for value co-creation. Service science is customer-centric so begins by understanding the customer needs and priorities (Vargo et al., 2010). Customers are not only involved as the output entities who use the delivered service but also as co-developers in the design and development of new service innovations (Edvardsson et al., 2010). If service science is to deliver innovation in service then it will require a focus on people working as co-producers to develop a service that may be used and thus realise value (Schneider and Bowen, 2010).

The service concept can be applied to interactions with both external and internal customers (Alter, 2010). Given the evolution of information systems towards an increasing focus on the customer, understanding the nature of customers and their roles in value co-creation has become increasingly important (Petter et al., 2012). It is also important to recognise that there may be customers of varying types as shown in Figure 3.9. Customers may be the internal, operational staff of an organisation, they may be the ultimate consumer of an organisation's service, they may be intermediary customers such as brokers or retailers working in partnership with an organisation, they may even be the owners of an organisation who may be perceived as customers because they receive a financial service from the organisation (Cadle et al., 2014; Johnson et al., 2007).

**Figure 3.9: Categories of customer (Cadle et al., 2014; Johnson et al., 2007)**

Several customer groups may be the end-users for an IS, where they are required to use processes and systems in order to conduct the work of the organisation. While it is typical for the end-users to be drawn from within the organisation, this is not always the case. The nature of the users will vary depending upon the nature of the service. For example, Markus and Mao (2004) provide the example of the 'consumer' end-user who is not an employee of the company developing the solution. Where there is integration of operand resources such as IT systems, it is possible that external end-users may be involved in the development of the service and co-creation of value.

End-users play a key role in the development of IS. They may be required to provide the business knowledge and expertise to identify and define the requirements to be met by the system. However, the quality of end-user participation is a significant contributory factor in value co-creation and may depend on aspects such as status, grade and skills (Markus and Mao, 2004).

Different types of end-user role may be identified within a service innovation context such as that required during IS development (Lusch and Nambisan, 2015). These are defined in table 3.2 below.

**Table 3.2: Service innovation end-user roles (Lusch and Nambisan, 2015)**

Ideator	The role that uses existing knowledge to envision possible new service offerings.
Designer	The role that reuses and reconfigures existing components to identify possible new service offerings.
Intermediary	The role that makes connections across different ecosystems in order to identify possible new service offerings.

Service science offers a means of exploring the engagement between the IS function and the internal business customers – the ‘business client’ as the internal customers are sometimes known (Lacity and Fox, 2008). The customers, or business clients, have to engage with their IS function in order to co-create value from the IS that are developed and delivered within the organisation. Accordingly, the IS function needs to employ specialists who are able to establish the customers’ needs and enable value co-creation. This is where the work of the business analyst, as defined by the professional bodies, is conducted. The concepts of service, resource integration and value co-creation provide a firm basis for exploring the nature of business analysis work and the service business analysts can offer to their customers.

### 3.6 Systems thinking

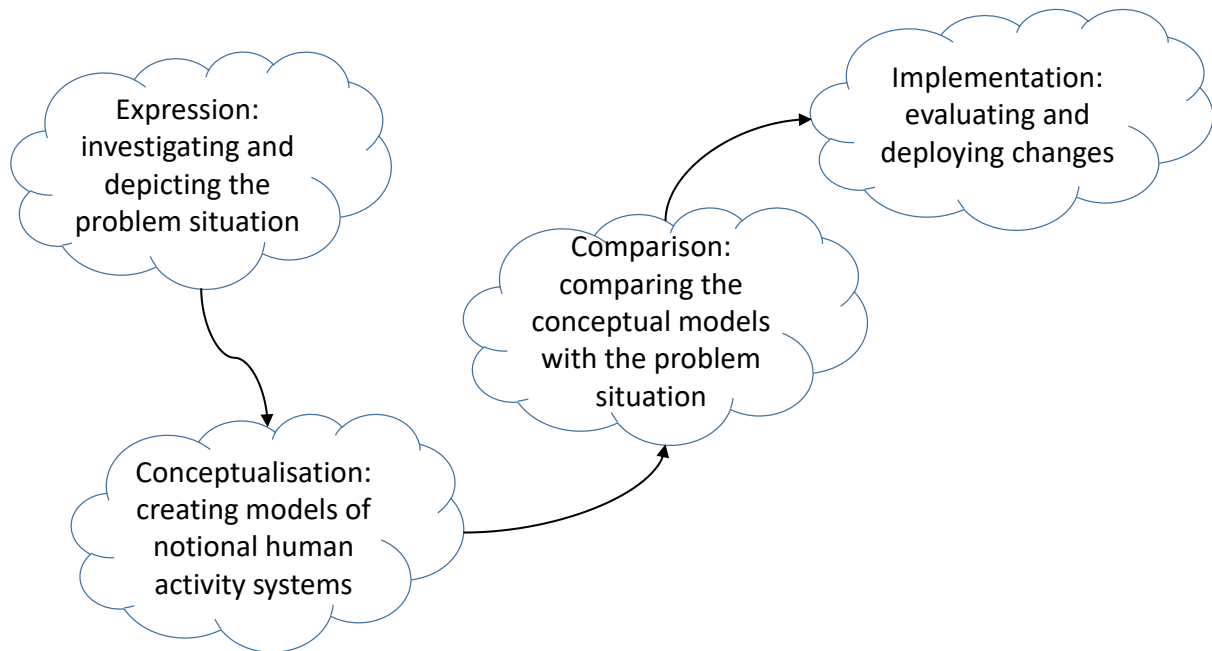
Systems thinking has a long and rich tradition within the literature. However, for the purposes of this study, two particular aspects have been identified as particularly relevant to the work of the business analyst: the soft systems methodology and holistic thinking.

#### 3.6.1 The soft systems methodology

The Soft Systems Methodology (SSM) was developed by Checkland (1981) and applies systems theory to IS development. The SSM identifies the need to undertake a holistic investigation of the existing situation from which ‘root definitions’ and logical activity models of relevant systems may be derived. It advocates systemic thinking as opposed to systematic thinking as a means of uncovering improvement actions that are potentially acceptable to the organisation.

SSM (Checkland, 1981) originally comprised a sequence of stages; a simplified version of the SSM in four phases is shown in Figure 3.10.

**Figure 3.10: Phases of the SSM (adapted from Checkland, 1981)**



These phases comprised the following stages:

- Stages 1 and 2: the 'expression' phase, concerned with the investigation and depiction of a problem situation. The investigation should involve the collection of many perceptions of the problem.
- Stages 3 and 4: the conceptualisation phase, concerned with the conceptualisation of relevant human activity systems from particular viewpoints, having taken a systems thinking approach. Conceptual models of notional human activity systems are developed.
- Stage 5 the comparison phase, concerned with the comparison of the conceptual models with the reality of the problem situation in order to identify possible changes.
- Stages 6 and 7 the implementation phase, concerned with the evaluation and implementation of changes that will improve the problem situation.

Checkland proposes the use of techniques such as:

- Rich pictures (a free-format depiction of a problem situation).
- CATWOE (a mnemonic of Customer, Actor, Transformation, Weltanschauung, Owner, Environment used to develop a root definition for a relevant system) as part of the SSM.
- Models of human activity systems.

The SSM was later updated to depict a more iterative, learning process (Checkland and Scholes, 1999) than the somewhat prescriptive, linear approach often interpreted from the original model. However, the fundamental premises remain that:

- There is a need to understand and express information about a business situation ‘in which there is perceived to be a problem’ (Checkland, 1981, p.163).
- There are several ‘notional systems’ (Checkland, 1981, p.166) that are relevant and may help with the problem; each should be expressed in the form of a root definition and conceptual model.
- There should be a comparison of the problem situation depiction and the conceptual models and this should generate a discussion about ideas for improvement, particularly their feasibility and desirability.
- This is an iterative, learning process.

Checkland highlighted two key concepts: the difference between ‘hard’ and ‘soft’ systems thinking; and the emergent properties.

Hard systems thinking may be characterised by taking a view that systems exist and can be analysed and improved. This relates to an engineering view of the world. Soft systems thinking is concerned with taking a systemic view as a process of learning. It is based on the understanding that viewing situations as systems helps to explore the inherent complexity found within organisations.

Emergent properties are those that become available from the combination of parts of a system and offer greater functionality than those provided by the individual parts. A commonly-used phrase ‘the whole is worth more than the sum of the parts’ sums up emergent properties neatly. This is relevant to business analysis because of the focus on solutions that offer a value proposition to customers and this value proposition may be formed from a combination of elements. Holistic thinking is closely linked to these concepts and is discussed in the next sub-section. The application of SSM was used to analyse the findings for this research project and, in particular, address research objective two.

### **3.6.2 Holistic thinking**

The need for IS change projects to consider the holistic business context is supported by the literature on systems thinking and the socio-technical approach, which refrains from viewing IS projects as ‘exercises in technical change’ (Doherty and King, 2005, p.2).

The literature concerning frameworks used when thinking holistically was discussed in subsection 2.3.1. These include Leavitt's diamond (Leavitt, 1965), which identifies the dependencies between the task, structure, people and technology, and the IS Strategy Triangle (Pearlson and Saunders, 2012), which incorporates IS Strategy, (including software and people), Business Strategy and Organisational Strategy, (structure and processes).

The dimensions required for holistic thinking are of particular relevance when conducting business analysis. Leavitt's diamond has been extended in the POPIT model (Cadle et al., 2014) to include the organisation as a further dimension. Ward and Daniel (2012) identify the need to consider processes, working practices, job roles and the organisational culture when taking a holistic view of IS changes. Luna-Reyes et al (2005) highlight the importance of the socio-technical view that incorporates people, processes and organisational dimensions. Johnson and Scholes (2007) recognise that strategy execution requires changes to several elements including processes, routines and behaviour. Research also suggests that integration between strategy alignment, and technological and process change is vital for improving the success of change projects (Weiss and Thorogood, 2011).

A holistic thinking approach is also evident in techniques such as the benefits dependency network (Peppard et al., 2007; Ward and Daniel, 2012), which integrates IT changes with business changes in pursuit of delivering business benefits and achieving investment objectives. This accords with research suggesting that much IS benefits management research has evolved from socio-technical theory (Doherty, 2014).

The methodological approach presented by the SSM offers an accessible view of holistic and systemic thinking, and has been adopted by both organisations and IS professionals, including the business analysis community. As an example, the International Diploma in Business Analysis (BCS) offered by BCS, the Chartered Institute for IT, is a widely-adopted qualification and incorporates both holistic thinking and SSM principles and techniques.

The application of a holistic thinking approach was considered during the analysis of the collected data in order to address research objective two for this study. Additional areas of theory relevant to the research objectives are discussed in the next two sections.

### **3.7 Business process improvement theory**

BCS, the Chartered Institute for IT includes business process improvement within its definition of business analysis, stating the following.

*Business analysis brings a balanced understanding of requirements and delivery capabilities allowing for sharper decision making and improved business processes (BCS, 2016).*



Further, the description of business analysis provided by SFIA6, states that the business analysis skill includes 'The definition of requirements for improving processes and systems' (The SFIA Foundation, 2015). Business analysts have been located within business process improvement teams (Cunningham and Finnegan, 2004; Sefyrin, 2012) in order to ensure that there is integration between the redesigned processes and the supporting technology.

Business processes carry out the work of organisations and may be defined as 'a set of logically-related tasks performed to achieve a defined business outcome' (Davenport and Short, 1990, p.12). Organisations improve processes in order to increase efficiency and respond to change (Harmon, 2014) and process innovation is a core IS activity (Willcoxson and Chatham, 2004). It has been commented that a lack of integration between the work to define process and software changes is a significant problem and contributes to the rate of project failure in many organisations (Baxter and Sommerville 2011).

Socio-technical approaches highlight the importance of IS encompassing the business and technological dimensions (Doherty, 2014). The relationship between information technology and business process re-design has been described as 'recursive' (Davenport and Short, 1990) with each element viewed in the light of the other; process efficiencies are enabled through the use of information technology, and business process improvements ensure that information technology is used effectively and enables business efficiencies (Luftman et al., 2012). Similarly, Cha-Jan Chang and King (2005) identified that IS functionality provides a basis for improved business process efficiency. Therefore, there is a need to integrate business process and information technology if business improvements are to result (Cunningham and Finnegan, 2004).

The need for process/technology integration is represented within the business system diamond (discussed in sub-section 3.6.2) defined by Hammer and Champy (1993). This is an updated version of Leavitt's Diamond (Leavitt, 1965), discussed in the previous section. Hammer and Champy reject the approach whereby the sole focus is on delivering technological change, and highlight the risks of automating bad working practices. They emphasise the need for a business process reengineering (BPR) approach whereby effective working practices are enabled through the use of technology.

BPR takes a cross-functional view of processes, with a focus on improving the value organisations offer to customers (Davenport and Short, 1990; Hammer and Champy, 1993). This aligns with the value chain concept (Porter, 1980) whereby resources are consumed by different activities that collectively offer a value proposition. The value chain has been used within business process improvement approaches, for example, to model the organisational view of processes proposed by Harmon (2014). This concept is also applied by Earl and

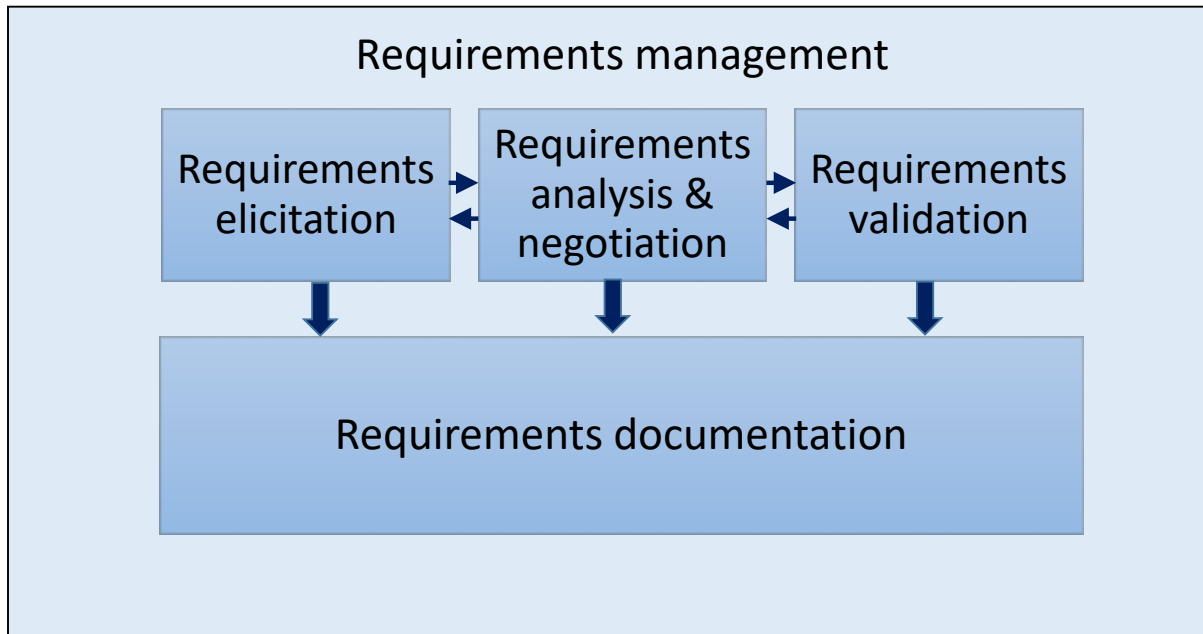
Sampler (1998) in their IT value chain, which explores the link between IS capability and the development of efficient business processes. Harmon (2014) suggests that a hierarchical view of processes, based upon earlier work by Rummler and Brache (2012), is helpful when improving business processes.

Numerous process modelling approaches and techniques are available to business analysts including process maps (Rummler and Brache, 2012), UML activity diagrams (Arlow and Neustadt, 2005; OMG, 2011b; Harmon, 2014), business process models/swimlane diagrams (Cadle et al., 2014) and Business Process Model and Notation (BPMN) (OMG, 2011a). These models may be used to define processes or to identify improvements that may be made to the processes. The process to improve business processes has been defined by many writers (Harmon, 2014; Hindle, 2014) and typically involves the development of current ('as is') business process models which are analysed to establish improved ('to be') process models. There is also guidance in the literature regarding the redesign of business processes (Harmon, 2014; Reijers and Liman Mansar, 2005). These approaches to modelling and redesigning processes are relevant to business analysis work and were applied to the data analysis concerned with research objectives one and two for this study.

### **3.8 Requirements engineering**

The formal process to define requirements is known as Requirements Engineering and includes activities to elicit, analyse, validate, document and manage requirements (Robertson and Robertson, 2013; Sommerville and Sawyer, 1997; Sommerville, 2005). A representation of the activities within the Requirements Engineering framework is provided in Figure 3.11.

**Figure 3.11: The Requirements Engineering areas of activity (Sommerville, 2005)**



Requirements engineering forms a mandatory element of the BCS Diploma in Business Analysis (BCS). Requirements elicitation and definition has been identified as a key area of business analysis practice (Vongsavanh and Campbell, 2008). Within SFIA6 (The SFIA Foundation, 2015) understanding the requirements to be met by a solution has been defined as a core aspect of business analysis work.

A requirement is defined as ‘any externally observable characteristic of a desired system’ (Hickey and Davis, 2004, p.72). The development of structured systems analysis methods in the 1970s and 1980s represented an attempt to formalise the documentation of requirements, introducing modelling techniques to improve rigour and accuracy when specifying IT system functionality (De Marco, 1979).

The Unified Modeling Language (UML) provides an alternative to the structured methods, offering techniques to model both the business context and IT systems (OMG, 2011b) and in doing so, capture a complete view of a system. Research suggests that the use of the UML may influence IS project success (Larsen et al., 2009). Eva (2001) notes the importance of considering requirements in the light of the information needed to fulfil them.

There has been extensive research conducted into requirements engineering techniques and activities; selected research papers regarding requirements engineering are summarised in table 3.3.

**Table 3.3: Selected requirements engineering research papers**

Title	Research approach	Findings
Requirements Acquisition for Rapid Applications Development (Eva, 2001)	Interviews with IS managers, senior systems analysts and end-users from seven organisations.	Validation of Rapid Applications Development as a rigorous approach to systems development.
A Unified Model of Requirements Elicitation (Hickey and Davis, 2004)	In-depth interviews with 11 expert analysts.	Definition of a model for requirements elicitation identifying that appropriate requirements elicitation techniques should be selected according to the needs of the situation and the state of the requirements. This helps to improve the knowledge about the requirements elicited at that point.
Improving requirements elicitation: an empirical investigation (Pitts and Browne, 2007)	Experiment utilising a case scenario involving 54 systems analysts.	Procedural prompts help with requirements elicitation. The prompts are: <ul style="list-style-type: none"> <li>• Summarization and feedback.</li> <li>• Repetition and rephrasing.</li> <li>• Scenario building and elaboration.</li> <li>• Counterargument.</li> </ul> The improvements achieved from using prompts include: improved structure and focus, greater detail, completeness and reliability of information and requirements, insufficiencies in requirements may

		be identified, alternative viewpoints are considered.
<p>Empirical study of Sommerville and Sawyer's requirements engineering practices (Cox et al., 2009)</p>	<p>10 in-depth interviews with requirements experts employed by software companies.</p>	<p>Assessed the value of a number of practices for Requirements Engineering practitioners. These practices are:</p> <ul style="list-style-type: none"> <li>• Requirements documentation</li> <li>• Requirements elicitation</li> <li>• Requirements analysis and negotiation</li> <li>• Describing requirements</li> <li>• Modelling requirements</li> <li>• Requirements validation</li> <li>• Requirements management</li> </ul>
<p>The role of modelling in achieving information systems success: UML to the rescue? (Larsen et al., 2009)</p>	<p>Eleven interviews each with a participant on a systems development project. Various roles represented but not business analyst role.</p>	<p>Eight categories of variables that impact project success were derived. These are: environmental factors, organizational factors, staffing issues, coordination, methods/process, OO and CASE tool use, specific modelling tools, and mixed direction factors.</p>
<p>An Exploration into the Process of Requirements Elicitation: A Grounded Approach (Chakraborty et al., 2010)</p>	<p>Interviews with systems analysts and end users.</p>	<p>Four distinct states of requirements elicitation: scoping, sense making, dissension, and termination, and the transitions between them. The differences between the states in terms of their objectives, level of trust, congruence of mental models, and enablers/inhibitors.</p>

<p>Agile requirements engineering practices and challenges: an empirical study (Ramesh et al., 2010)</p>	<p>16 case studies. Interviews with top management, product managers, quality-assurance personnel, software developers, senior architects and project managers.</p>	<p>Two risks from applying Agile requirements engineering practices: problems with customer inability and a lack of concurrence among customers; the potential neglect of non-functional requirements.</p>
<p>Requirements engineering blinders: exploring information systems developers' black-boxing of the emergent character of requirements (Holmström and Sawyer, 2011)</p>	<p>26 interviews with IS developers from five IT consultancy companies.</p>	<p>Requirements Engineering reflects: the changing needs of the organization, the way in which structured IS methods are enacted, the formation of project groups, and the resolution of conflicts and negotiations.</p>
<p>The impact of analyst-induced misinformation on the requirements elicitation process (Appan and Browne, 2012)</p>	<p>153 students, taking on an end user role, assigned randomly to either an interview or a survey.</p>	<p>The link between misinformation and inaccurate requirements. The impact of misinformation is greater for interviews than for surveys.</p>
<p>Naming the pain in requirements engineering: A design for a global family of surveys and first results from Germany (Méndez Fernández and Wagner, 2015)</p>	<p>Set of surveys completed by 58 participants; analysed using correlation and grounded theory.</p>	<p>An initial view of trends in requirements engineering practice and problems with requirements engineering.</p>

These papers reflect the extent and depth of the research into requirements engineering and the recognition of its importance within IS projects. Business analysts perform a vital role in defining requirements through the application of requirements engineering. The insights offered by the requirements engineering literature were applied during the data analysis; this addressed research objectives one and two for this study.

### **3.9 The context and roles for value co-creation**

Role theory (discussed in sub-section 2.2.1) identifies the importance of role clarity in supporting consensus and compliance between providers and customers with regard to role expectations (Wickham and Parker, 2007). Role clarity supports role identity and has an impact upon actor performance in a role; where role ambiguity exists, research has shown that performance is diminished (Hall, 2008).

Actors adopt roles within social contexts where value co-creation takes place (Edvardsson et al., 2011). Value co-creation involves the application of knowledge and skills, and an understanding of the roles to be performed, within a specific social context. The social context impacts upon the nature of the roles, the resources to be integrated, the perceptions of value and the process of value co-creation (Edvardsson et al., 2011). Therefore, it is necessary to identify the social context within which the customer and provider roles co-create value, in order to define the roles and the required knowledge and skills.

The IS project, a temporary social structure, is the social context for this research and is the context for the exploration of the business analyst role, the nature of the value to be co-created, and the value co-creation process. The customer roles within an IS project context are discussed in sub-section 3.5.7. Value is a concept that may be viewed differently by different actors (Gronroos and Voima, 2013) and, accordingly, these roles may have different perspectives regarding value. It is recognised that customer roles on IS projects require definition to determine how customers may collaborate in co-creating value. These definitions are beyond the scope of this study; this is discussed further in sub-section 9.5.1.

Within this study, the realisation of business benefits from IS projects provides the key criterion for evaluating IS project success and is the basis for exploring the business analysis value proposition. Benefits management theory (reviewed in sub-section 2.6.2) offers an organisational perspective regarding the 'value' that may be co-created through the provision of a business analysis service.

Socio-technical systems thinking (reviewed in sub-section 2.3.2) highlights the need for IS projects to consider both social and technical dimensions. This theory offers a theoretical

basis for the value co-creation process applied by business analysts working collaboratively with customers. Research also identifies the foundation offered by socio-technical theory in the development of benefits management theory (Doherty, 2014).

Therefore, this study integrates theory with regard to roles, value co-creation and socio-technical systems thinking. Accordingly, the study explores the following aspects with regard to the business analyst role, and value co-creation within the IS project context:

- The application of service science theory to clarify the role of the IS business analyst, the required operant resources, in the form of business analysis skills and knowledge, and the nature of value co-creation from a business analysis perspective.
- The application of socio-technical systems thinking, supported by additional relevant theories such as requirements engineering and business process improvement, to inform the process to co-create value.
- Benefits realisation as the perspective for exploring the value proposition for business analysis.

### **3.10 Chapter summary**

A conceptual framework provides a structure that helps to guide research activities. The conceptual framework adopted for this study is based upon the context, content, process and outcomes dimensions (Armenakis and Bedeian, 1999; Pettigrew and Whipp, 1991). These four dimensions have been adapted such that they apply to the research questions and objectives regarding the business analysis domain.

Service science theory is concerned with service delivery and the co-creation of value. Given that the IS function offers IS development as an internal service that utilises competency from a range of stakeholders, service science may be seen to be highly relevant to IS work (Alter, 2010). The service science approach and SD-logic concepts enable the examination of business analysis as a service that is concerned to co-create value for the organisation through collaboration with other actors and resource integration. The concept of the T-shaped professional provides a basis for examining the skills and competences required of business analysts. Benefits management offers an organisational perspective with regard to value co-creation.

Literature concerned with areas of theory that are relevant to the work conducted by business analysts has been discussed in this chapter. These areas are the Soft Systems Methodology, business process improvement and redesign, and requirements engineering.



The data collected during this study has been analysed in conjunction with the insights offered by these theories in order to address the defined research question and objectives.

The approach adopted to the research, including the research philosophy and design, is described in chapter four.

## **4 Research question and method**

### **4.1 Rationale and structure of this chapter**

The literature review in chapter two identified that while there are many theories and approaches that may be relevant to business analysis work, the role of the business analyst has received little attention.

This chapter reviews the range of philosophies and designs that are available to researchers when undertaking business and management research. This review explores the philosophical spectrum and perspectives from which a researcher may view the research topic and aim to address the research question. The chapter defines the philosophical stance adopted by the researcher for this study and explains the rationale for this stance. It also discusses the research design applied and the rationale for this design, and summarises the investigations and reflections conducted by the researcher during the research process. The chapter is structured as follows:

- Section 4.3: Ontology review: a discussion of the ontologies available to the researcher.
- Section 4.4: Epistemology review: a discussion of the epistemologies available to the researcher.
- Section 4.5: Philosophical stance of the researcher: an explanation of the conclusions drawn from exploring and reflecting on the available ontologies and epistemologies, and the philosophical position from which this research has been conducted.
- Section 4.6: Research methodology review: a discussion of the research methodologies available to researchers, and an exploration of the case study method and the associated research methods.
- Section 4.7: The use of the case study method in IS research: a discussion of IS research where the case study method has been used.
- Section 4.8: Research design: a description of the research methodology, methods and process adopted for this study.
- Section 4.9: Research process: a discussion of the process followed to apply the research design to the research topic.
- Chapter summary: the conclusions drawn from the research discussion.

## 4.2 Research aim, questions and objectives

The aim of this study is to improve the clarity of the business analyst role by conducting empirical research into business analysis and developing a service framework for the business analysis discipline. The research question defined for this study is:

***‘What are the services, work practices and value propositions offered by business analysis within the context of IS projects?’.***

The following sub-questions provide clarification of each element of the research question:

- What are the services offered by business analysts and what activities do they perform when providing these services?
- How do business analysts conduct business analysis work?
- Why is business analysis relevant and useful to IS projects?

The following objectives were defined to provide a basis for answering the research question and sub-questions, and for clarifying the outputs to be delivered by this study:

- RO1. The role (what is done): identify a set of clear, distinct services that business analyst practitioners provide to their organisations and list the activities that business analyst practitioners undertake in order to offer these services.
- RO2. The work practices (how business analysis is conducted): construct a taxonomy of the standard techniques, models and skills that should be used to perform the business analysis activities effectively.
- RO3. The rationale (why business analysis is required): provide a clear and accessible definition of the value proposition for each business analysis service in order to explain why the service may be beneficial to the organisation.

## 4.3 Ontology review

This section reviews the ontologies available to the researcher and discusses how the ontological stance for conducting a study may be decided.

### 4.3.1 The ontological spectrum

Ontology is one of the key elements of research philosophy and seeks to answer the question ‘what is the nature of social reality?’ (Blaikie, 2007). The essence of ontology concerns the beliefs of researchers with regard to the nature of facts and reality (Easterby-

Smith et al., 2012) and all researchers need to consider their personal philosophy with regard to these concerns. Some researchers take the philosophical stance that it is possible to hold an objective view of a defined reality; this then provides a basis for researching social reality as something that is external to the researcher and observable. However, researchers may deem that there is not a separate, defined reality but instead there are subjective interpretations of the world (Orlikowski and Baroudi, 1991). Within this spectrum, there are other, intermediate philosophies, which may align with the beliefs of individual researchers. Due consideration of ontology and the philosophical positions that may be taken is required when undertaking research within the social science domain.

### 4.3.2 Review of ontologies

There are many ontologies posited by social science authors. This review considers those suggested by Walsham, Blaikie and Easterby-Smith et al. Walsham’s work is highly relevant to the researcher as it focuses on interpretivism within an IS context. Easterby-Smith et al offer broad advice that is accessible to the new researcher and suggests the relativist philosophical stance that aligns with the philosophical beliefs of the researcher for this study. Blaikie’s work has been included as a means of identifying a range of ontologies that correspond with those of Walsham and Easterby-Smith et al yet also offer incrementally different beliefs about the nature of reality.

Walsham (1995) identifies three philosophical stances: external realism where there is an ‘independent reality’, internal realism where there is a shared constructed view of reality, and subjective idealism where individuals construct their own view of reality. In a similar vein, Blaikie (2007) discusses a continuum containing positions ranging from shallow realist through to idealist. Easterby-Smith et al (2012) describe an ontological spectrum ranging from realist, where there is a ‘single truth’ and ‘facts exist’, to nominalist where ‘there is no truth’ and ‘facts are all human creations’. These ontological definitions are summarised in table 4.1 below.

**Table 4.1: Ontologies by Walsham (1995), Blaikie (2007) and Easterby-Smith et al (2012)**

Author	Ontological position	Nature of reality
Walsham (1995)	External Realism	Reality is independent of the constructions we define for it.

	Internal Realism	Reality is based upon a shared set of constructions.
	Subjective Idealism	Reality is constructed by each individual.
Blaikie (2007)	Shallow Realist	There is an external reality and this can be observed.
	Conceptual Realist	There is an external reality and this can be understood through 'thought and reason'.
	Cautious Realist	There is an external reality but it is not possible for humans to make accurate observations about the nature of reality.
	Depth Realist	Reality consists of three levels: the empirical, the actual and the real.
	Idealist	External reality is formed of constructs and interpretations formed by individuals.
	Subtle Realist	External reality exists but can only be accessed indirectly.
Easterby-Smith et al (2012)	Realist	There is a 'single truth' and facts 'can be revealed'.
	Internal Realist	Although truth exists, facts can only be accessed indirectly.
	Relativist	There are versions of the truth and facts depend upon different viewpoints.
	Nominalist	People create and label their own facts as there is no truth.

The availability of different ontologies requires researchers to consider carefully their beliefs about the nature of reality in order to identify the philosophical stance to be adopted. The key

consideration concerns whether or not reality exists and is observable, and the extent to which facts may be uncovered. The ontology adopted informs the epistemological choice, and, subsequently, the research strategy and design that is adopted.

#### 4.4 Epistemology review

This section provides a review of the epistemologies available to the researcher and the basis for considering the epistemology adopted for a research study.

Epistemology concerns the ways in which we acquire knowledge about the world (Blaikie, 2007). The epistemology espoused by a researcher is linked directly to their ontological perspective (Easterby-Smith et al., 2012) and informs the research approach taken.

There are two distinct epistemological positions provided by Easterby-Smith et al (2012): positivism and social constructionism. Positivism is concerned with objective, fact-based research while Social Constructionism is an interpretive approach, that is based upon the interpretation of experiences and seeks to understand how individuals make sense of the world. Some of the key differences between these two positions, identified by Easterby-Smith et al, are summarised in table 4.2.

**Table 4.2: Key differences between positivist and social constructionist epistemologies**

<b>Positivism</b>	<b>Social Constructionism</b>
Researcher is objective and 'outside' the area being researched	Researcher is part of area being researched
Deductive research strategy	Induction of ideas from collected data
Research based on facts	Research based on human experiences
Reductionist approach	Holistic approach

While positivism is acknowledged by many authors, and descriptions concur with the characteristics summarised in table 4.2, alternative epistemologies are proposed in place of constructionism. For example:

- Remenyi et al (1998) contrast positivism with 'non-positivism or 'phenomenology'; this entails understanding individual experiences and the meanings the individuals attribute to them.
- Orlikowski and Baroudi (1991) compare the use of positivist and interpretivist

epistemologies in information systems research, and also identify an additional approach – critical studies which they describe as taking a critical examination of contradictions and taken-for-granted assumptions within social systems.

- Mingers (1984) categorises interpretivist approaches into four distinct strands: phenomenology, ethnomethodology, the philosophy of language and hermeneutics.
- Blaikie (2007, p.124) views interpretivism as having its origins in hermeneutics and phenomenology but also explains that it is concerned with ‘the study of social phenomena’ and investigates the ‘social world that people have constructed’.

The various epistemological approaches require a researcher to consider how the area of study will be investigated and understood, and the nature of the contribution that may be made. This consideration takes the ontology of the researcher as a basis for selecting the epistemology applied within the research.

#### **4.5 Theory generalisation**

Within an interpretive case study research context, ‘the specifics of data produce the generalisations of theory’ (Eisenhardt, 1989, p.547). Similarly, generalisations are defined as ‘explanations of particular phenomena’ which are derived from empirical research (Walsham, 1995, p.79). Lee and Baskerville (2003) suggest that within an interpretive context, generalisability is concerned with formulating theory that explains what the researcher has observed, through the formation of ‘general notions by abstraction from particular instances’ (p.232). Walsham (2006) also states that generalisations from empirical data may take the form of theories.

Lee and Baskerville (2003) question the limits placed upon generalisability by some researchers, commenting that generalisations are ‘mistakenly expected to be proven statements, rather than taken as well-founded but as-yet untested hypotheses’ (p.224). They distinguish between generalisation *from* empirical or theoretical sources and generalisation *to* an empirical or theoretical setting, identifying four different forms of generalisation depending upon what is generalised from and what is generalised to. Accordingly, Lee and Baskerville differentiate between generalisation of empirical observations in order to develop theory and the generalisation of that theory to additional practical settings.

Orlikowski and Baroudi (1991, p.5) suggest that, while the generalisation of theory derived from interpretive research to other settings ‘is not sought’, it may be ‘used to inform other

settings'. Walsham (1995, p.79) also states that the generalised explanations from the empirical data 'may be valuable' within other contexts. Lee and Baskerville contend that theory may be developed from interpretive case study research but the theory may not be generalised 'beyond the given case' (Lee and Baskerville, 2003, p.236) as it will be untested in other settings. However, Lee and Baskerville (2012) suggest that generalisation to a different setting may be achieved 'in a responsible and pragmatic way' (p. 759) should the researcher and practitioners from the new domain make four specified 'judgement calls'. These judgement calls concern factors such as the level of similarity between the settings and the validity of the theory.

#### **4.6 Philosophical stance of the researcher**

In considering the research process to adopt for this study, the different ontological and epistemological positions described earlier were reviewed with regard to two factors:

- The personal beliefs and values of the researcher with regard to academic research.
- The research question and research aims.

The review of the ontologies in section 4.3 provided a basis for reflection. This reflection concerned the alignment of each ontology with the researcher's personal world view regarding the research process and the stated research question. An understanding of stakeholder perspectives is at the heart of business analysis and many years of the researcher's work experiences have involved investigating, challenging and analysing perspectives that have been put forward as explanations and conceptions about business systems. Given these experiences, which are coupled with a pre-disposition for considering different views, analysing underlying messages and questioning propositions, the researcher's philosophical stance is that there are many different versions of reality. This stance corresponds with the relativist ontology suggested by Easterby-Smith et al (2012) where many 'truths' exist. Therefore, this is the researcher's ontological position for this study.

The constructionist epistemological position, whereby the researcher is within the domain under examination, is linked with the relativist ontology (Easterby-Smith et al., 2012). This philosophy advocates a research approach that explores experiences and ideas emanating from discussions with individuals in order to develop theory. In considering the research question, and given the difficulties in defining the business analyst role (discussed in chapter two), it is considered important to investigate the project experiences of senior business



analysts and the constructs they identify with regard to business analysis. This interpretivist approach enables the analysis of a range of perspectives regarding business analysis work across different business contexts and projects. It also allows for the development of a view of business analysis that is informed and enriched by a variety of experiences. There is only limited research literature available that focuses on business analysis as a distinct professional discipline, and an interpretivist approach that seeks understanding and insights from IS project experiences is felt highly relevant to the investigation of the research question.

Easterby-Smith et al (2012) define the correspondence between different ontologies and epistemologies, indicating that relativism is aligned with constructionism. The researcher's review of the range of ontologies and epistemologies, reflections on the nature of reality, and consideration of the alignment of different philosophical stances with the researcher's world view, led to the adoption of the relativist ontology and constructionist epistemology for this study.

The relativist/constructionist philosophical stance is in line with the Soft Systems Methodology concept of *Weltanschauung* or world view (Checkland, 1981) whereby an individual's values and beliefs will inform the perception of a particular 'system'. This may be stated as 'social reality can only be interpreted' (Orlikowski and Baroudi, 1991, p.14) and is further reflected in the comment below:

*'What we call our data are really our own constructions of other people's constructions of what they and their compatriots are up to' (Geertz, 1973, p.314)*

With regard to the intended generalisability of the research findings, it is necessary to distinguish between the generalisation from empirical data and the generalisation to other settings (Lee and Baskerville, 2003), as discussed in section 4.5. The aim of this research is to clarify the role of the business analyst and, through the generalisation of empirical data, to develop business analysis theory. While it is acknowledged that the validity of generalising beyond the empirical research setting is not established (Lee and Baskerville, 2003), the intent is to develop business analysis theory that may 'inform other settings' (Orlikowski and Baroudi, 1991, p.5) and 'may be valuable in the future' (Walsham, 1995, p.79), i.e., when business analysis is conducted in organisational contexts beyond those investigated.

The philosophical stance of a researcher clarifies the possible research methodologies for a study. Table 4.3 below summarises the research design implications suggested by Easterby-Smith et al where a relativist/constructionist philosophy is adopted.

**Table 4.3: Research design given relativist and constructionist philosophies (Easterby-Smith et al., 2012, p.25)**

Category	Epistemological implications
Aim	Convergence
Designs	Cases and surveys
Data types	Words and numbers
Analysis	Triangulation and comparison
Outcomes	Theory generation

The decision to adopt the relativist ontology and constructionist epistemology for this research has been made following a review of the range of philosophical stances and reflection on how they align with the world view of the researcher. This has been followed by a review of the available research methodologies and the formulation of the research design; these are discussed in the next section.

#### 4.7 Research method review

Business research may be theoretical or empirical, depending upon whether it results from contemplation or observation/experiment. However, Mingers suggests that research should be deemed empirical 'if it reports on new data' and the data analysis forms a 'substantive part...of the paper's contribution' (Mingers, 2003, p.235). While empirical research is said to be the 'dominant paradigm' in business research, there is a relationship between the two paradigms as they inform and reinforce each other (Remenyi et al., 1998). Empirical research may be conducted from a positivist or constructionist view and the numerous methods available may be applicable for quantitative or qualitative research (Mingers, 2003).

There are many methodologies available to the researcher. Some support the positivist approach while others are more relevant within the interpretivist paradigm. Some may be used from either perspective. For example, experiments and large-scale surveys lend themselves to external objectivity and are positivistic; ethnographic studies and action research rely on a subjective understanding of the participants' perspectives and are aligned with an interpretivist stance. Klein and Myers (1999, p.69) emphasise that interpretive and qualitative are not synonyms, stating that 'qualitative research can be done with a positivist, interpretive, or critical stance'. Some methodologies, such as case studies, may be used from a positivist or interpretivist perspective and for qualitative or quantitative research (Remenyi et al., 1998; Orlikowski and Baroudi, 1991). Grounded theory may be used to

develop constructivist theory in line with interpretivist thinking or may adopt a more positivist approach and develop objectivist grounded theory (Charmaz, 2006).

However, the methodology adopted must align with the research topic and the researcher's world view, and ontological and epistemological assumptions. In reviewing the available research approaches, and having decided upon a relativist, interpretivist approach, the action research, ethnography and case study methods were considered.

#### **4.7.1 Action research**

Action research offers a means of investigating social situations that are operational and are evolving. The researcher is typically located within the research process and attempts to deploy changes to the situation and learn from the impacts of those changes (Easterby-Smith et al., 2012; Remenyi et al., 1998). Sekaran and Bougie (2009) suggest that action research involves an iterative process whereby a problem is identified, a solution is defined and implemented, feedback regarding the impact of the changes is evaluated which then leads to the development of a revised solution, which is implemented, feedback obtained and so on.

This is a highly participatory approach (Remenyi et al., 1998) and offers the opportunity for researchers to learn and refine their knowledge within a real-life environment. However, it requires unrestricted access to the business situation and the willingness of the organisation to be subject to dynamic changes, which may or may not prove beneficial. The process of learning can be lengthy and, as it is based upon actions within a unique situation, is unlikely to be replicable (Remenyi et al., 1998).

These factors raise the following issues with regard to the research question and objectives:

- The uniqueness of the 'live' situation would limit the understanding of business analysis that would be gleaned. This would diminish the extent to which the research question could be addressed and the research objectives achieved.
- The individual practices and the learning achieved may not be replicable across different organisations. Again, this would reduce the relevance of the research findings and their applicability to different organisations and business analysis practices.
- Gaining lengthy, unrestricted access to a business analysis practice within an organisation would be extremely difficult as business analysis is often concerned with the investigation and analysis of confidential data. The data requirements related to the research question and objectives are such that an examination of

confidential data would be essential for action research to succeed in this context.

Given the research aim and objectives for this study, and the issues identified above, it has been decided that action research is not suitable for this study.

### **4.7.2 Ethnography**

An ethnographic study involves the complete immersion of the researcher within the situation under investigation (Easterby-Smith et al., 2012). This research approach requires the researcher to become part of a society in order to understand aspects such as the culture, behaviour and meanings. To do this, the researcher has to become a member of the society or 'tribe' (Remenyi et al., 1998) and, as a result, it is a highly participative learning approach.

Ethnography requires the researcher to be engaged within the community under investigation for an extended period of time. Remenyi et al (1998) state that this may be several months as a minimum and may extend to years. This length of time is required in order for the researcher to be able to understand and interpret aspects such as language, intonation and behaviours (Easterby-Smith et al., 2012).

The emphasis on cultural aspects, such as behaviours and meanings which are the essence of ethnography, ensures that the research is focused upon a particular society and requires extensive access to all aspects of that society. Given that this is the case, the issues identified earlier with regard to action research, for example, the need for unrestricted, lengthy access to an IS project and its data, also apply. There is a further reason why this research approach was not deemed appropriate for this study. Business analysis requires engagement with stakeholders and, therefore, ethnography would support investigation into the less tangible skills required of business analysts. However, the research aim, question and objectives also focus on more tangible elements such as the role definition and the work practices. As a result, the ethnographic research approach is not deemed appropriate for this study.

### **4.7.3 Grounded theory**

The availability of extant literature is also an important consideration when selecting a research methodology, as are the skills of the researcher and available resources such as budget and time (Remenyi et al., 1998). Where the research topic is one for which there is limited if any literature, a grounded theory approach offers a means of developing theory derived from the collected data (Corbin and Strauss, 2015).

An abductive research strategy is invoked in grounded theory because it involves the consideration of the explanations for the data collected, forming hypotheses and 'checking them empirically by examining data, and pursuing the most plausible explanation' (Charmaz, 2006, p.104). Alternative research strategies concern deductive and inductive reasoning. Deductive reasoning moves from the general to the specific, applying an existing theory to a particular case; inductive reasoning takes an opposing approach, moving from the specific instances to develop general proposals or theory. Inductive reasoning is more commonly used in qualitative research (Sekaran and Bougie, 2009) and this is the research approach for this study.

Despite the limited literature available that concerns business analysis, as described within this thesis, many aspects relevant to business analysis – such as systems thinking, business process improvement and requirements engineering – are the subject of extensive academic research. These topics will be used to examine the data relevant to research objective two regarding the skills, techniques and standards approaches used within business analysis. Similarly, there is a significant body of literature concerned with the measurement of IS project success and this will be used to uncover findings concerned with the value proposition for business analysis. Given the extent of the literature available to address the research aim, question and objectives, a grounded theory approach would not align with the needs of this research project.

#### **4.7.4 The case study method**

The case study method is concerned with the collection of data that provides rich detail about the case (or cases) and which may be obtained using multiple methods (Eisenhardt, 1989; Hartley, 2004). It offers a basis for holistic, detailed research (Saldana, 2011) into a phenomenon observable within a given context (Hartley, 2004). Case studies require 'in depth contextual analysis of similar situations' (Sekaran and Bougie, 2009, p.30). The data collected may be qualitative, quantitative or a mixture of both types (Eisenhardt, 1989).

Interviews, observation and archive documents are common sources of data for case studies, however, the use of multiple, additional sources helps with triangulation of the data (Eisenhardt, 1989). Yin (2013) also recommends the use of multiple sources of evidence when triangulating case study findings. These sources include additional sources of data, which may be used to corroborate the original findings (Stake, 1995; Yin, 2013).

The aim of case study research is to investigate aspects such as the inherent behaviour and processes within the context presented by the case (Hartley, 2004) such that knowledge may be gained about the phenomenon it represents. It is particularly suited to research

where an in-depth understanding of the processes applied within organisations is required and, for this purpose, it may be necessary to review the work across several organisations.

Good case study work is reflective (Stake, 1995) and requires the researcher to be sensitive to the situation being studied (Hartley, 2004). The emergent theory tends to be developed inductively (Hartley, 2004) and is likely to be theory about the phenomenon under investigation rather than grand theory with a broad 'sweep' (Eisenhardt, 1989, p.547).

The research aim for this study is to investigate how business analysis is applied within organisations and IS projects, and determine a standard framework for business analysis. Specifically, the study has been concerned with the role of the business analyst, and the work practices they perform, in order to develop theory that will help to establish standards for the international business analysis community. The case study method has been adopted for this research project as it aligns with the ontological and epistemological beliefs of the researcher, as indicated by Easterby-Smith et al (2012) and shown in table 4.3, and enables the in-depth investigation required to address the research aim, question and objectives.

#### **4.8 The use of case studies in IS research**

There is a strong tradition of case study research within the IS project context. Case study research is particularly suitable for research into information systems because it enables researchers to keep up with the rapid pace of change in the information systems industry (Dubé and Paré, 2003). A review of articles published in key IS journals between 2001 and 2012 identified that 93% of the articles where a qualitative approach had been applied had used a form of case study research design (Sarker et al., 2013). Although positivist case research is the dominant approach in IS case study research (Dubé and Paré, 2003), interpretivism is 'well-established' within IS research (Walsham, 2006). Table 4.4 below provides a summary of six recent papers, reflecting the use of case studies and interviews within IS research.

Table 4.4: Example IS research using case studies

Title	Authors, year and journal	Methodology	Research topic/ findings
<p>Improving the impact of IT development projects: the benefits realization capability model</p>	<p>Colin Ashurst, Neil F Doherty, Joe Peppard (2008) <b>European Journal of Information Systems</b></p>	<p>Case studies looking at project documentation and follow-up small survey: 25 organisations; 15 follow up questionnaires</p>	<p><b>Topic</b> Considers how an organization can embark upon a new IT investment project and increase the likelihood of its projected benefits being realized.</p> <p><b>Findings</b> Development of a conceptual model of a benefits realisation capability enacted through competences and underpinned by practices that explicitly support the effective management of benefits.</p>
<p>The role of modelling in achieving information systems success: UML to the rescue?</p>	<p>Tor J. Larsen, Fred Niederman, Moez Limayem &amp; Joyce Chan (2009) <b>Information Systems Journal</b></p>	<p>Hybrid approach blending aspects of positivist investigation, such as the view that pre-existing phenomena and relationships among them under investigation are stable and objectively exist, with aspects of interpretivist or grounded theory.  11 interviewees</p>	<p><b>Topic</b> Considers the relationship between the use of UML and system development success, the organisational factors influencing the use of UML in the system development and the other factors that influence development efforts and create the prerequisites for project success.</p>

			<p><b>Findings</b></p> <p>Definitions of success may differ by unit of analysis, a very large number of variables impacting project success were identified and the majority of interviewees linked the use of UML to project success.</p>
IS project alignment – a process perspective	<p>Tracy A Jenkin and Yolande E Chan (2009)</p> <p><b>Journal of Information Technology</b></p>	<p>Case studies analysed using organisational metaphors: 9 projects across two organisations.</p>	<p><b>Topic</b></p> <p>Considers the key events and processes that lead to IS project alignment.</p> <p><b>Findings</b></p> <p>Importance of evolutionary approach, interrelating processes support project alignment, and adaptation to change is critical for project alignment.</p>
Requirements engineering blinders: exploring information systems developers' black-boxing of the emergent character of requirements	<p>Jonny Holmstrom and Steven Sawyer (2011)</p> <p><b>European Journal of Information Systems</b></p>	<p>1:1 interviews, documentation analysis: 26 interviews with IS developers from five IT consultancy companies; 200 documents relevant to the present study</p>	<p><b>Topic</b></p> <p>Considers the desire of IS developers to simplify or follow methods, leading to a failure to negotiate and resolve conflicts.</p> <p><b>Findings</b></p> <p>Theorises Requirements Engineering as a social construction.</p>
Toward a new theory of the Contribution of the IT Function	<p>Gullemette and Pare (2012)</p>	<p>Field study: 24 large Canadian companies</p>	<p><b>Topic</b></p> <p>Considers the contribution that IT functions must make to clients and</p>



<p>in Organizations</p>	<p><b>MIS Quarterly</b></p>		<p>profiles for the relationship between the IT function and the business.</p> <p><b>Findings</b></p> <p>Suggests five ideal profiles. IT functions that are close to an ideal profile may outperform those with hybrid profiles. Explanation of how profiles are adopted.</p>
<p>From Profession to Practices in IT Design</p>	<p>Johanna Sefyrin (2012)</p> <p><b>Science, Technology and Human Values</b></p>	<p>Case study using ethnographic methods: 1 project</p>	<p><b>Topic</b></p> <p>Considers gendered divisions of work within IT design.</p> <p><b>Findings</b></p> <p>The analysis shows how women may be involved in IT design for example, by performing business analysis tasks such as the analysis of current work practices.</p>
<p>A tale of two coalitions – marginalising the users while successfully implementing an enterprise resource planning system</p>	<p>Kalle Lyytinen and Mike Newman (2015)</p> <p><b>Information Systems Journal</b></p>	<p>Case study: ERP implementation project</p>	<p><b>Topic</b></p> <p>Considers how to address the gap between approaches to ERP implementation with regard to different stakeholder groups.</p> <p><b>Findings</b></p> <p>The importance of senior management vision and support for an ERP implementation, and how the user community may be marginalised.</p>

These papers are all relevant to the research question. They offer findings on a range of aspects that were explored within the literature review in chapter two and the conceptual

framework in chapter three. These aspects included the definition of requirements, the role of the IS function, Business/IT alignment and evaluating success of IS projects.

The application of the case study method within this study is discussed in the next section.

## **4.9 The research approach for this study**

The case study method was selected for this research project for the following reasons:

- It aligns with the researcher's ontological and epistemological assumptions as defined by Easterby-Smith et al (2012).
- It is particularly relevant to the research topic as it enables the capture of data based upon work experiences related to the particular phenomenon (business analysis) that have occurred over an extended period of time.
- It provides a structure and guidance for exploring the business analysis domain and the work practices conducted by business analysts. The quintain/mini-case structure (Stake, 1995; Stake, 2006) applied is described below.

The next sub-sections discuss the case study design for this research and the data collection techniques used.

### **4.9.1 The case study design**

This study is concerned with the underlying service proposition for business analysis (why is it required?) and how business analysts undertake their work (what do business analysts do?). Case studies focus on 'understanding the dynamics present within single settings' (Eisenhardt, 1989, p.534), which is highly relevant given the subjective judgements required by business analysts in the conduct of their work and the corresponding potential for variability of business analysis situation, tasks and deliverables.

Yin (2013) suggests that there are different types of case study, each of which may require particular data collection methods, and the type of case study may be determined by considering the research question. On this basis, Yin identifies three types of case study:

- Exploratory: answers 'what' questions about a case, for example, to find out what we can uncover about the case.
- Descriptive: answers 'who' or 'where' questions about a case in order to describe 'the incidence or prevalence of a phenomenon' (Yin, 2013, p.9).
- Explanatory: answers 'how' or 'why' questions that tend to look at events over a period of time.

Stake (1995) offers a different classification, suggesting the following types of case study:

- Intrinsic: where there is an obligation to investigate a case.
- Instrumental: where there is a concern or interest in something and a research study has the potential to offer insights. In this situation, it may be decided to research several cases in order to generate the insights; Stake refers to this as a 'collective case study' (Stake, 1995, p.4).

An explanatory case study was relevant to this research because of the focus on how and why business analysis is performed within organisations; this relates to a 'contemporary set of events over which the investigator has little or no control' (Yin, 2013, p.13). Walsham (1995) comments that such questions are acceptable in an interpretive context and Klein and Myers (1999) state that interpretive research is very relevant to information systems. The definition of an instrumental case study offered by Stake (1995) also supports the selection of the case study method as a means of gaining understanding and insights into business analysis.

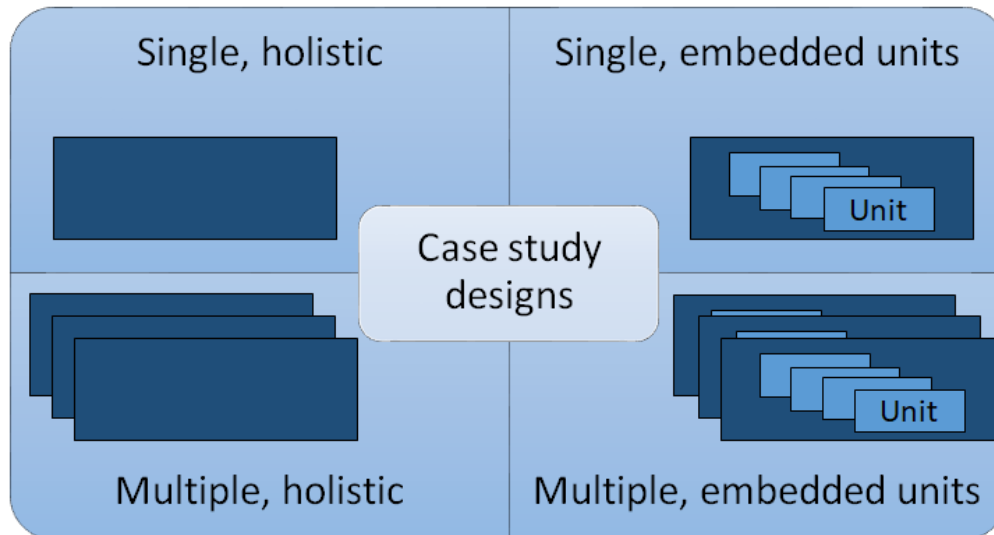
The options of longitudinal and cross-sectional research approaches were considered with regard to the case study design. A longitudinal study would have involved an in-depth investigation into the case study over an extended period of time whereas cross-sectional analysis would allow for investigation into current business analysis work (Remenyi et al., 1998). Given that individual business analysts were selected as the primary data sources on business analysis work practices, a cross-sectional approach was deemed to be most relevant to address the research question. The elicitation of the views of individual business analysts, at a point in time, and the comparison and consolidation of those views, was considered to be most fruitful means of conducting research into business analysis work.

A case study needs to have a context and boundary (Stake, 1995), and, in order to understand this, the unit of analysis needs to be clear. There may be one, holistic single case which forms the unit of analysis, or there may be multiple embedded cases, each of which is itself a unit of analysis (Yin, 2013). Yin suggests that there are five major reasons for selecting a single case. The case should be:

- Critical with regard to a particular theory.
- Unique or critical within a particular discipline.
- Representative or typical for a particular situation.
- Revelatory regarding a phenomenon that is previously inaccessible.
- Longitudinal where the conditions of the case can be investigated over time.

There may also be multiple distinct cases that are studied and each of these may researched holistically or through embedded cases (Stake, 2006; Yin, 2013). These possible case study structures are represented in Figure 4.1.

**Figure 4.1: Case study designs (adapted from Yin, 2013)**



Stake (2006) suggests that the concept of a 'quintain' is adopted within case study research; the quintain represents a category that groups cases who are all concerned with the phenomenon being researched. Further, each case may be analysed through lower level units referred to as 'mini-cases' (Stake, 2006). Multiple case research may involve the investigation of several distinct cases each within a different context, or several mini-cases that relate to the same context (Yin, 2013). The essence of multiple case research is to study the individual cases in order to identify patterns both within and across the cases, and as a result, develop assertions and findings (Stake, 2006). Given the nature of case study research, it is important to select the cases to be investigated carefully (Eisenhardt, 1989).

Although Stake recommends the use of the quintain when undertaking multiple case study analysis, the approach adopted was slightly adapted and it was decided to research a single case study with embedded mini-cases (Stake, 2006). A single case study tends to be advocated when a constructionist epistemology is adopted (Easterby-Smith et al., 2012). The case study method was particularly relevant to this study because it offers a hierarchical structure consisting of several levels (Stake, 2006), which was helpful when investigating the business analysis phenomenon. Therefore, the structure for this study encompassed the following levels:

- The use of the 'quintain' concept as a means of representing the community of practitioners involved in business analysis.

- The investigation of a case that was representative of organisations employing business analysts and offered a defined boundary and area of concern; this was the unit of analysis at which the data was aggregated (Easterby-Smith et al., 2012).
- The study of multiple mini-cases who were able to provide detailed insights into their experiences as business analysts across several years, projects and organisations.

This structure enabled the adoption of a holistic view whereby the detailed data collected from the mini-cases could be analysed at an individual level, at an aggregate professional body level, and at a business analysis community level. This structure also permitted the development of theory based upon cross-case comparison and synthesis (Yin, 2013) and provided a means of ensuring that the research findings were 'consistently replicated by several cases' (Eisenhardt and Graebner, 2007, p.27).

Business analysis is the phenomenon of interest for this study and therefore, the community of practitioners working within the business analysis domain was identified as the 'quintain' in line with Stake's definition. This domain provided a broad context for this study and enabled the inclusion of data from organisations and individuals that reside outside the case.

The case that is the focus of this study is the Business Analysis Manager Forum (BAMF), a networking organisation for experienced business analysts working at a senior level within their organisations. The BAMF case is described in chapter five. This case was selected as it could provide a view of business analysis with a specific focus (information sharing and networking amongst senior or managerial business analysts). Therefore, it presented an opportunity to investigate an integrated system with a clear boundary (Stake, 1995). Within this boundary, IS project experiences, areas of concern and personal assertions from experienced business analysts representing a range of organisations, were available for collection and analysis.

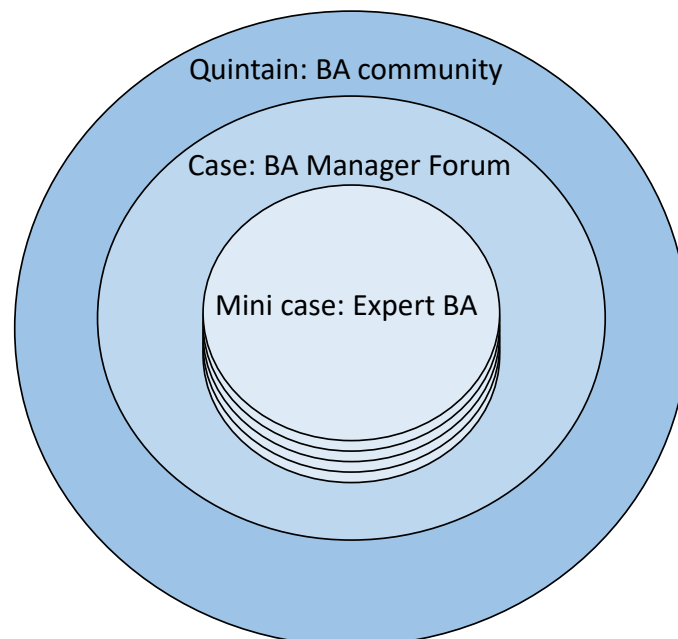
The BAMF offered access to individual business analysts who were able to provide insights and viewpoints that are relevant to the broader business analysis community. These viewpoints encompass both organisational and individual perspectives. The study of the BAMF case enabled the investigation and cross-case comparison of observations from these senior business analysts. These observations were based upon their IS project experiences when conducting business analysis work.

Within interpretive research, much of the data collected is gathered through the stories and experiences of those involved in the case (Stake, 1995). The use of stories to gather case study data was relevant in this study as it offered a means for the individual business analysts to describe their experiences. These experiences generated rich data regarding why business analysis is necessary within IS projects and which work practices are applied when conducting business analysis work.

Figure 4.2 provides a visualisation of the relationship between the three levels of concern for this business analysis research. These are:

- The mini-cases: individuals with certified knowledge and skills, and extensive experience who were able to relate their 'stories' regarding their business analysis work.
- The BAMF: a professional body for senior business analysts, each of whom represents a member organisation.
- The business analysis community: the worldwide community of practitioners who are responsible for conducting business analysis work and professional organisations that offer standards relevant to business analysis.

**Figure 4.2: Three levels of case study focus for this research**



The aim of this study is to develop theory relating to business analysis in the form of a service framework for business analysis. This framework should have the potential to be applied to different business analysis contexts. Theory generalisation from case studies to other case settings is a matter of much discussion within the literature. Stake (1995) states

that generalisations are likely to be modifications of existing understanding rather than offering something new, although Saldana (2011, p.9) suggests that generalisability may depend partly upon the researcher's 'interpretive persuasiveness'. However, as discussed in section 4.5, Lee and Baskerville (2003) clarify the difference between generalising to develop theory and generalising the developed theory to other settings, commenting that the generalisability of a theory to a setting where it has not been tested lacks validity.

Strong links between the theory generated and the existing literature have been suggested as a means of enhancing the generalisability of the findings (Eisenhardt, 1989). The case study design applied in this research includes the use of relevant academic and practitioner literature to support the development of a service framework for business analysis. For example, when analysing the business analysis techniques used to offer a particular service and when formulating the value proposition for a service. Therefore, it is anticipated that the service framework will have applicability across organisations and their business analysis functions. However, the limitations regarding the generalisability of interpretive case study research are recognised and are discussed further in chapter nine.

#### **4.9.2 The data collection techniques used in this research**

A researcher needs to consider how the research data will be collected and analysed, and the application of the data in developing theory, in order to determine if a qualitative study is relevant. Qualitative research has gained in acceptance within the IS context since the mid-1990s (Sarker et al., 2013) and is now described as a legitimate approach. Some researchers use the terms qualitative and interpretivist interchangeably, however, this has been said to be a 'crude dichotomy' that does not reflect the difference between the nature of the data collected and the research method (Mingers, 2003, p.236). Mingers clarified that qualitative data is gathered through processes concerned with meanings.

Data collection techniques used in qualitative studies are numerous and diverse and, as such, there is a large variety available to the qualitative researcher (Cassell and Symon, 2004) . These techniques can be used to obtain data from primary or secondary sources (Sekaran and Bougie, 2009). Primary data is provided by individuals or groups through interviews and discussions; secondary data already exists, for example, in corporate documents.

Three of the key data collection techniques used in qualitative research are interviews, observation and document review (Stake, 1995). Interviews offer a number of advantages when researching phenomenon, for example, providing an opportunity for the development of rapport between the interviewer and interviewee (Yin, 2013). Interviews may be highly

structured, semi-structured or unstructured and may be conducted on a one-to-one basis or with a group (Easterby-Smith et al., 2012). King (2004a) suggests that the interview is the research method that is most often used when collecting qualitative data and interviews are said to be an 'essential source' of case study data (Yin, 2013). Interviews are the primary source for data in interpretive case studies (Eisenhardt and Graebner, 2007; Walsham, 1995) as they enable the researcher to access interviewees' interpretations of their experiences. They provide a means of collecting rich empirical data which offers a basis for rigorous analysis and theory development (Eisenhardt and Graebner, 2007). Accordingly, interviews were selected as an appropriate means of collecting data from business analysts within the BAMF.

Documentation can help the researcher to uncover insights into the case under investigation, offering opportunities to collect helpful secondary data (Sekaran and Bougie, 2009).

Relevant documents are an important source of data in case study research although their primary use is to verify evidence collected through other means (Remenyi et al., 1998).

Documents can provide information about the values and views of their creators (Saldana, 2011) so are useful during qualitative research. Critical discourse analysis is concerned with the analysis of textual evidence and is particularly relevant to a constructionist epistemology (Dick, 2004). The critical discourse analysis technique focuses on understanding how language is used within a piece of text and the rationale underpinning the creation of the text; this includes how the text achieves the original aims and the context for its production.

Relevant documentation has been selected to triangulate the data collected from the business analysts.

Techniques to study groups can cover a range of contexts and are relevant to constructionist research (Steyaert and Bouwen, 2004). There are several types of group data collection methods, including group interviews and focus groups. Focus groups provide a means of collecting data from experts (Remenyi et al., 1998). The data collected typically includes the opinions and interpretations of the members of the group with regard to the proposed area (Sekaran and Bougie, 2009). The data gained may be used in several ways, including the validation of the findings from the research (Remenyi et al., 1998). In this study, data collected from focus and workshop groups has been used to triangulate and validate the findings.

Table 4.5 summarises the range of data collection techniques used during this study and shows the sources of the data and the stage and rationale for their use.

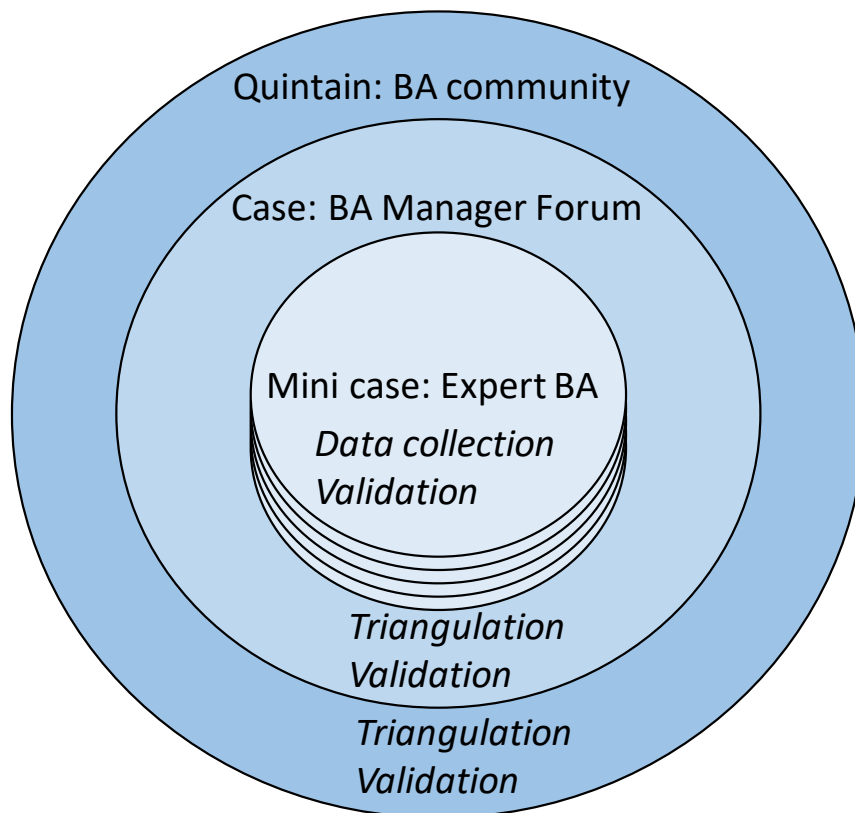


**Table 4.5: Data collection techniques and data sources**

<b>Data collection technique</b>	<b>Data source</b>	<b>Stage(s) used</b>
Interviews	Individual business analysts Business analysis author & consultant Technical director	Data collection & Validation Validation Validation
Documentation analysis of organisational standards	BAMF organisations Industry standard from alternative professional body	Triangulation Triangulation
Workshop group	Business analysis community of practice within a BAMF organisation	Triangulation
Focus group	Two project managers, a business systems analyst, a business analyst all working for the same organisation	Validation

The levels of concern for this study and the application of the various data sources listed in table 4.5, are represented in Figure 4.3.

Figure 4.3: Levels of case study focus for this research and the application of the data sources

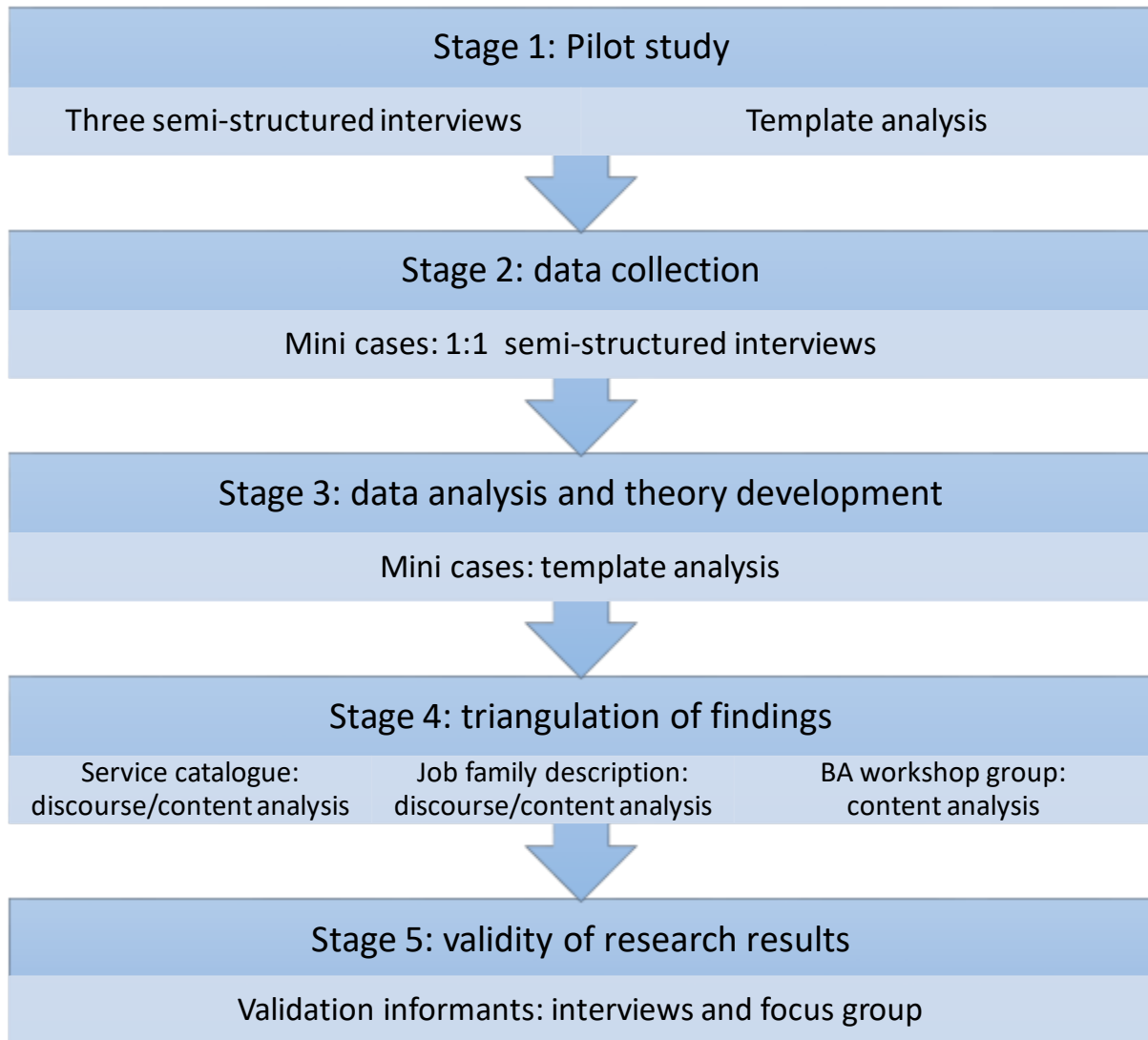


#### 4.10 The research process

The research question for this study relates to business analysis services, work practices and value propositions. Given the limited extant literature about this topic, research is required into the experiences of business analysts in order to explore the nature of their work and the organisational contexts within which it had been undertaken. A similar research approach, based on observations and comments from highly knowledgeable and experienced analysts, was adopted during an investigation into a core business analysis activity, requirements elicitation, (Hickey and Davis, 2004).

Figure 4.4 provides an overview of the research process adopted in this study. The stages shown in this figure are described in this section.

Figure 4.4: The research process



#### 4.10.1 Stage 1: Pilot study

The research project included a pilot study with the aim of evaluating:

- The proposed research design.
- The proposed research question and objectives by discussing the experiences and reflections of business analysts regarding their career paths, roles performed, skills applied and overall contribution to projects.

The research question for the pilot study was:

***‘How does business analysis contribute to the success of information system projects?’.***

The aims of the pilot study were to investigate:

- The mechanisms for evaluating IS success and the processes for achieving such success.
- The standards and work practices applied in business analysis that contribute to the determinants of IS success.
- The contribution of business analysis to the realisation of business benefits.

An interpretivist case study approach was applied during the pilot study. Multiple case design using mini-cases (Stake, 2006) was adopted in order to collect data regarding experiences in undertaking business analysis and uncover patterns of business analysis work practices across different organisational contexts and projects. This aligned with the research design whereby the business analysis community formed the 'quintain' (Stake, 2006) and the research aim and question concerned business analysis in general rather than within one organisation. This research design allowed for cross-case analysis and was intended to improve the dependability of the findings.

The BAMF was the case investigated and three BAMF representatives, all BA specialists, were interviewed. The pilot study concentrated on the personal experiences and reflections of the senior business analysts across their organisations and projects. The BAMF case study, and the criteria for the selection of the BA specialists, are described in further detail in chapter five.

The three interviewees were BCS examiners in business analysis so possessed significant expertise and knowledge. This is a key element of the research design as it was vital to obtain rich insights into business analysis in order to address the research question. The context, content, process and outcomes model (Pettigrew and Whipp, 1991; Ward and Daniel, 2012) formed the conceptual framework to guide the research during the pilot study. This included the data collection interviews and the data analysis approach.

Template analysis (King, 2004b) was used to analyse the data collected during the pilot study interviews. A template was developed to code the data and identify emergent themes. The data analysis was structured according to the four dimensions of the conceptual framework. The findings from the pilot study were categorised according to these dimensions, as follows:

- Context themes concerned the employing organisation and the interviewees' career paths. For example, the impact of organisational attitudes to business analysis; qualifications held by analysts.

- Content themes concerned the business analyst role and the interviewees' project experiences. These included lifecycle, role definition and stakeholder management.
- Process themes concerned personal, technical and business skills.
- Outcome themes concerned the interviewees' perceptions regarding business analysis and its contribution to business change projects.

The pilot study uncovered two key issues requiring further research:

- The attitude of employing organisations towards business analysis was raised as an issue, indicating that the level of recognition and awareness of business analysis may vary between organisations. The interviewees also commented on the difficulty encountered when defining the business analyst role. The issue of recognition and role clarity was identified as an area that required further investigation with regard to business analysis.
- All participants stated that business analysis made a significant contribution to successful IS project outcomes. However, the nature of this success was unspecific, raising questions over how the work practices and skills of business analysts contribute to IS project success.

The pilot study supported the use of the case study method in investigating the research question. However, it also identified that the research question and objectives required further reflection. The revised research aim, question and objectives were developed following a subsequent, more detailed literature review and are stated in section 4.1 earlier in this chapter. These revisions resulted in changes to the interview questions used for data collection. The revised question set is explained in chapter five when discussing the case study and the data collection process.

The pilot study validated the research design. It also provided a basis for reflection and improvement prior to conducting the rest of the study.

The stages of the main study are discussed in the following sub-sections.

#### **4.10.2 Stage 2: Data collection**

This stage involved the investigation of the business analysis domain through the collection of primary data from seventeen senior business analysts. Semi-structured one-to-one interviews were selected to collect data from each individual analyst. The interview questions were structured using the context, content, process and outcome framework outlined in the conceptual framework in chapter three. Some interviews were conducted online using

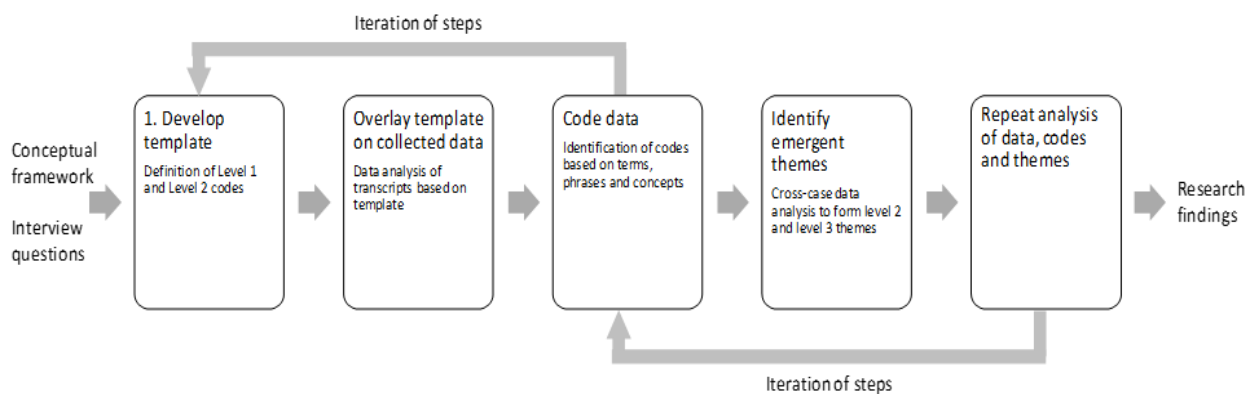
Microsoft® Skype, while others were conducted ‘face-to-face’ in a professional environment. Each interview was recorded and transcribed in order to enable qualitative analysis of the data collected.

Organisational confidentiality requires particular consideration when using case studies as they are ‘deeply embedded in rich empirical data’ (Eisenhardt and Graebner, 2007, p.25). Confidentiality is particularly relevant within the context of this study because business analysis work often concerns strategically important projects. Therefore, confidential information was not requested during the interviews instead the analysts were asked to discuss their personal experiences, knowledge and beliefs about business analysis practice.

### 4.10.3 Stage 3: Data analysis

The data analysis process is shown in Figure 4.5.

**Figure 4.5: The data analysis process for this research**



The interview transcripts were analysed using template analysis (King, 2004b) and the results were recorded using NVivo. Template analysis provides a basis for coding the collected data and facilitated the identification of emergent themes. An iterative approach was applied to define and redefine the codes within the template in line with the four modification types identified by King (2004b). The use of multiple BAMF mini-cases allowed for cross-case comparison, pattern identification and synthesis (Yin, 2013). The data analysis involved a further iterative process whereby the emergent themes were identified, reflected upon and enriched. This process uncovered research findings that addressed the research question and objectives and enabled the development of business analysis theory.

Inductive reasoning was applied to develop theory from the experiences described by the business analysts during their interviews. Inductive theory generation is commonly used in qualitative research (Sekaran and Bougie, 2009). As an interpretive research project, the

focus for this research was to understand 'phenomena through accessing the meanings that participants assign to them' (Orlikowski and Baroudi, 1991, p.5). This enabled the inductive generation of theory and development of propositions for further research into business analysis.

Eisenhardt (1989) suggests that theory building from case studies is particularly relevant where a phenomenon is relatively unknown and there is limited extant research and theory. The current research into the analysis of information systems does not, in the main, recognise business analysis as a distinct domain of practice or identify the contribution such analysis might make to the success of IS projects. Therefore, an inductive study was warranted (Eisenhardt and Graebner, 2007).

The findings from this stage resulted in the development of a Business Analysis Service Framework (BASF) that encompasses the three elements identified in the research objectives: the business analysis services and activities, the taxonomy of required techniques and skills, and the value proposition for each business analysis service.

#### **4.10.4 Stage 4: triangulation of research results**

This stage was concerned to establish the plausibility of the emergent theory through the triangulation of the findings. Data triangulation using multiple sources of evidence is important in case study research (Sekaran and Bougie, 2009; Yin, 2013) as it provides a means of extending the insights into the phenomenon under investigation and uncovering evidence in support of or in conflict with the findings from the case study interviews.

Evidence used in triangulation may also be obtained from different groups (Hartley, 2004) as this helps to confirm the original evidence and prevent against bias (Remenyi et al., 1998). Accordingly, a number of different data sources from different groups were used during the triangulation process for this study.

The use of different sources helps to increase the validity of research findings (Remenyi et al., 1998). Therefore, three sources of data were used to triangulate the initial findings: documentation provided by two BAMF member organisations; a standard provided by a professional body; group discussion outcomes collected during a business analysis community workshop held at a BAMF member organisation. These are described in further detail as follows:

- Secondary data sources in the form of formal documents were provided by two internal business analysis functions: a service catalogue published for internal use within a major energy provider; a document published by the UK Government to

set out the skill requirements of the Business Analysis job family within the Digital, Data and Technology Profession. Discourse analysis was applied to investigate the underlying rationale for the documents (Dick, 2004) and content analysis to explore the constructs provided in the documents, the language used in defining those constructs and the patterns applied in the descriptions. These documents were used to triangulate the findings relating to research objectives one and two.

- A standard skills framework offered by BCS, the Chartered Institute for IT, provided a definition of business analysis skills and techniques. This framework was used to offer a direct comparison with the findings relating to research objective two.
- A group discussion exercise was undertaken to collect data during a business analysis community workshop. The results are in the form of documented group discussions, which were analysed using content analysis order to uncover meanings and patterns (Miles et al., 2013). The discussion results were used to triangulate the findings relating to research objective three.

This stage was intended to confirm and enhance the data analysis based upon the primary data sources, and extend the BASF developed to support business analysis practice. The triangulation process for each dimension of the conceptual framework is discussed further in chapters six and seven.

#### **4.10.5 Stage 5: validation of emergent theory**

The final stage involved the validation of the findings and the emergent theory. Discussions with two sets of validation informants were undertaken during this stage:

- The new BASF was discussed with selected individuals, of whom two were involved in stage 2: data collection, and two were new participants in this study. These individual discussions focused upon the content of the BASF and the relevance to contemporary business analysis practice and IS projects.
- The BASF was discussed with a focus group from an internal Business Analysis Practice. The focus group members represented three different IS roles: project manager, business systems analyst and business analyst. They each provided observations with regard to the BASF. These observations concerned the context of their IS project work and the relationships between the three IS roles represented.



Hartley (2004) suggests that checking the research results with participants is an effective basis for improving the validity of the researcher’s findings. This combined approach of involving original study participants and a broader group offered a means of validating the BASF and increasing the potential for its adoption in different organisational settings.

### 4.11 Chapter summary

The aim and objectives for this study were to develop and validate a new service framework that would help clarify the business analyst role, and define business analysis work practices and the value propositions offered by business analysis. This chapter has reviewed the philosophical choices available to researchers from the ontological and epistemological perspectives, and has clarified the philosophical stance adopted by the researcher. This stance involved a relativist ontology and interpretivist epistemology.

The research method and techniques that may be adopted in order to conduct empirical research have also been discussed and the selected approach, the case study method, has been explained within the context of the research aim, question and objectives.

The available philosophies and research methods are summarised in Figure 4.6; the selected ontology, epistemology, research method and techniques are highlighted in this diagram.

**Figure 4.6: Available research choices with selected approaches highlighted**



An overview of the research process adopted for this study has also been provided in this chapter. This has included a description of the pilot study stage for this research and the rationale for revising the research proposition as a result of the pilot study. Chapter five

describes the BAMF case and the process to collect and analyse the data about the case. This includes further detail regarding the data collection and analysis during the pilot study in sub-sections 5.5.3 and 5.6.1. The remaining stages of the main study are further explained in chapters six, seven and eight.

## **5 BAMF case study, data collection and analysis**

### **5.1 Rationale and structure of this chapter**

The research design discussed in chapter four clarified that this study is based upon a relativist/interpretivist paradigm and that the case study method is the research approach. This chapter describes the selected BAMF case, the individual business analysts who form the embedded mini-cases within the BAMF, and the work conducted to collect and analyse the data from the business analysts.

The chapter is structured as follows:

- Section 5.2: the levels for this research; an explanation for adopting the 'quintain' concept.
- Section 5.3: the Business Analysis Manager Forum; a description of the rationale, structure and aims of the BAMF case.
- Section 5.4: the BA specialists; a description of the individuals interviewed as representatives of the BAMF, each of which is a 'mini-case'.
- Section 5.5: the data collection interviews; an explanation of the approach adopted to conducting the interviews.
- Section 5.6: the data analysis process; an explanation of the research methods applied in order to analyse the collected data.
- Section 5.7: the triangulation process; an explanation of the approaches used to triangulate the findings from the data.
- Section 5.8: the validation process; an explanation of the process applied to the validation of the findings.
- Section 5.9: chapter summary; the key elements of the case study research.

### **5.2 The levels adopted for this case study research**

Three levels were identified for this case study: the quintain, the case and the embedded mini-cases. These levels were discussed in chapter four.

The concept of a 'quintain' was adopted for this research project (Stake, 2006) in order to represent practitioners involved in conducting business analysis across the international business analysis community and address the issues they encounter. While the international community formed the context for this study, it was felt that this lacked a definitive boundary

so was not suitable to represent a system of interest and investigation when undertaking case study research (Stake, 1995). Therefore, a bounded case study that offered access to a relevant group of business analysts was considered necessary to provide a context for exploring the business analyst role and business analysis work practices. This led to the selection of the Business Analysis Manager Forum (BAMF) as the case; the BAMF is described in the next section.

### **5.3 The Business Analysis Manager Forum (BAMF)**

The BAMF is an information-sharing and networking forum for senior and managerial business analysts. These business analysts have high levels of expertise and extensive experience of business analysis work. Therefore, the BAMF can offer access to an extensive network of senior business analysts.

The researcher has been involved with the business analysis community in a professional capacity, for many years. This has involved performing business analysis work within the UK and, on occasion, internationally. The researcher was a founding member of the BAMF and is currently a BAMF director. Consequently, the BAMF was a logical choice when considering the case to be researched for this study.

Permission to work with BAMF members was requested, and obtained, from the Managing Director of the BAMF. Some of the mini-cases were nominated by the Head of Business Analysis for their organisation; others were identified directly by the researcher. In all cases, the criteria defined in sub-section 5.4.1 were applied to select and confirm the participants.

This section describes the BAMF case study for this research project. The case study description uses the following structure:

- The origin: why was the BAMF formed and who founded it?
- The membership: who is involved with the BAMF?
- The activities and products: what work is done by the BAMF?
- The events: when and where are BAMF meetings held?

#### **5.3.1 The origin of the BAMF**

The Business Analysis Manager Forum (BAMF) was set up in 2008 with the aim of providing a networking forum for business analysts with managerial responsibilities. The idea for the BAMF originated during a seminar attended by a group of senior business analysts. This group identified that many business analysts occupied managerial roles but did not have regular opportunities to meet and discuss issues relevant to their work.

The initial meeting was hosted by an organisation that employed business analysts at a senior level; twelve business analysis managers attended this meeting. The BAMF continued to hold meetings whereby one of the member organisations provided the venue and refreshments, however, it became clear that this model was not sustainable as interest in the BAMF was growing rapidly. In May 2011, the meetings were formalised and involved organised presentations and discussions. Further, they were held at hired venues unless a member organisation could provide a similar standard of facilities.

The formalisation of the BAMF also involved setting it up as a legal entity with a governing board of directors and a managing director. This resulted in the BAMF having a legal status as a not-for-profit private company limited by guarantee. The date of incorporation is 30 August 2012.

### **5.3.2 The membership of the BAMF**

Membership of the BAMF is granted to anyone who has a leading role within the Business Analysis Practice for their organisation. Business analysts represent their organisations within the BAMF and become members either by invitation from the Managing Director or following the Managing Director's acceptance of a request to join.

The BAMF membership has grown quickly since 2008 and currently, there are 375 members on the BAMF mailing list, representing over 200 organisations across the UK. There are also three member organisations based in The Netherlands.

The member organisations of the BAMF represent the private, public and not-for-profit economic sectors in the UK. The three organisations from The Netherlands are all from the private sector. The business domains covered by the BAMF organisations include financial services, banking, manufacturing, utilities, professional services, transport and retail. The Government domains include education, health, work and pensions, and defence.

The individual members of the BAMF all have managerial responsibilities but are at different levels of seniority. For example, some members lead Business Analysis Practices that number several hundred business analysts; others may have responsibility for small teams of two or three business analysts. However, they are all highly experienced in business analysis and are interested in discussing a broad spectrum of related issues. These are reflected in the BAMF website which contains records of sessions held during the BAMF meetings since May 2011. An analysis of these topics is shown in sub-section 5.3.4 below.

The BAMF Managing Director takes care to ensure that member organisations send representatives who work as senior or managerial business analysts to the BAMF events.

Less experienced business analysts are not permitted to attend as the discussions are intended to be relevant to more senior colleagues. This is considered by the BAMF Directors to be essential if the discussions are to align with the expectations of the event participants.

### **5.3.3 The activities undertaken by the BAMF**

The activities undertaken by the BAMF are determined by the members. To date, these have included the following:

- Networking events: the BAMF runs an event every six months<sup>6</sup>. Each BAMF event lasts half a day during which time BAMF members run interactive workshops that offer discussion and learning about topical business analysis issues. Each event ends with a networking lunch. Numbers attending the events have increased consistently since the inception of the BAMF in 2009. Recent events, including one in June 2017, were attended by over 150 members. The format and content of these events are discussed in further detail in sub-section 5.3.4 below.
- White papers: the BAMF membership produces papers that cover topics relevant to the members and their organisations. Examples<sup>7</sup> of such papers are: 'To be or not to be Agile', 'Embedding new working practices' and 'Measuring BA performance'.
- Qualifications: the BAMF was concerned that the primary business analysis qualifications, the BCS International Diploma in Business Analysis and the IIBA Certified BA Practitioner, did not recognise the extensive levels of expertise offered by many BAMF members. Accordingly, a working party was established in October 2012 to define a certification that would provide such recognition. The Expert BA Award was launched in 2013 with the endorsement of BCS and the Chartered Management Institute (CMI)<sup>8</sup>. BAMF members also assisted the development of the BCS Advanced International Diploma in Business Analysis<sup>9</sup>.
- Apprenticeship scheme: several organisations involved with the BAMF identified that the UK Government initiative on professional apprenticeships<sup>10</sup> provided an opportunity to define an IS business analyst apprenticeship scheme. A working

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<sup>6</sup> <http://www.bamanagerforum.org/events/>

<sup>7</sup> <http://www.bamanagerforum.org/information/>

<sup>8</sup> <http://www.bamanagerforum.org/the-expert-ba-award/>

<sup>9</sup> <http://certifications.bcs.org/category/18430>

<sup>10</sup> <https://www.gov.uk/topic/further-education-skills/apprenticeships>

group was set up within the BAMF to develop the standard for this apprenticeship scheme. Member organisations involved in this project<sup>11</sup> were from the public and private sectors, and included Allianz Insurance, Assist Knowledge Development Ltd, NHS Digital, Zurich Insurance and the Department of Work and Pensions.

The apprenticeship was launched by the UK Government on 31 March 2017.

The networking events described earlier provide the primary means of organising BAMF initiatives such as the development of white papers and qualifications. However, informal discussions, workshops and meetings are held in addition to the networking events where there is a particular activity or initiative underway. The development of the IS Business Analyst Apprenticeship standard is an example of such an initiative; individual BAMF members, representing organisations with an interest in such a scheme, collaborated to develop the standard by communicating outside the networking events.

### 5.3.4 The BAMF events

The BAMF events are organised by the Managing Director and other directors, with support from individual BAMF members. The members suggest topics for discussion at forthcoming events and may volunteer to facilitate a session.

The session topics since May 2011 have been analysed and categorised in order to provide insights into the nature of the discussions. Table 5.1 below sets out the major categories with examples of the topics discussed within each category.

**Table 5.1: Discussion topics at the BAMF since May 2011**

<b>Professional</b>	<b>Managerial</b>	<b>Business</b>	<b>Qualifications</b>
Dealing with ambiguity/risks	BA Capability frameworks	Consulting models	Expert Business Analyst Award
Business architecture	BA competences	Business acumen	Advanced Diploma in Business Analysis
Requirements tools	Career development	Remote working practices	
Agile	Measuring performance	Branding and marketing	

<sup>11</sup> <https://www.gov.uk/government/publications/apprenticeship-standard-is-business-analyst-approved-for-delivery>

NLP for business analysts	Recruitment/resourcing		
Embedding change	BA Practice maturity		
Customer experience	Coaching		
Strategic change	Team development		
	Apprenticeships		

These topics reflect the breadth of concerns of the BAMF members and highlight that managerial issues are highly relevant. The topics also reflect the seniority of the BAMF members as they cover strategic and architectural aspects of the business analyst role. The depth and breadth of expertise offered by the BAMF members was very important for this research project as discussed in the next section.

## 5.4 The BA specialists

The case study design, described in chapter four, involved the investigation of the BAMF case through interviews with embedded sub cases, known as ‘mini-cases’ (Stake, 2006). These embedded mini-cases are individual business analysts working within a BAMF member organisation. It was important that the business analysts were able to provide in-depth insights into business analysis and tell their ‘stories’, as advocated by Stake (1995). These narrative accounts needed to be based upon tangible experience of IS projects if they were to help uncover answers to the research question and address the research objectives.

In the light of these requirements, it was essential that the mini-cases were highly experienced and knowledgeable business analysts. This was aided by the selection of the BAMF as the case study as the members were automatically senior business analysts. However, additional specific criteria were determined and applied in order to ensure that there was consistency of selection of the mini-cases. These criteria were derived from the literature as discussed in sub-section 5.4.1.

### 5.4.1 The selection of the BA specialists

Purposive sampling (Sekaran and Bougie, 2009) was used to select the mini-cases – the BA specialists – as this is often used in qualitative studies and involves the selection of participants ‘on the basis of expertise in the subject that is being investigated’ (Sekaran and Bougie, 2009, p.297). It is also important to ensure that the selected subjects reflect the target population that they represent. Eisenhardt and Graebner (2007, p.28) suggest that mini-cases should be ‘highly knowledgeable informants who view the focal phenomena



from diverse perspectives'. Given the requirement for informants to possess extensive knowledge and expertise, specific criteria were applied when selecting the mini-cases. Three criteria have been defined that may be used to identify an 'expert': knowledge, decision-making role and experience (Abraham et al., 2013). These three criteria were used to select business analysts who could offer the range of experiences and levels of insight required for this study. The criteria were adapted as follows:

- Knowledge: each of the mini-cases was required to hold certifications in business analysis. These certifications were awarded by organisations such as BCS, the Chartered Institute for IT (BCS) and the International Institute of Business Analysis (IIBA).
- Decision-making role: each of the mini-cases were required to have been identified as conducting business analysis in a senior or managerial capacity.
- Experience: 10 years or more experience in a given domain is an indicator of expertise (Ericsson et al., 2007) as are knowledge and experience of factors specific to the specialist domain (Dutta et al., 2013). Each of the mini-cases were required to have had a minimum of 10 years' experience of business analysis work.

The 'expert' criteria (Abraham et al., 2013) provided a rigorous foundation for the selection and ensured that there was an underlying replication logic inherent in the research (Yin, 2008).

These criteria were used to identify BAMF members who would be the mini-cases within this study and would be able to provide insights into business analysis across a range of contexts. These BAMF members were designated 'BA specialists' for the purposes of this study. Four specialist business analysts were selected by their managers and, in these cases, the criteria were communicated to the managers to ensure that they were applied. The interview questions were also developed to incorporate confirmation that the criteria were met. This approach enabled the selection of BA specialists who would be representative of the BAMF member organisations and their business analysis work.

#### **5.4.2 Profiles of the BA specialist mini-cases**

Careful selection of the mini-cases was important if rich data was to be obtained that was cross-sectional and could illustrate business analysis work across a range of organisations and a variety of project experiences.

The twenty mini-cases were deemed to fulfil the criteria defined earlier in this chapter and were selected representatives of BAMF organisations. Sixteen mini-cases were approached directly by the researcher, four mini-cases were nominated by their Business Analysis Practice Manager. Summary characteristics of each mini-case are summarised in table 5.2. An individual profile for each of the mini-cases is available in Appendix A.

**Table 5.2: Summary profiles of the twenty mini-cases**

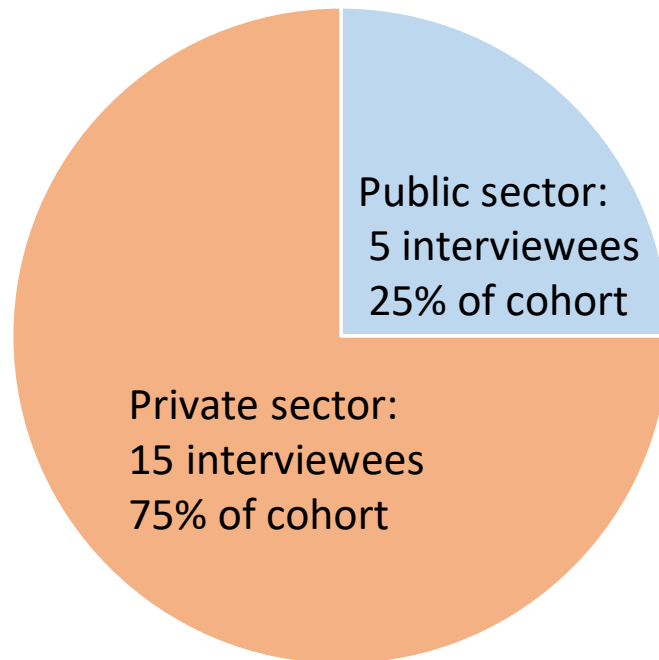
<b>Interview number</b>	<b>BCS oral examiner?</b>	<b>Business domain</b>	<b>Years of experience</b>	<b>Job title</b>
1	Yes	Consultancy services	13	Principal Consultant
2	Yes	Government: Security	17	Senior business analyst
3	Yes	Banking	14	Senior Lead Business Analyst
4	No	Tax and audit	10	Lead Business Analyst
5	No	Financial services	10	Business Analyst
6	No	Financial Services	10	Business Analyst
7	Yes	Financial services	15	Senior Business Analyst
8	Yes	Banking	30	Senior Business Analyst in Architecture, Methodology and Innovation
9	No	Government: Health	10	Principal Business Analysis Manager

10	No	Energy and utilities	20	Business Analysis and Solution Architecture Manager
11	No	Energy and utilities	13	Business Analyst
12	No	Energy and utilities	10	Senior Business Analyst
13	Yes	Retail	18	Business Analyst
14	No	Consultancy services	13	Managing Consultant
15	Yes	Consultancy services	20	Consultant
16	No	Government: Health	13	Service Improvement Manager
17	No	Government: Education	13	Business Analysis Manager
18	Yes	Consultancy services	25	Business Consultant
19	Yes	Consultancy services	11	Principal Consultant
20	No	Government: Justice/ Defence	20	Business Architect

It was also essential to ensure that, collectively, the business analysts were able to discuss business analysis experiences across a range of IS projects and business domains.

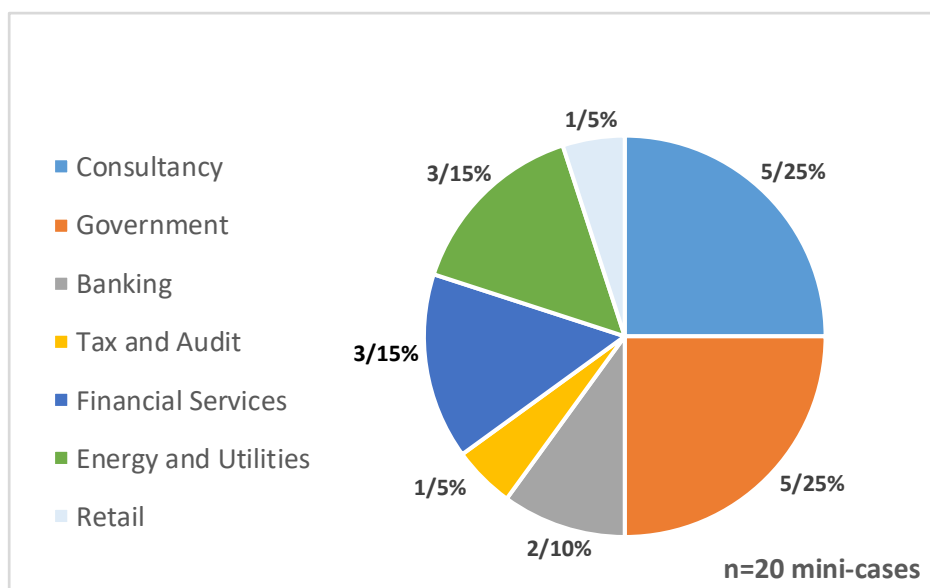
Therefore, the mini-cases were selected from BAMF organisations from both the public and private sectors; the proportion of sector representation is shown in Figure 5.1 below.

Figure 5.1: Mini-cases: sector representation



The mini-cases were also selected such that they were able to provide insights into business analysis work across a variety of business domains. Some of the mini-cases were involved in the wider business analysis community, for example, they were BCS examiners or IIBA branch members. This engagement with business analysis in different contexts also helped to enrich the observations that they could offer. The range of business domains within which the mini-cases were employed and the relative percentage representation is shown in Figure 5.2.

Figure 5.2: Business domain representation across mini-case cohort



The combination of the criteria used during selection and the focus upon obtaining participation from a wide range of organisations, ensured that the mini-cases were able to provide information that supported the requirements of the four dimensions of the conceptual framework discussed in chapter three. Specifically:

- Context for business analysis work: the mini-cases were from a range of organisations so were able to provide information across different sectors of the economy, business sectors and geographical locations. The size of their organisations, and the number of business analysts employed within the organisations, also differed. This was a deliberate approach to help ensure that data was collected from different organisational contexts.
- Content of business analysis work: the mini-cases had each worked as business analysts for a minimum of 10 years. Therefore, they were able to describe experiences from several IS projects and could provide information about the nature of business analysis involvement across these projects.
- Process for business analysis work: the mini-cases all held relevant qualifications. The requirement that they had certified knowledge of business analysis was considered necessary to ensure there was a professional basis underpinning the observations and comments provided in response to the questions regarding business analysis practice. Each mini-case also engaged with other business analyst practitioners both within their internal business analysis practice and across the external business analysis community (through attending events held by organisations such as the BAMF, BCS and IIBA). This engagement enabled the mini-cases to offer observations regarding the project experiences of other business analysts working in different organisations and contexts.
- Outcomes from business analysis work: the mini-cases had each undertaken business analysis for over ten years and, as such, had worked on a variety of IS projects across many organisations. This range of business analysis experience enabled the discussion of the desired and achieved outcomes from IS projects.

## **5.5 The data collection interviews**

The research question and objectives were concerned with the role of the business analyst, business analysis practice and the potential value business analysis offers to IS projects. Data was collected during interviews with the mini-cases in order to conduct empirical research that would address the research question and objectives.

### 5.5.1 Rationale for conducting semi-structured interviews

Semi-structured interviews had been selected as the data collection technique for the following reasons:

- It is a recognised approach that is relevant to collect views, observations and beliefs regarding a specific construct (Easterby-Smith et al., 2012).
- It enables the researcher to adapt the questions asked of each interviewee. For example, by deciding whether to pursue or discard areas during an interview (Easterby-Smith et al., 2012).
- It provides a means of building trust and gaining the confidence of interviewees, thereby helping them to be candid in offering their opinions and insights (Sekaran and Bougie, 2009).

The interviews were semi-structured in order to allow for adaptability during the interviews. This adaptability was required to allow the mini-cases to tell their 'stories' (Stake, 1995) and offer the insights and observations they considered valuable.

In total, semi-structured interviews were conducted with twenty mini-cases, three during the pilot study and seventeen during the full study. They were selected in line with the criteria defined in sub-section 5.4.1. Each of the interviews was recorded and transcribed. The transcriptions were stored using the Nvivo software package and were analysed to identify codes and emergent themes. Template analysis (King, 2004b) was used as a basis for the data analysis. The data analysis process is described in section 5.6 of this chapter.

It is recommended that a checklist of questions, sometimes known as an interview protocol (Saldana, 2011), should be developed in advance of semi-structured interviews. This was done as part of the interview preparation and is discussed in sub-section 5.5.2 below.

### 5.5.2 Definition of the question checklist for the pilot study

The initial question checklist was designed for the pilot study. It was based upon the original research question and supplementary questions, and the dimensions of the conceptual framework. The overarching research question for the pilot study was:

***'How does business analysis contribute to the success of information systems projects?'***

Supplementary questions were also defined:

- Do business analysts provide the bridge between the business and IT systems and, if so, how do they do this?
- How do business analysts define needs and recommend solutions that deliver value to stakeholders?

The conceptual framework was used to define the question checklist as follows:

- **Context:** the context for the business analysis work conducted by each mini-case. The questions relating to the context concerned both the organisational and personal contexts. The organisational context questions were designed to confirm the business sector within which the mini-case worked and the location of the business analysis work within the organisation. These questions were included in order to confirm the diversity of the representation of mini-cases and to identify whether the mini-case worked within an IS function. The personal context questions were included in order to confirm the certified knowledge of the mini-cases as required by the selection criteria defined in sub-section 5.4.1.
- **Content:** The content questions aimed to uncover the nature of the business analysis work conducted by the mini-cases. They enabled the mini-cases to tell their personal stories and make observations about the projects on which they had worked, the role of the business analyst and the characteristics of business analysis practice.
- **Process:** These questions were designed to elicit further insights into business analysis work through encouraging discussion about activities undertaken and approaches used. Questions were also included that concerned activities conducted by colleagues. The questions regarding skills and techniques were asked for two reasons 1) to elicit information regarding the skills utilised by business analysts, and 2) to identify specific techniques used within business analysis and, from their application, gain further insights into the business analysis activities.
- **Outcomes:** During the pilot study, this dimension focused on the contribution of business analysis so questions were asked from several perspectives. The questions were designed to reflect different perspectives on IS project success. For example, the contribution of business analysis to the value, benefits and risks associated with IS projects. The contribution to value delivery was asked in the light of the IIBA definition of business analysis (IIBA, 2015).

The strategy for the interviews involved asking open-ended questions (Sekaran and Bougie, 2009) where possible. The interview questions were designed to be open so that the mini-cases were encouraged to express their views and provide rich information about their experiences. Open questions and the semi-structured nature of the interviews allowed for the exploration of emergent ideas and constructs (Eisenhardt and Graebner, 2007). This was felt to be particularly important when researching business analysis from a relativist/interpretivist philosophical perspective.

Some of the questions were factual, particularly in the context dimension. Others were based upon the 'stories' regarding the mini-cases' work experiences and enabled the researcher to get a sense of the mini-cases' values and frustrations as well as their descriptions of their business analysis work.

The question checklist for the pilot study is shown in table 5.3 below.

**Table 5.3: Question checklist for the pilot study**

<b>Conceptual Framework dimension</b>	<b>Interview questions</b>
<b>Context: Organisation</b>	<ol style="list-style-type: none"> <li>1. What is the nature of the work of your organisation?</li> <li>2. Which business sector does your organisation operate within?</li> <li>3. Which department or business function are you employed within?</li> </ol>
<b>Content: Personal</b>	<ol style="list-style-type: none"> <li>4. Do you have any academic qualifications that are relevant to your business analysis career?</li> <li>5. Do you have any professional qualifications that are relevant to your business analysis career?</li> </ol>
<b>Content</b>	<ol style="list-style-type: none"> <li>6. How long have you worked as a business analyst?</li> <li>7. Please describe the career path you took that resulted in you becoming a business analyst.</li> <li>8. Please provide some examples of the types of projects you have worked on as a business analyst</li> </ol>
<b>Process</b>	<ol style="list-style-type: none"> <li>9. Please describe the business analysis activities you performed on these projects.</li> <li>10. Why did you perform these activities?</li> <li>11. Are there any other activities conducted by business analysts within your organisation?</li> <li>12. Which skills and techniques did you use in performing these activities?</li> </ol>



	13. Are there any other skills you feel are required to perform business analysis activities?
<b>Outcomes</b>	<p>14. How would you define 'business analysis'?</p> <p>15. What is the place of business analysis within the business change process?</p> <p>16. How does business analysis bridge the business and IT systems?</p> <p>17. What are the challenges facing business analysts?</p> <p>18. What are the typical outcomes or deliverables from business analysis activities?</p> <p>19. What are the possible risks to business change projects if business analysis activities are not performed?</p> <p>20. What are the potential benefits delivered from business analysis activities?</p> <p>21. In your opinion, how does business analysis help organisations to deliver value to their stakeholders?</p>

The question checklist is intended to be a guide during a semi-structured interview but may be adapted during the interview process (Easterby-Smith et al., 2012). For example, it may be necessary to prompt interviewees under certain circumstances, such as where they have 'dried up' or veered off topic. Very few prompts were used during the interviews with the mini-cases. Where they were offered, it was because there appeared to be a contradiction or ambiguity in an answer, or if a mini-case could not remember a term.

The questions were reviewed following the pilot study and were extended in the light of the revised research question and the definition of the research objectives.

### 5.5.3 The pilot study interviews

The pilot study comprised interviews with three mini-cases and was conducted in order to evaluate the research design and the conceptual framework within the context of the research questions. These interviews were conducted on a one-to-one basis between October 2014 and December 2014 and lasted up to 50 minutes each. Two of the interviews were conducted in person; one was conducted online using Skype. The online interview was required as the mini-case was based in Cardiff and it was not possible to arrange to meet in person. The Henley Business School Ethical Approval Process was followed with each mini-case. The pilot study elicited data regarding the perspectives and experiences of three mini-cases and served to confirm the following:

- The application of the research design. The use of the conceptual framework and a cross-sectional case study design proved valid as a means of exploring the work

conducted by business analysis professionals, and enabled the collection of rich data across a range of organisations and IS projects.

- The application of the knowledge, decision-making and experience criteria as a valid means of selecting the BA specialist mini-cases.
- The use of semi-structured interviews. This offered a strong foundation for eliciting rich data across the four dimensions of the conceptual framework: context, content, process and outcomes. The data was factual, based on experiences and observations; this combination provided a basis for reflection and the development of insights.

The analysis of the pilot study data is discussed in sub-section 5.6.1 below.

#### **5.5.4 The full study interviews**

Following the pilot study, interviews with another seventeen mini-cases were organised in order to collect the additional data required for this study. The Henley Business School Ethical Approval Process was again followed with each participant. These interviews were also semi-structured and an interview checklist was prepared in advance of each interview. The interviews were conducted between November 2015 and November 2016.

Each interview was conducted on a one-to-one basis and lasted approximately one hour; the dates and durations of the interviews are listed in Appendix B. All interviews were conducted 'face to face' with some taking place in person within an office environment and others conducted online using Skype. Online interviews were required for some participants due to their work locations. For example, one mini-case was based in the north of England; another worked on a secure site where access was limited.

The interview questions used during the pilot study were reviewed in the light of the findings that emerged during the pilot study, and were revised accordingly. The conceptual framework for this study, discussed in chapter three, was again used to define and structure the interview questions. The revisions made to the questions were in the following areas:

- **Context:** The organisational context questions were extended to elicit information regarding the governance structure for the business analysis work, the organisational attitude to business analysis and the level of maturity of the business analysis function.
- **Content:** It was decided to ask more specific, although still open-ended, questions regarding the types of project the mini-cases had encountered. A more detailed review of the extant literature was conducted in the light of the pilot study findings

regarding business analysis. This led to the application of service science theory as discussed in chapter three so raised the issue of value proposition. The bulk of extant literature that aligned with the pilot study findings on business analysis was found to originate from practitioner sources (Blais, 2011; IIBA; Paul et al., 2010) and the data analysis had identified the issue of role definition with regard to business analysis. As a result, it was decided to ask the mini-cases open questions regarding the role of the business analyst.

- **Process:** The process questions were extended to explore this area in further depth by defining questions that were in sub-categories: approaches, skills and challenges. The range of possible standards used in business analysis had been identified during the literature review so specific questions were introduced regarding standards. The skills were addressed using the personal qualities, business knowledge and professional techniques categorisation provided by Rollason (2014). The challenges facing business analysts were also extended following the analysis of the pilot study data as there appeared to be particular challenges of concern to the business analysts.
- **Outcomes:** The outcomes questions were extended and structured into specific categories. Again, this was influenced by the findings from the pilot study where the mini-cases had made some broad assertions about the contribution of business analysis to the success of IS projects. The revised checklist provided questions that focused on specific aspects regarding 'success'. Questions were derived from models used to evaluate IS success (DeLone and McLean, 2003; Nelson, 2005) and the Benefits Dependency Network (Peppard et al., 2007; Ward and Daniel, 2012). The nature of value was also discussed within this section, again, following the adoption of service science within the conceptual framework for this research.

The interviews were conducted in small sets, typically three or four mini-cases within a short timeframe, in order to allow for analysis and reflection during the interview process. As a result, the question set was further developed in line with the reflections and findings from the analysis. The final set of questions used during the interviews is shown in Appendix C.

The seventeen interviews for the full study were recorded and the recordings were transcribed. The transcripts were stored using the Nvivo software package. The interview transcripts for all twenty interviews (pilot and full study) were analysed to identify codes and emergent themes. Template analysis (King, 2004b) was applied to the data once

again. The set of codes from the pilot study were used, in conjunction with the question checklist, to derive the initial template. The data analysis process is described in the next section.

## **5.6 The data analysis process**

The aim and objectives of this study are to clarify the role played by business analysts within IS projects and define value propositions for business analysis work that contribute to IS success. The data for this research project was collected over a period of three years through semi-structured interviews with twenty mini-cases. The case study method and the mini-case construct (Stake, 2006) were applied to explore multiple units of analysis within the BA Manager Forum (BAMF) case. Interpretative data analysis is concerned with searching for patterns that reflect how different elements are related to each other (Stake, 1995); this was the philosophy that underpinned the data analysis. In this research, the experiences of the individual business analysts across the range of organisational and project contexts were analysed and compared. The identification of related constructs across different cases, or mini-cases within this study, supports the inductive development of theory (Eisenhardt and Graebner, 2007).

The data analysis for this research was conducted in two parts: during the pilot study where the data collected from the first three interviews was analysed and, subsequently, during the full study when the data collected from the remaining seventeen mini-cases was analysed. An iterative approach was applied during the data analysis and, during the full study, the data from all twenty mini-cases was subject to iterative cross-case analysis. The data analysis was concerned with the exploration of the experiences and beliefs described by the mini-cases in order to consider how they align with, contradict or extend the literature pertaining to business analysis and the established frameworks for evaluating and enabling IS success.

The data analysis process is discussed in further detail in the rest of this section.

### **5.6.1 Data analysis during the pilot study**

The pilot study aimed to validate the research design for this study. The data collection process applied during the pilot study is described in section 5.5. Template analysis (King, 2004b) was applied during the data analysis process to look for meanings within the transcripts of the interviews with the mini-cases.

The codes were reviewed both within each transcript and through comparison with the data from the set of three transcripts. Patterns were sought that helped to understand the research question for the pilot study which was:

***'How does business analysis contribute to the success of information systems projects?'***

The context, content, process, outcomes structure from the conceptual framework was applied during this analysis as this helped to organise the codes identified in the transcripts. The themes identified within this structure were as follows:

- Context themes concerned the attitude of the employing organisation to business analysis, the extent of the mini-cases' experience of business analysis and the qualifications they held.
- Content themes concerned uncertainty regarding the role of the business analyst and the types of projects experienced by the mini-cases.
- Process themes concerned the three skill categories for business analysts: personal, technical and business skills.
- Outcome themes concerned the mini-cases' perceptions regarding the contribution of business analysis to the success of IS projects.

There were two key findings from the data analysis:

- The attitude of organisations towards business analysis. The data revealed that the recognition of business analysis may vary between organisations and this may impact upon the contribution of business analysts to IS projects. This highlighted the need for further research into the theme of organisational attitudes to business analysis.
- Cross-case analysis (Stake, 2006) highlighted the theme that business analysis was said to offer a significant contribution to successful project outcomes. This highlighted the need to research business analysis and IS success.

The results of the pilot study were used to initiate the full study. The pilot study results were used to further develop the question checklist, as discussed in sub-section 5.5.2.

Template analysis (King, 2004b) was used during the data analysis for the full study and the question checklist that emerged from the pilot study provided a basis for the development of the initial full study template. The data analysis for the full study is discussed in the next sub-section.

### 5.6.2 Data analysis during the full study

The research question was reviewed following the pilot study, resulting in a revised research question as follows:

***‘What are the services, work practices and value propositions offered by business analysis within the context of IS projects?’.***

The following sub-questions provide clarification of each element of the research question:

- What are the services offered by business analysts and what activities do they perform when providing these services?
- How do business analysts conduct business analysis work?
- Why is business analysis relevant and useful to IS projects?

The following objectives provide a basis for answering the research question and sub-questions, and for clarifying the outputs to be delivered by this study:

- RO1. The role (what is done): identify a set of clear, distinct services that business analyst practitioners provide to their organisations and list the activities that business analyst practitioners undertake in order to offer these services.
- RO2. The work practices (how business analysis is conducted): construct a taxonomy of the standard techniques, models and skills that should be used to perform the business analysis activities effectively.
- RO3. The rationale (why business analysis is required): provide a clear and accessible definition of the value proposition for each business analysis service in order to explain why the service may be beneficial to the organisation.

Template analysis was applied in order to analyse the data and address the research question and objectives for this study; this is described in the remaining sub-sections for this section.

### 5.6.3 Template analysis

Template analysis is said to be ‘located at the interface’ between content analysis and grounded theory (Easterby-Smith et al., 2012, p.165) so combines pre-defined codes with ongoing modification throughout the data analysis. This approach is relevant in qualitative research (King, 2004b) and aligns with an interpretivist philosophy. It enables the use of *a priori*, deductive codes that are then extended by the addition of inductive codes as themes

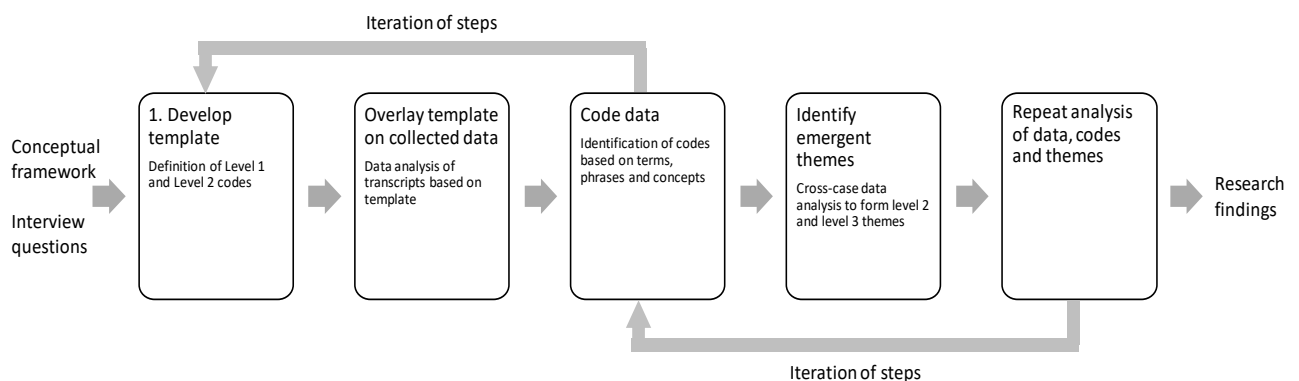
emerge during the data analysis (Miles et al., 2013). Template analysis aligns with an interpretivist philosophy and is said to be a flexible technique that does not prescribe steps for data collection and analysis (King, 2004b). It is relevant to this research as it supports the exploration of different perspectives and the analysis of experiences across the mini-cases.

The *a priori* codes developed for use during the template analysis were overlaid on the data in order to explore interrelationships and build hierarchies. Template analysis was selected for this research because a hierarchical approach aligned well with the conceptual framework and the research objectives. Hierarchical coding is a 'key feature of template analysis' (King, 2004b, p.258). The four dimensions of the conceptual framework – context, content, process, outcomes – were each explored through the decomposition and generation of lower level codes for each dimension.

#### 5.6.4 The template analysis process applied during the full study

The overview process adopted for the template analysis during the full study is illustrated in Figure 5.3.

**Figure 5.3: The template analysis process used for this research**



This was a highly iterative process comprising the following steps:

- The development of the initial template.
- The application of the template to the collected data.
- The extension of the template through data coding.
- The identification of emergent themes within the data.
- The review of the hierarchy through iterative data analysis both within and across the mini-cases.

These steps, as shown in the process represented in Figure 5.3, are described in further detail below.

### 5.6.5 The development of the initial template

The interview question set utilised during data collection formed the basis for creating the initial template. Template codes were identified from the question set to provide an initial means of analysing the collected data. The template codes were structured using the conceptual framework – context, content, process, outcomes – and were formed in a two-level hierarchy. The initial template included a set of level one and two codes which provided a direction and focus for the data analysis. The initial template content is shown in table 5.4.

**Table 5.4: Initial data analysis template**

<b>Model</b>	<b>Level one code</b>	<b>Level two code</b>
<b>Context</b>	Organisation	Nature of work
		Sector
		Governance
		Attitude
	Personal	Career entry
		Qualification
		Years as BA
	<b>Content</b>	BA role
Project type		
BA activity		
<b>Process</b>	Standard approach	
	Technique	
	Skill	Business
		Personal
		Analytical



	Tool	
	Challenge	
<b>Outcomes</b>	Risk	
	Benefit	
	Value	

The interview questions were revised during the research process and the data analysis template in table 5.4 was extended accordingly. An extended version of the template is provided in table 5.5 below.

### 5.6.6 The application of the template to the collected data

The interview transcripts were stored as data sources in the NVivo software application. Nvivo offers functionality that enables the researcher to record, report and analyse data. The template was set up in Nvivo as a set of nodes that aligned to the *a priori* codes for the data analysis process. The Nvivo node structure provides a means of defining a hierarchy so a hierarchical structure was defined in line with the initial data analysis template in table 5.4. This structure was used to analyse the interview transcripts by examining them for incidence of text that aligned with the *a priori* codes. The transcripts were read and reflected upon in order to identify text where each code could be identified and allocated. This approach enabled the researcher to undertake interpretive analysis in the light of the pre-defined template.

This process formed the 'first-pass' through the data and was conducted upon each interview transcript. The template within Nvivo evolved during the data analysis process, as described in the next sub-section. Each subsequent interview was subject to an initial analysis based upon the latest version of the template.

### 5.6.7 Extension of the template through data coding

Once the template had been applied to an interview transcript, further analysis of the interview responses was conducted. Coding was applied to each interview transcript in order to identify additional concerns and insights. A mix of coding methods, including descriptive and process coding (Miles et al., 2013), were used to code the transcripts. The data coding was recorded in Nvivo and each additional code was positioned where it was felt most appropriate within the coding hierarchy. Some codes were added to the existing template at

level one or level two, however, additional codes were also identified within the data that extended the template hierarchy to a third level. Using this approach, the template was developed iteratively to capture the concepts, processes and meanings identified within the data. A selection of the codes from the template data part-way through the research process is shown in table 5.5.

**Table 5.5: Example codes from extended template applied during data analysis process**

<b>Model</b>	<b>Level one codes</b>	<b>Level two codes</b>	<b>Level three codes</b>
<b>Context</b>	Organisation	Practice	Governance Maturity Recognition Size
	Personal	Career path Qualifications Years as BA	
<b>Content</b>	BA role	Translating Systems Analysis Dealing with people Breadth of role Achieving outcomes	
	BA activity	UAT Transition Team development Stakeholder liaison Requirements Definition Process improvement Post implementation Planning Feasibility Business transformation	

<b>Process</b>	Skill	Personal	Challenging Communicating Convincing Negotiating Problem-solving
		Technique	Focus Groups CATWOE/ Stakeholder Maps Force-Field Analysis Problem definition User Stories/ Personas Environment Analysis Process modelling Data modelling Workshops/ facilitation
<b>Outcomes</b>	Risk	Competitive advantage Costs Decisions Lack of BA Regulation Technology	
	Benefit	BA involvement	

		Organisational capability	
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The process of allocating codes to pieces of text may be referred to as first cycle coding (Miles et al., 2013); second cycle coding is concerned with analysing the codes and the data to uncover patterns or themes. This was the next stage applied within the data analysis process and is described in sub-section 5.6.8.

### 5.6.8 Identification of emergent themes within the data

The codes allocated to the data were analysed to uncover patterns that revealed themes relating to the research question and objectives. Cross-case analysis of the mini-cases was used to further analyse the codes and confirm the emergent themes. Each code was analysed using features offered by the Nvivo software to look at the range of perspectives provided with regard to that particular area. The set of perspectives provided data that enabled reflection and interpretation. Synergies, contradictions and insights were considered during this reflection. A relativist ontology guided this research and was essential during the data analysis as it ensured that the data analysis considered the different perspectives and the context from which they were derived.

All of the mini-cases were BA specialists but each one had different experiences and perspectives. Establishing patterns of opinion, related experiences and contrasting ideas, was fundamental to uncovering the root causes of any issues facing business analysis and addressing the research question and objectives. These patterns and relationships were summarised into key themes from which assertions were derived and theory was developed. These are discussed further in chapters six and seven.

Possible relationships between themes also emerged. For example, concerns were expressed about a lack of recognition of business analysis and the data analysis suggested that this may be related to the lack of clarity of the business analyst role.

During this second cycle analysis, it was also important to review the codes and aggregate them. This was necessary to aid understanding and analysis, and also to help develop conclusions from the data. For example, within the Process dimension of the conceptual framework, an extensive set of techniques were identified by the mini-cases with many techniques being identified by several mini-cases. Initially, each technique was allocated an individual code, however, when reviewing these codes, it became evident that it was possible to group techniques according to the rationale for their use. For example, one group concerned different techniques and approaches used in business process modelling.

Similarly, the original set of codes relating to the business analysis role were reviewed following the application of a theoretical lens to the data and themes. For example, a level two code within the Process dimension concerned the activities conducted by business analysts. This code has been included in the original template having been derived from the question checklist. The coding process had resulted in a summary list of activities which were then reflected upon from a service viewpoint. The detailed comments offered by the mini-cases were also revisited and were subject to further reflection during this process. This analysis led to the development of a service offering that encompassed the range of business analysis work and provided a basis for defining the business analyst role. An example of one of the services identified during this stage is *Business process improvement* which was identified through:

- The inclusion of 'Modelling processes' as a business analysis activity.
- The inclusion of 'Process improvement' as a project type experienced by some mini-cases.
- The inclusion of value propositions relating to efficiency, holism and innovation.

It was also the case during this analysis that some codes were deemed less relevant to the context of this research. One example concerned the codes relating to the use of tools in business analysis. The data collected in this area did not yield significant findings or help to address the research question, other than to identify that there are numerous tools in use and only one was said to have a significant level of usage. Therefore, there are few conclusions to be drawn in this area.

### **5.6.9 Iterative analysis of data and codes**

An iterative approach was used to revisit the data and the coding. The interview transcripts were revisited as the theory began to emerge in order to ensure that all relevant data had been included in the analysis and that the emergent themes were robust. The iterations resulted in the identification of further codes which were then subjected to detailed analysis. This approach resulted in the emergence of new themes, usually at level two but sometimes at level one. The analysis of the data continued throughout the research project. However, once the individual transcripts had been analysed thoroughly, the research focused on the cross-case analysis facilitated by the Nvivo node structure and query functionality. Iterative cross-case analysis also continued throughout the triangulation and validation of the research outcomes.

### **5.6.10 Construction of the Business Analysis Service Framework**

The data analysis process applied an interpretive epistemology in order to uncover patterns and themes in the data collected from the mini-cases. The themes were then used to construct a taxonomy setting out the services, value propositions, techniques and skills of business analysts; this was named the Business Analysis Service Framework (BASF). The T-shaped professional construct (Spohrer and Maglio, 2010) was also applied to the data regarding business analysis skills, and used to define a Business Analyst T-shape.

The BASF and Business Analyst T-shape were subject to data source triangulation and validation. This is described in the following two sections.

## **5.7 The triangulation process**

The aim of triangulation is to corroborate or clarify the research findings (Stake, 1995); this may result in the identification of confirmations, contradictions or omissions. Triangulation may be done by examining the findings in the light of multiple sources of evidence (Yin, 2013). For example, by examining a phenomenon using a different research method (methodological triangulation) or by reviewing other sources of data about the phenomenon (data source triangulation) (Stake, 1995). The use of additional data sources is a recommended approach to triangulate case study research findings (Yin, 2013). It is noted that Yin counsels against using different sources of evidence that address different aspects, however, the structure and content of the BASF necessitated the use of data sources that could be applied to the different elements. Data source triangulation considers if a phenomenon (in this case business analysis) is consistent across different instances (Stake, 1995) and Yin advises that the aim is to corroborate the findings from the data analysis in order to reinforce the construct validity.

A range of data sources were used to triangulate the findings from this research. These sources are summarised in table 5.6.

Table 5.6: Data sources used to triangulate the research findings

Area of research	Data source	Application
Research objective 1: the services	T1. A service catalogue for internal use within a major energy company.	A catalogue setting out the services offered by the business analysis function to the rest of the organisation. Also defines the activities required to deliver the services.  Used to review the BASF services identified during the research project.
Research objective 2: the techniques and skills	T2. Extended Skills Framework for the Information Age (The SFIA Foundation, 2015), SFIPlus (BCS, 2015).  T3: The UK Government skills guide for business analysts within the Digital, Data and Technology Professions <sup>12</sup> .	SFIPlus provides a list of skills and techniques required of business analysts. The Government skills guide provides a comprehensive set of skill definitions for the Government business analysis job family.  Used to review the BASF and Business Analyst T-shape skill requirements and the techniques required to be applied during business analysis work.
Research objective 3: the value proposition	T4. Outputs from a workshop facilitated by the researcher. The workshop formed part of a seminar for the Allianz PLC Business Analysis Practice held in East Horsley, Surrey, UK on 11/12/2014.	The workshop outputs provide responses to questions on outcomes from business analysis and determining success.  Used to review the BASF value propositions identified for the business analysis services.

<sup>12</sup> <https://www.gov.uk/government/publications/principal-business-analyst-skills-they-need/principal-business-analyst-skills-they-need>

Triangulation was performed on the research findings according to the three research objectives as defined in table 5.6. Each data source was compared with the relevant findings in order to review the completeness and correctness of the findings. In some cases, the research findings were augmented by data from the data source used during triangulation. For example, some of the business analysis services were extended to include activities identified within the data source T1 (service catalogue).

This process led to the triangulated Business Analysis Service Framework (BASF), which encompassed all three aspects addressed in the research objectives and aimed to answer the research question. The triangulation process and activities are described in further detail in chapters six and seven.

The triangulated BASF was then subject to the validation process described in the next section.

## **5.8 The validation process**

Yin (2013) identifies the need to 'corroborate the essential findings' with regard to the case study and suggests that they should be reviewed by informants and participants relevant to the case. This approach was applied to the BASF in order to obtain comments and further insights that had the potential to validate, extend or change the BASF constructs.

Eight informants reviewed the BASF in order to validate the contents. Four informants were interviewed individually; two (V1 and V2) had participated in the original data collection as mini-cases (V1=mini-case 3; V2= mini-case 17), two were new to this research (V3 and V4). Four informants formed a focus group to review the BASF (V5, V6, V7 and V8); none of these informants had participated in the data collection. The informants V1 to V8 are profiled in further detail in chapter eight.

Comments offered by the informants were used to confirm the BASF and identify any aspects requiring revision. The discussions also served to validate the need for the BASF in the light of challenges to business analysis recognition and practice.

The validation process and activities are described in chapter eight.

## **5.9 Chapter summary**

In this study, the BAMF was selected as a case through which to analyse the business analyst role and work practices, as defined in the research question and objectives. The BAMF offered access to a group of senior business analysts with managerial responsibilities. These business analysts could provide observations and insights into business analysis due



to their extensive project experiences and the 'stories' they could tell. Knowledge, decision-making and experience criteria were applied in order to identify BA specialists. These business analysts formed the embedded mini-cases within the BAMF case.

The BA specialists were interviewed in order to explore their knowledge, skills and experiences regarding business analysis. Semi-structured interviews were conducted using open questions in order that the mini-cases were able to relate their experiences and express their opinions and concerns about business analysis work.

A pilot study was conducted in order to validate the research question and approach. The question set for the pilot study was developed from the conceptual framework and research questions. This question set was then revised and extended in the light of the findings from the pilot study, a further review of the extant literature and the application of service science theory.

Data analysis was conducted during the pilot study and the full study. This process applied template analysis, using pre-determined codes which were then reviewed and extended during an iterative coding process. The final template was then analysed to identify themes and patterns, and used to construct a taxonomy of services, the BASF, and a business analyst T-shape. These constructs were both subject to triangulation using additional data sources, and validation from a group of key informants.

Chapter six discusses the findings relating to the context and content dimensions, and the subsequent development and triangulation of the initial Business Analysis Service Framework.

## 6 Findings and discussion: context and content dimensions

### 6.1 Rationale and structure of this chapter

The research aim, question and objectives for this study were defined in chapter two. The research question is:

***‘What are the services, work practices and value propositions offered by business analysis within the context of IS projects?’.***

Three sub-questions provide clarification of each element of the research question; this chapter addresses the following sub-question:

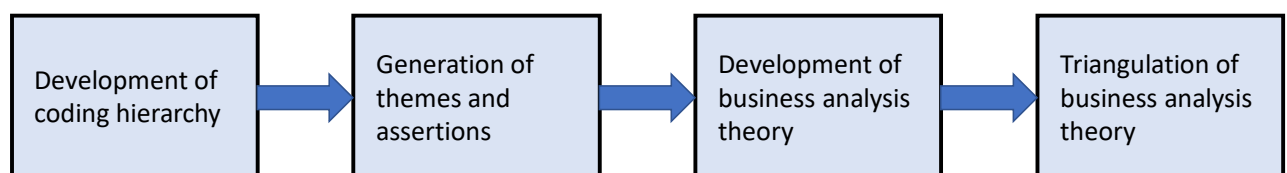
- What are the services offered by business analysts and what activities do they perform when providing these services?

There are three research objectives each of which address one of the research sub-questions. This chapter is focused on achieving research objective one:

- RO1: The role (what is done): identify a set of clear, distinct services that business analyst practitioners provide to their organisations and list the activities that business analyst practitioners undertake in order to offer these services.

The chapter discusses the findings resulting from the data analysis and defines the theory developed to address research objective one and the research sub-question. This is concerned with the context and content dimensions of the conceptual framework as presented in chapter three, Figure 3.3. The structure of the discussion for each dimension is shown in Figure 6.1.

**Figure 6.1: Structure of the findings and discussion for the context and content dimensions**



This structure will encompass the following:

- Development of coding hierarchy: the use of template analysis and the conceptual framework to develop a coding hierarchy that represents the findings in the data.
- Generation of themes and assertions: the interpretive analysis of the coding hierarchy to define themes and key assertions related to this specific conceptual framework dimension.
- Development of business analysis theory: the application of the key theories defined within the conceptual framework (for example, role theory, service science, Soft Systems Methodology) to clarify issues with business analysis and develop an initial framework for business analysis practice. This framework is extended in chapter seven when the process and outcomes dimensions are discussed.
- Triangulation of the business analysis framework: the use of an additional data source in order to review the initial framework.

## **6.2 Coding of the context dimension**

The context dimension was concerned with understanding the context for the work of the business analysts. The questions asked of the mini-cases during the interviews covered two aspects: the organisational and the personal contexts; it was important to discuss both aspects. The personal context questions were required as they had the potential to offer insights into the observations of the mini-cases, for example, if they had a particular career background or professional certification. The organisational context questions were also required in order to understand the nature of the organisations within which the mini-case had worked and was working currently; this had the potential to impact upon the findings from the research as it placed the business analysis experiences in a specific context.

These two aspects are discussed separately in the next two sub-sections.

### **6.2.1 Context: personal**

The personal context questions asked of each mini-case were intended to elicit factual and descriptive information regarding their certifications held, membership of professional bodies, engagement with the broader business analyst community and business analysis career development.

The coding within the personal context was derived during the data analysis. The template was applied to the data and, as described in chapter five, this was updated as new codes emerged. The final coding is shown in table 6.1.

**Table 6.1: Personal context codes**

<b>Code</b>	<b>Illustrative comment</b>	<b>Meaning</b>
Background experience	<i>I started originally as a programmer in the late '80s and followed that, the traditional path up through the analyst programmer and the like (mini-case 5)</i>	The roles conducted by the mini-cases during their career. This was requested in order to identify if there was a particular pattern of experience.
Becoming a BA	<i>I came in through the programmer route, so programmer, programmer-analyst then through knowledge engineering methods as they were known in the '80s I think and then into more business analysis after that (mini-case 8)</i>	The entry point into business analysis for the mini-cases. This was requested in order to identify if there was a particular pattern of entry to business analysis.
Job title	<i>I was IT project officer.....I didn't know...that the job that I was doing should be called business analysis (mini-case 9)</i>  <i>that involved what effectively I know now to be requirements engineering and trying to understand the business and the users and how things fit and making things work but it was under a title of HCI (mini-case 13)</i>	The issues regarding job titles. This code reflected an expressed issue with business analysis which is that there is a difference between doing business analysis work and having the job title of 'business analyst'.

Professional associations	<p><i>I was a member of the BCS and I ought to be now and unless its run out, I should be a member of the IIBA as well (mini-case 13)</i></p> <p><i>I am the Communities Director for Scotland, North &amp; Midlands for the IIBA and oral examiner for BCS (mini-case 8)</i></p>	The names of the professional associations to which the business analysts belong. This code also enabled the analysis of the prevalence, or lack, of professional membership amongst the mini-cases.
Qualifications	<p><i>I have gained the BCS Diploma in Business Analysis, the IIBA CBAP, the BAMF Expert BA (mini-case 1)</i></p> <p><i>I have an IT degree, a computer science degree, a diploma in Business Analysis with BCS (mini-case 15)</i></p>	The qualifications held by the business analysts. These were largely the professional qualifications but some mini-cases also volunteered academic qualifications.
Years of experience	<p><i>it was just over 10 years ago that I got the role (mini-case 6)</i></p> <p><i>from 2005 onwards I would have been, you know, had it on my badge (mini-case 6)</i></p>	The length of time a mini-case had worked as a business analyst. The responses to this question also raised the issue of when someone may be deemed a business analyst.

Some of the codes reflected the confirmatory nature of some questions, such as years of experience. Other codes reflected descriptive data, for example, comments and observations relating to experiences. The three criteria used to identify the BA specialists were confirmed by the responses to these questions as follows:

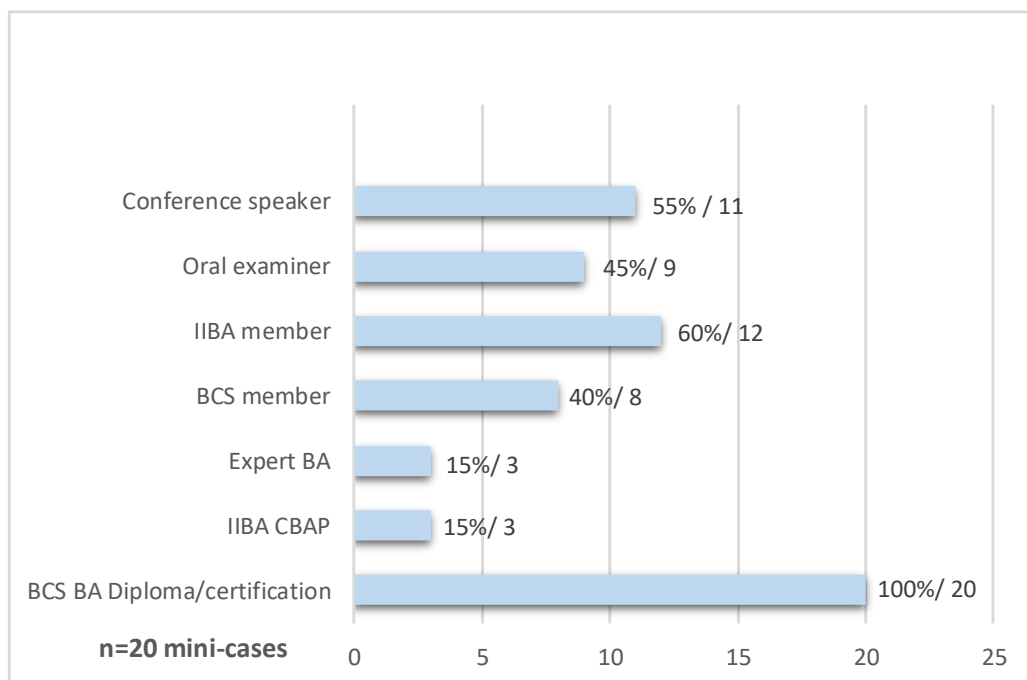
**Knowledge:** all of the mini-cases held business analysis certifications; 18 of the 20 had achieved the BCS International Diploma in Business Analysis (Diploma), the remaining two had passed individual BCS certifications, three mini-cases also held the IIBA Certified BA Professional (CBAP) and three had achieved the BAMF Expert BA Award (Expert). It was notable that only one of the mini-cases held all three of the available professional

certifications (mini-case 1). While BCS certifications were the most widely-held amongst the group this was not unexpected as it is the most prevalent certification within the UK. The second most popular certification in the UK is the IIBA CBAP and three of the mini-cases held this certification. However, this is a high proportion as there are only 172 holders of the CBAP in the UK and 8755 worldwide<sup>13</sup>. The BCS Business Analysis certifications have been issued to 100,000 professionals worldwide<sup>14</sup>; these are predominantly in the UK (no UK figures are published).

**Decision-making role:** all of the mini-cases were senior and managerial level business analysts within their organisations. All of their organisations were part of the BAMF. In addition, several of the mini-cases had recognition within the broader business analysis community; 9 out of 20 were BCS examiners and 11 out of 20 had presented at the BA Conference Europe.

A summary of the knowledge and decision-making factors relating to the mini-cases is shown in Figure 6.2.

**Figure 6.2: Profiles of the mini-cases: memberships, qualifications and authority**

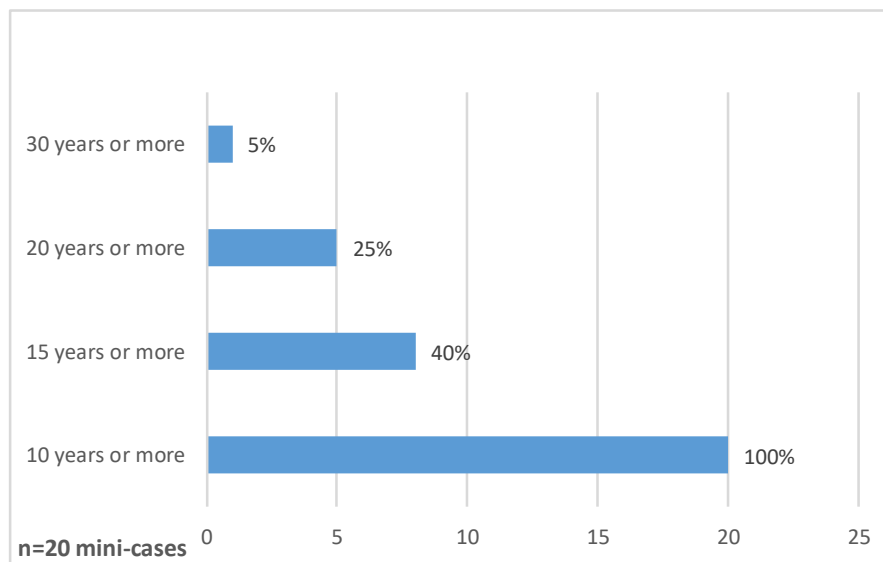


<sup>13</sup> [www.iiba.org](http://www.iiba.org) accessed 19/09/2017

<sup>14</sup> <https://www2.bcs.org/certifications/ba/> accessed 19/09/2017

**Experience:** all of the mini-cases had more than 10 years' experience of business analysis work and several had significantly more experience of business analysis. However, comments were made about the difficulty of defining when their business analysis career had actually started. The job titles held at certain points were said to confuse because they said one thing but the work did not correspond with the job title. For example, one mini-case said that she had had the title '*human computer interaction designer*' at the outset of her career but the overlap with business analysis (as she now understands the business analyst role) is extensive. The range of years of experience across the set of BA specialists is represented in Figure 6.3.

**Figure 6.3: Profiles of the mini-cases: years of business analysis experience**



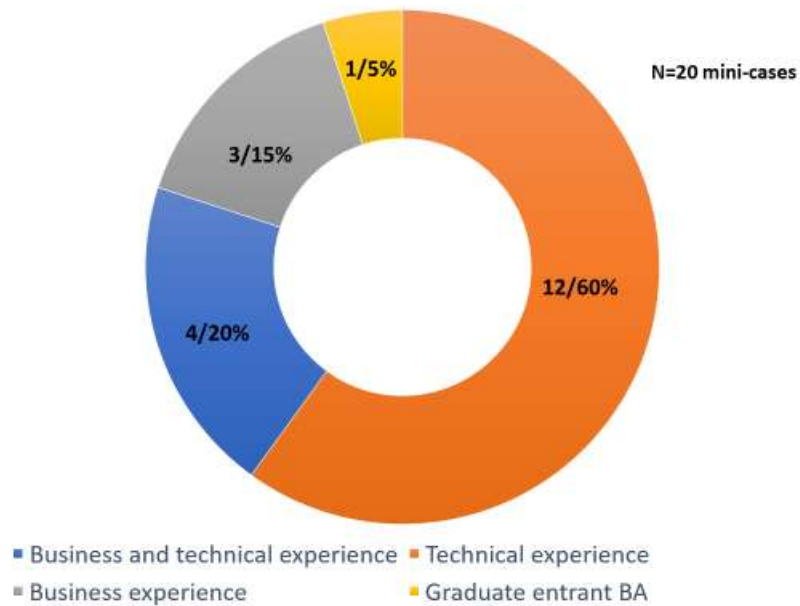
The background work experience of the mini-cases and their entry into business analysis was discussed in order to investigate if senior business analysts tended to have a particular area of experience. Only four of the mini-cases did not have a technical background to some extent. This means that they had not been involved in other aspects of information systems work such as coding (software development) or testing and indicates that business analysts working on IS projects do not necessarily have technical experience. However, it could be argued that having the ability to understand the technological aspects of IS projects may be beneficial when conducting business analysis work. The breakdown of the experience held by the mini-cases was:

- Twelve of the twenty mini-cases had worked solely within a technical area of the IT industry prior to becoming a business analyst.
- Four mini-cases had both a business and technical background.
- Three had moved directly from a business background into business analysis.

- One mini-case began his career as a graduate entrant business analyst.

The different work backgrounds of the mini-case cohort are represented in Figure 6.4.

**Figure 6.4: Profiles of the mini-cases: the background experience**



The current job titles were requested in order to explore whether at a senior level the job title was consistent with the work conducted by the mini-cases. Table 6.2 states the range of current job titles for the BA specialists.

**Table 6.2: Job titles for the mini-cases**

Title	Number of mini-cases
Business Analyst (including senior, lead and senior lead)	10
Consultant (including principal, business and managing)	5
Business Analyst Manager (including principal and service improvement)	4
Business Architect	1

In the majority of cases, the job title included the term 'business analyst'. Five mini-cases held the title 'Consultant', however, this applied to those working for companies offering consultancy services so was to be expected. One mini-case had the title 'Business architect'



although this person conducted business analysis work and had managerial responsibility for business analysts. It is possible that the use of 'business analyst' as a job title has become more commonplace over the last ten years (the minimum length of experience of the mini-case cohort). A further possibility is that the BAMF organisations have a level of understanding and maturity regarding business analysis so employ the specific job title 'business analyst'. The maturity of the organisations is considered in sub-section 6.2.2.

It was notable that several of the business analyst job titles reflected a level of seniority. For example, senior business analyst, business analyst manager. This suggests that the organisations represented employ business analysts at different levels of seniority and that there is a career trajectory within the business analysis discipline. This may also indicate that there is a degree of maturity regarding business analysis within these organisations.

In summary, themes that emerged from the analysis of the personal context data were as follows:

- 80% of the mini-cases had had technical IT experience during their careers. There is a possibility that to become a senior business analyst a background in more technical roles is helpful or desirable.
- There is a question regarding the exact nature of business analysis. Some mini-cases stated that they had 20 to 30 years of business analysis experience, others estimated the length of their experience from when they had the job title.
- Job titles across the IS function appear to be misleading; the mini-cases commented that they have done business analysis work whilst having several different job titles, other than business analyst. This also raises the possibility that the business analysis discipline incorporates a number of job titles.

### **6.2.2 Context: organisational**

The organisational context questions asked of each mini-case were intended to elicit factual information regarding their organisations, for example, business domain and size, and observational information, for example, recognition of business analysis. The factual questions were asked to see if there were any patterns of business analysis work between different types and sizes of organisation. The observational questions were intended to explore the issue of recognition that was identified during the pilot study.

The coding categories derived from the data with regard to the organisational context were as shown in table 6.3.

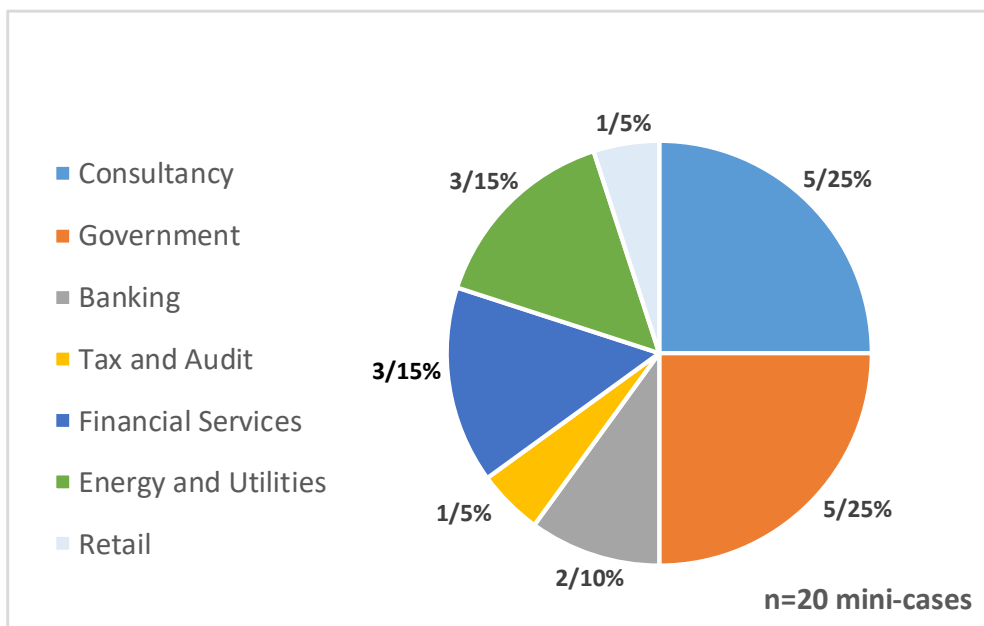
Table 6.3: Organisational context codes

Code	Illustrative comment	Meaning
Business domain	<p><i>a non-departmental, arm's length body of the Department of Health (mini-case 9)</i></p> <p><i>a gas and electricity company (mini-case 10)</i></p>	<p>The business domain within which the mini-cases' organisations operated. This was requested to explore the diversity of the cohort coverage.</p>
Legal entity type	<p><i>Private Sector, yes, it's a public limited company (mini-case 7)</i></p> <p><i>It's family owned but the stores aren't franchises, they are joint venture partnerships (mini-case 13)</i></p>	<p>The legal entity of each mini-case's organisation. This was also requested to explore the diversity of the cohort coverage in terms of the economic sector and legal status.</p>
Location	<p><i>It's a very global organisation (mini-case 4)</i></p> <p><i>we have an office in Swansea and an office here and office in Pontypool and an office up in North Wales (mini-case 16)</i></p>	<p>The country locations for the mini-cases' organisations. This was requested to understand the geographical span of the organisation's work.</p>
Organisation size	<p><i>220k people, across 175 countries, 750+ locations within those countries (mini-case 4)</i></p> <p><i>we have 35 people ..... 31 are consultants, business analysts or business architects (mini-case 14)</i></p>	<p>The size of the organisation. This was requested to understand the market penetration for the organisations.</p>

BA function	This was a level one code that was further explored as a hierarchy of codes. These are described in table 6.5.
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The mini-cases for this study were employed by fifteen different organisations; two mini-cases worked at one organisation and three mini-cases worked at another organisation. The rest of the mini-cases worked at different organisations. The range of business domains represented by the mini-case cohort is shown in Figure 6.5 (also shown as Figure 5.2 in chapter five).

**Figure 6.5: Business domain representation of the mini-cases**



Every mini-case had at least 10 years of experience of business analysis work so were able to offer observations and recollections from a variety of IS project experiences. Many of these projects had been within other organisations. As a result, some mini-cases could discuss project experiences from additional domains. For example, mini-case 9 works currently for a utilities company but had worked previously for an IT services organisation; mini-case 18 had worked previously in telecommunications and private health organisations. This helped to extend the breadth of experiences offered by the mini-cases and enrich the data collected.

The BAMF members encompass many government organisations and, as a result, several of the mini-cases worked, or had worked, for Government departments. The range of Government departments represented was as shown in table 6.4.

**Table 6.4: UK Government departments represented in the case study**

Mini-case 2	National security
Mini-case 5	Diplomatic service (previous employer)
Mini-cases 15 and 16	Health (previous employer for mini-case 16)
Mini-case 17	Education
Mini-case 20	Justice and Defence

The size of organisation varied considerably. Three of the organisations were 1-person private limited companies; the largest organisation employed 22,000 staff across more than 100 countries.

The examination of the business analysis function resulted in the level two and level three codes defined in table 6.5.

**Table 6.5: Level two codes for the level one code: business analysis function**

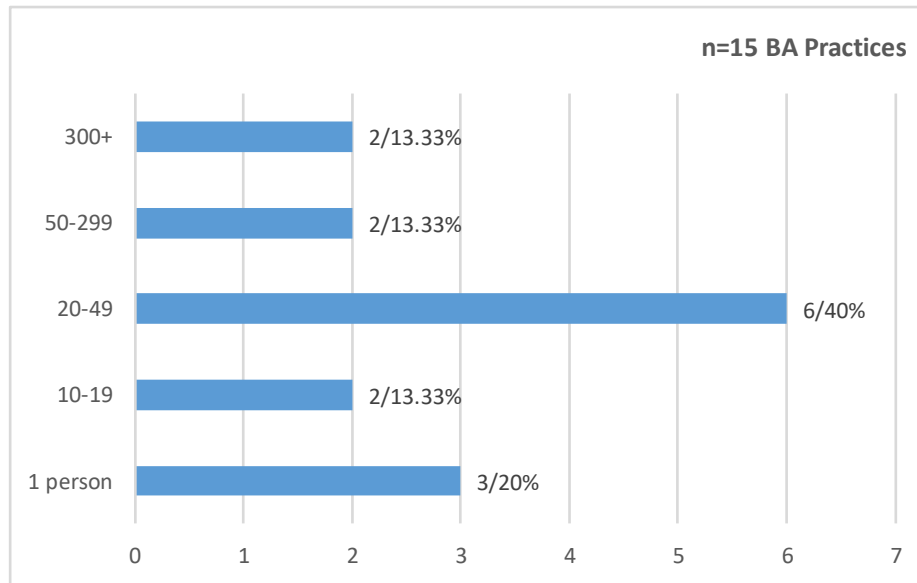
Level two codes	Level three codes	Illustrative comments
<b>Attitude:</b> The attitude towards business analysis within the mini-cases' organisations. This was discussed in order to elicit information on how business analysis was perceived within organisations.	Lucky	<i>I am quite lucky within my organisation in that they take business analysis seriously (mini-case 3)</i>
	Mixed picture	<i>It's a mixed picture across the organisation (mini-case 10)</i>  <i>it can be really valuable and they understand and its great but again you will have lots and lots of instances of people just either not knowing that we are here or not knowing that we can help (mini-case 13)</i>
<b>Governance:</b> The governance of the business analysis	Community of practice	<i>we have a separate community of practice where we all get together (mini-case 6)</i>

<p>practice within an organisation. This was discussed in order to determine if there are different governance models and the possible impacts.</p>	Dispersed	<i>there's BAs in every directorate across the organisation so it is aligned with the different business functions (mini-case 9)</i>
	No head of practice	<i>we lost our sponsorship at a senior level (mini-case 18)</i>
	Career	<i>they are creating professions and one of the professions will be business analysis (mini-case 20)</i>
<p><b>Maturity:</b> The maturity of the business analysis practice. This was discussed in order to obtain a view on the nature of the projects. This is related to the Process dimension.</p>	Level of maturity	<i>It is quite immature really, compared to other practices you hear about (mini-case 4)</i>  <i>we are somewhere between process &amp; business (mini-case 6)</i>
	Individual	<i>if you took it to a personal level, the business analysts that you have here you would expect them to be working for an organisation that was far more mature in its thinking but it isn't (mini-case 13)</i>
<p><b>Recognition:</b> The level of recognition attached to the term business analysis. This was discussed in order to explore how well the term 'business</p>	Well-recognised	<i>people do understand what is a BA, what are the expectations, what are the deliverables etc. so it is widely accepted (mini-case 11)</i>
	Lack of understanding	<i>our exec directors will often be saying there are not enough BAs which is good but I never get the feeling that they totally understand what is it (mini-case 9)</i>

analysis' is known within organisations.	The BA brand	<i>making sure that the role, the brand, the discipline's understood more generally (mini-case 8)</i>
	The individual BA	<i>they don't think of that as a business analyst they think of that as the job that you're doing so I think the label is different from the individual (mini-case 12)</i>
<p><b>Size of practice:</b></p> <p>This was requested in order to gain insights into the number of individuals within the organisations represented who were identified as business analysts.</p>	No level two codes. Graph of practice sizes is shown in Figure 6.6 below.	

The concept of a community of practice for business analysis was employed within the majority of the organisations represented. Other than the 1-person companies, the smallest business analysis practice employed 25 analysts while the largest practice employed over 2000 analysts. The range of size of business analysis practices within the study is shown in Figure 6.6.

Figure 6.6: Size of Business Analysis Practices represented



The organisational data served to provide a context for understanding the observations offered by the mini-cases. The data analysis did not result in the identification of any themes or patterns, other than to confirm that business analysis work was conducted across different sectors, business domains, locations and size of organisation. The larger organisations were said to have line management structures that consisted of levels of business analysts at different grades whereas this was not the case for smaller, more localised organisations. However, this is to be anticipated given that the numbers of business analysts employed in the larger companies ranged from 50 to 2000 so would require several levels of management.

### 6.2.3 Context dimension: themes and assertions

The data analysis described in sub-sections 6.2.1 and 6.2.2 has led to the identification of themes that suggest where issues with business analysis lie. The themes that emerged from the analysis of the contextual data were:

- **Recognition of the business analyst role:** While some organisations recognise the term 'business analysis' and it is well-established and understood, the data suggest that this is not the case for the majority of organisations. This lack of recognition appears to impact upon the attitude towards the business analysts. The lack of an 'identity' or 'brand' was commented upon. The lack of understanding and recognition was felt to result from problems in establishing the brand.
- **Individual focus:** There may be a focus on the individual business analyst rather

than the business analyst role. The data suggests that there is a link between a focus on the individual and a lack of understanding of the role. This was said to be positive sometimes but observations were also made about poor performance. One mini-case summarised this succinctly '*you've got good business analysts and you've got bad business analysts*' (mini-case 15).

- **Governance of the business analysis work:** A community of practice for business analysis helps to set standards and ensure consistency, but even where there is a community of practice the governance may be lacking. The location of practices is variable, for example, one practice reports to the Technical Infrastructure Manager (mini-case 15) while another reports to the Head of Programme Delivery (mini-case 8). Some communities of practice are led by experienced business analysts (for example, mini-case 9 and mini-case 10). One practice is said to have a rotational approach whereby there is a '*rotating chair*'; this was identified as resulting in '*no clout*' (mini-case 13). The data also suggests that a lack of governance from a senior business analyst results in no-one being a 'champion' for business analysis and a lack of consistency of approach.
- **Maturity of business analysis practice:** The level of maturity of business analysis was discussed in line with the Business Analysis Maturity Model described in chapter three. The level of maturity was said to be variable across organisations; some were said to have a relatively immature business analysis practice while others were operating at the highest level or moving towards that level. Maturity was also said to be variable within organisations and depended upon the individual business analysts.

A process of reflection and synthesis has been undertaken in order to review these themes and generate assertions relating to this research. An assertion has been referred to as a 'declarative statement of summative synthesis' (Saldana, 2011, p.119) that offers a means of describing 'broad-brush facts' (Miles et al., 2013, p.100) about the case. In this study, the assertions will relate to the findings from the research into the representative BAMF mini-cases that have the potential to illuminate and improve business analysis practice.

The assertions identified are:

**Assertion 1:** There is a lack of clarity about the business analyst role and this appears to result in a corresponding lack of recognition and understanding of business analysis within organisations.



**Assertion 2:** The lack of a clear definition for the business analyst role appears to result in variability of performance on the part of some business analysts and stakeholder engagement with individual business analysts rather than the discipline as a whole.

**Assertion 3:** There is a lack of a governance structure for business analysis within some organisations and this appears to contribute to the inconsistency of business analysis practice.

The data was reviewed to identify evidence relating to these assertions. Both supporting and disconfirming evidence was sought (Miles et al., 2013). Role theory was also applied to the assertions. This is discussed in the next sub-section.

#### **6.2.4 Discussion of the context findings**

**Assertion 1** concerns the lack of clarity regarding the business analyst role and the impact this has on recognition and understanding of business analysis.

Role theory explains that roles are social positions for which there are behavioural expectations (Biddle, 1986). A role definition has been described as 'the individual understanding of which duties and responsibilities form a particular job' (Jonas, 2010, p.823). An unclear role definition results in role ambiguity and role discrepancy (Broderick, 1998) and this may have an impact on the behaviour demonstrated by practitioners of a particular role, their performance and their commitment to the organisation (Biddle, 1986; Solomon et al., 1985). Conversely, role clarity is concerned with an 'individual's beliefs about the expectations and behaviours associated with their work role' (Hall, 2008, p.144).

The findings from the pilot study had suggested that there is a lack of clarity surrounding the business analyst role. One observation from the main study was that this may result from a lack of clear focus:

*BAs can't be all things to all people, you have to have some sort of focus somewhere (mini-case 10)*

This observation was supported by a comment from another of the mini-cases that there is a tendency for business analysis to have a focus that is too broad:

*business analyst is a broad term but it is also such a broad area that we are involved in I think, so to do ourselves justice, we need to narrow down (mini-case 12).*

The lack of a specific focus for business analysis was also suggested when the mini-cases were asked to define the role. The responses were illuminating in two regards. Firstly, some commented that this was a difficult question to answer clearly:

*it's really difficult to give a definition that isn't really, really woolly (mini-case 1)*

*that's a difficult one (mini-case 3 when asked to define business analysis).*

Secondly, where definitions were offered, both during the pilot study and the main study, they revealed a lack of clarity and were often vague. For example:

*I talk to the business about what they want to do and what they need to do and then work out how we get there (mini-case 3)*

*I am that in between person between the IT department and the users and I work out what we actually need to do but also why (mini-case 6)*

*business analysis can be the glue between that business architecture discipline and the change management and the project management. (mini-case 20)*

One mini-case went further and questioned the possibility of defining the role:

*I think of the business analyst as being a collective for a set of skills rather than a role (mini-case 19).*

However, it is questionable whether a definition of business analysis that comprised a collection of skills would offer clarity. Some role definitions provided tangible elements but they were also very general statements:

*it is someone who looks to understand how a business needs to change in order for that business to still be effective (mini-case 15).*

Given the issues with defining the role clearly, the lack of understanding of business analysis within an organisation is not surprising and may be anticipated. One of the mini-cases identified that there is a need to ensure that *'the role, the brand, the discipline's understood more generally'* (mini-case 12) thereby connecting the role clarity with the lack of understanding. This person also observed that several meanings may be ascribed to the term 'business analysis':

*the term business analysis means many things to many men (mini-case 12).*

This is a highly relevant observation. If the general term for the discipline has the potential to be interpreted in many ways, then recognition is likely to be variable and expectations from the role may vary considerably. There are two aspects here. Firstly, there may be recognition of the term but little if any understanding of the nature of the work:

*I think the situation is, the people at the top don't understand what business analysis is there for (mini-case 15)*

However, a second possibility is that, in some cases, a complete lack of knowledge regarding business analysis may exist:

*If I was to wander into employment services across the way there and mention business analysis to them they would have no idea what I am talking about (mini-case 18)*

There were three organisations where the mini-case representatives felt that their organisation recognised the benefits business analysis could offer. However, the observations differed within each organisation. For example,

Mini-case 3 stated that the organisation ‘takes business analysis seriously’ whereas her colleague, mini-case 8, commented:

*They have probably heard the term and think there is something involved with delivery in change but would probably be limited to that.*

However, mini-case 3 also stated:

*I think the biggest challenge for us is still continuing to define our role and for some organisations to understand what a huge contribution and what a huge advantage business analysis is in their organisation.*

Similarly, mini-case 5 stated that within her organisation

*it is very good, it is very positive and it is very well recognised and I think that comes from it being a large organisation where they have used business analysts for a long time.*

However, at a later point she stated this is not the case for all of the business analysts within her organisation, stating that some of her colleagues:

*tend to complain that PMs don't necessarily understand what we do and don't value it.*

(note: ‘PMs’ refers to Project Managers in this comment).

The predominant comment made by the mini-cases concerned the variability of recognition of business analysis within their organisation:

*It varies, it really does vary, from it being a necessary evil to be avoided if you possibly can until you get caught out generally and then there is a much larger group of people who kind of understand the value and are trying to get hold of a BA as quickly as possible without actually really knowing why. (mini-case 7)*

*It's a mixed picture across the organisation (mini-case 10)*

The sense from the data is that there is a general unease about the lack of recognition of the business analyst role. Where there is good recognition, as in the case of mini-case 3, she describes herself as 'lucky' to work for an organisation that 'takes business analysis seriously'.

Overall, the observations from the mini-cases suggest that the lack of clarity regarding the business analyst role is intrinsically linked with a lack of understanding. This is supported by the literature, which has reported on issues associated with a lack of role clarity and role ambiguity (e.g., Biddle, 1986; Hall, 2008; Henderson et al., 2016; Solomon et al., 1985). Research objective one seeks to address the lack of role clarity by defining the business analyst role.

Service science theory was selected as a basis for considering business analysis work, as discussed in chapter three. Service science provides a perspective on the supplier/customer interaction, viewing it as an application of competence in order to benefit another entity (Lusch and Nambisan, 2015; Vargo and Akaka, 2009). Service science also distinguishes between value in exchange, which is the basis for the goods-dominant paradigm, and value in use, which is a foundational premise for service-dominant logic upon which service science is based. Value in use states that value can only be co-created and cannot be 'delivered'; this contradicts statements made regarding business analysis. For example, the definition of business analysis offered by IIBA (2015) as discussed in chapter two and repeated below:

*Business analysis is the practice of enabling change in an enterprise by defining needs and recommending solutions that **deliver value** to stakeholders. Business analysis enables an enterprise to articulate needs and the rationale for change, and to design and describe solutions that can **deliver value** (IIBA, 2015).*

A service-dominant view has been applied to the business analyst role in order to clarify what business analysts do. This has involved the analysis of the stated activities and role definitions offered by the mini-cases to identify where a service need exists that has the potential to offer value to the business analysts' customers and other stakeholders. This approach has the potential to provide the focus identified earlier in this section and offer greater clarity for business analysis practitioners and their stakeholder customers. The section of the mini-case interviews that was concerned with the content dimension explored this aspect of business analysis; the findings and discussion of this dimension is in section 6.3 below.

**Assertion 2** concerned the impact of a lack of role clarity on the performance of individual business analysts.

Where role clarity is lacking there may be an issue with role congruence (Solomon et al., 1985) involving a mismatch of expectations between the role practitioner and role beneficiary. Role discrepancy occurs where customers hold different expectations regarding role behaviours and, where these expectations are not met, this may lead to dissatisfaction with the delivered service (Broderick, 1998). Further, role ambiguity has been identified as a role stressor that can have an impact upon performance (Onyemah, 2008) and may cause tension and reduced job satisfaction and commitment (Bedeian and Armenakis, 1981).

The performance of some business analysts was identified as an issue by several of the mini-cases. Observations about poor performance by fellow business analysts included the following statement:

*you've got good business analysts and you've got bad business analysts (mini-case 15).*

Mini-case 19 identified the 'submissive perception of the role' that some business analysts have. This was in line with other comments suggesting that some business analysts were unsure what was expected of them so just complied with requests to help with administrative work:

*I continually hear stories of other BAs who are not recognised and are note takers (mini-case 4)*

*they would like some admin support on the project please. There are those of us or some people or certainly the quieter people who will go okay or the people that just want to do a 9-5 job they will go do it (mini-case 13).*

Comments were made about specific issues with business analyst performance. Within these examples, the 'bad BAs' appear to be identifiable from their actions:

*new BAs come in and think "oh do I need to do a use case diagram or do I need to do a data model? I don't even know what that is" so they just delete it (mini-case 6)*

*another BA, she is incredibly competent, she is very intelligent, her people skills are so dire that she upset everybody (mini-case 13).*

One of the mini-cases commented on the lack of understanding on the part of some business analysts about the desired behaviours. This person was the Head of BA Practice within an organisation at the time she comments upon. She relates the lack of understanding of the role to the behaviours demonstrated.

*the Forum started, and that for me was massive because it was suddenly oh I am not the only person faced with these boundary challenges in the role, BAs who didn't really understand the role, how did you get them to understand the role, behave as I thought they should behave because I felt sometimes like I maybe I'm a lone voice (mini-case 18).*

These observations suggest that there are business analysts who may not understand their role and responsibilities and, as a result, are designated 'bad BAs'. However, this may be a symptom of a lack of role clarity and role congruence (Solomon et al., 1985) where those performing the role do not know what is expected of them and either fail to fulfil the role expectations or comply with expectations imposed by those in authority, such as project managers. If these business analysts are not offered a role definition that is clear, they may fall in line with whatever they are asked to do, such as take notes or undertake administrative tasks. This 'submissive' approach has been criticised by several of the mini-cases. However, this might be expected as they meet the criteria to be designated 'experts' so can be assumed to have greater understanding of their role and responsibilities.

The mini-cases' frustrations with poor performing business analysts also extends to the perception this presents of business analysis. One mini-case observed:

*one example I can talk about is where the business unit in question had just been burnt badly, they had some bad stuff happen to them and they thought well if that's what BAs do, we don't want any of it (mini-case 1)*

Similarly, it was observed that they don't '*help our cause*' (mini-case 13); again this may result from a lack of role congruence (Solomon et al., 1985) due to a lack of role clarity. This suggests that there are business analysis practitioners who do not understand the behaviours that are expected from them and, as a result, are seen as letting down their colleagues and the business analysis discipline. This aligns with the literature suggesting that an entire 'role-set' may be judged according to the level of performance demonstrated by individual members of the set (Katz and Kahn, 1978).

Service science offers a means of clarifying the business analyst role through the identification of a set of clear, distinct services, each of which, in line with service-dominant logic, are customer-oriented and offer a stated value proposition (Vargo and Akaka, 2009). This contrasts with the extant definitions of business analysis (e.g., BCS; IIBA, 2015) that are typically unclear and fail to provide a clear statement of the service offering. The enhancement of these services, through the definition of the activities required to conduct

each service, has the potential to support practitioners by identifying what they need to do; this addresses research objective one and is discussed below.

The further extension of each service, through the definition of how the work is to be done, is the focus of research objective two. Theories such as SSM (Checkland, 1981) and Requirements Engineering (e.g., Saiedian and Dale, 2000; Sommerville and Sawyer, 1997) provide frameworks and techniques that focus on specific aspects of business analysis work. For example:

- SSM offers a set of stages and techniques that define how a problematic business situation may be investigated and improvements defined.
- Requirements Engineering offers an overarching framework that encompasses stages of requirements engineering work and the techniques utilised during each stage.

The provision of a set of services and activities (what is done), enhanced with specific techniques (how it is done), have the potential to clarify the business analysis work practices, and address the lack of role congruence and the resultant behaviours.

The second part of this assertion concerns recognition of the performance of *individual* business analysts rather than business analysis as a *discipline*. This was suggested by several of the mini-cases when they compared their performance to that of colleagues. For example:

*to a large extent it comes down to the individual BA and it's not standardised across the firm (mini-case 4)*

*The specific outcomes and the specific value varies depends upon the assignment and the BA that is conducting the assignment (mini-case 19)*

The recognition of individual business analysis expertise was said to be different from that applied to the role in general:

*the label is different from the individual (mini-case 12).*

However, it has to be considered whether an individual offering a high-quality service has the potential to impact upon the perception of the business analysis service offering. In other words, if the focus is on the individual person rather than role practitioners, does this negate the validity of the discipline? Some of the mini-cases indicated that they were happy to get involved in various activities where they feel it is 'relevant' (mini-case 4), stating:

*I put my little fingers into every bit of whatever business I think is relevant to me. Um, as do other experienced BAs that I come across (mini-case 4).*

However, it is questionable whether this is beneficial to the recognition of business analysis as a professional discipline. The data also suggests that individuals taking on a wide range of work reduces this recognition:

*the set of skills that business analysts typically present mean that we are asked to do a variety of very varied tasks within IS and the business, and that continues to make it more difficult for everybody to identify you as a business analyst (mini-case 12).*

Therefore, it appears that what is expected in terms of delivered artifacts or demonstrated behaviours is unclear. If business analysis differs according to the approach adopted by individual business analysts, and if customers observe different actions and results depending upon the business analyst assigned to the project, it follows the role will lack both clarity and congruence. It also follows that amongst role customers, the focus will be on acquiring the services offered by a specific individual rather than a role practitioner.

If business analysis is to be a recognised and respected discipline, it is not sufficient for individual business analysts to be able to perform effectively on IS projects as this results in the selection of the individual person rather than the required professional expertise. Boehm (2002) highlighted the 'premium people' dilemma and the need to recognise that this does not demonstrate the value of a particular approach (Agile in that case). The contrasting abilities of the performing and underperforming business analysts may be seen to promote or diminish the individual business analysts. However, both cases have the potential to reduce the credibility of the business analysis function as a whole.

**Assertion 3** concerns the governance of the business analysis practice and the detrimental impact a lack of business analysis governance may have on the business analysis work practices.

Several of the observations made by the mini-cases supported this assertion, for example:

*we had someone sponsoring change at a fairly high level and then that role went so our director was managing IT development, delivery and change and it lost its focus and its independence (mini-case 18).*

*what they had agreed is that we would effectively be a self-governing body of BAs that would come together as a practice ... and we could govern ourselves and that just didn't work, too, too many opinions, no final say and actually in terms of governance, you could have an opinion or you could even come to a consensus on we all think we ought to act*



*like this or produce this documentation or reach these standards and it doesn't make any difference because if someone decides not to, there were no consequences of not doing it (mini-case 13).*

However, in other organisations, the Community of Practice model has been applied. A Community of Practice has been defined as a group of people who 'share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis' (Wenger et al., 2002, p.4). The mini-cases suggested that this model offers a sense of cohesion and a means of ensuring there is leadership from business analysts.

*we have separate community of practice where we all get together and that is led by the lead BAs (mini-case 6).*

*The practice model that we put in place was quite a new concept, all the BAs and now the SAs being managed together and of course, project managers and project delivery used to having control of their resources it was quite a shift for them, but they have seen the results in the quality of the resources that they get, the engagement scores that we get from the practice and the way that we engage them, so they see it as a good model, they are supporting the expansion of the practice (mini-case 10).*

The advantages an approach like a community of practice could offer was summarised by one of the mini-cases:

*to improve the perceptions the confidence, the self-esteem, the processes and the tools the BA use, there needs to be more of a collective effort to enhance (mini-case 19).*

The BAMF is a community of practice, albeit one that is inter-organisational rather than within an individual organisation. It demonstrates how a group of like-minded individuals can share experiences and knowledge to advance understanding. The concept of an internal business analyst community of practice operating within an organisation, may offer a way to improve understanding and recognition of business analysis as it would provide a mechanism to share experiences and manage the 'knowledge asset' (Wenger et al., 2002, p.6) offered by business analysis.

### **6.2.5 Context findings: summary and further implications**

This section of the research considered the personal and organisational contexts for business analysis. Considerable concerns were expressed by the mini-cases about

conducting business analysis within a context of a lack of organisational understanding and recognition. However, analysis of the data identified that there is a lack of clarity surrounding the business analyst role. This suggested that the lack of recognition may be attributed to a lack of clarity of the business analyst role.

The research identified that the limited awareness of business analysis has led to a situation where business analysts feel they need to establish their credibility and fend off attempts to use them as additional administrative resource. The risk associated with this approach is that business analysts provide a service that reflects their expertise and interests rather than an accepted business analysis service. There is also a risk that the willingness of some business analysts to offer administrative support rather than analytical skills may undermine the recognition of business analysis as a distinct, professional discipline. Defining the business analyst role clearly and establishing the business analysis 'brand' are means of avoiding these risks.

The literature reviewed in chapter two, identified how role clarity can have a major impact on role ambiguity and role congruence. A clear role definition has the potential to counteract the ambiguity currently surrounding the business analyst role and enhance the credibility of the professionals who conduct business analysis. It would also provide a means of improving role congruence such that the behaviours required of business analysts and the expectations of their stakeholders are understood.

Given the concerns raised regarding the clarity of the business analyst role and the resultant impact upon performance, service science has been proposed as a basis for classifying business analysis work such that the core services and the attendant activities, techniques and skills are clear. The nature of 'value' is an inherent aspect within service science so taking a service view also ensures a focus on the value proposition offered by each business analysis service.

The need for business analysis leadership to provide clear direction and standards that enable consistency of business analysis practice, was also uncovered during the data analysis. The concept of a community of practice was suggested in order to counteract the issues resulting from a lack of leadership.

The following section reports on the data analysis for the content dimension of the conceptual framework (chapter three) and describes the development of the initial service framework for business analysis. This framework is extended further in chapter seven when the process and outcomes dimensions of the conceptual framework are discussed. This

framework has the potential to address the issues raised within the context dimension for this research.

### 6.3 Coding of the content dimension

The content dimension investigated the nature and scope of business analysis work, considering the types of project and the activities conducted by business analysts, and the value proposition business analysis offers. The context dimension discussed in section 6.2 identified issues resulting from an unclear role definition for business analysts. The remaining dimensions of the conceptual framework for this study focus upon the research question, sub-questions and objectives shown in section 6.1.

#### 6.3.1 Content: RO1 what do business analysts do?

This section discusses the findings that relate to the content dimension and how this addresses research objective one. This objective is concerned with clarifying the role of the business analyst by identifying the business analysis services and activities.

The template was applied to the data and, as described in chapter five, this was updated as new codes emerged. The template helped identify a range of activities conducted by business analysts, the value proposition offered by business analysis and the different types of project experienced by the mini-cases. The final coding for the content dimension is shown in table 6.6.

**Table 6.6: Coding of the content dimension**

Level one code	Level two code	Illustrative comments
BA activity  These are the activities carried out by business analysts as	Analysing data	<i>reporting data and interpreting data to inform strategy that's come to the fore a little bit more (mini-case 20)</i>
	Analysing gaps	<i>we are at point A and we want to get to point B, what is the bit in between that we need to address in order to make this happen (mini-case 17)</i>

part of their work.	Bridging	<i>a lot of it's about being able to translate IT-speak to business-speak (mini-case 3)</i>
	Clarifying requirements	<i>you can make sure you can help them get the right requirements in the right format and meet their lifecycle needs (mini-case 2)</i>
	Engaging with stakeholders	<i>I see the BA sitting alongside their business stakeholders and acting as their eyes and ears across the whole organisation (mini-case 18)</i>
	Evaluating options	<i>what do we need to achieve, why do we need to achieve it, justifying it and obviously, what are our options, how much is each option going to cost, can we realistically do it, can we do it in the time we have got available and then given a recommendation as to which option is the best one (mini-case 6)</i>
	Facilitating	<i>facilitation techniques is an area that I think a trained business analyst can do well (mini-case 5)</i>
	Implementing change	<i>it's vital that a BA gets involved right the way through to implementation. And we are there during support (mini-case 3)</i>
	Investigating problems	<i>understand the problem that needs to be solved. And, that that is a relevant to whether that's a business problem, technical problem, organisation problem or people or process (mini-case 2)</i>
	Modelling processes	<i>looking at and understanding what the processes are and what needs changing in the processes and how that could affect different</i>

		<i>people so that you then can put it in in the most efficient way (mini-case 13)</i>
	Planning	<i>before we start up any projects or programmes of work, we need to understand a little bit more, we are still getting to the point of starting up projects where we are not sure which of our systems are going to be impacted (mini-case 12)</i>
	Testing the solution	<i>there's a link between analysis and testing even if it's testing of a manual process. And, you know, I think that it's best when BAs are around to support that (mini-case 1)</i>
	Understanding the need	<i>helping the business understand what they want and then playing that back to them (mini-case 20)</i>
BA Value Proposition The suggested areas of value proposition offered by business analysis.	Alignment	<i>the business analyst goes into the organisation, understands the pains of the organisation, understands ideally what they want out of it and then puts that fit across and try to get that alignment (mini-case 5)</i>
	Clarity	<i>We bring order to chaos, we've got the ability to ask the right questions to get the right answers to help our end users understand what it is they want because they don't know until you ask the right questions (mini-case 4)</i>
	Driving efficiencies	<i>we need to continually add value, a lot of that will be through the efficiencies that we drive so certainly for a lot of the processes that we develop we will be looking to drive efficiencies (mini-case 17)</i>

Ensuring delivery	<i>understanding the proposition, gathering the information and structuring it and coming up with options and challenges to the proposition and then helping with the execution of that proposition (mini-case 8)</i>
Ensuring traceability	<i>we understand we get a query from the customer 'I don't understand how it's translated into a solution' we can trace back through and say 'right, this is your requirement, this is what it's like when it gets to development and testing' (mini-case 3)</i>
Holistic view	<i>The areas that I would be interested in would be the business process, the business organisation in terms of the organisational structure, the people that are impacting or impacted by the business system and then obviously, the technology domain. Also, potentially look at motivations behind the business system (mini-case 19)</i>
Innovation	<i>the innovation bit is being able to bring different thinking (mini-case 10)</i>
Problem definition	<i>it's not about the solution, it's about the need and the problem we are trying to fix (mini-case 17)</i>
Spending on the right thing	<i>they should be advising and consulting on what is the right thing to do so the value there is making the right choices on how things get done and what things get done (mini-case 10)</i>
Stakeholder representation	<i>the value proposition for the BA is understanding what everybody needs in a timely way so you are not wasting other</i>

		<i>people's time knowing that the BA's understood and has got their back (mini-case 18)</i>
<p>Project type</p> <p>The different types of project that the mini-cases had worked on.</p>	Business transformation	<i>currently we have also a big transformation programme because xxxx is relatively big company and what we are doing will actually affect how 8,000 people will work so it is huge (mini-case 14)</i>
	Competency improvement	<i>we initiated a people change programme which looked at how change was impacting our colleagues, what could we do to make it better, what steps could we put in place, what mentoring opportunities did we have, and basically support and guiding people through the change process (mini-case 3)</i>
	Feasibility studies	<i>we certainly get involved in things like feasibility studies, early work assessments (mini-case 9)</i>
	Integration	<i>We were involved in one of the biggest integration projects in UK financial services history. So, I worked on that, for a number of years (mini-case 3)</i>
	IT projects	<i>we were working on the whole self-billing systems and changing the billing systems so it was quite technical, it was very IT focused (mini-case 18)</i>
	Knowledge management	<i>my first business analyst project was a knowledge management programme (mini-case 5)</i>
	Migration	<i>I have done quite a lot of data migration type projects (mini-case 8)</i>

	Organisational design	<i>I have worked on big programmes of work which have meant the outcomes of which are organisational changes (mini-case 12)</i>
	Process improvement	<i>My role spent a lot of time identifying and understanding the process that those people are actually working through so I was actually trained to do their job first of all so that I could start working out how we could then make changes to make it more efficient (mini-case 16)</i>
	Regulatory and Government policy	<i>I am also involved with projects to do with the employers' liability office so that is where every employer's liability policy needs to be lodged with a central organisation so that you can find out whether you were covered or not 10 years ago so a real kind of detailed regulatory stuff (mini-case 7)</i>
Systems analysis		<i>there are some specialists that love the detailed mapping of data – physical data entities - to me that's... that looks too much like systems analysis for my liking (mini-case 1)</i>
The difference between business analysis and systems analysis.		<i>possibly system analysts under that but they don't sit with the BA community in my company so they are very platform specific and very technical so they're not seen as part of the BA community (mini-case 8)</i>  <i>we have quite a tension going on between business analysis and systems analysis (mini-case 13)</i>

The content dimension was concerned with addressing research objective one which sets out to identify a set of clear, distinct services that business analyst practitioners may offer to their organisations and define the activities that the business analysts undertake when offering these services.

The data and coding for this dimension was analysed and reflected upon. Service science offered a lens through which to view the data. A service view of business analysis was deemed relevant to provide role clarity and address the translation issues often associated



with the discussion of IS work with internal customers (Alter, 2010). This lens supported the development of an initial list of services as follows:

- The examination of the set of activities identified from the analysis of the data to identify where they may be grouped to form a service with the potential for value co-creation.
- The analysis of the value propositions suggested by the mini-cases in order to review their alignment with the proposed groups of activities.

The proposed services were also reviewed against the types of project the mini-cases had experienced in order to review the applicability of the services.

### **6.3.2 Content dimension: themes and assertions**

The data analysis described in sub-section 6.3.1 has led to the identification of themes concerned with the activities conducted by business analysts. The following themes within the content dimension emerged from the data analysis:

- Similar activities could be combined to form services as follows:
  - There were several activities that were concerned with understanding the nature of the problem and the areas of the organisation that are likely to be affected. The value proposition codes also identified that business analysis offered alignment with the needs of the business and clarity regarding the situation.
  - The evaluation of options, assessment of feasibility and formulation of business cases were also areas of business analysis activity and aligned with the value proposition concerned with helping organisations to invest in the 'right thing'.
  - The definition of requirements was identified by the mini-cases as a core business analysis activity and this corresponded with value propositions such as ensuring traceability and alignment.
  - Activities that are concerned with process modelling and improvement were also identified and the value propositions concerned with driving efficiencies and ensuring alignment
  - Activities concerned with the delivery of change were identified. These involved testing and implementation of change. Value propositions that corresponded with these activities were ensuring delivery, having a holistic view and alignment.

- There were several activities that were concerned with stakeholder engagement. These included facilitation and communication. A value proposition 'stakeholder representation' corresponded to these activities.
- Some mini-cases identified systems analysis as a different discipline and were clear that they would not do this work. Others felt that a pragmatic approach needed to apply where the business analysts were able to undertake systems analysis. However, there was a sense of tension surrounding this area.
- The types of project encountered by the mini-cases were wide-ranging. However, they corresponded with the services derived from mapping the activities and the value propositions.

The data analysis described in sub-section 6.3.1 has led to the identification of themes concerned with the definition of the business analyst role. This has been done through the definition of services. The identification of a distinction between business and systems analysis has also emerged from the data; this distinction has the potential to further define the business analyst role. In a similar vein to sub-section 6.2.3, the codes that emerged from the data analysis of the content dimension have been subject to a process of reflection and synthesis. The themes have been reviewed and assertions have been generated (Miles et al., 2013; Saldana, 2011, p.119) that relate to the definition of the business analyst role; this is the concern of research objective one. The assertions relate to the findings from the research into the representative BAMF mini-cases. These assertions have the potential to illuminate and improve the understanding of the business analyst role.

The assertions identified are:

**Assertion 4:** There are six areas of service provided by business analysts. These concern the following:

- Definition of the project to address the problem.
- Evaluation of the feasibility of proposed options and production of a business case.
- Modelling and improvement of the business processes.
- Definition of the requirements.
- Support for testing and deployment of the business changes.
- Stakeholder support and engagement.

**Assertion 5:** Systems analysis is not a core element of business analysis but may be conducted by business analysts with specialist skills.

### 6.3.3 Discussion regarding the content findings

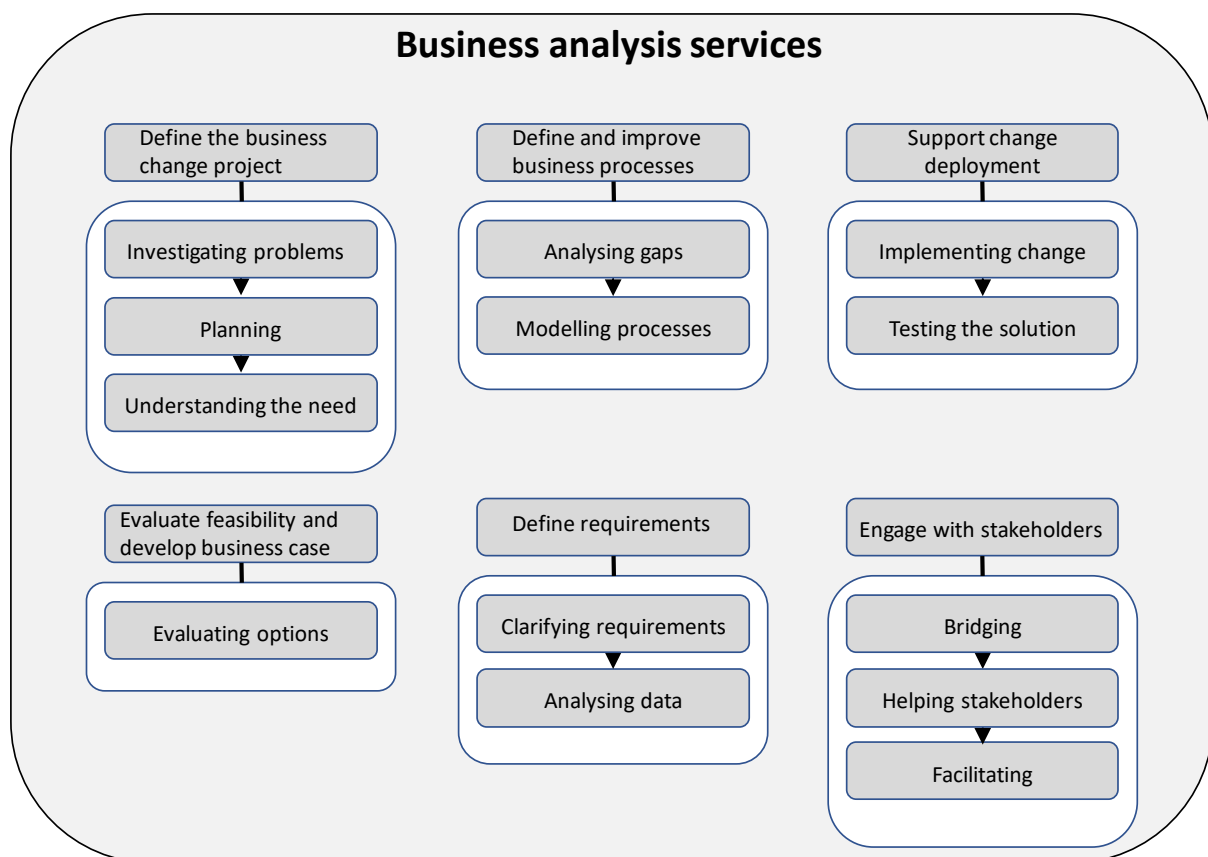
**Assertion 4** concerns the service offering from business analysis.

Service science defines a service as:

*‘the application of competences for the benefit of another’ (Vargo and Akaka, 2009, p.32) .*

This definition helps to clarify how a business analysis service might be identified. An affinity diagram (PMI, 2015) was used to group activities with common work practices and objectives. This is shown in Figure 6.7.

**Figure 6.7: Affinity diagram showing business analysis services**



Each group of activities was deemed a ‘service’ offering in line with the service science literature, applying the principle that business analysts utilise their specialist business analysis competences in order to benefit their internal customers (Lusch and Nambisan, 2015). The definition of a suite of services provided a basis for considering the service system resources required to co-create the value offered by each service (Maglio and Spohrer, 2008).

Mapping the business analysis activities to the suggested value propositions placed a focus on the benefits offered to customers and further supported the identification of the services.

This mapping is shown in table 6.7.

**Table 6.7: Mapping of business analysis services to activities and value propositions**

<b>Service</b>	<b>Activities</b>	<b>Value propositions</b>
Define the business change project	Investigating problems Planning Understanding the need	Alignment Clarity Holistic view Problem definition Stakeholder representation
Evaluate feasibility and develop business case	Evaluating options	Holistic view Innovation Spending on the right thing Stakeholder representation
Define and improve business processes	Analysing gaps Modelling processes	Alignment Driving efficiencies Holistic view Innovation Stakeholder representation
Define requirements	Clarifying requirements Analysing data	Ensuring traceability Holistic view Stakeholder representation
Support change deployment	Implementing change Testing the solution	Ensuring delivery Holistic view Stakeholder representation
Engage with stakeholders	Bridging Helping stakeholders	Stakeholder representation

	Facilitating	
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The mapping shown above supported the definition of the services that may be offered by business analysts. The activities help to identify the work conducted in the delivery of each service and the value propositions suggest the benefits that may accrue from each service.

The observations made by the mini-cases, the coded activities and the extant literature were applied to each service in order to extend and clarify the activities that should be performed.

The primary literature sources were identified in chapter three as part of the conceptual framework; these were supplemented where necessary. The literature used to define the activities for each service was:

- Define the change project: soft systems methodology (Checkland, 1981; Checkland and Scholes, 1999), in particular, stages 1 to 4; business environment analysis (Johnson et al., 2007); (PMI, 2015).
- Evaluate feasibility and develop business case: benefits management (Ward and Daniel, 2012); feasibility assessment and business case development (PMI, 2015).
- Define and improve business processes: business process modelling (Arlow and Neustadt, 2005; Cadle et al., 2014; Harmon, 2014); business process change (Harmon, 2014).
- Define requirements: requirements engineering (Paul et al., 2014; Robertson and Robertson, 2013; Sommerville and Sawyer, 1997; Sommerville, 2005).
- Support change deployment: this area was not identified in great detail by the mini-cases and there was little coverage in the literature reviewed for this study. Some practitioner literature was identified as follows: testing solutions (Hambling and van Goethem, 2013; PMI, 2015); change deployment (Paul et al., 2014). However, the observations from the mini-cases lacked detail. One of the conclusions from this research identifies the need for further investigation of the business analyst role within this area.
- Engage with stakeholders: a range of references apply, depending upon the nature of the task and the techniques to be used. For example, the involvement of customers in the co-creation of value (e.g., Lusch and Nambisan, 2015); the use of CATWOE (Checkland, 1981) to review different 'world views'; the use of the power/interest grid (Johnson et al., 2007) to assess the relative level of importance of the stakeholder.

The application of theories from the literature, in particular the practitioner literature, and the further analysis of the data collected from the mini-cases, resulted in a more detailed definition of each service as shown in table 6.8.

**Table 6.8: Business analysis services and the corresponding activities**

Service	Illustrative mini-case observations	Service activities
Define the change project	<p><i>We try to get to basics and try to say, right, what are you trying to achieve? What, you know, is your success criteria for this and understand what the problem is before you start putting a solution that perhaps won't work around it (mini-case 3)</i></p> <p><i>you can often find that decent business analysts can scope the project well enough to initiate it (mini-case 5)</i></p>	<p>Investigate the problem or opportunity</p> <p>Investigate the situation</p> <p>Understand the business environment</p> <p>Identify the business and stakeholder needs</p> <p>Define the problem</p> <p>Define the scope of the change initiative</p>
Evaluate feasibility and develop business case	<p><i>we do some information gathering that feeds into the business case some high-level requirements, sometime a bit of a feasibility, and options before the business case (mini-case 6)</i></p> <p><i>one of the tasks that we do in this organisation is that we do put together the business case so we do get involved in the cost side for the project manager, how much is this going to cost to do but also the benefit side .... what is the case for change, what is the value of that (mini-case 10)</i></p> <p><i>it's good that a BA understands it but not necessarily does the financials... but everything else that sits in the business case around defining the outcomes, the costs, the</i></p>	<p>Identify options to resolve the problem</p> <p>Describe options</p> <p>Identify and analyse impacts and risks for each option</p> <p>Identify and analyse costs and benefits for each option</p> <p>Evaluate feasibility of options</p> <p>Support selection of solution</p>

	<i>benefits and making them measurable (mini-case 18)</i>	
Define and improve business processes	<p><i>in terms of moving towards that envisioning, what is that 'to be' going to be and what is it going to look like (mini-case 5)</i></p> <p><i>we would start off with defining the 'as is' and then we would work to define the future statement 'to be' and looking at all the gaps and any of the efficiencies that we could identify (mini-case 17)</i></p>	<p>Model existing processes</p> <p>Define required (new or revised) processes</p> <p>Identify gaps between existing and required processes</p> <p>Analyse gaps between existing and required processes</p> <p>Identify actions to implement new processes</p> <p>Ensure alignment between IT systems and processes</p>
Define requirements	<p><i>there's obviously the clear requirements elicitation, requirements management (mini-case 1)</i></p> <p><i>the BA role was very much about the requirements analysis (mini-case 18)</i></p> <p><i>I guess there are some obvious ones around requirements management, requirements elicitation, analysis ...so I'd say RE was at the forefront of what I was doing. (mini-case 19)</i></p>	<p>Elicit and interpret the requirements</p> <p>Define written requirements</p> <p>Build models and prototypes to represent the requirements</p> <p>Communicate requirements to stakeholders in the business and IT functions</p> <p>Analyse the requirements</p> <p>Conduct user analysis</p> <p>Ensure the requirements are aligned with business goals</p> <p>Ensure traceability of requirements from the business need to the solution</p>

<p>Support change deployment</p>	<p><i>there's a link between analysis and testing even if it's testing of a manual process. And, you know, I think that it's best when BAs are around to support that (mini-case 1)</i></p> <p><i>my business analysts are involved all the way through the lifecycle. So, it doesn't stop at the end of study, we carry on and we support right the way through development, through testing, through implementation (mini-case 3)</i></p> <p><i>migrating the data, training people, implementing the system (mini-case 6)</i></p> <p><i>you try to deploy it properly in the organisation by providing training, coaching, guidance (mini-case 14)</i></p>	<p>Define test scenarios and cases</p> <p>Provide user acceptance testing support for the IS solution</p> <p>Develop and deliver training in the new IS</p> <p>Support the adoption of the IS</p> <p>Support the benefits and post-implementation reviews</p>
<p>Engage with stakeholders</p>	<p><i>differentiating between how you need to talk to the various people and to recognise it. (mini-case 4)</i></p> <p><i>you need to be able to get on with people, so you need not to antagonise people, you need to be able to say stop to people without them taking offence, you need to be able to say no to people without them taking offence, you need to be focused with them without them taking offence so you have to do a lot of stuff which could offend people without offending them, you have to beg favours of people, you have to encroach on people's time, you have to go back and ask people questions where they feel they've covered it, you may have to talk to people who don't really want to talk to you (mini-case 12)</i></p> <p><i>helping the business understand what they want and then playing that back to them,</i></p>	<p>Challenge stakeholders</p> <p>Inform stakeholders</p> <p>Negotiate stakeholder conflicts</p> <p>Engage with stakeholders</p> <p>Communicate with stakeholders</p> <p>Facilitate communication between stakeholders</p> <p>Support stakeholders</p> <p>Facilitate meetings and workshops</p>



	<p><i>breaking big problems into small problems, and playing it back to them in their language that they can understand and agree with.</i> (mini-case 20)</p>	
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It is also possible to consider the services in the light of the types of project undertaken by the mini-cases throughout their careers. Table 6.9 shows a mapping of where these services would be relevant to the types of projects encountered by the mini-cases through their business analysis work. It is notable that the business analyst services are relevant to the wide range of project types identified by the mini-cases.

**Table 6.9: Mapping of business analysis services to project types**

<b>Project Type</b>	<b>Service</b> Define the business change project	Evaluate feasibility and develop business case	Define and improve business processes	Define requirements	Support change deployment	Engage with stakeholders
Business transformation	X	X	X	X	X	X
Competency improvement	X			X	X	X
Integration	X	X	X	X	X	X
IT-focused project	X	X		X	X	X

Regulatory and Government policy	X	X	X	X	X	X
Feasibility study		X				X
Knowledge management			X	X		X
Organisational design			X	X		X
Process improvement			X			X
Migration					X	

The suite of services defined in this section form the basis for the Business Analysis Service Framework (BASF). The BASF is further elaborated in chapter seven where research objectives two and three are addressed.

**Assertion 5** is concerned with the relationship between the systems analyst and business analyst roles. Literature regarding the systems analyst role sets out clearly the technology-focused nature of this role (e.g., Misic and Graf, 2004; Schenk et al., 1998). While the roles of the systems analyst and business analyst are sometimes conflated (e.g., Gullemette and Pare, 2012; Petter et al., 2013), research has been conducted into the differences between these roles (Vongsavanh and Campbell, 2008).

The tension between the systems analyst role and the business analyst role was evident from comments made by the mini-cases.

*Here, we have quite a tension going on between business analysis and systems analysis (mini-case 13)*

*this boundary between the systems analysis and business analysis was a constant challenge.... I would have business analysts who were very technically minded who would do the stuff and then get told that's not your job (mini-case 18)*

In some organisations, a more technical role was said to form part of business analysis although a distinction was drawn between the two variants of the role.

*They tend to fall into two camps really within the organisation, the business business analyst and the technical business analyst (mini-case 2)*

Some of the mini-cases felt able to undertake activities that were more relevant to systems analysts.

*We were working on the whole self-billing systems and changing the billing systems so it was quite technical, it was very IT focused (mini-case 18)*

The regularity of comments regarding the technical variant of the business analyst role suggests that this is an area of concern to the mini-cases and that the business analyst role with regard to information technology requires clarification. Some business analysts reject the technical aspects while others embrace them; some organisations support the allocation of business analysts to technical work, others have identified this as being outside the scope of the business analyst role.

Overall, it appears from the data that there is a core element to the business analyst role, which may be extended to incorporate systems analysis activities. This may result in the establishment of a specific type of business analyst – the technical business analyst – or may occur where a business analyst is able to offer the skills and knowledge to undertake systems analysis and this is acceptable to the organisation.

Given the breadth of the business analysis role and the lack of clarity of the role definition, it is to be anticipated that there will be areas of work conducted by some business analysts that are not typical. While systems analysis was the area subject to most comment, the link to the IS architectural domains was also recognised by three of the mini-cases as follows:

*I went in a Business Analysis/ Data Analyst and now I am an architect on data. (mini-case 15)*

*the word 'analysis' it links it all because you can't be a business architect without analysing the business need. (mini-case 20)*

*that road map is how to get from A to B, its simply that the business don't know how to do that so they look towards the business analyst and it's normally the most senior*

*of the business analysts are trusted enough with the organisational choices that are made by business architects. (mini-case 20)*

Again, these may be specialist activities that business analysts with relevant skills undertake. However, mini-case 20 observed that only the 'most senior' analysts conduct business architecture work. It is possible that this reflects a desire to extend the career possibilities for business analysts and that a business architecture role offers a means of addressing this need.

#### **6.3.4 Triangulation of the services offered by business analysts**

Triangulation of the research findings was conducted to corroborate or clarify the research findings (Stake, 1995); this may result in the identification of confirmations, contradictions or omissions. Triangulation may be done by examining the findings in the light of multiple sources of evidence (Yin, 2013). For example, by examining a phenomenon using a different research method (methodological triangulation) or by reviewing other sources of data about the phenomenon (data source triangulation) (Stake, 1995). The use of additional data sources is a recommended approach to triangulate case study research findings (Yin, 2013). Data source triangulation considers if a phenomenon (in this case business analysis) is consistent across different instances (Stake, 1995) and Yin advises that the aim is to corroborate the findings from the data analysis in order to reinforce the construct validity.

One of the BAMF organisations, offered the use of a business analysis service catalogue (T1) as an additional data source for this study. Version 1.0 of this catalogue was published for use within this organisation on 19 January 2015. The catalogue was developed in order to define the services offered by the Business Analysis Function to its internal customers. The aim of the catalogue is to provide a clear definition of the services offered to the stakeholders within the business and to support the following:

- The selection and procurement of business analysis services by customers.
- The definition and implementation of the processes required to offer the business analysis services.
- The performance monitoring and management of the Business Analysis Function.

The service catalogue was used to enable data source triangulation with regard to the data analysis and findings for research objective 1. The service definitions within the catalogue were analysed in the light of the BASF identified earlier in this section. It was possible to align all of the fourteen core services with the six services within the BASF. Comparison and alignment between the two sets of services is shown in table 6.10. While the service

catalogue included services at a more detailed level of granularity than the BASF, this table shows that the core services are encompassed within the BASF.

**Table 6.10: Business analysis service framework / T1 service catalogue comparison**

<b>Service from BASF</b>	<b>Service from T1 service catalogue</b>
Define the change project	Pre start-up
Evaluate feasibility and develop business case	Options analysis Investment paper production Business case development Benefits assessment and delivery Benefits management
Define and improve business processes	Business process improvement Process safety (relevant to this area but not generalisable as this is a specialist activity for this organisation)
Define requirements	Requirements analysis and documentation Requirements planning and management Requirements visualisation Requirements quality assurance
Support change deployment	Business acceptance testing
Engage with stakeholders	Facilitation

The service catalogue also identified eight extended services as shown and commented upon in table 6.11.

Table 6.11: Extended services within T1 service catalogue, with comments

Extended service	Comment
Project Tools Strategy	Governance activity – outside the scope of this study
Configuration/ Support of IS Tools	Governance activity – outside the scope of this study
IT Service Management	Description states the business analyst role for this service involves ensuring that the IT service requirements are clearly defined; this is part of the <i>Define requirements</i> service.
Training Needs Analysis	Description states the business analyst role for this service is to analyse and specify user training events for new IS; this is part of the <i>Support change deployment</i> service.
Test Driven Requirements Approach	Description states the business analyst role for this service is to support the development of a test-driven approach to requirements definition for a project; this is part of the <i>Define requirements</i> service.
User Experience Services	Description states the business analyst role for this service is to develop the user experience for an IT solution; this is part of the <i>Define requirements</i> service.
Change Management	Description states the business analyst role for this service is to provide the process, tools and techniques for managing the people dimension for an IS change; this is part of the <i>Support change deployment</i> service.

<p>Graphic Recording (Facilitation)</p>	<p>Description states the business analyst role for this service is to plan, prepare and record meetings and workshops; this is part of the <i>Engage with stakeholders</i> service.</p>
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The triangulation process applied to the defined services identified that the service catalogue contained 22 service offerings as opposed to the six identified in the BASF. However, many of the services were decompositions of an overarching service and, when aggregated, the core services aligned with the BASF. The majority of the extended services also aligned with the BASF other than where the service concerned the definition of tools and standards for the operation of the IS function within the energy company. Consideration was given to extending the BASF to incorporate these services, however, it was felt that they were project types rather than services. For example, the service *Project Tools Strategy* could be conducted through the BASF services to *Define requirements* and *Support change deployment*. Therefore, it was decided that extending the BASF was not warranted.

Given that some of the services within the service catalogue were at a lower level of decomposition than the BASF services, for example, the requirements services are aggregated within the BASF, consideration was given to decomposing the BASF services. However, it was felt that such an approach would risk the clarity of the BASF and, as a result, it was not felt necessary to further decompose any of the BASF services.

Observations within the BASF *Support change deployment* service referred to ‘user acceptance testing’ but the service catalogue named this area ‘business acceptance testing’. The term ‘business’ rather than ‘user’ was considered to better reflect the holistic nature of the service as *user* acceptance testing emphasised the use of an IT system rather than the acceptance of an IS solution. Therefore, this term was adopted within the BASF.

The service catalogue defined the activities required to conduct each service and these were used to triangulate the activities listed for each business analysis service within the BASF. Many of the activities defined were specific to the organisational standards and processes, for example, there were references to internal templates for use when performing business analysis. However, some of the activities were relevant to business analysis practice in general and would be applicable across organisations. Analysis of these activities identified some possible extensions to the BASF; these are described in sub-section 6.3.5.

### 6.3.5 The Business Analysis Service Framework: research objective

#### 1

The service catalogue identified some activities that, when analysed, suggested extensions to the BASF. These extensions are as follows:

- Evaluate feasibility and develop business case: the service catalogue includes an activity to develop the benefits plan, as part of benefits management. This activity was identified as falling within the business analyst role, although it would require collaboration with other project team members such as the project manager, and corresponded with the BASF activity to review the benefits (within the *Support change deployment* service). Therefore, these activities were added to the BASF.
- Define and improve business processes: an activity to identify and analyse business process measures. While there were no direct references to this work during the interviews with the BA specialists, mention was made of the need to make processes more effective and efficient. This would require the use of process measures. Therefore, this activity was added to the BASF.
- Define requirements: an activity to define the quality standards for the requirements. The interview transcripts were reviewed in the light of this activity and, while there were no references to requirements quality standards, several mini-cases mentioned standards, quality requirements and the documentation. Therefore, this activity was added to the service framework. The service catalogue also incorporates procedural detail with regard to user experience analysis. This was not an area upon which many mini-cases focused, however, there were two mini-cases who identified the need for analysing user experience. Therefore, the activity to conduct user analysis was extended to include 'profiling'.
- Support change deployment: the service catalogue identifies the need to agree the scope of the testing activity. Given the holistic nature of business analysis, and the potential for collaboration during the business acceptance testing, this was included as an additional activity.
- Engage with stakeholders: representing information elicited during IS project meetings and workshops, is defined as a service within the service catalogue. The mini-cases identified many techniques that they use to visualise workshop results. Therefore, this was included as an additional activity.



The business analysis service framework was updated during the triangulation process defined above and is shown in table 6.12; the changes made during triangulation concern the activities required to deliver each service and are highlighted in bold.

This version of the BASF addresses the first research objective:

- RO1: The role (what is done): identify a set of clear, distinct services that business analyst practitioners provide to their organisations and list the activities that business analyst practitioners undertake in order to offer these services.

**Table 6.12: Business Analysis Service Framework with highlighted extensions**

<b>Service</b>	<b>Service activities</b>
Define the business change project	Investigate the problem or opportunity Investigate the situation Understand the business environment Identify the business and stakeholder needs Define the problem Define the scope of the change initiative
Evaluate feasibility and develop business case	Identify options to resolve the problem Describe options Identify and analyse impacts and risks for each option Identify and analyse costs and benefits for each option Evaluate feasibility of options Support selection of solution <b>Develop benefits plan</b>
Define and improve business processes	Model existing processes Define required (new or revised) processes Identify gaps between existing and required processes Analyse gaps between existing and required processes

	<p><b>Identify and analyse business process measures</b></p> <p>Identify actions to implement new processes</p> <p>Ensure alignment between IT systems and processes</p>
Define requirements	<p><b>Define requirements quality standards</b></p> <p>Elicit and interpret the requirements</p> <p>Define written requirements</p> <p>Build models and prototypes to represent the requirements</p> <p>Communicate requirements to stakeholders in the business and IT functions</p> <p>Analyse the requirements</p> <p><b>Conduct user analysis and profiling</b></p> <p>Ensure the requirements are aligned with business goals</p> <p>Ensure there is traceability of requirements from the business need to the solution</p>
Support change deployment	<p>Define test scenarios and cases</p> <p><b>Agree scope for testing activity</b></p> <p>Provide user acceptance testing support for the IS solution</p> <p>Develop and deliver training in the new IS</p> <p>Support the adoption of the IS</p> <p>Support the benefits and post-implementation reviews</p>
Engage with stakeholders	<p>Challenge stakeholders</p> <p>Inform stakeholders</p> <p>Negotiate stakeholder conflicts</p> <p>Engage with stakeholders</p>

	<p>Communicate with stakeholders</p> <p>Facilitate communication between stakeholders</p> <p>Support stakeholders</p> <p>Facilitate meetings and workshops</p> <p><b>Record outputs from meetings and workshops</b></p>
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## 6.4 Chapter summary

This chapter has analysed and reported on the data collected from the interviews with the BA specialists, the ‘mini-cases’. The data relating to the context for the business analysis work conducted by the mini-cases has been described. This has comprised the personal perspective, including the characteristics for each expert, their involvement with professional bodies and the extent of their business analysis experience, and the organisational perspective, which has included the volume of business analysts employed within each organisation and the attitudes towards business analysis. The analysis of this data highlighted the lack of awareness and recognition of business analysis in many organisations and the variability of business analysis work performance.

Role theory has been used to review the findings within the data and has revealed that the lack of clarity of the business analyst role may be a significant contributing factor to the lack of recognition. This theory suggests that a lack of role congruence may contribute to poor performance, as business analysts and customers may not understand what is expected. The presence of role ambiguity may also create stress and, thereby, lead to diminished performance.

The content and nature of business analysis work has also been analysed in the light of the data collected. Comments made by the mini-cases have suggested that the business analyst role is difficult to define clearly. Service science has been adopted as a lens through which to view, organise and define the business analyst role. This has resulted in the development of an initial Business Analysis Service Framework (BASF).

This initial BASF has been triangulated through a process of analysis and comparison using a document developed for use by an internal Business Analysis Function within a major UK-based energy company. This document is the business analysis service catalogue for this organisation and sets out an alternative view of the services that may be offered by a business analysis function. The triangulation process sought to identify confirmations and

extensions of the findings from this research and, in doing so, has identified where changes or extensions to the initial BASF should be made.

The data analysis and triangulation of the context and content dimensions of the conceptual framework, and the application of service science theory, has addressed research objective 1.

- RO1: The role (what is done): provide clear, understandable definitions of the activities that business analyst practitioners provide to their organisations.

Research objectives two and three are concerned with additional aspects of business analysis work practices and the outcomes from business analysis; these are considered in chapter seven.

## **7 Findings and discussion: process and outcomes dimensions**

### **7.1 Introduction**

This chapter addresses the research objectives two and three, and focuses on the work practices of the business analyst and the value proposition offered by business analysis. The research objectives are:

- RO2: The work practices (how business analysis is conducted): construct a taxonomy of the techniques, models and skills required to perform these activities.
- RO3: The rationale (why business analysis is required): provide a clear and accessible definition of the value proposition for business analysis work.

Two dimensions of the conceptual framework are discussed: the process dimension and the outcomes dimension. Accordingly, this chapter is structured as follows:

- The process dimension: analysis of the data concerned with the skills and techniques of business analysis, discussion of the process findings, and the development of an extended Business Analysis Service Framework (BASF) that incorporates the techniques and skills applied by business analysts. The triangulation of this version of the BASF.
- The outcomes dimension: analysis of the data that was concerned with the value proposition for business analysis, discussion of the outcome findings, and the extension of the Business Analysis Service Framework (BASF) to include statements of the value proposition for each service. The triangulation of the extended BASF.
- Chapter summary: the key findings from the process and outcomes dimensions of the conceptual framework.

### **7.2 Process: the skills and techniques**

The process dimension of the conceptual framework addresses research objective two which concerns the skills and techniques used in business analysis practice. To explore these areas, the mini-cases were asked about the skills required to work as a business analyst and the analytical techniques they applied.

Service science clarifies the integration of operand and operant resources in the delivery of service (Vargo et al., 2010) highlighting that operant resources collaborate with and utilise other resources in the co-creation of value. Within service-dominant logic ‘customers, employees and other stakeholders’ are viewed as operant resources (Vargo et al., 2010, p.139). In delivery of business analysis services, the business analyst is such a resource, offering intangible skills and knowledge when working with other operant resources, the stakeholders. The nature and extent of the skills and knowledge required of business analysts needs to be explored however and this is the focus of this section.

The skills were discussed using the personal qualities, business knowledge and professional analysis techniques categorisation provided by Rollason (2014). This categorisation corresponds with other skill taxonomies (Dennis et al., 2015; Misic and Graf, 2004) and is used within the BAMF Expert BA Award (BAMF, 2012).

The coding within the process dimension was derived during the data analysis. The template was applied to the data and, as described in chapter five, this was updated as new codes emerged. The final level one coding for the process dimension is shown in table 7.1.

**Table 7.1: Level one coding for the process dimension**

<b>Level one code</b>	<b>Meaning</b>
Business skills	The knowledge and skills relating to the business domain and business organisations in general that business analysts require in order to work effectively.
Personal skills	The interpersonal qualities and skills required to work effectively as a business analyst.
Professional skills	The professional analytical skills and techniques required to work effectively as a business analyst.
Standards	The views of the mini-cases on the standards applied in their organisation and the level of success in doing this.

The level one codes are explored further in the following sub-sections. The primary focus of these sub-sections is on the personal, business and professional skills required of business analysts.

## 7.2.1 The personal skills and qualities required of business analysts

The personal skills were discussed during the data collection interviews and a wide range of skills were identified by the mini-cases. These are the personal qualities and skills required to work effectively as a business analyst. The level two codes that were decomposed from the level one code 'Personal skills' are set out in table 7.2.

**Table 7.2: The personal skills required of business analysts**

<b>Personal skills: level two code</b>	<b>Illustrative comments</b>
Being assertive	<i>If what you're doing is not aligned, if what your senior stakeholders are asking you to do because that's what their vision is, if that's not aligned back to what the objectives and goals of the organisation are, you have got to challenge it (mini-case 15).</i>
Communicating	<i>If you have the ability to listen primarily to understand exactly where a stakeholder is coming from... when we are interviewing, that is really the core sort of life skill set that somebody can actually sit down, have a conversation and ask basic questions to just get the stakeholder talking, to understand exactly where they are coming from (mini-case 17).</i>
Convincing	<i>Whether you believe it in yourself or not but coming across as credible so I think there has to be a level of self-confidence, even if you're faking it (mini-case 18).</i>
Facilitating meetings	<i>a strong BA, especially in this firm, needs to be able to pull the right people into a meeting, get their attendance and their attention, structure it, put a decent agenda together – and a timed agenda – and control the meeting, stick to it (mini-case 4).</i>
Influencing	<i>I think you need all of those skills to be able to get people to want to talk to you and to stay talking to you even though you're not giving them necessarily what they want (mini-case 12).</i>

Innovating	<i>We have got a vision statement which is to be seen internally &amp; externally as a high performing team providing insight, innovation to our business (mini-case 10).</i>
Negotiating and managing conflict	<i>when you have conflict, which is what I have seen is the biggest issue when it comes to stakeholder engagement, it's how you articulate that to each party and how you make sure that you can come to a joint agreement and you as a BA should facilitate that (mini-case 11).</i>
Building relationships	<i>you look at who you have got, how you talk to them, what's the best environment for doing that, when piggy backing ideas is going to work, when it's not going to work, when you just need to listen (mini-case 12).</i>

The importance of the personal skills was identified by all of the mini-cases. One mini-case, a manager of a Business Analysis Practice, commented that these are more important than analytical skills:

*the recruitment round that we did, we were very much looking for behavioural skills and even more so than analytical skills actually, because if you can't get on with people, it doesn't matter how good your analysis is (mini-case 10).*

One of the other mini-cases expanded on why these skills are so important during business analysis:

*you need to be able to get on with people, so you need not to antagonise people, you need to be able to say 'stop' to people without them taking offence, you need to be able to say 'no' to people without them taking offence, you need to be focused with them without them taking offence so you have to do a lot of stuff which could offend people without offending them, you have to beg favours of people, you have to encroach on people's time, you have to go back and ask people questions where they feel they've covered it, you may have to talk to people who don't really want to talk to you (mini-case 12).*

It could be argued that stakeholder engagement skills are required in many roles. However, the discussions with the mini-cases focused on the personal skills required of business analysts, therefore, the skills defined in table 7.2 reflect the personal skills required to conduct business analysis work effectively. Some mini-cases supported their assertions by



clarifying the importance of these skills to business analysts or the impact where these skills were lacking:

*we have had analysts in the past who have found it very difficult to integrate into the project and services that they are trying to work with and more often than not it comes down to their communication and interpersonal skills rather than any kind of skills as an analyst (mini-case 9).*

A particular example concerned the elicitation of tacit knowledge, a key issue when investigating business problems and uncovering requirements. Tacit knowledge concerns knowledge that derives from personal experiences and beliefs, and, as a result, is difficult to articulate (Prasarnphanich et al., 2016). One mini-case commented:

*it is about an understanding and a willingness to learn about their world, I think it is the most important thing, because there's lots of tacit knowledge out there that is so embedded that you never will get to it until you actually understand and walk a mile in their shoes (mini-case 7).*

Several mini-cases also acknowledged the importance of personal skills where business stakeholders had concerns about working with business analysts and may be 'resistant' (mini-case 14) or wary because of the potential impact of any changes upon their work situation:

*they are always going to be wary because they know the business analyst's coming in to do change within an organisation, if you can't build that rapport and get a relationship going with the stakeholders, you're in a very sticky situation (mini-case 15).*

In summary, the mini-cases identified that they need to possess a range of personal skills in order to engage and work collaboratively with stakeholders. This corresponds to a service view which is inherently customer-oriented and requires resource integration to co-create value (Vargo and Lusch, 2008). They also recognised that sometimes they were required to engage and collaborate with stakeholders in difficult and challenging circumstances, and that this requires them to be able to offer skills in areas such as negotiation and influencing.

The business skills of a business analyst are discussed in the next sub-section.

## 7.2.2 The business skills and knowledge required of business analysts

Business knowledge is one of the three categories of business analyst skills identified earlier in this chapter (Rollason, 2014). If business analysts are to work collaboratively with their business customers, they need to be able to interact with them. This requires the business analysts to possess the personal qualities discussed in sub-section 7.2.1 and to be proficient in the terminology and concepts relevant to the business domain within which they are working (Gorman, 2010).

The business skills and knowledge that are required to conduct business analysis work effectively were discussed with the mini-cases; the decomposition of the business skills coding is set out in table 7.3.

**Table 7.3: The business skills required of business analysts**

<b>Business skills: level two code</b>	<b>Illustrative comments</b>
Business domain	<i>it is very important that you know how your business works so that you can get value add to business (mini-case 11).</i>  <i>in order to get the trust of your stakeholders I think it is really important that you understand the industry itself and how things work and what they are talking about (mini-case 6).</i>
Business generic	<i>they need to understand how a business runs and how it makes money and what it is in business for (mini-case 18).</i>

While the mini-cases stated that it was important to have knowledge of the business domain within which they were working, the level of importance varied between organisations or parts of an organisation. One mini-case declared business domain knowledge to be '*pretty essential*' (mini-case 8) while another stated that '*domain knowledge here carries huge weight*' (mini-case 13). However, for others, it was considered helpful rather than essential: '*a certain level of domain knowledge helps*' (mini-case 14).

It was not considered essential that an analyst had all of the required business knowledge at the outset as several mini-cases stated that it could be learnt:

*a strong BA will pick up the domain of wherever they are working (mini-case 4).*

In summary, business knowledge was felt to be useful for communication purposes and helped to establish credibility with business stakeholders. Many of the mini-cases did not see this as an essential area of competence at the outset; they felt that business analysts should be able to learn the terminology and practices of a new business domain. However, they emphasised that where a business analyst does not possess the knowledge with regard to a particular business area, it is important that they ensure they acquire the required knowledge.

### 7.2.3 The professional skills required of business analysts

While personal and business skills are key areas for business analysts, the skills that distinguish the business analysis discipline are the professional, analytical skills required to work effectively as a business analyst. These skills were discussed with the mini-cases and data was collected regarding the range of skills and techniques, and their usage. The level two codes for the professional skills are shown in table 7.4.

**Table 7.4: Level one and level two codes for the professional skills**

<b>Professional skills: level two code</b>	<b>Illustrative comments</b>
<p>Analytical thinking</p> <p>These skills are concerned with thinking logically and holistically.</p>	<p><i>a lot of business analysis is almost logic and being rational and organised (mini-case 6).</i></p> <p><i>I consider my strengths to be around modelling and putting different lenses on information to make sure that we have got the whole picture (mini-case 8).</i></p>
<p>Standards</p> <p>These are the frameworks, templates, techniques or approaches that are used, or intended to be used, within a particular business analysis</p>	<p><i>I do often say the good thing about standards in our organisation is that there is so many to choose from (mini-case 7).</i></p> <p><i>something we have got called the Source which is essentially a repository of our development lifecycle and it covers both, we have a change management on Source so they link together and they cover both the business change and the IT life cycle in terms of what has to happen, what documents have to be produced and provides templates, it doesn't tell</i></p>

practice or organisation.	<i>you how to do it, it just gives you, this is what is expected at this stage in the process and here's the templates (mini-case 8).</i>
Techniques  These skills are concerned with the application of techniques used in business analysis.  They may be of various types such as eliciting and modelling.	<i>class diagrams are essential and the reason for that is that I use them as elicitation tools as much as anything else (mini-case 5).  workshops, process mapping, doing 'as is' and 'to be' process mapping, things like mind maps which you often generate out of workshops also things like one-to-one meetings, stakeholder interviews, surveys (mini-case 9).  I always think the art of a great business analyst to have this wealth of tools and they know which situation to throw them at (mini-case 20).</i>

Unlike the more generic personal and business skills, the professional skills of the business analyst are specific to the business analyst role (Rollason, 2014). They involve the application of standards and techniques that are used when conducting relevant business analysis tasks. For example, the mini-cases made reference to 'swimlane diagrams', which are used when modelling business processes (e.g., Harmon, 2014; Robertson and Robertson, 2013).

Both the standards and techniques codes were decomposed to level three codes. These are shown in tables 7.5 and 7.6.

**Table 7.5: Decomposition of level two code 'Standards' into level three codes**

<b>Standards: level three code</b>	<b>Illustrative comments</b>
Adapting standards	<i>we have that expertise within the different methodologies and different techniques so you know that support is all there but there is still the freedom to do it in the best way (mini-case 12).</i>
Agile standards	<i>we are also part of an agile working group that is setting out the tools and techniques for doing agile within [company name] (mini-case 10).</i>

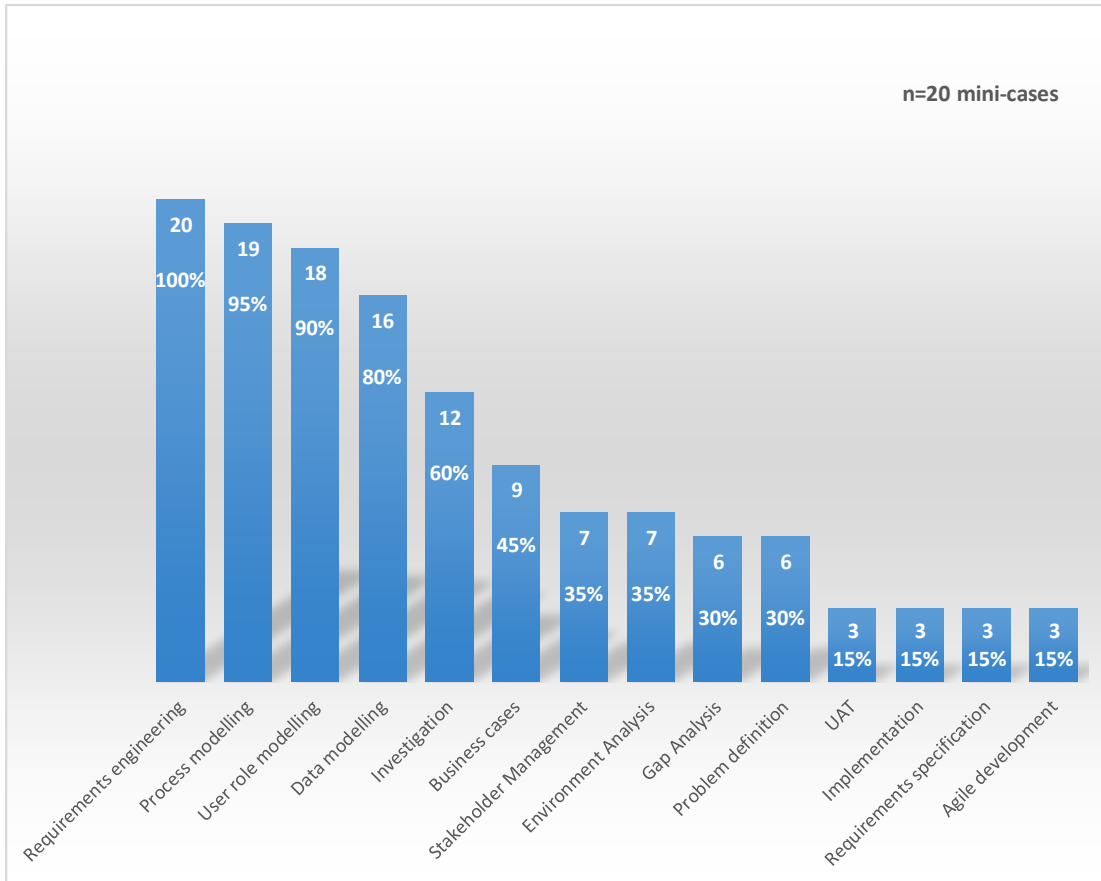
Industry standard methods	<i>We are adapting the practice that we have now pretty much to BABOK version 3 (mini-case 17).</i>
Internal standards	<i>We've got something called CLEAR. Don't ask me what it stands for - it used to mean something, I've got no idea what it stands for. And the BAs are supposed to go into that and take the templates, take the process of CLEAR, that you know, starts from the beginning of the project and flows through, we call them 'gates' all the way through. You know initiation gates, requirements gates, design gates, etc. and the BAs have got the things, the deliverables, they're supposed to do at each part including stakeholder analysis, those sorts of things (mini-case 4).</i>
Non-use of standards	<i>If you came here, people would go, look at the website and here on our intranet we have some standards, I don't know anybody who actually adheres to them (mini-case 13).</i>

The data revealed that there were numerous standards in use by business analysts; some were industry-standards while others had been defined internally. The reluctance of business analysts to adopt standards, and their desire to adapt them, was also evident from comments made by several of the mini-cases. Therefore, the data suggests that the use of standards is recognised to be beneficial but there seems to be a lack of consistent governance that determines how and when they are used. One of the mini-cases stated that in her organisation there were over 150 templates, commenting *'it's a mission in itself just working out what you have to do at each stage'* (mini-case 6).

The mini-cases were asked about the business analysis techniques they used when conducting their work. The responses were extensive and resulted in a list of forty-four techniques. The full list is shown in Appendix D, however, the list contains several techniques that are similar in purpose, for example, process models and activity diagrams. The techniques have been grouped where they address similar issues or provide alternative representations of information. For example, 'data modelling' techniques were identified as *entity relationship diagrams, data models* and *class models*; all three techniques may be used to represent the data requirements for an IS project. Therefore, a set of technique categories was defined and each category was represented as a level three code. The technique categories were also analysed to determine which were the mentioned most

frequently. The categories and level of occurrence within the data collected from the mini-cases are shown in Figure 7.1.

**Figure 7.1: Technique categories used by the mini-cases**



The level three codes within the Techniques level two code are defined in table 7.6.

**Table 7.6: Decomposition of level two code ‘Techniques’ into level three codes (presented in order of frequency of identification)**

Techniques: level three codes	Illustrative comments
Requirements engineering	<i>I tend to use MOSCOW prioritisation (mini-case 1). requirements documentation standards that would align to some of the quality criteria that is documented in some of the business analysis literature (mini-case 19).</i>

Process modelling	<i>swimlanes are an appropriate way of doing that so, I'll do that. I'll also do activity diagrams, flow diagrams, whatever it is that's appropriate out of the UML toolbox (mini-case 4).</i>
User role modelling	<i>I have personally used a lot of use case modelling or diagrams (mini-case 18).</i>
Data modelling	<i>data modelling.... as far as logical data models, I always find it is quite important to understand the underlying data of any system and get a good picture, a good baseline or a good foundation to go from (mini-case 20).</i>
Investigation	<i>I use interviewing sometimes because its sometimes much better to interview and get that one on one thing (mini-case 11).</i>
Business cases	<i>option analysis, that's a common tool that we use (mini-case 10).</i>  <i>We are currently working on things like feasibility studies (mini-case 17).</i>
Stakeholder management	<i>if you're talking to one of the financial directors or a marketing director, they'll have very different perspectives so again I think you're looking at their perspectives and perhaps using that CATWOE technique helps as well because they're going to have very different views of what they want from a particular project (mini-case 3).</i>  <i>There are some that do stakeholder maps (mini-case 8).</i>
Environment analysis	<i>sometimes we forget about the SWOTs and the MOSTs and then the PESTLEs – what is going on in the environment, is it the right time to launch a credit card or a new insurance product? You know, you've got to think of things like that (mini-case 3).</i>  <i>for me you have a PESTLE analysis and you have got Porter's five forces for me that's basically a check list, it's like whether or not everything's relevant to the organisation or not, if you've</i>

	<i>looked at those and you can at least say I've considered them (mini-case 15).</i>
Gap analysis	<i>when we are talking about the process reviews we are looking at the 'as is' and 'to be' and as a result of that in the middle we have got a gap analysis (mini-case 17).</i>
Problem definition	<i>when looking in the early stages of projects, I'll use things like problem statements (mini-case 1).</i>
User Acceptance Testing	<i>sometimes we are heavily involved in putting the test cases together (mini-case 11).</i>
Implementation	<i>we might also get involved in things like post implementation reviews and benefits reviews later on in the project (mini-case 9).</i>
Requirements specification	<i>sequence diagrams, activity diagrams, class diagrams but this is more for domain modelling, not for software development. And state diagrams (mini-case 4).</i>
Agile development	<i>it is very much agile – everything that's a requirement is a backlog item, it goes in the backlog (mini-case 16).</i>

These codes are described in further detail, with references to relevant literature, in sub-section 7.2.5 below.

#### **7.2.4 Process dimension: themes and assertions**

The data analysis described in sub-sections 7.2.1, 7.2.2 and 7.2.3 has led to the identification of themes concerned with the skill requirements of business analysts and the techniques used to conduct business analysis work. These skills and techniques were discussed during the interviews with the mini-cases in order to identify any patterns with regard to the skills identified or the techniques adopted. The themes that emerged from the analysis of the process dimension data were as follows:

- There is an extensive set of skills required to perform business analysis work. The three areas or personal, business and professional skills all incorporate a wide range of areas.



- There are numerous professional techniques used by business analysts. These are used for many distinct reasons such as eliciting information and enabling diagrammatic representation of situations. The techniques originate from industry-standard approaches used with the organisations represented by the mini-cases. These were identified as:
  - The Unified Modeling Language (UML).
  - Business Process Modeling Notation (BPMN).
  - The Rational Unified Process (RUP).
  - Agile/Scrum/Lean.
- Business analysis standards, both industry-standard and internal, do not appear to be applied consistently either within or across organisations. The data suggests that the issues arising from a lack of role clarity (discussed in chapter six) may be reflected in the limited use of standards.

In a similar vein to chapter six, the codes that emerged from the data analysis of the process dimension have been derived through reflection and synthesis. This has led to the development of assertions (Miles et al., 2013; Saldana, 2011) that relate to research objective two: the business analysis skills and techniques. The assertions concern the findings from the analysis of the process dimension data and have the potential to extend the BASF defined in chapter six. The assertions identified are:

A6. There are three business analysis skill areas: personal, business and professional skills. These concern the following:

- The personal skills are required to enable business analysts to engage with stakeholders.
- The business skills are required to enable business analysts to communicate effectively with stakeholders.
- The professional skills fall into 13 key categories and are used in the conduct of the business analysis services defined in the BASF.

A7. There is considerable variability in the adoption of business analysis standards. An improvement in the clarity of the business analyst role will help with the adoption of standards.

### **7.2.5 Discussion of the process findings**

**Assertion 6** concerns the range of skills required of business analysts. Vongsavanh and Campbell (2008) identified that business analysts offer a 'translator' or 'mediator' role due to the need for business analysts to uncover requirements and articulate them for other stakeholders such as software developers. Two of the skill areas, personal and business skills, are primarily concerned with enabling effective interactions with stakeholders in order to gain in-depth understanding of the situation under investigation and help determine actions to improve matters.

One of the foundational principles for service science, FP6, states that 'the customer is always a cocreator of value' (Vargo and Akaka, 2009, p.35) and that this implies a need for interaction. Another foundational principle, FP8 states that a 'service-centered view is inherently customer oriented and relational' reiterating the customer focus and the need to build relationships with customers. The business analysis services defined within the BASF are focused on offering value propositions that are inherently customer focused. The personal skills revealed during the data analysis were said to support interactions with stakeholders during the conduct of business analysis. The personal skills identified offered the means of interacting effectively with stakeholders in the following areas:

- Communicating in writing and verbally.
- Delivering presentations.
- Influencing decisions and challenging assertively.
- Negotiating disagreements and managing conflicts.
- Building relationships.
- Facilitating meetings.
- Innovating.

The literature concerned with business analysis supports the need for these skills. For example, Vashist et al (2010) explored the boundary spanning role of the business analyst and the need to engage effectively with stakeholders within both business and IT roles; research into requirements engineering highlights the prevalence of requirements contradictions and conflicts and suggests the importance of a requirements negotiation stage (Sommerville, 2005); the need for facilitation, particularly when working with groups of stakeholders to investigate root causes of problems or elicit requirements, has also been identified as a key aspect of business analysis (Coughlan et al., 2003; Robertson and Robertson, 2013).

One of the personal skills elements concerned the need for business analysts to be credible and convincing when engaging with stakeholders:

*There has to be a level of confidence in what you are doing even if you're secretly not, you really do have to portray some confidence so that you can help other people (mini-case 13).*

Other mini-cases talked about the need for 'confidence' when working with stakeholders and having the toolkit to demonstrate this. The business skills suggested by the mini-cases may help business analysts to appear credible. These skills involved having an understanding of the concepts and language used within an organisation, and within business in general. The need for T-shaped professionals to understand terminology in order to interact successfully with stakeholders was discussed by Gorman (2010) and was summarised clearly by one of the mini-cases interviewed:

*the best thing a BA can do is learn to talk the language of the person they're talking to, to sound like they know what they are really talking about. That's what I'm really good at is getting to the point that when I'm talking to someone I'm using their language and their terminology so it sounds like I'm on their wavelength and I absolutely get it. And, I don't have to have an in-depth knowledge, but I have to have grasped enough of it to talk sensibly about their subject (mini-case 4).*

However, the mini-cases also identified the need to be pro-active and 'think on your feet' (mini-case 15), to ask questions (mini-case 1) and to have the techniques to support the business analysis work (mini-case 2). A technique may be defined as a sequence of activities designed to achieve a particular outcome (Iivari et al., 1998).

There are numerous business analysis techniques available as identified by the mini-cases and supported by the literature (e.g., Arlow and Neustadt, 2005; Cadle et al., 2014; IIBA, 2015). The use of techniques, such as those from the Unified Modeling Language (UML) to visualise and represent the user requirements, is established as a means of facilitating communication between the business staff and the development team (Larsen et al., 2009).

The range of techniques identified by the mini-cases reflects the breadth of the business analyst role as reflected in the BASF and discussed in chapter six. Some techniques relate to the application of specific approaches, for example, daily stand-up meetings and product backlogs apply to projects conducted using an Agile approach, in particular where Scrum is

the selected method<sup>15</sup>. Other techniques, such as workshops and process modelling tend to have a broader application and are not so reliant on a particular lifecycle or approach (Cadle et al., 2014). However, some techniques such as fishbone diagrams tend to be used to analyse a specific context – in this case, an investigation of a problematic situation.

The techniques identified by the mini-cases were coded in accordance with their use in business analysis as discussed in sub-section 7.2.3. These codes were further analysed in the light of the literature. They have been expressed as ‘technique categories’ and are described with representative references from the literature in table 7.7.

**Table 7.7: Categories of techniques identified by mini-cases**

<b>Technique category</b>	<b>Definition</b>	<b>Representative references</b>
Requirements engineering	<p>The application of techniques applied within the Requirements Engineering framework to uncover and define the requirements for a new or changed information system.</p> <p>The Requirements Engineering framework consists of the following activities:</p> <ul style="list-style-type: none"> <li>• Requirements Elicitation.</li> <li>• Requirements Analysis.</li> <li>• Requirements Negotiation.</li> <li>• Requirements Validation.</li> <li>• Requirements Management.</li> <li>• Requirements Documentation.</li> </ul> <p>Each of these areas includes the application of techniques as follows:</p> <ul style="list-style-type: none"> <li>• Requirements elicitation requires the use of techniques to investigate what an information system needs to provide and uncover tacit knowledge; these techniques are grouped as</li> </ul>	(Cadle et al., 2014; IIBA, 2015; Robertson and Robertson, 2013; Sommerville, 2005)

<sup>15</sup> <https://www.scrumalliance.org/why-scrum/scrums-guide>

	<p>investigation techniques and are described in a separate category.</p> <ul style="list-style-type: none"> <li>• Requirements analysis requires techniques to prioritise and organise requirements.</li> <li>• Requirements negotiation requires techniques to resolve contradictions and conflicts in the requirements.</li> <li>• Requirements validation requires techniques to review and confirm the defined requirements.</li> <li>• Requirements documentation requires techniques to describe requirements. These techniques may be in a textual form (requirements catalogue) or may be diagrammatic. The diagrammatic techniques are categorised as process, user role or data modelling techniques.</li> <li>• Requirements management requires techniques to manage changes to requirements, and control versions and configurations of requirements documentation.</li> </ul>	
<p>Process modelling</p>	<p>The use of techniques to provide a graphical representation of business processes. This may be at different levels of abstraction:</p> <ul style="list-style-type: none"> <li>• Organisational view using a value chain or value stream approach.</li> <li>• Process level using UML activity diagrams or flow charts.</li> <li>• Task view using UML activity diagrams.</li> </ul>	<p>(Arlow and Neustadt, 2005; Cadle et al., 2014; Glassey, 2008; Harmon, 2014; Larsen et al., 2009; Rummler and Brache, 2012)</p>
<p>User role modelling</p>	<p>The use of techniques to view a system of interest from the perspective of proposed users of that system and to build conceptual representations of types of user. The techniques identified were use cases, scenario analysis,</p>	<p>(Cockburn, 2001; Cohn, 2004)</p>

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	user stories and personas. These techniques may describe a business or IT system.	
Investigation	Techniques to elicit information and requirements. These may be used when conducting any service. The techniques identified were workshops, focus groups, interviews, activity sampling, scenarios, prototyping.	(Coughlan et al., 2003; Paul et al., 2014)
Data modelling	The use of techniques to provide a graphical representation of the data required to support the system under investigation. The data items, the relationships between the groups of data and, with regard to some techniques, the operations conducted upon the data, are represented using a defined notation. The techniques identified were entity relationship diagrams and class diagrams.	(Arlow and Neustadt, 2005; Cadle et al., 2014; Howe, 2001; IIBA, 2015; Robertson and Robertson, 2013)
Business case development	The use of techniques to identify, evaluate and present options to address a problem situation or opportunity within the business context. The techniques are used to assess business feasibility, technical feasibility and financial feasibility. The techniques identified were risk assessment, cost/benefit analysis and force-field analysis.	(PMI, 2015; Ward and Daniel, 2012)
Stakeholder management	The use of techniques to identify, analyse and manage stakeholders for a business change initiative or project. The techniques identified were power/interest grid, RACI and CATWOE.	(Cadle et al., 2014; Checkland, 1981; Johnson et al., 2007; PMI, 2015)
Environment analysis	Techniques used to analyse the external and internal business environments for an organisation. The	(Johnson et al., 2007)

*Findings and discussion: process and outcomes dimensions*

	techniques identified were PESTLE analysis, Porter's 5-forces, resource audit and SWOT analysis.	
Gap analysis	The use of techniques to identify and analyse the actions required to move from the existing business situation and the target situation. The techniques identified were POPIT and impact analysis.	(PMI, 2015; Paul et al., 2014)
Problem definition	The use of techniques to uncover the root causes of business problems and express the characteristics and scope of such problems. The techniques identified were root cause analysis, fishbone diagrams, problem statements and context diagrams.	(PMI, 2015; IIBA, 2015)
User acceptance testing	The use of techniques to test business and system services in order to identify issues and errors. The techniques identified were user acceptance scenarios and test cases.	(PMI, 2015)
Implementation	The use of techniques during the deployment and embedding of a new solution. The techniques identified were the post-implementation review and benefits review.	(Cadle and Yeates, 2008; Ward and Daniel, 2012)
Requirements specification	The use of techniques to specify the requirements for a software product. The techniques identified were sequence diagrams and state machine diagrams/state charts.	(Arlow and Neustadt, 2005; OMG, 2011b)
Agile development	The use of techniques or practices that are required during Agile software development. The techniques/practices identified were product backlogs, daily stand-up meetings, sprints, Kanban, retrospectives. Other than Kanban, these techniques relate to the Scrum approach.	(Scrum Alliance; Anderson, 2010)

The grouped techniques have been allocated to services within the BASF where they were relevant to the activities of each service. The techniques were analysed using the definitions within the practitioner literature and the allocations are shown in table 7.8.

**Table 7.8: Allocation of techniques to BASF services**

<b>Services</b> <b>Techniques</b>	Define the business change project	Evaluate feasibility and develop business case	Define and improve business processes	Define requirements	Support change deployment	Stakeholder engagement
Problem definition	X					
Environment analysis	X					
Investigation	X		X	X		
User role modelling	X			X		
Stakeholder management	X	X	X	X	X	X
Business case development		X				
Process modelling			X			
Gap analysis			X			



Requirements engineering				X		
Data modelling				X		
User acceptance testing					X	
Implementation					X	X

Two of the technique categories, agile development and requirements specification, were not deemed relevant to the core business analysis services. The rationale for considering these categories to be specialist extensions to business analysis is as follows:

- Within the agile development category, the mini-cases identified the use of retrospectives, daily stand-up meetings, sprints and kanban. All of these techniques are concerned with the governance of the development process and, with the exception of kanban (Anderson, 2010), derive from the Scrum method. Scrum is concerned with the software development and does not include the business analyst role in the definition of the method. Therefore, these techniques apply to business analysis where the business analyst is deployed within a software development team and are techniques associated with governance rather than analysis.
- The requirements specification techniques identified by the mini-cases were sequence diagrams and state machine diagrams, both diagrammatic techniques from the Unified Modeling Language (UML) (Arlow and Neustadt, 2005; OMG, 2011b). These techniques are relevant to business analysts when they are conducting systems analysis. Systems analysis was discussed in chapter six and may be deemed to be a specialist area for business analysts.

It was notable that the stakeholder management techniques were felt to be relevant to all of the business analysis services and, therefore, it was questionable whether stakeholder management was a distinct service. It was decided to continue to consider stakeholder management as a distinct service and to review following triangulation and validation of the BASF.

**Assertion 7** stated that there is considerable variability in the adoption of business analysis standards and that this may be improved if there is increased clarity regarding the business analyst role. The data suggested that the adoption of standards has been undermined in the represented organisations for the following reasons:

- the preponderance of standards, both external and internal to organisations: *'there is so many to choose from'* (mini-case 7).
- individual business analysts ignoring standards or applying them selectively: *'They would choose their own standard'* (mini-case 19).
- a lack of concerted governance ensuring adherence to standards: *'you could even come to a consensus on we all think we ought to act like this or produce this documentation or reach these standards and it doesn't make any difference because if someone decides not to, there were no consequences of not doing it'* (mini-case 13).

The variety of standards available and the flexibility in terms of standard adherence suggests that there is inconsistency in the conduct of business analysis. Given the lack of role clarity discussed in chapter six and the corresponding impact upon role congruence (Solomon et al., 1985), it appears there is a connection between the variability in the application of standards and the ambiguity surrounding the business analyst role. Mini-case 19 cited the CHAOS report 1995<sup>16</sup> where problems such as poor requirements and lack of user involvement were identified. He commented further that these problems fall within the business analyst remit and suggested that the continuation of these problems was related to the lack of standardisation of business analysis work:

*Arguably, business analysis process and standards have not improved a great deal since 1995 (mini-case 19).*

This mini-case also linked this comment to the ongoing issues with IS projects (e.g., Cecez-Kecmanovic et al., 2014; Pan et al., 2007; Wright and Capps, 2011). He suggested that work was needed on business analysis work practices and that the professional bodies and organisations employing business analysts should invest in this.

It has been suggested that a lack of role clarity can cause confusion and potentially, conflict, because of a mismatch between role expectations and required behaviours (Henderson et al., 2016; Zeithaml et al., 1988). Concerns were expressed by the mini-cases that there may

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<sup>16</sup> [https://www.standishgroup.com/sample\\_research\\_files/chaos\\_report\\_1994.pdf](https://www.standishgroup.com/sample_research_files/chaos_report_1994.pdf)

be a lack of understanding with regard to the business analyst role on the part of some business analysts. Therefore, the failure to apply standards correctly may be seen as a symptom of role ambiguity (Hall, 2008).

Research objective two is concerned with the skills and techniques that are required when undertaking business analysis and this has been addressed throughout section 7.2. The overall aim of this research is to introduce clarity with regard to business analysis, and the extension of the BASF, through the addition of the required skills and techniques, is intended to support the achievement of this aim.

Chapter six discussed the triangulation of the BASF services and activities through comparison with the service catalogue for the Business Analysis Function within a major energy company. The data relating to the skills and techniques of business analysis have been analysed in this section; the triangulation of these elements is discussed in sub-section 7.2.7.

### **7.2.6 Triangulation of the business analysis skills and techniques**

Yin (2013) recommends the use of multiple sources of evidence when triangulating case study findings. Data source triangulation (Stake, 1995; Yin, 2013) was selected as a means of identifying further sources of evidence in order to triangulate the professional skills findings within the process dimension.

The skills identified during the case study research were examined in the light of two data sources: the extended Skills Framework for the Information Age (The SFIA Foundation, 2015), SFIPlus (BCS, 2015), and the UK Government document on business analysis skills, within the Digital, Data and Technology Profession<sup>17</sup>.

Business skills have been identified as relevant to business analysts both during this research and within the SFIPlus business analysis skill definition. The 'technical overview' for the SFIPlus business analysis skill identifies the need for business analysts to understand the organisations within which they work and their strategic goals and business activities. SFIPlus also identifies specific personal skills required of a business analyst. The SFIPlus skills and the business and personal skills suggested in section 7.2, are shown in table 7.9.

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<sup>17</sup> <https://www.gov.uk/government/publications/principal-business-analyst-skills-they-need/principal-business-analyst-skills-they-need>

**Table 7.9: Business and personal skills from research findings and SFIPlus**

<b>Skill category</b>	<b>Data analysis codes</b>	<b>SFIPlus</b>
Business	<ul style="list-style-type: none"> <li>• Business domain</li> <li>• Business generic</li> </ul>	<ul style="list-style-type: none"> <li>• Good knowledge of an organisation’s core objectives and strategic goals</li> <li>• Wide-ranging knowledge of business activity</li> </ul>
Personal	<ul style="list-style-type: none"> <li>• Being assertive</li> <li>• Communicating</li> <li>• Convincing</li> <li>• Facilitating meetings</li> <li>• Influencing</li> <li>• Innovating</li> <li>• Negotiating and managing conflict</li> <li>• Building relationships</li> </ul>	<ul style="list-style-type: none"> <li>• Facilitation</li> <li>• Interviewing</li> <li>• Negotiation</li> <li>• Influencing</li> <li>• Written communication</li> <li>• Presentation</li> </ul>

The UK Government business analysis paper does not address business skills as a specific area although the document refers to the following:

- Principal business analysts should have ‘a good understanding of the enterprise arena’ (p.5).
- Senior business analysts should have ‘a good understanding of strategic arenas’ (p.5).

These statements suggest that an understanding of the government domain within which these business analysts work is required at the Principal and Senior business analyst levels within the UK Government business analyst hierarchy. The UK Government business analysis paper also incorporates some business skill requirements within its ‘core capabilities’ (p.8).

Rather than addressing personal skills as a separate category, the UK Government business analysis document focuses on ‘problem-solving behaviours’ (p. 7). Of these skills, one requires the business analyst to understand and align with the Government objectives and the ‘national interest’, therefore, overlapping with the business skills identified in this research. Another is concerned with collaboration. However, one of the skill areas identified is Stakeholder Relationship Management, which concerns the need for business analysts to communicate with stakeholders, facilitate events and build consensus. The business and

personal skills referenced within the UK Government business analysis document and their correspondence to the research findings, are shown in table 7.10.

**Table 7.10: Business and personal skills from research findings and the UK Government**

<b>Skill category</b>	<b>Skills suggested by the data analysis</b>	<b>UK Government document (pp.7-9).</b>
Business	<ul style="list-style-type: none"> <li>• Business domain.</li> <li>• Business generic.</li> </ul>	<ul style="list-style-type: none"> <li>• Good understanding of how the business analyst role supports organisational objectives and national interests.</li> <li>• Understanding of how the business analyst role adds value to the UK.</li> </ul>
Personal	<ul style="list-style-type: none"> <li>• Being assertive.</li> <li>• Communicating.</li> <li>• Convincing.</li> <li>• Facilitating meetings.</li> <li>• Influencing.</li> <li>• Innovating.</li> <li>• Negotiating and managing conflict.</li> <li>• Building relationships.</li> </ul>	<p>Problem-solving behaviours that encompass the following personal skills:</p> <ul style="list-style-type: none"> <li>• Collaborating and partnering.</li> <li>• Stakeholder relationship management (identified as a business analyst capability).</li> </ul>

Both the SFIaplus and UK Government skill definitions align well with the business skills identified from the research data. These sources also suggest that business analysts need to understand the context for the organisation within which they work and have a more general understanding of business or government.

The personal skills defined within the two additional data sources also aligned well with those that emerged during the data analysis, although there were fewer skills. Presentation skills were identified by SFIaplus as important for business analysts but had not been identified as significant by the mini-cases. However, three of the mini-cases had stated that they needed to present findings to their customers so this skill was added as an aspect of communication. Personal skills were not separate areas of skill within the UK Government document, however, the areas suggested, collaborating and stakeholder management, aligned with the findings from the research.

The UK Government business analysis document identified ‘technical capabilities’ (p.10) but did not consider the use of specific business analysis techniques. The SFIaplus business analysis skill definition incorporated a list of techniques related to the business analyst role

and, therefore, this was used to triangulate the techniques identified from the data analysis. The correspondence between the two sets of techniques is represented in table 7.11.

**Table 7.11: Mapping of SFIPlus to the technique categories identified during the data analysis**

<b>SFIPlus techniques</b>	<b>SFIPlus technique usage</b>	<b>Technique category from the data analysis</b>
Context diagrams/ mind maps/ rich pictures	To investigate and document the factors contributing to a business issue.	Problem definition
Feasibility Studies	To investigate the potential business impact of a proposed solution or initiative.	Business case
Stakeholder analysis/ business perspective analysis	To consider the different viewpoints and needs surrounding an issue and determine the degree of involvement necessary to ensure success.	Stakeholder management
Business activity modelling	To consider areas of activity relevant to the situation.	Stakeholder management
Gap analysis	Investigating the difference between a proposed system and the current situation.	Gap analysis
Business process modelling	To examine possible process solutions and identify areas for change.	Process modelling
Business event/scenario modelling	To examine and explore typical business scenarios,	Process modelling

	their triggers, goals and alternative process flows.	
Business case production	Business, technical and financial feasibility assessment.	Business case
Requirements investigation	To analyse and document business requirements.	Requirements engineering
Business Acceptance Test definition and execution	To ensure that the solution means the requirements and that the deliverables meet the business needs.	User acceptance testing

Additional techniques are also acknowledged within SFIPlus that are said to be relevant for business analysts when working as systems analysts. These techniques are:

- Process models such as Swimlane Diagrams: to specify the processing of the IT system.
- Use case diagrams: to identify the functions to be provided by the IT system.
- Data models such as Entity Relationship Diagrams or Object Class Diagrams: to represent the data requirements.

These techniques were identified by the mini-cases as relevant to business analysis rather than systems analysis although one mini-case (13) suggested that data modelling was *'far too technical and they are actually systems analysis'*. The use of these techniques to represent business systems as well as IT systems is confirmed by the practitioner literature (e.g., Cadle et al., 2014; Cockburn, 2001; IIBA, 2015) and, therefore, they have been retained within the BASF as business analysis techniques. While this research has identified that there are differences between the business analyst and systems analyst roles, the SFIPlus content suggests that systems analyst work may be viewed as an extension or specialist area for business analysts. Therefore, while not represented as a core service within the BASF, it is recognised that systems analysis is a specialist business analysis service.

### 7.2.7 The T-shaped business analyst

A T-shaped professional is required to have broad communication skills that enable effective, collaborative working across many service systems (Spohrer and Maglio, 2010). Gorman (2010, p.669) defined interactional expertise as the ‘ability to interact with someone from another disciplinary community’; this corresponds with the work of the business analysts given their frequent interactions with their business customers.

The concept of the T-shaped professional (Spohrer and Maglio, 2010) provides a basis for defining the skill requirements of business analysts. Gorman suggested that the interactional skills may be represented within the cross-bar of the T-shape. Therefore, the personal qualities required of a business analyst may be viewed as forming the horizontal view of the business analyst T-shape as shown in Figure 7.2.

**Figure 7.2: The personal skills of the T-shaped business analyst**

Personal skills	
Assertiveness	Innovation
Communication	Negotiation/conflict management
Facilitation	Presentation
Influencing	Relationship building

Interactional expertise requires business knowledge and understanding in addition to personal skills (Gorman, 2010). T-shaped business analysts are required to be sufficiently proficient to be able to interact with those who represent, and are able to discuss, a business area. Therefore, knowledge and understanding of both the particular business domain and general business concerns are further ‘horizontal’ skills required of the T-shaped business analyst. This is represented in Figure 7.3.

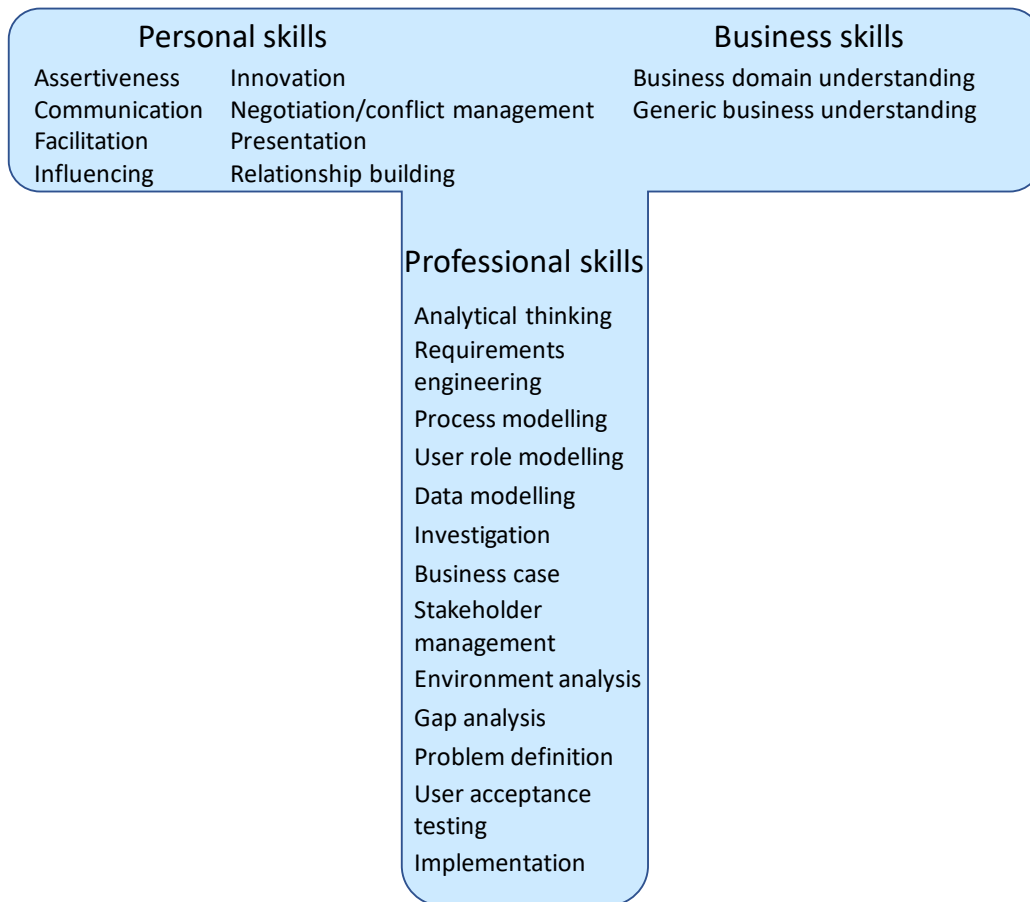
**Figure 7.3: The personal and business skills of the T-shaped business analyst**

Personal skills		Business skills
Assertiveness	Innovation	Business domain understanding
Communication	Negotiation/conflict management	Generic business understanding
Facilitation	Presentation	
Influencing	Relationship building	

The professional skills discussed in sub-section 7.2.3 above concern the analytical thinking skill and the techniques that support analytical thinking. These are the core skills of the business analyst and, as such, are represented in the vertical leg of the T-shape. This is shown in Figure 7.4.



Figure 7.4: The T-shaped business analyst



This T-shaped view of the business analyst demonstrates the extensive set of skills and understanding required to perform business analysis work. The range of skills required to undertake business analysis work may help to explain the difficulties encountered by less experienced business analysts within a context where their role lacks clarity. However, the definition of business analysis as a catalogue of service offerings may help to alleviate this situation as it will bring clarity not only to the nature of the work in a particular assignment, but also to the required skills to be demonstrated. This would provide a means of ensuring role congruence and helping with the development of business analysts throughout their careers.

### 7.2.8 The Business Analysis Service Framework: research objectives 1 and 2

The BASF developed in chapter six has been updated to encompass the techniques uncovered during the data analysis of the process dimension. They have been categorised in line with the services offered by business analysis. The personal and business skills are required across all of the services so have not been included in the BASF. However, the

nature of the personal and business skills required by business analysts have been clarified in the business analyst T-shape defined in sub-section 7.2.8. This BASF, extended to include technique categories, is shown in table 7.12 below.

**Table 7.12: The BASF extended to include techniques**

<b>Service</b>	<b>Service activities</b>	<b>Technique categories</b>
Define the business change project	Investigate the problem or opportunity Investigate the situation Understand the business environment Identify the business and stakeholder needs Define the problem Define the scope of the change initiative	<ul style="list-style-type: none"> <li>• Investigation</li> <li>• Problem definition</li> <li>• Environment analysis</li> <li>• User role modelling</li> <li>• Stakeholder management</li> </ul>
Evaluate feasibility and develop business case	Identify options to resolve the problem Describe options Identify and analyse impacts and risks for each option Identify and analyse costs and benefits for each option Evaluate feasibility of options Support selection of solution Develop benefits plan	<ul style="list-style-type: none"> <li>• Business case development</li> <li>• Stakeholder management</li> </ul>
Define and improve business processes	Model existing processes Define required (new or revised) processes Identify gaps between existing and required processes	<ul style="list-style-type: none"> <li>• Investigation</li> <li>• Process modelling</li> <li>• Gap analysis</li> <li>• Stakeholder management</li> </ul>

	<p>Analyse gaps between existing and required processes</p> <p>Identify and analyse business process measures</p> <p>Identify actions to implement new processes</p> <p>Ensure alignment between IT systems and processes</p>	
Define requirements	<p>Define requirements quality standards</p> <p>Elicit and interpret the requirements</p> <p>Define written requirements</p> <p>Build models and prototypes to represent the requirements</p> <p>Communicate requirements to stakeholders in the business and IT functions</p> <p>Analyse the requirements</p> <p>Conduct user analysis and profiling</p> <p>Ensure the requirements are aligned with business goals</p> <p>Ensure there is traceability of requirements from the business need to the solution</p>	<ul style="list-style-type: none"> <li>• Investigation</li> <li>• Requirements engineering</li> <li>• Data modelling</li> <li>• User role modelling</li> <li>• Stakeholder management</li> </ul>
Support change deployment	<p>Define test scenarios and cases</p> <p>Agree scope for testing activity</p> <p>Provide business acceptance testing support for the IS solution</p> <p>Develop and deliver training in the new IS</p>	<ul style="list-style-type: none"> <li>• User acceptance testing</li> <li>• Implementation</li> <li>• Stakeholder management</li> </ul>

	<p>Support the adoption of the IS</p> <p>Support the benefits and post-implementation reviews</p>	
Engage with stakeholders	<p>Challenge stakeholders</p> <p>Inform stakeholders</p> <p>Negotiate stakeholder conflicts</p> <p>Engage with stakeholders</p> <p>Communicate with stakeholders</p> <p>Facilitate communication between stakeholders</p> <p>Support stakeholders</p> <p>Facilitate meetings and workshops</p> <p>Record outputs from meetings and workshops</p>	<ul style="list-style-type: none"> <li>Stakeholder management</li> </ul>

### 7.2.9 Process dimension summary

The second research objective for this study concerns the skills, models and techniques used in business analysis. This section has discussed these areas from three perspectives: personal skills, business skills and professional skills. The findings have been used to develop a T-shaped view of the business analyst as an operant resource and to extend the BASF developed in chapter six.

The final section of this research concerned the outcomes from business analysis. This is discussed in section 7.3.

### 7.3 Outcomes: the risks, benefits and contribution to success

The outcomes dimension of the conceptual framework addresses research objective three which concerns the value proposition for business analysis. In order to explore the outcomes from business analysis work, the mini-cases were asked questions intended to provoke discussion and observations regarding the benefits and value that may be offered by business analysis, and the risks that may arise if business analysis is not undertaken. The concept of a value proposition has been defined as a statement that helps to shape

connections between entities and provide a basis for enabling value co-creation (Maglio and Spohrer, 2008). The value proposition offered by business analysis was explored during this research within the context of how business analysis can contribute to the success of IS projects.

The literature review in chapter two explored the extant frameworks relevant to the evaluation of the success of IS projects. Two of these frameworks were used to analyse the responses from the mini-cases with regard to the impact of business analysis on an IS project. The two frameworks are the IS success model (DeLone and McLean, 2003) and the benefits dependency network (Peppard et al., 2007; Ward and Daniel, 2012).

The coding within the outcomes dimension was derived during the data analysis. The template was applied to the data and, as described in chapter five, this was updated as new codes emerged. The final level one coding for the outcomes dimension is shown in table 7.13.

**Table 7.13: Level one codes for the outcomes dimension**

<b>Level one code</b>	<b>Meaning</b>
Benefits	The contribution of business analysts to the realisation of business benefits.
Risks	The risks to IS projects if business analysts are not involved.
Success	The nature of IS project success and the contribution of business analysis in achieving success.
Usage	The contribution of business analysis to ensuring usage of a delivered IS solution.

One of the primary themes running through the data is the work business analysts undertake with stakeholders to enable the success of the project. The level one code concerning usage reflected the business analysis work to ensure that stakeholders adopt implemented solutions. While there were observations regarding tangible aspects of deployment, such as providing training to stakeholders and support during the initial period of use, the usage data emphasised that the stakeholders should be supported from the outset of the project. One mini-case commented '*that's where a BA really needs to get involved at that beginning*' (*mini-case 4*). It was also observed that there needs to be collaboration with stakeholders

throughout the project so that *'there isn't an adoption question, they are naturally there'* (mini-case 10).

The other level one codes from table 7.13 were decomposed into level two codes so are explored further in the following sub-sections. These sub-sections focus on the risks and benefits associated with IS projects, and the measures of success.

### 7.3.1 The risks of omitting business analysis

The risks of omitting business analysis were discussed during the data collection interviews. The coding that emerged for this area is set out in table 7.14.

**Table 7.14: Level two codes regarding risks to the success of an IS project**

<b>Risks: level two code</b>	<b>Illustrative comments</b>
Delivering the wrong thing	<p><i>There's a big risk that you end up delivering what the customer asked for rather than what the customer wanted. Which as we know are two very, very different things (mini-case 4).</i></p> <p><i>I think the risk is that, I mean you are not properly understanding what your need is, what your problems are or what are the best options to address that problem (mini-case 11).</i></p>
IT-solution focused	<p><i>The original idea was very good but it was taken away and delivered as a piece of great technology rather than as a piece that delivered business value (mini-case 8).</i></p> <p><i>the biggest risk I see is that they will focus on a solution immediately without taking other things into consideration (mini-case 14).</i></p>
Lack of engagement	<p><i>there is a risk that they may not use the system either correctly or at all (mini-case 6).</i></p>
Not aligned	<p><i>it could reach the ability where it can no longer change because, you know, all of its processes are tied up it doesn't really know how they work, they aren't documented, there's no</i></p>

	<i>organisation structure, no IT systems that are supporting (mini-case 1).</i>
Omissions	<i>things would definitely get missed, systems and processes may not work as you need them to and you might end up spending more money to fix things (mini-case 6).</i>

The mini-cases were clear that they felt there were significant risks to the success of an IS project if business analysis was not undertaken. Table 7.14 sets out the key areas of risk identified, however, the risk that was of most concern was ‘delivering the wrong thing’. It could be argued that all of the other risks are similar or are sub-categories of this risk. The sense from the mini-cases was that there was a need for analytical thinking and skills to be available to a project at the outset, if possible even before the project was initiated.

Research has supported the need for considered initiation and scoping of IS projects and has recognised that this ‘front end’ work can be problematic (Hannola and Ovaska, 2011). The drive towards a particular solution was also identified as a major issue and, again, the mini-cases suggested that this raised risks for the success of the project in that what was delivered would not be suitable or offer the competitive advantage that was required.

Ultimately, the mini-cases suggested that some problems encountered with IS projects may result from inadequate analytical activity at the outset, leading to projects with a weak foundation and unclear focus.

### 7.3.2 The support for benefits realisation offered by business analysts

An alternative view, focusing on the support that may be offered by business analysis with regards to benefits delivery, was also explored with the mini-cases. The level two coding that emerged for the benefits area is set out in 7.15. This suggests that business analysts could support this work but it is typically not part of their role.

**Table 7.15: Level two codes regarding benefits and IS projects**

<b>Benefits: level two code</b>	<b>Illustrative comments</b>
BA support	<i>I think realisation of business benefits should be a role and could well fall within the sort of skills BAs have (mini-case 8).</i>

	<i>I think they should have a role and that should drive the majority of the work that they do however I don't think that BAs always believe that that is part of their role (mini-case 19).</i>
Doing it badly	<i>three years on, they're trying to do that benefits case/realisation because they need that in order to make the uptake be substantially more than it is. It's not something this firm is good at doing (mini-case 4).</i>
Enabling delivery	<i>We do benefits continuously actually because of this approach so we deliver, we have a road map with different small elements, chunks we will tackle and then we work on it and we hope that every one of those deliverables we have will provide some value (mini-case 14).</i>
Left project	<i>it is often a question of well that project's been delivered, we're moving onto the next thing, and that sponsor 's left now anyway (mini-case 1).</i>
Organisational focus	<i>there are some benefits management professionals within our organisation and we do have benefits realisation team and a director of benefits realisation (mini-case 9).</i>

The benefits associated with IS projects were observed to be rarely managed. Organisations were said to be poor at realising benefits from the changes delivered by IS projects. There were several comments about the relevance of business analysis to benefits realisation and it was suggested that the delivery of benefits may be supported by the involvement of business analysts. However, currently, that involvement tends to be limited, particularly because most business analysts have moved to the next project by the time any benefits realisation work is required.

The benefits dependency network (Peppard et al., 2007; Ward and Daniel, 2012) shows the changes required to deliver business benefits and the dependencies between them. Few of the mini-cases felt that the benefits management and realisation work was done well within organisations although two did comment on the work that they did in this area.

- Mini-case 14 described using a 'road map' and delivering the 'chunks' in order to realise benefits.
- Mini-case 16 stated that his business analysts record information in order to



monitor the productivity impact of introducing a change such as a new process.

The data suggests that the business analysts are aware of the need to support the delivery of benefits but it is rarely the case that they are involved in doing this. However, several commented that this would be an effective use of the business analyst's skills.

### 7.3.3 The measures of IS project success

The mini-cases were asked specific questions regarding how success is recognised or measured. These questions were asked in order to research the contribution of business analysis. During the analysis of the responses, codes representing five success measures were identified. The comments made by the BA specialists with regard to these measures are shown in table 7.16.

**Table 7.16: Measures of IS success from the outcomes data findings**

Level two code/ success measure	Illustrative comments
User satisfaction	<p><i>I would define it as the system does what it needs to do and you've got happy users (mini-case 6).</i></p> <p><i>happy users (mini-case 8).</i></p> <p><i>our customers have to be happy (mini-case 15).</i></p>
Use	<p><i>its successful if its delivered with minimal problems and if its actively used once you've delivered it. (mini-case 4).</i></p> <p><i>one of the real success factors for me is that people actually use whatever is delivered (mini-case 9).</i></p>
Achievement of desired business outcomes	<p><i>the outcome for me is that the project delivers what the business needs (mini-case 2).</i></p> <p><i>the obvious one is that it has met the goals that were defined up front (mini-case 5).</i></p> <p><i>it achieves the business goals that were set out (mini-case 20).</i></p>

<p>Achievement of project objectives</p>	<p><i>you can go back to cost/time/budget (mini-case 10).</i></p> <p><i>A project manager would probably tell you deliver to time and cost (mini-case 12).</i></p> <p><i>the finance manager is going to go did it come within budget, was it on time? Yes, tick. Brilliant. (mini-case 13).</i></p>
<p>Realisation of business benefits</p>	<p><i>the project is successful if it meets its objectives and delivers the benefits that it promised (mini-case 7).</i></p> <p><i>the success should be judged by the benefit that the change delivers for the people that it impacts (mini-case 19).</i></p>

These measures have been reviewed against the variables within the IS success model (DeLone and McLean, 2003). This is shown in table 7.17.

**Table 7.17: Mapping of IS success measures against the IS success model**

<p><b>Measures of IS success (mini-cases)</b></p>	<p><b>IS success model variables (DeLone and McLean, 2003)</b></p>
<p>User satisfaction</p>	<p>Direct mapping to the 'User Satisfaction' variable within the IS success model.</p>
<p>Use</p>	<p>Direct mapping to the 'Use' variable within the IS success model. The statement by one interview 'willing to use' also suggests there is a mapping to the 'Intention to Use' variable.</p>
<p>Achievement of desired business outcomes</p>	<p>The desired business outcomes may be defined in the light of several of the IS success model variables. The requirements documentation covers different requirement types so provides the basis for delivering Information Quality, System Quality and Service Quality.</p>
<p>Achievement of project objectives</p>	<p>As defined by Nelson (2005) these are measures of process success rather than outcomes. This category does not map to the IS success model directly although could be interpreted as having an impact on net benefits in that failing to achieve desired timescales or</p>

	exceeding the agreed budget, could delay or diminish the achievement of organisational benefit.
Realisation of business benefits	Direct mapping to the Net Benefits variable within the IS success model.

The data analysis also revealed three further aspects observed by the mini-cases. These are described in table 7.18.

**Table 7.18: Additional observations on project success**

Level one code	Level two code	Illustrative comments
Success	BA role The role of the business analyst in supporting the success of IS projects.	<i>I think it goes back to making sure you understand the needs and the requirements and that they are met as much as they can possibly be met (mini-case 13).</i>
	Perspectives on success The different stakeholder perspectives regarding IS success.	<i>understand perceptions and aligning perceptions because I could deliver the same thing to two stakeholders, one may value it and one may not (mini-case 8).</i>
	Problems Problems encountered that impact IS project success.	<i>there is a lack of rigour around business case assessment and benefits management. And lots of organisational politics related to the delivery of change (mini-case 19).</i>

The original pilot study revealed the business analyst perspective that the business analyst role is critical for the success of IS projects. This was repeated during the full study where many of the mini-cases reiterated the importance of identifying the business needs to be addressed and ensuring that this focus continues throughout the project. The services in the BASF address IS projects at different stages and with different objectives and the data revealed that business analysts offer continuity throughout projects, from helping to ensure

they were on the right track through to supporting transition and deployment. The problems the mini-cases exposed related to areas such as the absence of a clear focus and a failure to understand what stakeholders require; these areas should be addressed through the delivery of the BASF services.

The mini-cases also raised several comments about success being defined by the customers and different customer constituencies having different approaches to evaluating success. They contrasted the financial evaluation (concern of stakeholders such as the project sponsor or financial manager) with a quality evaluation (concern of the end user stakeholders). However, in all cases they stated that business analysis can contribute to the success because of their work with a range of stakeholders to help determine their needs to be met by the solution.

#### **7.3.4 Outcomes dimension: themes and assertion**

The data analysis described in sub-sections 7.3.1, 7.3.2 and 7.3.3 has led to the identification of themes concerned with the risks to IS projects should there be an absence of business analysis, the benefits that projects may gain from employing business analysts, and the contribution business analysts offer to IS projects. These areas were discussed during the interviews with the mini-cases in order to identify the key themes regarding IS project outcomes and business analysis work. The themes that emerged from the analysis of the outcomes dimension data were as follows:

- Business analysts help to ensure the delivered solution aligns with the business needs and addresses all of the required areas. A key aspect is not defining the solution too early or not deciding upon a solution without understanding the problem or opportunity to be addressed. There are significant risks to the success of an IS project if business analysts are not involved at an early stage in order to ensure the business needs are understood at the outset of the project.
- Business analysts are likely to be involved in the business case development. While they may support benefits management and realisation, this is not typical and most business analysts will have left the project team before the benefits are reviewed.
- Benefits management may be a specialist activity and is not necessarily conducted by business analysts. Many organisations do not undertake benefits management well.
- Success is dependent upon the stakeholders' priorities and perspectives. There are five possible areas to measure: the use of the solution, the user satisfaction

with the solution, the achievement of project outcomes, the achievement of business outcomes, the realisation of business benefits.

The codes that emerged from the data analysis of the outcomes dimension have been derived through reflection and synthesis. This has led to the development of an assertion (Miles et al., 2013; Saldana, 2011) that relates to research objective three: the business analysis value proposition. The assertion relates to the findings from the analysis of the outcomes data and has the potential to extend the BASF defined in chapter six. The assertion identified is:

- **Assertion 8:** business analysts should be involved with the IS project throughout the project lifecycle, from the outset to the deployment, in order to contribute to the project's success.

### **7.3.5 Discussion of the outcomes findings: assertion 8**

**Assertion 8** concerns the contribution of business analysts to IS project success. This assertion states that business analysts need to be involved throughout the project lifecycle if they are to contribute to IS project success. This involvement should begin at the outset of the project and should continue until, and probably beyond, the deployment of the solution. This was expressed by mini-case 12 who observed: *'in terms of their contribution to the success. That is their early involvement and their feedback at every touch point'*.

The IS success model (DeLone and McLean, 2003) variables were mapped to the IS success measures identified by this research in table 7.17. This mapping identified that the areas where the business analysts feel they contribute are aligned with those in the IS success model. The BASF provides definitions of the services that may be offered by business analysts so these services were mapped to the IS success model variables in order to achieve the following:

- Identify where the business analysis contribution to success may be found.
- Clarify the value proposition of the BASF services.

While it would be possible to argue that each success variable is supported by all of the business analysis services, table 7.19 considers the services that are directly related to the variables.

Table 7.19: Mapping of IS Success Model to BASF services

IS success model variables (outcome findings)	BASF services
<p>Information quality (Achievement of desired business outcomes)</p>	<p>DeLone and McLean (2003) suggest that the specific areas of quality encompassed by this dimension include:</p> <ul style="list-style-type: none"> <li>• Completeness</li> <li>• Ease of understanding</li> <li>• Personalization</li> <li>• Relevance</li> <li>• Security</li> </ul> <p>These correspond to the data and information requirements, and would be defined during the <i>Define requirements</i> service. The <i>Support change deployment</i> service encompasses business acceptance testing so is also relevant to the achievement of this success variable.</p>
<p>System quality (Achievement of desired business outcomes)</p>	<p>DeLone and McLean (2003) suggest that the specific areas of quality encompassed by this dimension include:</p> <ul style="list-style-type: none"> <li>• Adaptability</li> <li>• Availability</li> <li>• Reliability</li> <li>• Response time</li> <li>• Usability</li> </ul> <p>These characteristics correspond to the non-functional requirements and would be defined during the <i>Define requirements</i> service. The areas listed above would also be relevant to the design of business processes, therefore, the <i>Define and improve business processes</i> service is relevant to this success measure.</p>

<p>Service quality (Achievement of desired business outcomes)</p>	<p>DeLone and McLean (2003) suggest that the specific areas of quality encompassed by this dimension include:</p> <ul style="list-style-type: none"> <li>• Assurance</li> <li>• Empathy</li> <li>• Responsiveness</li> </ul> <p>These characteristics correspond to the general requirements and would be defined during the <i>Define requirements</i> service. However, it is notable that this is not a category specifically identified within the requirements engineering literature and would bear further examination. The areas listed above would also be relevant to the design of business processes, therefore, the <i>Define and improve business processes</i> service is relevant to this success measure.</p>
<p>Intention to use and Use (Use)</p>	<p>DeLone and McLean (2003) suggest that this is linked to 'attitude' so is not a measured dimension of success. The mini-cases' emphasised the importance of collaboration and achieving 'buy in' from stakeholders when conducting business analysis. Stakeholder management techniques apply to all of the defined services, so these variables may be seen to be concerns across the BASF. However, the user role modelling techniques, whereby stakeholder usage requirements and characteristics are considered, are of particular relevance during the <i>Define the business change project</i> and <i>Define requirements</i> services.</p>
<p>User satisfaction (User satisfaction)</p>	<p>DeLone and McLean (2003) suggest that there is a 'causal' link between this dimension and 'intention to use' and 'use', and that 'user satisfaction' relates to the entire customer experience. Therefore, all of the business analysis services contribute to the achievement of 'user satisfaction'.</p>
<p>Net benefits</p>	<p>DeLone and McLean (2003) comment that the net benefits from any IS project are contextual. This area requires a</p>

(Achievement of project objectives; Realisation of business benefits)	more detailed exploration so is discussed below through the lens of the Benefits Dependency Network (Peppard et al., 2007; Ward and Daniel, 2012).
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The *Engage with stakeholders* service was also considered during this mapping and found to be relevant to all IS success model variables. This reflects the collaborative nature of business analysis in line with the service science fundamental principle FP6 that states ‘*The customer is always a cocreator of value*’ (Vargo and Akaka, 2009). This approach is also adopted in the discussion below regarding the Benefits Dependency Network (Peppard et al., 2007; Ward and Daniel, 2012).

The dependent variable ‘net benefits’ from the IS success model (DeLone and McLean, 2003) bears further examination in order to consider the alignment with the BASF. The ‘net benefits’ variable from the IS Success Model represents a grouping of success measures that are explored in context. The context for this study is the work of the business analyst so this is the perspective from which the net benefits are considered. Given that business analysis is an IS discipline, the net benefits are explored from an IS investment perspective.

The Benefits Dependency Network (BDN) (Peppard et al., 2007; Ward and Daniel, 2012) provides a framework for managing the realisation of business benefits from IS investments. It depicts the IT and business changes, and the dependencies between them, that are required to deliver business benefits from an IS project. This has been used to explore the achievement of ‘net benefits’ and the BASF as shown in table 7.20.

**Table 7.20: Mapping of the BDN to the BASF services**

<b>BDN dimension</b>	<b>BASF services</b>
Investment objectives: what the business wishes to achieve from an investment.	Define the business change project; Evaluate feasibility and develop business case.
Business benefits: the positive advantage obtained by the organisation from an investment.	Define the business change project; Evaluate feasibility and develop business case.
Business changes: new ways of working adopted by the organisation.	Support change deployment.



<p>Enabling changes: one-off changes that provide a means of implementing business changes.</p>	<p>Define and improve business processes; Define requirements; Support change deployment.</p>
<p>*IT enablers: the changes to the information systems and technology that is required to enable the enabling and business changes.</p> <p>*Note that the early version of the BDN referred to this dimension at 'IT enablers' but in later versions the term 'IS/IT' enablers was used. However, the explanations refer to IT systems and technology so the initial terminology has been used for the purposes of distinguishing between an IT system and the more holistic 'IS' used throughout this thesis.</p>	<p>Define requirements; Support change deployment.</p>

Table 7.20 confirms the alignment of the BASF with the BDN:

- The BDN sets out what needs to be defined in order to manage and realise benefits.
- The BASF sets out the services that will populate the BDN elements for a given investment.

Tables 7.19 and 7.20 reflect the contribution to IS project success offered by business analysts when undertaking the services of the BASF. In summary, the BASF services are mapped to the IS success variables and the BDN in table 7.21.

**Table 7.21: Mapping of BASF services to IS success variables and BDN elements**

<b>BASF services</b>	Define the business change project	Evaluate feasibility and develop business case	Define and improve business processes	Define requirements	Support change deployment
<b>IS success model</b>					
Intention to use	X				
Use	X				X
User satisfaction	X	X	X	X	X
System quality			X	X	
Service quality			X	X	
Information quality				X	X
Net benefits	X	X			
<b>BDN</b>					

Investment objectives	X	X			
Business benefits	X	X			
Business changes					X
Enabling changes			X	X	X
IT enablers				X	X

The BA specialists identified that their contribution to IS project success was the provision of analytical skills that uncovered the fundamental issues and defined a clear pathway from the initial investigation to the delivery of the desired outcome. Therefore, the contribution made by business analysts is focused upon the clear definition of the needs to be addressed, the requirements to be delivered by the solution and the business outcomes to be achieved. This corresponds with the work required to produce a BDN for an IS project, and to fulfil the success variables defined within the IS Success Model.

The use of the IS Success Model and the BDN as perspectives through which to examine the business analysis services has helped identify where business analysis is able to contribute to IS success. Mapping these models to the BASF services has identified the importance of the analysis activities in enabling the IS Success Model variables and in populating the BDN for a specific investment.

### 7.3.6 The business analysis value propositions

The BASF service definitions and the alignment shown in table 7.21 provided a basis for identifying the value proposition for each service. In addition, the value propositions proposed by the mini-cases and discussed in chapter six, sub-section 6.3.3, were reviewed to ensure that they were encapsulated within the BASF value propositions. For example:

- Clarity formed part of the value proposition for three of the BASF services.
- Problem definition was encompassed within the Define the business change project service.

- Driving efficiencies underpinned all of the value propositions.

The resultant value propositions defined for each service are as follows:

- Define the business change project: clarify the investment objectives and business benefits to be realised through providing a clear definition of the problem to be addressed, the business needs to be met and the scope of the project to achieve this.
- Evaluate feasibility and develop business case: clarify the investment objectives and business benefits in further depth by defining the rationale for a proposed business change and generating, describing and evaluating the options.
- Define and improve business processes: define the required enabling changes through describing and redesigning business processes, and identifying actions required for their improvement.
- Define requirements: define the required enabling changes through eliciting, analysing and describing requirements for business and IT changes.
- Support change deployment: clarify and enable the required business changes through collaborating with stakeholders to support business acceptance of the solution and enable its adoption.
- Engage with stakeholders: support the achievement of IS success (defined through the achievement of the IS success model variables and the BDN elements for an IS project) through stakeholder collaboration, communication and effective stakeholder relationship management.

The BASF has been updated to encompass these value propositions. This is shown in table 7.22.

**Table 7.22: The BASF extended to include value propositions**

Service	Service activities	Technique categories	Value proposition
Define the business change project	Investigate the problem or opportunity Investigate the situation Understand the business environment Identify the business and stakeholder needs Define the problem Define the scope of the change initiative	<ul style="list-style-type: none"> <li>• Investigation</li> <li>• Problem definition</li> <li>• Environment analysis</li> <li>• User role modelling</li> <li>• Stakeholder management</li> </ul>	Investment objectives and business benefits clarified through the definition of: <ul style="list-style-type: none"> <li>• the problem to be addressed</li> <li>• the business needs to be met</li> <li>• the scope of the project.</li> </ul>
Evaluate feasibility and develop business case	Identify options to resolve the problem Describe options Identify and analyse impacts and risks for each option Identify and analyse costs and benefits for each option	<ul style="list-style-type: none"> <li>• Business case development</li> <li>• Stakeholder management</li> </ul>	Investment objectives clarified and business benefits defined in further depth through the: <ul style="list-style-type: none"> <li>• generation, description and evaluation of the</li> </ul>

	<p>Evaluate feasibility of options</p> <p>Support selection of solution</p> <p>Develop benefits plan</p>		<p>rationale and options for a proposed business change.</p>
<p>Define and improve business processes</p>	<p>Model existing processes</p> <p>Define required (new or revised) processes</p> <p>Identify gaps between existing and required processes</p> <p>Analyse gaps between existing and required processes</p> <p>Identify and analyse business process measures</p> <p>Identify actions to implement new processes</p> <p>Ensure alignment between IT systems and processes</p>	<ul style="list-style-type: none"> <li>• Investigation</li> <li>• Process modelling</li> <li>• Gap analysis</li> <li>• Stakeholder management</li> </ul>	<p>Define the required enabling changes through:</p> <ul style="list-style-type: none"> <li>• describing business processes</li> <li>• redesigning business processes</li> <li>• identifying actions to improve business processes.</li> </ul>

<p>Define requirements</p>	<p>Define requirements quality standards</p> <p>Elicit and interpret the requirements</p> <p>Define written requirements</p> <p>Build models and prototypes to represent the requirements</p> <p>Communicate requirements to stakeholders in the business and IT functions</p> <p>Analyse the requirements</p> <p>Conduct user analysis and profiling</p> <p>Ensure the requirements are aligned with business goals</p> <p>Ensure there is traceability of requirements from the business need to the solution</p>	<ul style="list-style-type: none"> <li>• Investigation</li> <li>• Requirements engineering</li> <li>• Data modelling</li> <li>• User role modelling</li> <li>• Stakeholder management</li> </ul>	<p>Define the required enabling business and IT changes through:</p> <ul style="list-style-type: none"> <li>• eliciting requirements</li> <li>• analysing requirements</li> <li>• describing requirements.</li> </ul>
<p>Support change deployment</p>	<p>Define test scenarios and cases</p> <p>Agree scope for testing activity</p>	<ul style="list-style-type: none"> <li>• User acceptance testing</li> <li>• Implementation</li> </ul>	<p>Clarify and enable required business changes through:</p>

	<p>Provide business acceptance testing support for the IS solution</p> <p>Develop and deliver training in the new IS</p> <p>Support the adoption of the IS</p> <p>Support the benefits and post-implementation reviews</p>	<ul style="list-style-type: none"> <li>Stakeholder management</li> </ul>	<ul style="list-style-type: none"> <li>collaborating with stakeholders to support business acceptance of the solution</li> <li>collaborating with stakeholders to support deployment of the solution.</li> </ul>
<p>Engage with stakeholders</p>	<p>Challenge stakeholders</p> <p>Inform stakeholders</p> <p>Negotiate stakeholder conflicts</p> <p>Engage with stakeholders</p> <p>Communicate with stakeholders</p> <p>Facilitate communication between stakeholders</p> <p>Support stakeholders</p>	<ul style="list-style-type: none"> <li>Stakeholder management</li> </ul>	<p>Support the achievement of IS success through:</p> <ul style="list-style-type: none"> <li>stakeholder collaboration</li> <li>stakeholder communication</li> <li>effective stakeholder relationship</li> </ul>



	Facilitate meetings and workshops Record outputs from meetings and workshops		management.
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### 7.3.7 Triangulation of the BASF value propositions

The approach to triangulation adopted during this study has been to analyse additional data sources. The value propositions defined for the BASF were examined in the light of data obtained from a workshop facilitated by the researcher. The workshop formed part of a seminar for the Allianz PLC Business Analysis Practice held in East Horsley, Surrey, UK on 11/12/2014. 57 business analysts attended the workshop. The workshop attendees were asked to discuss and report on the following question:

*What factors do customers use to assess if an information system delivers value to them and the organisation?*

The results of the workshop were analysed to determine codes representing the observations of the workshop attendees. These codes were recorded in Nvivo and are described in table 7.23.

**Table 7.23: Observations from the Allianz workshop attendees**

Code	Description
Business improvement	The observations regarding business improvement concerned the realisation of the business case, achievement of business objectives and the delivery of support for business performance measures. The 'opportunity cost' of the investment was also observed as a factor and is discussed below.
Deliverables	The observations regarding deliverables concerned meeting the project objectives of time and cost, and quality through the delivery of the requirements and successful completion of acceptance testing.
Customer feedback	The observations regarding customer feedback were concerned with customer satisfaction.
Post-implementation	The post-implementation observations concerned the use and adoption of the solution, and the level of support needed.

These observations were essentially in line with the value propositions defined from the case study data. However, there were two areas that initiated a review of the value propositions:

- an observation was made about examining the 'opportunity cost' for an investment. This raised the possibility of the business analysts considering alternative change proposals in order to ensure the investment is worthwhile. The value proposition for the *Evaluate feasibility and develop business case* service incorporates a consideration of options for a proposed change and both this service and the *Define the business change project* service are concerned to clarify the investment objectives. On reflection, the term 'clarify' was considered in need of strengthening in order to establish that attempts have been made to examine the validity of the investment and, as a result, the value proposition was extended slightly with the addition of the term 'confirmed'.
- The customer feedback comments suggested that feedback should be sought, and possibly surveyed, in order to evaluate the level of satisfaction and determine if there were any 'complaints'. This proactive approach to determining the level of customer satisfaction suggests a need to quantify what level is acceptable, and to deal with complaints and improve satisfaction if necessary. This has been added to the BASF value proposition for the *Engage with stakeholders* service.

The triangulated BASF with these additions is shown in table 7.24.

**Table 7.24: The BASF extended following triangulation of the outcomes dimension**

Service	Service activities	Technique categories	Value proposition
Define the business change project	Investigate the problem or opportunity Investigate the situation Understand the business environment Identify the business and stakeholder needs Define the problem Define the scope of the change initiative	<ul style="list-style-type: none"> <li>• Investigation</li> <li>• Problem definition</li> <li>• Environment analysis</li> <li>• User role modelling</li> <li>• Stakeholder management</li> </ul>	Investment objectives and business benefits clarified and confirmed through the definition of: <ul style="list-style-type: none"> <li>• the problem to be addressed</li> <li>• the business needs to be met</li> <li>• the scope of the project.</li> </ul>
Evaluate feasibility and develop business case	Identify options to resolve the problem Describe options Identify and analyse impacts and risks for each option Identify and analyse costs and benefits for each option Evaluate feasibility of options Support selection of solution	<ul style="list-style-type: none"> <li>• Business case development</li> <li>• Stakeholder management</li> </ul>	Investment objectives confirmed and business benefits defined in further depth through the: <ul style="list-style-type: none"> <li>• generation, description and evaluation of options for a proposed business change.</li> </ul>

	Develop benefits plan		
Define and improve business processes	<p>Model existing processes</p> <p>Define required (new or revised) processes</p> <p>Identify gaps between existing and required processes</p> <p>Analyse gaps between existing and required processes</p> <p>Identify and analyse business process measures</p> <p>Identify actions to implement new processes</p> <p>Ensure alignment between IT systems and processes</p>	<ul style="list-style-type: none"> <li>• Investigation</li> <li>• Process modelling</li> <li>• Gap analysis</li> <li>• Stakeholder management</li> </ul>	<p>Define the required enabling business process changes through:</p> <ul style="list-style-type: none"> <li>• describing business processes</li> <li>• redesigning business processes</li> <li>• identifying actions to improve business processes.</li> </ul>
Define requirements	<p>Define requirements quality standards</p> <p>Elicit and interpret the requirements</p> <p>Define written requirements</p> <p>Build models and prototypes to represent the requirements</p>	<ul style="list-style-type: none"> <li>• Investigation</li> <li>• Requirements engineering</li> <li>• Data modelling</li> <li>• User role modelling</li> <li>• Stakeholder management</li> </ul>	<p>Define the required enabling business and IT changes through:</p> <ul style="list-style-type: none"> <li>• eliciting requirements</li> <li>• analysing requirements</li> <li>• describing requirements.</li> </ul>

	<p>Communicate requirements to stakeholders in the business and IT functions</p> <p>Analyse the requirements</p> <p>Conduct user analysis and profiling</p> <p>Ensure the requirements are aligned with business goals</p> <p>Ensure there is traceability of requirements from the business need to the solution</p>		
Support change deployment	<p>Define test scenarios and cases</p> <p>Agree scope for testing activity</p> <p>Provide business acceptance testing support for the IS solution</p> <p>Develop and deliver training in the new IS</p> <p>Support the adoption of the IS</p> <p>Support the benefits and post-implementation reviews</p>	<ul style="list-style-type: none"> <li>• User acceptance testing</li> <li>• Implementation</li> <li>• Stakeholder management</li> </ul>	<p>Clarify and enable required business changes through:</p> <ul style="list-style-type: none"> <li>• collaborating with stakeholders to support business acceptance of the solution</li> <li>• collaborating with stakeholders to support deployment of the solution.</li> </ul>
Engage with stakeholders	<p>Challenge stakeholders</p>	<ul style="list-style-type: none"> <li>• Stakeholder management</li> </ul>	<p>Support the achievement of IS success through:</p>

	<p>Inform stakeholders</p> <p>Negotiate stakeholder conflicts</p> <p>Engage with stakeholders</p> <p>Communicate with stakeholders</p> <p>Facilitate communication between stakeholders</p> <p>Support stakeholders</p> <p>Facilitate meetings and workshops</p> <p>Record outputs from meetings and workshops</p>		<ul style="list-style-type: none"> <li>• stakeholder collaboration</li> <li>• stakeholder communication</li> <li>• customer satisfaction evaluation</li> <li>• complaint resolution</li> <li>• effective stakeholder relationship management.</li> </ul>
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### **7.3.8 Outcomes dimension summary**

This section has reported on the analysis of the outcomes data collected during interviews with the BAMF BA specialists, the 'mini-cases'. This data was concerned with the impact business analysis might have on the outcomes from an IS project. The specific areas investigated were the risks, benefits and success measures relevant to business analysis and IS projects. The analysis of this data led to the development of an assertion about the need for business analysts to be involved at each stage of the IS project lifecycle if they are to contribute to project success.

The IS success model (DeLone and McLean, 2003) and the Benefits Dependency Network (Peppard et al., 2007; Ward and Daniel, 2012) were used to analyse the data and develop the value propositions offered by business analysts during the course of their work. The analysis of this data has extended the BASF to incorporate value propositions for each service.

## **7.4 Chapter summary**

This chapter has described the data analysis conducted on the process and outcomes data and has defined two key deliverables from this research:

- The BASF, extended beyond the initial version created in chapter six to incorporate the categories of techniques required to deliver each BASF service and the value proposition each service offers.
- The business analyst T-shape representing the interactional personal and business skills, and the professional business analyst skills.

A range of relevant theories were applied during the data analysis. The principal theory was the emergent service science theory. This has provided a basis for applying a service lens to business analysis, thereby clarifying the business analyst role. Other theories were concerned with IS practice, in particular business analysis practice. The key IS theories regarding work practices and techniques were the Soft Systems Methodology, business process redesign and requirements engineering. The theories applied with regard to evaluating IS success were the IS success model and benefits management.

The extended BASF defined within this chapter has addressed research objectives two and three:

- RO2: The work practices (how business analysis is conducted): construct a



taxonomy of the techniques, models and skills required to perform these activities.

- RO3: The rationale (why business analysis is required): provide a clear and accessible definition of the value proposition for business analysis work.

The version of the BASF shown in table 7.24 was subject to a validation process in order to evaluate its validity. This process is described in chapter eight.

## 8 Validation of the BASF

### 8.1 Rationale for this chapter

The Business Analysis Service Framework (BASF) was developed to address the research aim, which is to improve the clarity of the business analyst role by conducting empirical research into business analysis and developing a service framework for business analysis. The research question defined for this study is:

***‘What are the services, work practices and value propositions offered by business analysis within the context of IS projects?’.***

There are three sub-questions defined to clarify each element of the research question:

- What are the services offered by business analysts and what activities do they perform when providing these services?
- How do business analysts conduct business analysis work?
- Why is business analysis relevant and useful to IS projects?

The following objectives answer the research questions:

- RO1: The role (what is done): identify a set of clear, distinct services that business analyst practitioners provide to their organisations and list the activities that business analyst practitioners undertake in order to offer these services.
- RO2: The work practices (how business analysis is conducted): construct a taxonomy of the standard techniques, models and skills that should be used to perform the business analysis activities effectively.
- RO3: The rationale (why business analysis is required): provide a clear and accessible definition of the value proposition for each business analysis service in order to explain why the service may be beneficial to the organisation.

The BASF has been developed through a process of data collection, data analysis and triangulation as described in chapters five and six. Having triangulated the findings, it is essential to evaluate the constructs that comprise the BASF in order to attempt to confirm their validity (Yin, 2013).

This chapter includes the following sections:

- Section 8.2: the validation process; a description of the process adopted to

validate the BASF.

- Section 8.3: the validation findings; a discussion of the results of the validation process.
- Section 8.4: the final BASF; the definition of the post-validation BASF.
- Section 8.5: chapter summary; a review of the content of this chapter.

## 8.2 The validation process

Yin (2013) identifies the need to ‘corroborate the essential findings’ with regard to the case study and suggests that they should be reviewed by informants and participants relevant to the case. This approach was applied to the BASF in order to obtain comments and further insights that had the potential to validate, extend or change the BASF constructs.

### 8.2.1 Reviewer selection

The use of key informants to validate research findings (Yin, 2013) was adopted for this business study. These informants were selected to offer alternative perspectives on the research findings and the Business Analysis Service Framework (BASF). Easterby-Smith et al (2012) recommend the following criteria for evaluating the validity and reliability of research conducted with a constructionist viewpoint:

- Validity: the number of perspectives considered.
- Reliability: the similarity of observations amongst informants.

These criteria were applied to the validation process for this research and resulted in the selection of informants with four perspectives:

- Two BA specialists who participated in the case study research, both of whom are members of the BAMF. Hartley (2004) suggests involving participants from the original data collection process as an effective basis for improving the validity of the researcher’s findings.
- A technical director with extensive experience of IS projects who works for an organisation that is a member of the BAMF.
- An author and consultant specialising in business analysis who did not participate in the case study research but is a member of the BAMF.
- Two project managers, a business systems analyst and a senior business analyst, who work for an organisation that is not a member of the BAMF.

Therefore, these validation informants (VI) were able to provide a range of perspectives that are reflected in Figure 8.1.

**Figure 8.1: Perspectives represented by validation informants**

		Business analysis discipline	
		Yes	No
BAMF member organisation	Yes	VI 1, VI 2, VI 4	VI 3
	No	VI 8	VI 5, VI 6, VI 7

Further descriptions of the validation informants (VI) are described in table 8.1.

**Table 8.1: Descriptions of the validation informants**

VI 1	One of the BA specialists who was interviewed as a mini-case. This person was MC3 and was originally interviewed as part of the pilot study. She is a senior business analyst working in the Banking sector. She was selected as a validation information because she has experience in business analysis across the three levels of the Business Analysis Maturity Model, holds the Expert Business Analyst award and is a previous IIBA Business Analyst of the Year. VI 1 has experience of business analysis and IS projects in many areas. Her experience has encompassed technical, analytical and managerial roles. She has also been a mentor for more junior analysts. She is a member of the Advisory Panel for the Business Analysis Conference Europe, which runs in London each September. She has served on this panel for three years.
VI 2	One of the BA specialists who was interviewed as a mini-case. This person was MC17 and is a business analysis manager working in the Education sector. He was selected to be a validation informant because

	<p>he has a breadth of experience having been a business analyst in several organisations across different business sectors. These have included both Government and Commercial sectors. VI 2 was also selected because he has experience in establishing and developing business analysis teams in organisations and has expressed a clear vision regarding the nature of the business analyst role. This was evident in his interview as a mini-case.</p>
VI 3	<p>A Technical Director with extensive experience in the following IS disciplines: software development, configuration management, systems analysis and design, project management, programme management. VI 3 has recently been the project manager for an e-commerce website development where an outsourced development team was used and the analysis conducted was only in overview. He was selected because of his experience in managing IS projects, and his knowledge and experience of business analysis.</p>
VI 4	<p>An author with over 30 years of experience of IS disciplines such as business process improvement, systems analysis, project management and business analysis. VI 4 is recognised within the business analysis community as a leading authority in his field. He has developed and trained hundreds of business analysts over the last thirty years. He is also a senior examiner for BCS, the Chartered Institute for IT and has presented at the BA Conference Europe, the Business Analysis Manager Forum events and IIBA seminars. He is a judge for the IIBA Business Analyst of the Year Award.</p>
VI 5-8	<p>This was a group of informants who provided a focus group perspective on the BASF. Two of the group members were project managers (VI 5 and 6), one was a business systems analyst (VI 7) and one was a senior business analyst (VI 8). None of the members of this group had participated in any of the case study research and they have not had any association with the Business Analysis Manager Forum. This group was asked to participate in the validation of the BASF because they offered informed perspectives on business analysis. Their employing organisation assigns business analysts to IS projects so the project</p>

	managers in the group were able to discuss what they expect from their business analysts. The business systems analyst within the group was able to provide a technical perspective regarding the work of the business analyst. The business analyst was able to provide a perspective on business analysis that is external to the BAMF. All four members of the group were highly experienced in their IS roles.
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The meetings with the informants were held between June and August 2017. All of the meetings were held in person, within professional environments. The dates and timings of these meetings are listed in table 8.2.

**Table 8.2: Details of the validation informant meetings**

Validation informant	Date	Duration
VI 1	15/6/2017	1 hour, 20 minutes
VI 2	22/6/2017	2 hours, 10 minutes
VI 3	18/7/2017	1 hour, 5 minutes
VI 4	7/8/2017	52 minutes
VI 5-VI 8	8/8/2017	1 hour, 26 minutes

### 8.2.2 Presentation and validation of the BASF

The researcher presented the triangulated BASF to the reviewers and requested their responses and thoughts. Each participant was asked to review each service within the BASF in the light of their experiences and perspectives on business analysis. The criteria for the validation of the BASF were as follows:

- To establish internal validity by answering the questions 'do the findings of the study make sense?' and 'are they credible to the people we study?' (Miles et al., 2013, p.312). This was achieved by including two of the mini-cases from this research and two additional key informants within the validation process.
- To establish external validity by reviewing if the findings may be transferred to another context, in this case other projects and a different organisation. A focus group from a company that was not represented during the original data collection process. This group included representatives of roles that work closely with

business analysts, two project managers and a business systems analyst, plus a senior business analyst. They were able to review the BASF in the light of their projects, both current and in the past, and the work that business analysts conducted, or had the potential to conduct, on these projects.

The study was explained to the reviewers and they were asked to review the content of the BASF and provide comments on the following areas:

- The extent to which they recognise each service identified within the BASF.
- The nature of the activities required to conduct each service.
- The use of the techniques identified for each service within their IS project experiences.
- The potential contribution of business analysis to each service and the nature of the value proposition offered by business analysis.

The observations made by the informants were discussed with the researcher and some areas were explored in greater depth. For example, VI 2 identified the potential for extending the Business Process Improvement service such that the focus was on managing a business process architecture; this is explored in further detail in sub-section 8.3.3 of this chapter.

A focus group was included in the validation process as this enabled the collection of individual perspectives and shared ideas (King, 2004b). The focus group discussion was facilitated by the researcher and, in order to ensure accuracy of the comments, notes were taken by a scribe. These notes were directed by the researcher during the focus group discussion and were formally transcribed by the researcher following the discussion.

The comments provided during the discussions and focus group meeting were recorded using MSWord. These notes were then analysed and a composite list of observations was produced; the composite list is shown in table 8.4. These observations were reviewed against the BASF; table 8.5 lists the actions taken in response to the comments.

### **8.2.3 Process to analyse the validation comments**

The process applied to the analysis of the comments obtained from the validation informants, is summarised in table 8.3.

**Table 8.3: Process to analyse the validation comments**

Validation stage	Example observations/actions
Compare notes of informant meetings to identify similarities and contradictions.	VI 1 commented 'including scoping in the name'; VI 2 commented 'scoping is important but perhaps more important is the possibility of the business analyst identifying where a project should be closed down; VI 3 commented 'Should this say scope and define'.
Produce a composite list of observations.	Summarised observations from the comments were: <ul style="list-style-type: none"> <li>• Include the term 'scoping' in the title.</li> <li>• Include an activity to close a project where it is not needed or the investment cannot be justified.</li> </ul>
Review BASF in the light of the composite list of observations and the collected data. The extant literature was also considered during this review.	The data was explored to see if there was any data relating to the observations. The underlying intention of the observations and any meanings that may be interpreted were considered in the light of the data and the post-triangulation BASF. The BASF was revised in order to address the observations where relevant. Changes resulting from the observations above were: <ul style="list-style-type: none"> <li>• The first service was renamed 'Define and scope the IS project'. A scoping activity was included in the list of activities for this service.</li> <li>• An activity was included to 'Define the rationale for rejecting a project proposal'.</li> </ul>

The BASF provided a template against which the observations could be evaluated during this process. This evaluation involved reconsidering aspects of the BASF in the light of the data collected and the extant literature. The table above has provided an example of changes made to the BASF during this process. A further example of this process concerns a comment made suggesting that the BASF should reference 'as is' and 'to be' business process models specifically. These terms were used by the mini-cases during the interviews and are used frequently in the practitioner literature. Therefore, they were felt to be relevant and, accordingly, added to the BASF.

Possible revisions emerged from this process which were evaluated against the research aim and objectives, and relevant extant literature. Where there were contradictions in the



observations, for example, there were mixed opinions on the testing service, the comments made were also compared and evaluated. Changes were made to the BASF as a result of this process. Some observations did not result in changes to the BASF and these are discussed in section 8.3. This stage resulted in an updated BASF.

#### **8.2.4 Production of final BASF**

The version of the BASF produced during the validation process, was subjected to a final review by the researcher. Given that this research project has been conducted from a relativist ontological perspective and a constructionist epistemology, the researcher's perspective is also important. This review aimed to ensure consistency of structure and terminology. A final version of the BASF was produced during this final review.

### **8.3 Validation findings**

The observations provided by the key informants during the validation process were analysed to identify possible changes to the BASF. There were three aspects to the analysis:

- The content of the observation from within the context of the research aim and objectives, and the extant literature. This aspect considered the question 'what are the implications of this observation for the business analysis discipline?'
- The comparison of the observation with those provided by other informants. This aspect considered the question 'how does this observation compare with other observations?'
- The contradictions in the observations. This aspect was concerned to identify where there were contradictions between the informants' views.

This approach was iterative in that an initial list of observations was produced and this was augmented as further validation discussions were held. The list of observations is shown, categorised by service, in table 8.4.

Table 8.4: Observations on the BASF from validation informants

Service	Observations from validation informants
Define the business change project	<ul style="list-style-type: none"> <li>• Include the term 'scoping' in the title. (VI 1,3)</li> <li>• Include an activity to close the project where a project is not needed and the 'spend' cannot be justified. (VI 2)</li> <li>• Extend the techniques to include PESTLE. (VI 3)</li> <li>• The requirements in this service are at the business level. (VI 1)</li> <li>• The business analyst needs to understand and articulate the business needs. (VI 4)</li> <li>• Solutionism is avoided by business analysts. (VI 4)</li> <li>• This service is important but sometimes there are problems with getting business analysts early enough. (VI 5-8)</li> </ul>
Evaluate feasibility and develop business case	<ul style="list-style-type: none"> <li>• Extend the options activities to include comparison of options. The options activities are very important – they should include generate, reduce, remove, define, evaluate, compare. (VI 1,3)</li> <li>• Clarify levels of options. (VI 1)</li> <li>• Need to be clear about alignment – what is alignment with? (VI 1)</li> <li>• Add SWOT and impact analysis techniques. (VI 1)</li> <li>• Possible value proposition is that business decisions are based on firm evidence. (VI 4)</li> <li>• Presentation skills needed. (VI 4)</li> <li>• Options may not be considered 'properly' if business analysts aren't involved. (VI 5-8)</li> <li>• Business analysts take a holistic view of this area and don't have vested interests. (VI 5-8)</li> <li>• There are different levels of business case. (VI 5-8)</li> </ul>
Define and improve business processes	<ul style="list-style-type: none"> <li>• Gap analysis using POPIT model should be stated. (VI 1,3)</li> <li>• Clarify 'as is' and 'to be' – use these terms. (VI 1)</li> <li>• Consider the alignment between processes. (VI 1)</li> <li>• BPM should be the service whereby an architecture of processes is maintained by the business analysis function.</li> </ul>

	<p>This would enable impact analysis for any process changes. (VI 2)</p> <ul style="list-style-type: none"> <li>• Business process analysis is a skill. (VI 4)</li> <li>• Include key performance indicator formulation as a technique. (VI 4)</li> <li>• There are different levels of service with regard to processes. Is business process work a separate role? (VI 5-8)</li> <li>• There are specific approaches such as Lean Six Sigma but this may be a specialist area. (VI 5-8)</li> <li>• Persuasive people skills are needed. (VI 5-8)</li> </ul>
<p>Define requirements</p>	<ul style="list-style-type: none"> <li>• Clarify prioritisation and extend 'analyse requirements'. (VI 2,3)</li> <li>• Include activity to produce a requirements document. (VI 3)</li> <li>• Add user analysis activity. (VI 1)</li> <li>• Clarify the alignment of requirements to scope and strategic business goals. (VI 1,3)</li> <li>• Extend requirements communication to include external stakeholders. (VI 1)</li> <li>• Validating and ensuring acceptance of requirements are activities. The requirements are accepted by stakeholders and this is a value proposition. (VI 4)</li> <li>• The core area of activity for business analysts. (VI 5-8)</li> <li>• Reporting information (management information) may be missed. (VI 5-8)</li> <li>• Business analysts add clarity and stop scope creep. (VI 5-8)</li> </ul>
<p>Support change deployment</p>	<ul style="list-style-type: none"> <li>• This service should be two services: testing and change deployment. (VI 1)</li> <li>• Testing should focus on business acceptance testing. The solution should be tested against the requirements hierarchy. (VI 1,3)</li> <li>• There is a question over whether testing or supporting testing is part of the business analyst role. Are business analysts proxy end users? (VI 1,3,4,5-8)</li> </ul>

	<ul style="list-style-type: none"> <li>• The deployment should be concerned with managing the transition and ensuring adoption. A holistic transition plan should be created. (VI 1)</li> <li>• Readiness assessment is required. CPPOLDAT<sup>18</sup> could be used. This could be done by the business analyst. (VI 2)</li> <li>• There needs to be an assessment about the factors that could affect the effective deployment and readiness. (VI 1)</li> <li>• Consideration should be given to ongoing support, post implementation. Business analysts aren't involved in BAU although they provide 'warranty support'. (VI 1,3,5-8)</li> <li>• Benefits realisation should be included and considered. Business analysts assist in the delivery of benefits. (VI 2,4)</li> <li>• A value proposition is that the benefits are realised through the effective use of the solution. (VI 4)</li> <li>• Business analysts might deliver training and create the training materials. (VI 5-8)</li> </ul>
Engage with stakeholders	<ul style="list-style-type: none"> <li>• Business analysts advise and influence stakeholders. Influencing techniques should be included. (VI 2)</li> <li>• Identifying the relevant stakeholders is important. Add the stakeholder wheel technique. (VI 3)</li> <li>• Business analysts offer an independent view – this independence is important. (VI 1)</li> <li>• Add the Power/Interest Grid technique. (VI 1,3,4)</li> <li>• Could consider stakeholder network analysis. (VI 1)</li> <li>• Business analysts are at the 'centre of the wheel' and take a co-ordinating role. (VI 5-8)</li> </ul>

These observations were each examined in the light of the data collected from the mini-cases, the literature and the stated aim and objectives for this research. This analysis led to the identification of the following:

- Observations to be included within the BASF. These may be additional activities, value propositions, skills or techniques. These items are identified in table 8.5.
- Observations that require rewording of BASF items, typically to enhance clarity.

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<sup>18</sup> CPPOLDAT is a technique used for analysing the impact of business changes

These items are also discussed in table 8.5.

- Observations that relate to the interpersonal skills required of business analysts. This topic is described in a sub-section 8.3.2.
- Observations that require further discussion or research. These are discussed in sub-section 8.3.3.

### 8.3.1 BASF additions or clarifications

Each observation that had the potential to enhance the BASF was analysed to determine its validity. The data collected from the mini-cases was revisited to explore the references made to each observation. The extant data was also reviewed where this was relevant and aided the analysis. The results of this analysis are shown in table 8.5.

**Table 8.5: Observations requiring BASF additions or clarifications**

Service	VI observations	Comments/actions
Define the business change project	<ol style="list-style-type: none"> <li>1. Include the term 'scoping' in the title.</li> <li>2. Include an activity to close the project where a project is not needed and the 'spend' cannot be justified.</li> <li>3. Solutionism is avoided by business analysts.</li> </ol>	<ol style="list-style-type: none"> <li>1. Title changed to Define and scope the IS project.</li> <li>2. Activity added where decision made not to proceed.</li> <li>3. Value proposition is concerned with clarification and confirmation of the investment so should guard against solutionism.</li> </ol>
Evaluate feasibility and develop business case	<ol style="list-style-type: none"> <li>1. Extend the options activities to include comparison of options. The options activities are very important – they should include generate, reduce, remove, define, evaluate, compare.</li> </ol>	<ol style="list-style-type: none"> <li>1. Options confirmed as an important aspect of business analysis. This was included in the BASF but further data/clarification was provided during the validation process. Therefore, the BASF has been extended to reflect these observations.</li> </ol>

	<p>Clarify levels of options.</p> <ol style="list-style-type: none"> <li>2. Need to be clear about alignment – what is alignment with?</li> <li>3. Add SWOT and impact analysis techniques.</li> <li>4. Possible value proposition is that business decisions are based on firm evidence.</li> </ol>	<ol style="list-style-type: none"> <li>2. Alignment observation is relevant and the BASF has been extended to reflect this.</li> <li>3. The techniques identified support the identification of options (SWOT) and the analysis of options (Impact Analysis). Therefore, the technique category Environment Analysis (which includes SWOT Analysis) has been added to the BASF. Impact Analysis is included with the Business Case Development technique category.</li> <li>4. The observation regarding business decisions is already included within the BASF. However, the wording has been changed slightly to clarify this point.</li> </ol>
<p>Define and improve business processes</p>	<ol style="list-style-type: none"> <li>1. Gap analysis using POPIT model should be stated</li> <li>2. Clarify ‘as is’ and ‘to be’ – use these terms.</li> <li>3. Include key performance indicator formulation as a technique.</li> </ol>	<ol style="list-style-type: none"> <li>1. POPIT included within Gap Analysis technique category.</li> <li>2. Terms added to BASF.</li> <li>3. Performance management technique category included as a means of defining performance requirements.</li> </ol>
<p>Define requirements</p>	<ol style="list-style-type: none"> <li>1. Clarify prioritisation and extend ‘analyse requirements’.</li> <li>2. Include activity to</li> </ol>	<ol style="list-style-type: none"> <li>1. BASF extended to clarify this.</li> </ol>

	<p>produce a requirements document.</p> <p>3. Clarify the alignment of requirements to scope and strategic business goals.</p> <p>4. Extend requirements communication to include external stakeholders.</p> <p>5. Validating and ensuring acceptance of requirements are activities.</p>	<p>2. Requirements document added to BASF.</p> <p>3. Alignment observation is relevant and the BASF has been extended to reflect this.</p> <p>4. External stakeholders added to BASF.</p> <p>5. Validating requirements is added as an activity to assure requirements quality and ensure acceptance. Also, added to the value proposition.</p>
<p>Support change deployment</p>	<p>1. This service should be two services: testing and change deployment.</p> <p>2. Benefits realisation should be included and considered. Business analysts assist in the delivery of benefits.</p> <p>3. A value proposition is that the benefits are realised through the effective use of the</p>	<p>1. An additional service has been added that is focused on acceptance testing.</p> <p>2. The BASF has been extended to include benefits realisation. Given that all activities are conducted within a service-dominant logic approach, they require collaboration in order to co-create value. Therefore, there is no need to clarify that business analysts 'assist' with the delivery of benefits.</p> <p>3. Similarly, the benefits are realised through 'value in use'; the value proposition has been extended to include 'use'.</p>

	<p>solution.</p> <p>4. Business analysts might deliver training and create the training materials.</p>	<p>4. The BASF has been extended to clarify that business analysts conduct training activities.</p>
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### 8.3.2 Interpersonal skills

The personal skills of a business analyst were explored in chapter seven. These skills underpin the interactions required of business analysts with their stakeholders and form part of the horizontal element of the business analyst T-shape. However, the relevance of stakeholder engagement to the business analyst role was emphasised by the mini-cases and the data sources used for triangulation. Therefore, the BASF included an *Engage with stakeholders* service and this was considered during the validation process. The *Engage with stakeholders* service was discussed with the informants during the validation process; the observations in table 8.6 were made by the informants.

**Table 8.6: Observations on *Engage with stakeholders* service**

Service	VI Observations
Engage with stakeholders	<ul style="list-style-type: none"> <li>• Business analysts advise and influence stakeholders. Influencing techniques should be included. (VI 2)</li> <li>• Identifying the relevant stakeholders is important. Add the stakeholder wheel technique. (VI 3)</li> <li>• Business analysts offer an independent view – this independence is important. (VI 1)</li> <li>• Add the Power/Interest Grid technique. (VI 1,3,4)</li> <li>• Could consider stakeholder network analysis. (VI 1)</li> <li>• Business analysts are at the ‘centre of the wheel’ and take a co-ordinating role. (VI 5-8)</li> </ul>

The observations fell into two categories: requests for specific techniques to be included in the BASF and comments on the work of business analysts when engaging with stakeholders.

Two of the techniques stated were the stakeholder wheel and the Power/Interest Grid; both of these are already included within the stakeholder management techniques category



described in chapter seven. The Stakeholder Network Analysis technique was also suggested for inclusion by one informant. While none of the mini-cases suggested that they use this technique when conducting business analysis, it is possible that the informant was referring to Social Network Analysis which may be used to analyse stakeholders (Buchanan and Huczynski, 2016; Cadle et al., 2014). Given that this technique helps to uncover informal relationships between stakeholders (Cross and Prusak, 2002), it has been added to the stakeholder management category.

Table 8.7 identifies the actions and comments regarding the *Engage with stakeholders* observations.

**Table 8.7: Observations and comments regarding *Engage with stakeholders* service**

Service	Observations	Actions/comments
Engage with stakeholders	<ol style="list-style-type: none"> <li>1. Business analysts advise and influence stakeholders. Influencing techniques should be included.</li> <li>2. Identifying the relevant stakeholders is important. Add the stakeholder wheel technique.</li> <li>3. Business analysts offer an independent view – this independence is important.</li> <li>4. Add the Power/Interest Grid technique.</li> <li>5. Could consider stakeholder network analysis.</li> </ol>	<ol style="list-style-type: none"> <li>1. Influencing is an area of interaction so this skill is shown in the horizontal element of the T-shape for business analysts. This is not expanded to technique level as it is beyond the scope of this research project.</li> <li>2. The Stakeholder Wheel is within the stakeholder management technique category.</li> <li>3. This is a comment on the importance and the role of the business analyst.</li> <li>4. The Power/Interest Grid is within the stakeholder management technique category.</li> <li>5. Social Network Analysis added to the stakeholder management technique category as discussed</li> </ol>

	6. Business analysts are at the 'centre of the wheel' and take a co-ordinating role.	earlier. 6. Comment on the importance and the role of the business analyst. No change required.
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*Engage with stakeholders* is not a distinct service but is applied when undertaking any of the other services. It was beneficial to discuss with the informants in order to ensure completeness of the definition. One of the informants, VI 4, commented that the skills and techniques are required to conduct each service successfully as they are all dependent upon effective stakeholder collaboration and relationship management. Rather than incorporate the *Engage with stakeholders* within each service, it has been included in the BASF as an auxiliary service. This provides a means of recognising the relevance to the other business analysis services without requiring repetition.

### 8.3.3 Observations requiring further discussion

Three areas were identified during the validation process that were of a broader scope to the other observations. These concerned the extent of the services concerned with business processes, acceptance testing and change deployment.

The BASF includes a service to *Define and improve business processes*. This service was concerned to investigate, document, analysis and change business processes in order to improve aspects such as efficiency and accuracy. VI 2 identified that this service had the potential to extend into the management of the business process 'architecture' for the organisation. This informant felt that this approach would result in the documentation of the process hierarchy for an organisation. This hierarchy would provide significant benefits to the organisation in particular by offering a means of identifying improvements across related processes and analysing the impacts of proposed changes.

The application of an architectural approach to the organisation is not new and there are established frameworks such as that proposed by Zachman (1999), and approaches such as TOGAF (The Open Group, 2009). Further, a hierarchy of processes has been proposed by Rummler and Brache (2012) and Harmon (2014). However, the concept of a business process architecture, and how it relates to business analysis, requires further research. This research would be required in part because of the development of roles within organisations that have responsibility for the enterprise architecture and related domains such as business or data architecture, and the need to consider where the responsibility for a process

architecture would lie. A further reason is the lack of clarity surrounding the business analyst role, and the research findings about the corresponding impact. This research project has focused upon clarifying the role of the business analyst and has concluded that there are core services and specialist services. The addition of an additional service with such a broad potential landscape and impact, requires research in order to determine the areas of responsibility and the nature of the work. As a result, this observation has not been progressed but has been noted as an area for further research.

The post-triangulation BASF included a service to *Support change deployment*; this service encompassed the acceptance testing for the solution, the transition to the new business system and the post-implementation period. All but one of the informants were concerned with the nature of the business analyst role with regard to acceptance testing. Some felt that business analysts should *support* this activity while others felt that business analysts may *conduct* the testing on behalf of the business customers. The informants referred to this latter approach as the business analyst operating in a 'proxy' role. The role of the business analyst with regard to user acceptance testing is discussed by Hambling and van Goethem (2013) who state that the business analyst *assists* with writing the test cases and scripts, and is *involved in* test execution and reporting of test results. This appears to place the business analyst in a support role with regard to this activity. However, the PMI Business Analysis for Practitioners guide (2015) states that evaluation for acceptance is a business analysis activity. Therefore, the acceptance testing service has been included as an area where business analysts conduct the work. It is recognised though, that there appears to be a need for further research into the extent of the responsibility of the business analyst with regard to the testing service.

Hambling and van Goethem also confirm that the 'end-user' has responsibility for user acceptance testing. However, the validation process informants suggested that this service should be named 'business acceptance testing' as it is concerned with the testing of the broader information system rather than just focusing on the IT system. This issue is addressed by Hambling and Goethem who contend that user acceptance testing is concerned with the broader information system, which they define to include the people, processes and organisation in addition to the computer system. Given that there is a need for role clarity with regard to business analysis, the suggested term 'business' rather than 'user' has been accepted for inclusion in the BASF as the latter has the potential to cause confusion with the testing of the software solution alone.

The change deployment service was described in limited detail by the mini-cases and raised concerns that the service required further elaboration. The informants who participated

within the validation process provided further detail regarding this area and suggested that the following activities should be included within this service:

- Transition planning.
- Business readiness assessment, possibly using the CPPOLDAT framework.
- Warranty support.
- Benefits realisation support.

All of the validation informants felt that this was an important area for business analysts although two commented that this service required further definition. In comparison, there is extensive guidance available for areas such as business process improvement and requirements engineering. These activities have been included within the BASF but it is acknowledged that further research is required in order to clarify the approaches, skills and techniques required to conduct this work.

#### **8.3.4 General comments**

During the validation process, external viewpoints were sought from a technical manager and a focus group comprising two project managers and a business systems analyst. The focus of the discussions with these informants was upon the contents of the BASF and the work they expect of business analysts. However, unsolicited comments were made during the focus group meeting regarding the work conducted by business analysts and their contribution to IS projects. These comments were as follows:

- Business analysts work closely with project managers. They form a 'team within a team'.
- Business analysts are proactive and provide assurance.
- Business analysts investigate and understand the detail of the information system.
- A good business analyst is needed for a successful project.

This study has highlighted the lack of clarity surrounding the role in many organisations. However, it has also identified that some organisations understand the role well. This appeared to be the case for the organisation within which the focus group members worked. During the focus group discussion, the tone was very positive towards business analysts and the comments above reflect this. These comments correspond with those made by one of the mini-cases during their interview; it is notable that the employer for this person also appears to have clarity and recognition of the business analyst role.

## **8.4 The final BASF**

The observations from the validation informants were applied to the post-triangulation BASF in order to produce a final version. This version is shown in table 8.8.

The final BASF provides a taxonomy setting out the business analysis service, and clarifying the business analyst role, through the definition of six business analysis services and one auxiliary service. This may be summarised as follows:

Business analysis is a specialist IS service that co-creates value for organisations through offering the following services:

- Define and scope the IS project.
- Evaluate feasibility and develop business case.
- Define and improve business processes.
- Define requirements.
- Evaluate the solution for acceptance.
- Support change deployment.

Table 8.8: The final BASF

<b>Service</b>	<b>Activities conducted by operant resources (the possessors of knowledge and skills)</b>	<b>Value proposition</b>	<b>Techniques</b>
Define and scope the IS project	Investigate the problem or opportunity Investigate the situation Understand the business environment Identify and articulate the business needs Define the problem Define the scope of the IS project Define the rationale for rejecting a project proposal	Investment objectives and business benefits clarified and confirmed through the definition of: <ul style="list-style-type: none"> <li>• the problem to be addressed</li> <li>• the business needs to be met</li> <li>• the scope of the project.</li> </ul>	<ul style="list-style-type: none"> <li>• Investigation</li> <li>• Problem definition</li> <li>• Environment analysis</li> <li>• User role modelling</li> </ul>
Evaluate feasibility and develop business case	Generate options to resolve the problem Define options Remove unviable options Identify and analyse impacts and risks for each option	Investment objectives confirmed and business benefits defined in further depth through the: <ul style="list-style-type: none"> <li>• generation, reduction and description of options for a</li> </ul>	<ul style="list-style-type: none"> <li>• Business case development</li> <li>• Environment analysis</li> </ul>

	<p>Identify and analyse costs and benefits for each option</p> <p>Evaluate financial, technical and business feasibility of options</p> <p>Evaluate alignment of options with strategic goals</p> <p>Support comparison and selection of solution</p>	<p>proposed business change</p> <ul style="list-style-type: none"> <li>the evaluation of options for financial, technical and business feasibility, and strategic alignment.</li> </ul>	
<p>Define and improve business processes</p>	<p>Model existing processes</p> <p>Define required (new or revised) processes</p> <p>Identify gaps between existing and required processes</p> <p>Analyse gaps between existing ('as is') and required ('to be') processes</p> <p>Identify and analyse business process measures</p> <p>Identify actions to implement new processes</p>	<p>Define the required enabling business process changes through:</p> <ul style="list-style-type: none"> <li>describing business processes</li> <li>redesigning business processes</li> <li>identifying actions to improve business processes.</li> </ul>	<ul style="list-style-type: none"> <li>Investigation</li> <li>Process modelling</li> <li>Gap analysis</li> <li>Performance management</li> </ul>

	Ensure alignment between IT systems and processes		
Define requirements	<p>Define requirements quality standards</p> <p>Elicit and interpret the requirements</p> <p>Define written requirements</p> <p>Build models and prototypes to represent the requirements</p> <p>Communicate requirements to stakeholders in the business and IT functions, and external stakeholders</p> <p>Analyse, prioritise and assure the quality of the defined requirements</p> <p>Ensure the stakeholder review and acceptance of requirements</p> <p>Conduct user analysis and profiling</p> <p>Ensure the requirements are aligned with scope and strategic business goals</p>	<p>Define the required enabling business and IT changes through:</p> <ul style="list-style-type: none"> <li>• eliciting requirements</li> <li>• analysing requirements</li> <li>• describing requirements</li> <li>• assuring stakeholder acceptance of requirements.</li> </ul>	<ul style="list-style-type: none"> <li>• Investigation</li> <li>• Requirements engineering</li> <li>• Data modelling</li> <li>• User role modelling</li> </ul>



	Ensure there is traceability of requirements from the business need to the solution		
Evaluate the solution for acceptance	<p>Define test scenarios and cases</p> <p>Agree scope for testing activity</p> <p>Provide business acceptance testing support for the IS solution</p>	<p>Clarify and enable required business changes through:</p> <ul style="list-style-type: none"> <li>collaborating with stakeholders to support business acceptance of the solution.</li> </ul>	<ul style="list-style-type: none"> <li>User acceptance testing</li> </ul>
Support change deployment	<p>Support transition planning</p> <p>Assess business readiness</p> <p>Support the adoption of the IS</p> <p>Develop and deliver training in the new IS</p> <p>Support the benefits and post-implementation reviews</p> <p>Support the realisation of the business benefits</p> <p>Provide warranty support</p>	<p>Clarify and enable required business changes through:</p> <ul style="list-style-type: none"> <li>collaborating with stakeholders to support deployment and use of the solution.</li> </ul>	<ul style="list-style-type: none"> <li>Implementation</li> </ul>

<p>Engage with stakeholders (auxiliary service)</p>	<p>Challenge stakeholders          Inform stakeholders          Negotiate stakeholder conflicts          Engage with stakeholders          Communicate with stakeholders          Facilitate communication between stakeholders          Support stakeholders          Facilitate meetings and workshops          Record outputs from meetings and workshops</p>	<p>Support the achievement of IS success through:</p> <ul style="list-style-type: none"> <li>• stakeholder collaboration</li> <li>• stakeholder communication</li> <li>• customer satisfaction evaluation</li> <li>• customer complaint resolution</li> <li>• effective stakeholder relationship management.</li> </ul>	<ul style="list-style-type: none"> <li>• Stakeholder management</li> </ul>
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## **8.5 Chapter summary**

This chapter has described the process undertaken to validate the research findings. Discussions were conducted with eight informants in order to review the BASF and identify any discrepancies to be resolved, or items to be clarified or added. The validation process has highlighted some areas that pertain to business analysis where further research is required. These areas have the potential to extend the BASF and the responsibility of business analysts. A final BASF has been produced that has been developed through interviews with twenty mini-cases who represented the BAMF, triangulation through the use of multiple data sources, and validation through discussions with selected informants.

## **9 Contribution, future work and conclusions**

### **9.1 Introduction**

This thesis has explored the role of the business analyst with regard to the services delivered, the skills and techniques used in conducting business analysis and the value proposition offered by business analysis.

An overview description of this thesis is as follows:

- Chapter 1: this chapter explains the IS context for this research and for the application of business analysis. This is supported by an overview of the literature relevant to IS and business analysis. The findings from the pilot study, which was undertaken in order to review and validate the research question and the proposed research design, are also explained. This chapter sets the scene for the remaining chapters in the thesis through defining the revised research aim, question and objectives, and the structure adopted for the remainder of the thesis.
- Chapters 2 to 8: the remaining chapters of the thesis report on the process adopted to conduct the empirical research into business analysis and develop the research findings. The chapters discuss the following areas:
  - Chapter 2: the relevant literature.
  - Chapter 3: the conceptual framework to guide this study.
  - Chapter 4: the research philosophy and design.
  - Chapter 5: the case and mini-cases; the data collection and analysis.
  - Chapter 6: the findings for the context and content dimensions; the development and triangulation of the initial BASF.
  - Chapter 7: the findings for the process and outcomes dimensions; the development and triangulation of the BASF and the business analyst T-shape.
  - Chapter 8: the validation process resulting in the final BASF.

This chapter concludes this thesis and has three main parts: the first part, sections 9.2 and 9.3, discuss the major findings from this research. The second part, sections 9.4 to 9.7, reflects upon the following:

- The contributions to theory, research methods and practice.
- The limitations of the research.
- The areas where further research is required and have the potential to be

beneficial with regard to business analysis.

- The conclusions drawn from this research project.

The third part, section 9.8, offers the researcher's personal reflections on the issues related to business analysis and the potential impact of this research.

This thesis has been concerned with research into business analysis and has explored how the defined research aim, question and objectives were addressed. The contributions made by this research relate to the following areas:

- Theoretical contribution. IS theory: clarification of the role of the business analyst within IS projects and the skills profile for a business analyst. Service science theory: the application of service science to the business analysis discipline.
- Methodological contribution. The application of an adapted conceptual framework; the development of a multi-level research design that is based upon the case study method and encompasses data analysis through the use of template analysis.
- Practice contribution. The development of the BASF and the business analyst T-shape.

## **9.2 Achievement of research aim, question and objectives**

The research aim for this study is to improve the clarity of the business analyst role. This aim is expressed in further detail via the research question:

***'What are the services, work practices and value propositions offered by business analysis within the context of IS projects?'***

Three sub-questions were defined to clarify each element of the research question. Three research objectives, each of which addresses one of the sub-questions, were defined to help structure the study findings.

These objectives have been achieved through conducting empirical research into business analysis and developing the BASF and business analyst T-shape. The chapters within this thesis that explain the achievement of these objectives are shown in table 9.2. The references to the relevant sections of the thesis identify where the empirical research concerning each research question/objective was discussed. Each discussion covers the following:

- The relevant findings and new theoretical constructs.
- The triangulation of the findings and new theoretical constructs; the extension of the findings through the inclusion of additional data from the alternative data

source, or the explanation of the rationale for refuting the additional data.

- The validation of the new theoretical constructs, including the discussion of supporting and contrasting views.

**Table 9.1: Achievement of research sub-questions and research objectives within this thesis**

<b>Research sub-question</b>	<b>Research objective</b>	<b>Relevant chapters, sections and sub-sections</b>
What are the services offered by business analysts and what activities do they perform when providing these services?	RO1: The role (what is done): identify a set of clear, distinct services that business analyst practitioners provide to their organisations and list the activities that business analyst practitioners undertake in order to offer these services.	Chapter 6:  Sub-section 6.3.3: the definition of the services and activities of the BASF.  Sub-section 6.3.4: the triangulation of the services and activities of the BASF.  Chapter 8:  Section 8.3: the validation of the services and activities of the BASF.
How do business analysts conduct business analysis work?	RO2: The work practices (how business analysis is conducted): construct a taxonomy of the standard techniques, models and skills that should be used to perform the business analysis activities effectively.	Chapter 7:  Sub-section 7.2.7: the definition of the skills and techniques applied within each service of the BASF.  Sub-section 7.2.8: the triangulation of the skills and techniques applied within each service of the BASF.  Sub-section 7.2.9: the development of the business analyst T-shape

		Chapter 8: Section 8.3: the validation of the skills and techniques applied within each service of the BASF.
Why is business analysis relevant and useful to IS projects?	RO3: The rationale (why business analysis is required): provide a clear and accessible definition of the value proposition for each business analysis service in order to explain why the service may be beneficial to the organisation.	Chapter 7: Sub-section 7.3.6: the definition of the value proposition for each service of the BASF. Sub-section 7.3.7: the triangulation of the value proposition for each service of the BASF. Chapter 8: Section 8.3: the validation of the value proposition for each service of the BASF.

### 9.3 The major findings

The original objective for this research was to explore how business analysis contributes to the success of IS projects. The assumption underlying this objective was that business analysis was defined and understood with a clarity that enabled recognition. However, the pilot study uncovered a different picture. Whereas the business analysis community had a clear view that business analysis was essential for a successful IS project, within the broader organisational context the picture was less clear. In short, this research had attempted to begin on the basis of an assumption that the pilot study exposed as incorrect. It was essential that the research looked instead at a more fundamental question, asking ‘what is the role of the business analyst?’ before moving to consider exactly what the business analyst does that has the potential to offer value within the context of an IS project.

#### 9.3.1 Lack of clarification of business analyst role

The lack of clarity with regard to business analysis was reflected in the literature. A review of the extant literature did not uncover the business analysis research that had been anticipated. Instead the literature was found to offer only limited and partial findings, with

recommendations made for further investigation into the role of the business analyst. The theory regarding key aspects of business analysis work lacked specificity or had a limited focus. For example, business process improvement literature is relevant but rarely mentions the role of the business analyst in performing this work. Alternatively, where business analysis or the business analyst role were mentioned in the literature it was often confused or conflated with systems analysis; it was a rare paper that recognised there were differences between these roles (Vongsavanh and Campbell, 2008) and then there were limitations to the research, in this case, the small sample size. Therefore, the first major finding of this research was that the business analyst role did not have a clear definition and this needed to be addressed.

### **9.3.2 The limited focus on the holistic viewpoint**

The second major finding was that a holistic view has been identified as important within the context of IS change and is a focus of business analysis practice. The holistic viewpoint is necessary for determining the set of changes required to deploy an IS, but the application of a holistic view by business analysts was not clear from the IS literature. Socio-technical and systems thinking research has identified the need for IS projects to focus on the entire 'work system' and integrate the technical and social aspects (e.g., Bostrom and Heinen, 1977; Clegg, 2000; Checkland, 1981; Mumford, 2006). However, while there is a significant body of research within these areas, the association with business analysis has not been clarified in the literature. A particular example concerns the wide-ranging area of 'requirements', where much of the literature focuses on IT systems, fails to identify that some requirements may require a business, rather than technical, solution, and does not recognise that a requirement may be fulfilled in a number of different ways.

### **9.3.3 The impact of role ambiguity on business analysis performance**

In attempting to clarify the role of the business analyst, role theory helped to illuminate the issues raised by the mini-cases. Concerns were expressed by these BA specialists about the work of colleagues and how they – as individuals – may be entrusted with certain tasks and work practices when others were not. Further concerns were raised regarding the professionalism of some business analysts. Examples were offered about analysts accepting administrative support roles rather than insisting on using their analytical skills, failing to apply professional approaches and techniques, and ignoring defined standards. These behaviours pointed towards the existence of role ambiguity in some organisations or business areas, and a lack of role congruence manifested by uncertainty and unprofessional



behaviour. The third major finding was that the impact of role ambiguity was evident in the work standards of some business analysts.

### **9.3.4 The use of a service science view to clarify the business analyst role**

It was instructive to analyse the project experiences of the mini-cases in order to uncover the services they delivered within the course of their business analysis work. The context, content, process, outcomes dimensions of the conceptual framework offered a clear structure to guide the study. The service science world view and the service construct provided a means of clarifying the business analyst role through defining the services offered and ensuring a focus on the co-creation of value. Further, the clarification of business analysis and the services offered, was enhanced by the identification of the activities required to deliver each business analysis service and the techniques required to carry out these activities. Therefore, the fourth major finding was that a service view of business analysis had the potential to offer role clarity and reduce role ambiguity.

The application of service science to business analysis resulted in the definition of the BASF, a taxonomy that reflects the breadth and complexity of the business analysis discipline. The six BASF services each offer a value proposition to customers that may be achieved through the execution of the required activities and the application of specific techniques.

The breadth of skills required to perform the activities and apply the techniques of the BASF were also explored during the research. These included the interpersonal skills, the knowledge and understanding of the business domain and the particular business analysis skills including analytical thinking, problem definition and requirements engineering.

The T-shaped professional construct, defined within service science theory, was found to offer a valid construct for defining the business analyst skill set. As a result, a business analyst T-shape was developed to supplement the BASF; this provided a basis for representing the interaction skills required to engage with stakeholders and the deep analytical skills required to perform the business analysis services.

## **9.4 The key contributions from this research**

### **9.4.1 Theoretical contribution**

This study has aimed to offer a theoretical contribution that offers both originality and utility (Corley and Gioia, 2011). Originality in the sense that the business analysis phenomenon has been explored using service science theory in order to address the research question

and objectives; utility in the sense that the proposed Business Analysis Service Framework (BASF) provides a definition of the business analyst role that is based upon empirical research and offers usefulness to business analysis managers and practitioners.

The literature concerning business analysis is limited. Although the term 'business analyst' is used in some papers, it is often assumed to be an alternative term for a systems analyst (e.g., Gullemette and Pare, 2012; Vashist et al., 2010). A rare exception is offered by Vongsavanh and Campbell (2008) who contrasted the roles of the business analyst and systems analyst, and identified a need for further research in three distinct areas:

- The role and work practices of the business analyst such that the role is defined clearly and is distinguished from systems analysis.
- The skills of the business analyst.
- The interrelationships between a holistic view of IS change and the definition of requirements; there is a need to challenge the assumption that requirements are concerned primarily with information technology systems.

The previous section discussed the problem with the ambiguity of the business analyst role. This study has addressed this problem, and the areas identified above, through the use of service science to explore and define business analysis. This contrasts with other studies that have defined IS roles. For example, the CIO role has been clarified through the analysis of interview data to identify five distinct CIO roles (Peppard et al., 2011).

Thus, this study has extended service science theory through applying its principles and concepts to business analysis, role theory through using a service perspective to define the business analyst role, and IS theory by enhancing the knowledge and understanding of the role played by business analysts on IS projects. The integration of these three areas of theory is a further contribution to theory.

This theoretical contribution has resulted from theory building through qualitative research (Corley and Schinoff, 2017). It has fulfilled Corley and Gioia's (2011) definition of theoretical contribution in that the phenomenon of business analysis has been defined such that knowledge of this area is advanced and practical usefulness offered.

Service science theory is concerned with understanding the concept of value and how providers and customers co-create value (Spohrer and Maglio, 2008). While service science has focused on delivery to the external customer, it has been accepted that the tenets may be applied to the delivery of service to the internal customer (Alter, 2010). The delivery of the business analysis service to the internal customer is the focus of this thesis and the application of service science has enabled the development of the BASF. There has also

been a theoretical contribution through the extension of the T-shaped professional concept (Spohrer and Maglio, 2010) and the development of the T-shaped business analyst definition. This definition sets out the range of skills required to perform business analysis across the landscape of the BASF.

In summary, the key extensions to service science theory for the specific case of the business analysis service are shown in Table 9.2 below.

**Table 9.2: Extensions of service science theory for business analysis service**

<b>Service science principle</b>	<b>BASF definition</b>
Service as a concept	Identification and description of six business analysis services, plus one auxiliary service, within an overarching framework for business analysis service.
Value co-creation	Definition of the value proposition for each business analysis service.
Resource integration	The identification of the skills and knowledge required of business analysts if they are to be operant resources in the delivery of the business analysis service.
T-shaped professional	Development of the business analyst T-shape.

The problems with IS projects require theoretical investigation and advancement if there is to be progress towards successful outcomes. Additional insights into the IS success model (DeLone and McLean, 2003) and the Benefits Dependency Network (Peppard et al., 2007; Ward and Daniel, 2012) have also resulted from this research. The IS success model has been analysed from the business analysis perspective resulting in the identification of gaps where the holistic aspects required for a successful IS project have not been incorporated within the model. The research has also identified the potential for aligning the definition of ‘net benefits’ with the Benefits Dependency Network. The business analysis viewpoint has offered insights into how the Benefits Dependency Network might be utilised within an IS project; in other words, this research has taken the ‘what’ perspective offered by the Benefits Dependency Network and clarified that business analysis offers a means of achieving a ‘how’ perspective.

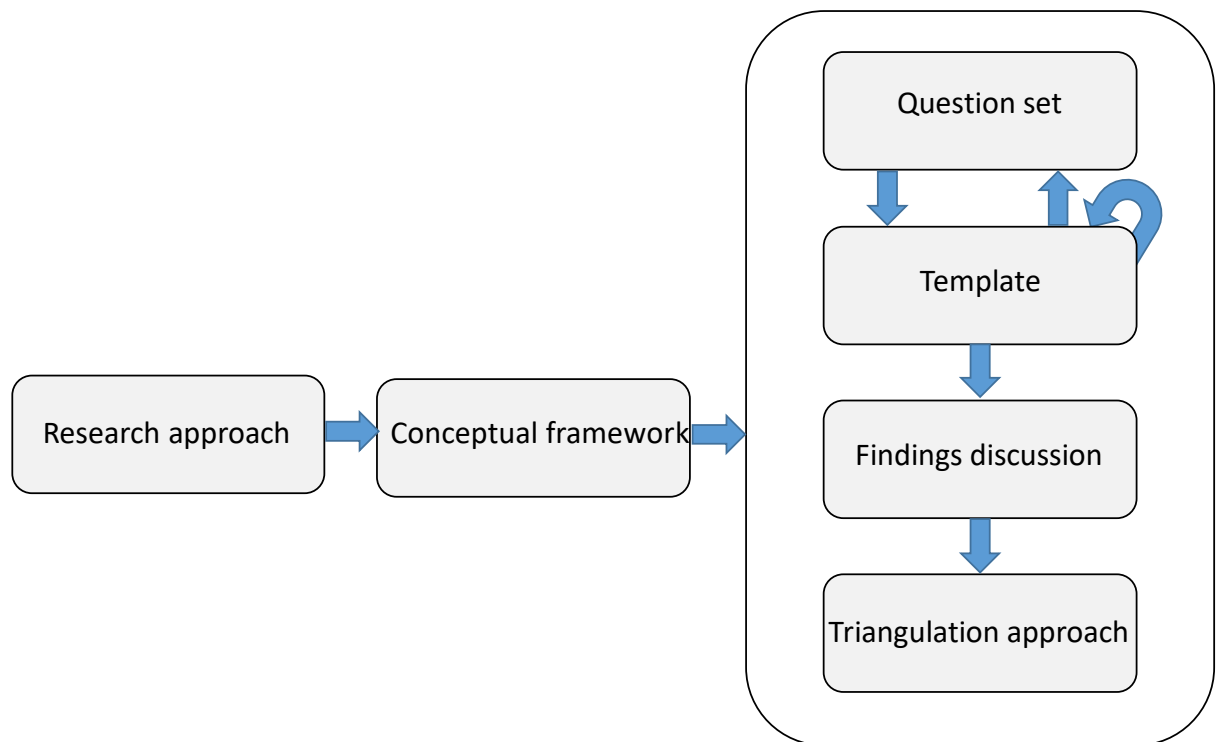
### **9.4.2 Research method contribution**

The case study method (Yin, 2013) and the mini-case concept (Stake, 1995) was used for this study. This was a novel design from the following perspectives:

- The three-level research design of quintain, embedded case, embedded individual mini-cases. This design comprised the business analysis community quintain, the BAMF case and BA specialist mini-cases.
- The definition of an 'expert' (Abraham et al., 2013) was adapted for a business analysis context and applied such that each mini-case was a designated BA specialist.
- The mini-cases were individual BA specialists, each possessing over ten years of business analysis experience. Therefore, they were able to offer observations based upon a variety of IS project experiences gained with both their current and previous organisations.

This study used the context, content, process, outcomes conceptual framework to guide the research; this framework was adapted for use within this research in order to be applicable to IS business analysis and was applied throughout the research process. This adaptation was concerned with the interpretation of each of the dimensions. For example, the content dimension was interpreted to encompass data and findings regarding the nature of business analysis work and the definition of the role. This dimension was also subject to reflection and discussion from a service science viewpoint.

The data collection interviews conducted with the mini-cases were based upon a question set derived from the conceptual framework. Template analysis (King, 2004b) was used as the data analysis method. The template analysis method has not been applied extensively within the literature (King, 2004b) and, therefore, may be tailored by the researcher. In this study, the template was derived initially from the four-dimensional conceptual framework in line with the question set. Therefore, a clear link between the conceptual framework, the questions and the template is evident. The conceptual framework was also used to underpin the discussion and triangulation of the research findings. This has resulted in a research process that allows for traceability from the original source objectives to the triangulated findings. This process offers an extension to the principles for applying template analysis in qualitative research and may aid clarity and consistency. The diagram in Figure 9.2 illustrates this approach.

**Figure 9.1: Alignment of research process elements**

A validation process is essential to establish whether or not the research findings may be considered dependable and reproducible. For this research, various theoretical sources were considered in order to evaluate their recommendations regarding validation and determine the approach to be adopted during this study. The concept of key informants as suggested by Yin (2013) was adopted as were the perspectives suggested by Easterby-Smith et al (2012). These were the two key sources used to determine the validation process.

Within interpretivist research, the term validity is rarely considered applicable, however, the essence of validity may be interpreted in many ways (Easterby-Smith et al., 2012). This process sought to explore the perspectives of key informants in order to ensure the BASF was internally consistent and that the findings were dependable in that they had credibility with practitioners and colleagues occupying other IS roles.

The validation process aligned with the relativist ontology and constructionist epistemology of the researcher, which required the consideration of other perspectives with regard to the research findings (Easterby-Smith et al., 2012). The researcher's understanding of the nature of IS projects, and the roles they involve, was applied to identify potential key informants who could offer knowledgeable perspectives and observations. The BASF was used as a template for discussion during the interviews and focus group elements of the validation process. This process offered an original means of establishing the consistency and credibility of the findings.

### **9.4.3 Contribution to practice**

Given the role clarity issues and impact of role ambiguity on behaviours explored earlier in this thesis, business analysis practice is in need of research and further development. This is overdue as practitioner literature is readily available (e.g., Blais, 2011; IIBA, 2015; PMI, 2015) and practice appears to be outstripping theory. The definitions of the business analyst role provided by the professional bodies, and the observations made by the mini-cases, highlighted that there is a need for a rigorous definition of the work undertaken by business analysts. However, comments regarding the breadth of business analysis work also identified that a detailed definition was required rather than an overview sentence.

Having established the need to define business analysis such that role clarity is achieved, it was also important that this definition would improve role congruence and the role behaviours displayed by practitioners. Therefore, the definition needed to be accessible and relevant both to practitioners and their customers.

Service science theory offered a means of clarifying business analysis through the decomposition of the broad landscape of business analysis work. This decomposition into individual services provided a basis for enabling the clarity of the service offering, the value proposition and the required skills and knowledge of the operant resources, in this case the business analysts. These elements are encapsulated within the BASF, which has been supplemented by the business analyst T-shape. The BASF and business analyst T-shape offer a clear statement regarding the nature of business analysis work.

These artifacts are not intended to be exhaustive and definitive. It is acknowledged that business analysis differs from organisation to organisation and project to project. Therefore, they are suggested as foundations which a Business Analysis Practice may adapt and extend.

The contribution these artifacts offer to business analysis practice is that they support and enable the following aspects of business analysis:

- The development of an organisation-specific business analysis service catalogue, setting out the services that may be offered to the internal customers.
- The communication of the business analysis service, and its attendant services, to internal and external customers. These may be project stakeholders, business staff or representatives from external organisations such as regulators or technology vendors.
- The clarification, discussion and agreement of the value proposition offered by business analysis.

- The clarification, discussion and agreement of the activities to be undertaken by business analysts and their project customers in order to carry out each service.
- The development of the overall competence of individual business analysts through the definition of the skills required and techniques to be used, when carrying out a business analysis service.

Given this contribution, it is suggested that the BASF may be of use to actors within the contexts shown in table 9.2.

**Table 9.2: Actors and their contexts for using the research artifacts**

<b>Actor</b>	<b>Context</b>
Business Analysis Practice Managers	To develop the business analysis practice and communicate with business stakeholders.
Business analysis practitioners	To carry out business analysis work and develop their business analysis knowledge and skills.
Business customers	To recognise the nature of business analysis work and the value proposition offered. To collaborate with business analysts in the co-creation of value from IS projects.
Other IS roles, such as project managers and IS developers.	To understand the artifacts and information provided by business analysis. To collaborate with business analysts in the course of their work on IS projects.
Those new to business analysis or wishing to follow a business analyst career path	To recognise the nature of business analysis work and the value proposition offered. To develop their business analysis knowledge and skills.

An additional contribution to practice is the identification of specialist business analysis services; those concerned with systems analysis and business architecture. These are identified as areas where business analysts may work but are clearly defined to be outside the core scope of the role. The distinction between core and specialist business analysis services helps to clarify a longstanding boundary confusion between the systems and business analyst roles. It is also intended to provide a basis for further research into business architecture as a specialist business analysis service.

#### **9.4.4 Summary of contributions**

In summary, this study has contributed to theory, research methods and practice. Service science theory has been extended to encompass the IS business analysis domain, resulting in the development of the BASF and business analyst T-shape. A novel research design, including the exploration of IS project experiences from the viewpoint of BA specialists, the use of template analysis within a case study research context, and an original validation process have been suggested as supporting clear and consistent research.

This research has also clarified the business analyst role through the definition of the BASF and the business analyst T-shape. In developing these artifacts, this study has provided actors, both internal and external to the IS industry, with information that will support them in their work and, in some cases, in their career development.

### **9.5 Limitations of the research**

#### **9.5.1 Research methodology limitations**

A considered research design was applied during this study. This design included the following:

- A pilot study was conducted in order to verify the research question, aims and method to be adopted. The pilot study exposed the lack of clarity surrounding the business analyst role and helped to determine the focus for the research undertaken during the full study.
- The case study method and semi-structured interviews were used to conduct empirical research into business analysis. The data collected from these interviews was analysed using template analysis.
- The BAMF case was highly relevant to the research question and aims, and provided a means of identifying and accessing representative BA specialists – the mini-cases – who offered a variety of observations and insights during the interviews. The set of mini-cases offered over 300 years of experience of business analysis work. Care was taken to ensure that they represented a range of economic sectors, organisation size, types of business domain and business analyst seniority level; the latter spanned head of business analysis practice to practitioner business analyst.

Despite the rigorous process followed for this research it is recognised that there are limitations. One source of limitation concerns the limited set of interviewees and the focus on



the BAMF; there were twenty interviewees from sixteen organisations, all of whom were BAMF members.

While the BAMF was selected to represent the wider business analysis community, and the research findings are intended for application within this wider context, it is acknowledged that this raises the question of applicability to these contexts. The BAMF provides a forum for discussion on matters pertaining to business analysis and members have obtained information and guidance from within this community. While it was ensured that the selected interviewees were able to provide insights from across the organisational spectrum, as BAMF members there was the potential for them to hold similar views regarding business analysis practice. Further, all participants bar one were based in the UK and it is possible that the findings may have been different had there been a higher proportion of participants from other countries.

An interpretivist philosophy and qualitative research approach were adopted for this study. This corresponds with the researcher's beliefs and offered the opportunity for reflexive insights. The use of the case study method and investigation via semi-structured interviews, is a recognised approach for conducting research (Easterby-Smith et al., 2012) within this paradigm. However, it is recognised that this philosophy and method imposed limitations on the research. For example, a quantitative study using a survey would have been able to obtain data from a broader sample of business analysts; a longitudinal study, perhaps applying ethnography or action research, would have offered detailed data regarding business analysis work in action over an extended period of time.

Service science theory offered an effective basis for clarifying the business analyst role and the business analysis contribution to achieving successful outcomes from IS projects. Value co-creation within this study has focused upon the achievement of valuable outcomes, defined as the realisation of business benefits through value-in-use. While service-dominant logic defines value co-creation on the basis of value-in-use (Vargo and Akaka, 2009; Vargo and Lusch, 2004), the nature of value and the means of formulating value have been further explored within the literature. The relevance of the social context, extending value-in-use to value-in-social-context (Edvardsson et al., 2011) has been identified. The social context for this study is the IS project and the business analyst role has been explored within this context. A further development has concerned the customer perspective on value co-creation. Gronroos and Voima (2013) identify the need to analyse the roles, perspectives and behaviours of both providers and customers during value co-creation, to uncover the nature of value and value co-creation processes within specific social contexts. Research also suggests the need to consider the value co-created during the interaction process. This may be concerned with the level of involvement, the potential for personalisation, and the quality

of the experience (Prahalad and Ramaswamy, 2004). The business analyst role is the focus of this study; however, it is acknowledged that the customer roles to co-create value on an IS project, and the nature of the value experienced by the customers within that context, would also benefit from further investigation.

The value proposition element of the BASF applies the Benefits Dependency Network (Peppard et al., 2007; Ward and Daniel, 2012) to determine the value propositions relevant to business analysis and IS projects. In practice, the broader social context and environment, for example, the attitudes and experiences of business customers, the nature of the analyst/customer interactions and the organisational processes, may influence the success or failure of IS projects and the perceptions of realised value. Hence, the potential exists to extend the value propositions defined within the BASF and, therefore, this is recognised as a limitation for this study.

It is recognised that other theories may have supported the clarification of the role from different perspectives. For example, the application of systems thinking theory (e.g., Checkland, 1981; Von Bertalanffy, 1969) would have offered an alternative viewpoint from which to explore business analysis, whereby the underlying rationale for business analysis and the integrated elements required to deliver business analysis as a system, may have yielded different insights. Similarly, while the principles and practices offered by socio-technical theory have been reviewed and discussed, it is recognised that socio-technical research has the potential to further illuminate business analysis practice and, therefore, that this is a limitation within this study.

### **9.5.2 Research scope limitations**

The scope of this study has been defined as an investigation into the business analyst role within an IS context. While the scope of this research, and the resultant BASF, encompassed the core business analysis services, the findings discussed within chapter six identified two specialist business analysis services. These are concerned with systems analysis and business architecture. With regard to the former, there is extensive literature available, however, the latter would benefit from empirical research.

The business analysis discipline has the potential to offer services beyond the scope of IS projects. For example, strategic analysis and design projects or transformational change programmes may benefit from the involvement of business analysts. Further, business analysis may offer insights with regard to the requirements for the enterprise architecture, or one of the architectural sub-domains, for an organisation. This may include:

- The business capabilities required to support a strategic initiative.

- The corporate data and data standards.
- The business process architecture.

Therefore, the potential scope of business analysis work is extensive. It is recognised that in limiting the scope to IS projects, other areas of service have not been considered and these would benefit from empirical research.

### **9.5.3 Generalisability of this research**

A further limitation concerns the generalisability of the research findings. Waltham (2006, p.322) suggests that generalisations may 'take the form of concepts, theories, specific implications or rich insights' and Lee and Baskerville (2003) state that empirical observations may be generalised to develop theory. This is in line with the approach adopted in this study, whereby theory was built from the empirical data collected during the interviews with the mini-cases.

The dependability and internal consistency of research findings rely on the application of a consistent process and a clear, rigorous method (Gasson, 2004). The conceptual framework applied to this study provided a strong basis for rigour, and triangulation and validation processes were also applied in pursuit of this aim. The research design incorporated the selection of the 'mini-case' interviewees through the application of pre-defined criteria. This ensured that they were each able to contribute at least ten years of business analysis work experiences across a wide array of organisations, and was intended to aid the confirmability of the findings (Gasson, 2004).

The research design and conceptual framework enabled the elicitation of a range of empirical observations from which findings emerged that were generalised to form the BASF. The emergent theory was subjected to a three-dimensional triangulation process whereby the content, process and outcomes aspects of the conceptual framework were triangulated using source documentation and the results of a facilitated workshop. The validation process applied the concept of key informants in order to access different perspectives on business analysis in general and the content within the BASF in particular.

Notwithstanding the application of a rigorous process and method, the interpretivist philosophy inevitably results in findings that are influenced by the researcher's world view, and this is recognised to be a limitation of this research.

This study aims to contribute insights and theory that have the potential to inform business analysis research and enhance the practice of business analysis beyond the organisations represented in the BAMF. Eisenhardt and Graebner (2007) state that where research

involves multiple cases, the theory generated has the potential to be more robust and generalisable. While the BAMF was a single-case study, the involvement of twenty mini-cases representing a range of organisations, enabled the exploration of business analysis across a wide variety of IS projects. However, Lee and Baskerville (2003) suggest that the generalisability of developed theory beyond the researched domain is not valid unless the theory has been tested within the other settings. They clarify that it is not possible to generalise to a setting where the theory has not been empirically tested and confirmed. Given the guidance offered by Lee and Baskerville, it is acknowledged that limitations exist with regard to the generalisation of the BASF beyond the BAMF case.

To enable the generalisation of theory to other settings, Lee and Baskerville (2012) propose that researchers and practitioners from a new domain make four judgement calls that address specific issues, and thereby allow generalisation to proceed responsibly. While the limitations of generalising theory beyond the research setting is recognised, the clarification of these limitations and the need for judgement calls, may offer a basis for generalising the BASF to additional organisational contexts.

#### **9.5.4 Avoidance of bias**

Given the interpretivist approach adopted, bias was a concern and was considered at all stages of this study. It was recognised that the researcher's work within the BAMF and the broader business analysis community required specific action to address the possibilities for bias. It was important to reflect on this and adopt relevant strategies to remove bias. The following strategies were adopted:

- A strong conceptual framework was adopted to guide the research throughout the study.
- Selection of the mini-case individuals applied set criteria. Firstly, pre-defined criteria to identify relevant BA specialists (Abraham et al., 2013); secondly, selection criteria to ensure a range of contexts such as economic sector, business domain, size of organisation.
- The researcher took care to establish credibility and trust with the interviewees, and to confirm confidentiality. Walsham (2006) states that interviewees are likely to respond with 'openness and honesty' within a context of sincerity and understanding.
- Open questions were asked during the semi-structured interviews with a focus, where possible, on the interviewees' personal project experiences. The interviewees were asked to relate their project experiences without any direction or

prompting.

- All interviews were recorded and transcribed. Each transcription was reviewed against the corresponding recording to ensure accuracy.
- Triangulation of the findings using a variety of data sources each of which was applied to a different dimension of the conceptual framework.
- Validation of the findings using a clear process and involving several key informants with both internal and external perspectives on the BAMF case.

Self-awareness is also essential to surface the possibility of bias and consider preventative action (Gasson, 2004). Ongoing reflexivity throughout the research process, recognition of the potential for bias and questioning the findings by searching for alternatives, were the personal strategies adopted to guard against bias. Despite these efforts, it is acknowledged that the risk of bias is prevalent in interpretive research and that this may limit the findings of this research.

## 9.6 Further research

The identification of the lack of clarity regarding the business analyst role led to the application of service science theory to business analysis and the development of the BASF. While this was relevant given the lack of a clear definition of the business analysis service proposition, it is recognised that socio-technical theory has the potential to reveal additional insights into the work of the IS business analyst. Therefore, further research into business analysis from a socio-technical perspective is recommended. Within an IS project context, the role of the customer in co-creating value, and the nature of value from the customer perspective, would also benefit from further research.

Some elements from the catalogue of business analysis services were not addressed in detail and there is a need for further research.

- The insights offered by the interviewees with regard to two of the services, *Evaluate the solution for acceptance* and *Support change deployment*, were inconsistent and lacked detail. Further, there is only limited literature on the business analysis work practices within these areas. Therefore, these areas would benefit from further research.
- The breadth of the BASF was necessary to provide a complete view of the business analysis service provision. However, the data regarding techniques used during business analysis work was provided in response to open questions. Given the range of possible techniques and that reactive responses were required within

a limited timeframe, there is the potential for further, specific research into this area, perhaps applying a quantitative perspective.

- While the BA specialists were clear that there is a distinction between business analysis and systems analysis, and suggested that systems analysis may be a specialist service offered by business analysts, there is a need for further research into this area. With few exceptions (Vongsavanh and Campbell, 2008) much of the literature continues to conflate these roles and research to distinguish them would be beneficial to both theory and practice.

In addition to the need for further research with regard to the BASF and specialist services, positivist research would provide an alternative to the interpretivist approach adopted in this study and would help to further validate the findings.

A relativist ontology informed this research and ensured that data from a number of perspectives was collected and analysed. The twenty BA specialists provided individual perspectives that were compared and contrasted. During triangulation of the findings, documented perspectives were analysed from business analysis practices within commercial and governmental organisations. During validation, perspectives were obtained from a range of informants, some of whom were not members of the BAMF and some who did not work in business analysis roles. While this included the project manager role, who may be viewed as an internal customer for the business analyst, it is also the case that the business staff and managers may be deemed the ultimate beneficiary of the business analysis service provision. The customer view of the business analyst role, the customer role in value co-creation and the ultimate value proposition would also benefit from further research. It is suggested that a particularly valuable perspective would be to investigate this within IS projects.

A further perspective to be explored is the international business analyst role. This research was clearly based within a UK organisation, the BAMF, and the one participant from outside the UK was a BAMF member and holds a qualification from a UK professional awarding body (BCS, the Chartered Institute for IT). While an international viewpoint has been included via practitioner literature, research to consider the breadth of the BASF and its applicability in other national contexts is recommended.

## **9.7 Conclusions**

In conclusion, the need to view business analysis as a distinct professional discipline is evident. There are several professional bodies (BCS, IIBA, PMI) and networking organisations (BAMF) with published standards and certification schemes. Within the BAMF

case study there are employing organisations that range from the large, multi-national enterprises to small one-person companies. There are also Government organisations covering both central and local areas of responsibility, and commercial organisations operating within business domains such as financial services, banking, utilities, retail and telecommunications. BAMF representatives hold senior roles and may have up to thirty years of business analysis experience, typically across a variety of IS projects. A recent development within the business analysis specialism is the introduction by the UK Government of an IS Business Analyst apprentice scheme<sup>19</sup>.

Yet, despite this evidence from the work place, a key finding from this research is that business analysis lacks role clarity and recognition, both within the academic and practitioner communities. This lack of role clarity has an impact on the performance of business analysts and there is undoubtedly a need for further research if IS business analysis is to gain the clarity and recognition needed. Given that IS projects continue to be problematic, this research would seem to be urgent and overdue.

The intense competition between firms requires organisations to be adaptable and responsive, with the ability to deploy IT-enabled business change successfully. While this research does not claim that business analysis can address all of the issues inherent within the IS project context, it has identified that the adoption of a holistic view and the delivery of business analysis services, such as project scoping and requirements definition, are key to IS success.

This study set out to examine the role of the IS business analyst and to offer clarity with regard to the business analysis services, value propositions, activities and work practices. This clarity is essential if the part played by IS business analysts, and the contribution they make to IS success, is to be established. The development of the BASF and the business analyst T-shape are the major outcomes from this research. It is hoped that they will provide a basis for theoretical advancement in business analysis and IS project research, and for improving standards in business analysis practice.

## **9.8 Personal reflections**

This study was driven by a personal passion which was to increase the profile and recognition of business analysis within the IS industry. The underlying reasons for this passion were the discussions held with numerous business analysts across many years

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<sup>19</sup> <https://www.gov.uk/government/publications/apprenticeship-standard-is-business-analyst-approved-for-delivery>

during training courses, consultancy assignments, conferences and seminars. These discussions inevitably, and with tedious regularity, concerned the problem of the lack of recognition of business analysis and the need to promote our skills in order to address this issue. Conventional wisdom within the business analysis community has long declared that there is a lack of understanding on the part of colleagues such as project managers and business managers and that this requires corrective action. Given this, my world view was founded on beliefs that there was a need for those outside the business analysis community to recognise our work and we could achieve this by raising our profile.

The key insight I gained from this research concerned the insularity of the business analysis community. Where we found fault with colleagues' lack of understanding, the pattern that emerged during this study was that there were contributing factors from within the business analysis community itself. When interviewees commented on how 'woolly' a definition of the role would be and how we 'can't be all things to all men', a picture began to emerge of ambiguity and improvisation. This begged the question, if we are unable to describe the role clearly, how can we expect our colleagues in other roles and communities to understand?

There were also the observations regarding the behaviour of some business analysts and comments such as 'It's not that BAs don't because it's that those BAs can't' from which it may be inferred that some business analysts do not have the required level of ability to carry out the business analysis work. This was augmented by suggestions that some business analysts ignored standards, or adapted them to suit their skills, to the detriment of recognised good practice. While it is acknowledged that this is not the case in some organisations, it is evident that this relies upon effective leadership and a governance structure that enables a voice for business analysis at senior levels.

The application of role theory to the interviewee observations revealed a discipline in crisis. Definitions are indeed 'woolly' and practice is highly variable signifying that role clarity is poor. Projects are requesting individuals rather than business analysts suggesting that behavioural expectations reside at the level of the person rather than the discipline. Established techniques were ignored if too difficult to use identifying a lack of role congruence not only with customers but also within the business analysis discipline itself.

Service science theory was a revelation. It provided a means of clarifying the 'role', not in a limited number of well-phrased sentences but through exploring the essence of the customer experience. In other words, by clarifying the service to be offered and the corresponding value proposition. While the breadth of the business analyst role was clear from this research, the application of service-dominant logic enabled a means of providing clarity whilst maintaining this breadth. The focus on resource integration to co-create value exposed



some of the weaknesses at the heart of the extant business analysis role definitions where the focus was on value delivery. The application of the T-shaped professional concept to business analysis highlighted which business analysis skills were required.

On reflection, my desired and intended outcome from this research – the improvement in understanding of business analysis – has remained constant but the means to achieve this has changed significantly. The development of the BASF is intended to offer a defined statement to improve role clarity. The business analyst T-shape has been proposed to set out the skill requirements for business analysts in order to assist those who wish to build their business analysis careers and deter those who are less committed. These are the tangible outcomes. However, the less tangible outcomes are the increase in understanding I have gained with regard to the lack of role clarity and the far-reaching consequences. Rather than blaming other professionals, business analysts need to address their own shortcomings. The phrase ‘physician, heal thyself’ seems highly appropriate in our context.

Having worked within the IS industry for over thirty years, I am highly committed to business analysis work and believe in the value it has the potential to offer to organisations. Moving forward, my intention is to use my position within the business analyst community as a consultant, examiner, author, BAMF director and BA conference organiser, to highlight the need for role clarity and role congruence. I believe these attributes are both fundamental and vital if business analysis is to gain recognition as a distinct and important discipline.

## Appendix A: Profiles of the mini-cases

### Mini-case 1

Mini-case 1 (MC1) is an independent consultant and trainer in business analysis. MC1 has been a business analyst for 10/11 years and has a background in financial services. MC1 does not have a technical background although has worked in support of a web-based system. MC1 has a degree in business studies with ICT and holds several business analysis qualifications including IIBA CBAP and BCS International Diploma in Business Analysis. MC1 is a BCS oral examiner, speaks regularly at business analysis conferences and seminars and is an IIBA and BAMF member. MC1 attends the BAMF events and has presented at the Business Analysis Conference Europe.

### Mini-case 2

Mini-case 2 (MC2) is a senior business analyst working within a UK Government department. MC2 has been a business analyst for 15 years and has a technical background in IT systems. MC2 has worked within the UK Government for many years and has a lot of knowledge of this particular domain. MC2 moved into a more technical role having been a subject-matter expert on projects. MC2 has done technical coding and systems analysis work before moving into a business analyst role. MC2 has a degree in Computing and Business Studies, holds the BCS International Diploma in Business Analysis and is a BCS oral examiner. MC2 speaks regularly at business analysis conferences and seminars, and has presented at the BAMF and at the Business Analysis Conference Europe.

### Mini-case 3

Mini-case 3 (MC3) is a senior lead business analyst working within a high-street bank. MC3 has been a business analyst for 14 years and has a technical background in IT systems, working originally as a developer within local and central Government. MC3 moved into a business analyst role as a team leader and also has project management experience. MC3 has bachelor degree-level qualifications in Computing Studies, holds the BCS International Diploma in Business Analysis and is a BCS oral examiner. MC3 was previously the IIBA Business Analyst of the Year and has presented at the Business Analysis Conference Europe. MC3 attends BAMF events.

### Mini-case 4

Mini-case 4 (MC4) is a lead business analyst working within a global taxation and audit company working in 175 countries. MC4 has been a business analyst for 10 years and has a technical background in IT systems having worked in a variety of roles. MC4 has extensive

developer experience and has worked in testing, systems analyst and business analyst roles. MC4 holds the BCS International Diploma in Business Analysis and is a BCS oral examiner. MC4 has presented at the Business Analysis Conference Europe and attends BAMF events.

### **Mini-case 5**

Mini-case 5 (MC5) is a business analyst working for an insurance company. MC5 has been a business analyst for 10 years and has worked previously for a consultancy organisation and two central Government departments. MC5 has a technical background in IT systems originally working as a developer, then analyst-programmer before moving into an analyst role. MC5 holds the BCS International Diploma in Business Analysis and is a chartered member of BCS. MC5 is a member of IIBA through the organisation's corporate membership. MC5 was nominated for this research by MC5's manager who is a member of the BAMF and attends BAMF events.

### **Mini-case 6**

Mini-case 6 (MC6) is a business analyst working for an insurance company. MC6 has been a business analyst for 10 years and has worked previously for a university and the National Air Traffic Control services. MC6 has a technical background in IT systems working as a tester and data analyst before moving into a business analyst role. MC6 holds the BCS International Diploma in Business Analysis and is a member of BCS. MC6 is a member of IIBA through and was nominated for this research by MC6's manager who is a member of the BAMF and attends BAMF events.

### **Mini-case 7**

Mini-case 7 (MC7) is a senior business analyst working for an insurance company. MC7 has been a business analyst for 15 years and has always worked for the same company. MC7 was originally an underwriter for the company. MC7 has a technical background in IT systems working originally as a programmer and programming team leader before moving into a business analyst role. MC7 holds the BCS International Diploma in Business Analysis and is a BCS mentor oral examiner. MC7 has presented at the Business Analysis Conference Europe and attends the BAMF events.

### **Mini-case 8**

Mini-case 8 (MC8) is a senior business analyst working within a high-street bank. MC8 has been a business analyst for 30 years and has worked for a number of financial services organisations. MC8 has also worked for a large, multi-national computer services organisation. MC8 has a technical background in IT systems working originally as a programmer before moving into a business analyst role. MC8 has also worked on expert

systems and artificial intelligence. MC8 holds the BCS International Diploma in Business Analysis and has a PhD in Chemistry. MC8 is a BCS mentor oral examiner and is a member of IIBA and a chartered member of BCS. MC8 has presented at the Business Analysis Conference Europe and was a finalist for the IIBA Business Analyst of the Year Award. MC8 attends IIBA and BAMF events.

### **Mini-case 9**

Mini-case 9 (MC9) is a Principal Business Analysis Manager working for a Government department. MC9 has been a business analyst for 10 years and has worked previously for local government as an IT officer. MC9 has a technical background in IT systems working within testing and migration roles. MC9 has an MSc in physics, holds the BCS International Diploma in Business Analysis and is a BCS oral examiner. MC9 is a BCS member through the organisation's corporate membership, has presented at the Business Analysis Conference Europe and attends the BAMF events.

### **Mini-case 10**

Mini-case 10 (MC10) is a Business Analysis and Solution Architecture Manager working for an energy company. MC10 has been a business analyst for 20 years and has worked previously for a car manufacturing company and an IT services company. MC10 has a technical background in IT systems working originally as a systems co-ordinator across the entire systems development lifecycle. MC10 has had specific roles of tester and systems analyst before becoming a business analyst. MC10 holds the BCS International Diploma in Business Analysis and is a BCS member through the organisation's corporate membership. MC10 has presented at the Business Analysis Conference Europe and at the BAMF events, and has contributed to business analysis publications.

### **Mini-case 11**

Mini-case 11 (MC11) is a Business Analyst working for an energy company. MC11 has been a business analyst for 13 years and has worked previously for an IT services company. MC11 has a technical background in IT systems working as a developer, testing manager and project manager before becoming a business analyst. MC11 holds the BCS Foundation Certificate in Business Analysis and the BCS Certificate in Requirements Engineering. MC11 is a BCS member through the organisation's corporate membership and has presented at the Business Analysis Conference Europe. MC11's organisation is a member of the BAMF nominated MC11 as a participant in this research.

### **Mini-case 12**

Mini-case 12 (MC12) is a Senior Business Analyst working for an energy company. MC12 has been a business analyst for 10 years and has worked previously for an IT services company. MC12 has a technical background in IT systems working as an analyst programmer, senior analyst programmer and development team leader before becoming a business analyst. MC12 has a degree in Computer Science. MC12 holds several BCS Business Analysis certificates and is both a BCS member and IIBA member through the organisation's corporate memberships. MC12's organisation is a member of the BAMF nominated MC12 as a participant in this research.

### **Mini-case 13**

Mini-case 13 (MC13) is a Business Analyst working for a high-street retail company. MC13 has been a business analyst for 18 years and has worked previously as a human computer interaction designer. MC13 has a master's degree in Occupational Psychology. MC13 holds the BCS International Diploma in Business Analysis and the IIBA CBAP. MC13 is both a BCS and IIBA member, and has been a BCS oral examiner previously. MC13 has presented at the Business Analysis Conference Europe and attends BAMF events.

### **Mini-case 14**

Mini-case 14 (MC14) is a Managing Consultant working for a consultancy and training company based in The Netherlands. MC14 has been a business analyst for 13 years and has worked previously as a software developer, designer and tester. MC14 holds the BCS International Diploma in Business Analysis. MC14 is an IIBA member and has been involved in organising conferences and seminars concerned with business analysis topics in The Netherlands. MC14 is also a member of the DSDM Consortium and has attended the Business Analysis Conference Europe and attends BAMF events.

### **Mini-case 15**

Mini-case 15 (MC15) is an independent consultant and trainer in business analysis. MC15 has been a business analyst for 20 years and has worked previously for a small consultancy firm, a travel company and a Government department. MC15 has a technical background in IT systems working originally as a data analyst. MC15 has had specific roles of tester and systems analyst before becoming a business analyst. MC15 has a degree in Computer Science, holds the BCS International Diploma in Business Analysis and is a BCS oral examiner. MC15 also holds several solution development qualifications. MC15 has presented at the Business Analysis Conference Europe and at BAMF events.

### **Mini-case 16**

Mini-case 16 (MC16) is a Service Improvement Manager working within a Government department. MC16 has been a business analyst for 13 years and has worked previously for a high-street bank. MC16 does not have a technical background and started in business analysis within a business change role. MC16 holds the BCS International Diploma in Business Analysis and was previously a BCS member. MC16 has attended IIBA and BAMF events.

### **Mini-case 17**

Mini-case 17 (MC17) is a Business Analysis Manager working for a university. MC17 has been a business analyst for 13 years and has worked previously for an energy company and an educational organisation. MC17 worked within a business area initially and then moved into IT systems development before becoming a business analyst. MC17 holds the BCS International Diploma in Business Analysis, and has attended BAMF and IIBA events.

### **Mini-case 18**

Mini-case 18 (MC18) is an independent consultant and trainer in business analysis. MC18 has been a business analyst for 25 years and has worked previously for a local government organisation, a mobile telecommunications company, a private healthcare company, a financial services company and a media company. MC18 has a technical background having worked as an analyst/programmer and is a qualified NLP master practitioner. MC18 holds the BCS International Diploma in Business Analysis and is a BCS oral examiner. MC18 has been a judge for the IIBA Business Analyst of the Year and has presented at the Business Analysis Conference Europe. MC18 has presented at BAMF events.

### **Mini-case 19**

Mini-case 19 (MC19) is a Principal Consultant working for a specialist business analysis training and consultancy company. MC19 has been a business analyst for 11 years and has worked previously for a multi-national insurance company, large consultancy firm, a financial services company and a car manufacturer. MC19 does not have a technical background. MC19's first role following university was as a business analyst. MC19 has a degree in Politics, an MSC in management and an MBA. MC19 holds the BCS International Diploma in Business Analysis and is a BCS oral examiner. MC19 has presented at the Business Analysis Conference Europe and has attended BAMF events.

### **Mini-case 20**

Mini-case 20 (MC20) is a Business Architect working for a specialist business analysis training and consultancy company. MC20 has been a business analyst for 20 years and has

worked previously for a technical infrastructure company. MC20 has a technical background and has been a programmer, a systems analyst, a business analyst and is now a business architect. MC20 has a degree in IT and a PGCE, and holds the BCS International Diploma in Business Analysis and the IIBA CBAP. MC20 is a previous IIBA Business Analyst of the Year. MC20 is an IIBA member and has presented at the Business Analysis Conference Europe. MC20 's organisation is a member of the BAMF.

## Appendix B: Dates and durations of mini-case interviews

Mini-case number	Date of interview	Duration
1	30/10/2013	50 mins
2	31/10/2013	30 minutes
3	04/12/2013	40 mins
4	03/11/2015	1 hour 6 mins
5	11/11/2015	1 hour 20 mins
6	17/11/2015	58 mins
7	17/11/2015	1 hour 9 mins
8	27/11/2015	52 mins
9	11/12/2015	1 hour 9 mins
10	11/02/2016	1 hour 3 mins
11	11/02/2016	48 mins
12	11/02/2016	56 mins
13	16/02/2016	1 hour 8 mins
14	17/02/2016	1 hour 1 min
15	26/02/2016	1 hour 11 min
16	11/08/2016	1 hour 10 mins
17	11/08/2016	1 hour 1 min
18	08/11/2016	1 hour 18 mins
19	21/11/2016	59 mins
20	29/11/2016	51 mins



## Appendix C: Data collection questions

### Context

- Organisational context
  - What type of organisation is your employer?
  - What business sector does your organisation operate within?
  - What is the size of the BA Practice in your organisation?
  - Where is the BA Practice located within your organisation?
  - What is the governance structure for the BA practice within your organisation?
  - What is the attitude towards BA within your organisation from a customer perspective?
  - What is the attitude towards BA within your organisation from a senior management perspective?
  - What BMM maturity level has the BA practice in your organisation achieved?
  - How well recognised is BA within your organisation?
  - What are the factors that contribute to this level of recognition?
- Personal context
  - What is your job title?
  - How did you start your BA career?
  - What career path have you followed as a BA?
  - What qualifications that are relevant to your career do you hold?
  - How many years have you been working as a BA?
  - Which professional organisations or associations are you a member of?

### Content

- Project content
  - Which types of IS project have you worked on?
  - Which types of IS project do your colleagues work on?

- Which aspects of the business system are considered during your IS projects?
- BA role content
  - What is the value proposition offered by your BA practice?
  - Which activities are performed by BAs on IS projects?
  - How would you define the BA role?
  - What are the different levels of BA role adopted by less or more experienced colleagues?
  - Are there any specialist aspects of the BA role?
  - As a BA, what would you like to see changed within the IS industry? And with regard to BA?

## **Process**

- Process approaches
  - What is the process adopted for BA work in your organisation?
  - Which standards are adopted?
  - Why is a particular standard used?
  - Does your organisation encourage collaboration between the BAs and their customers?
- Process skills
  - Which BA techniques do you use?
  - Which BA tools do you use?
  - Which business skills do you need to conduct BA work?
  - Which people skills do you need to conduct BA work?
- Process challenges
  - What are the key challenges facing BAs when conducting their work?
  - How could these challenges be overcome?
  - As a BA, what would you like to see changed with regard to business analysis within the IS industry? In what way?

## Outcomes

- Usage outcomes
  - How does BA help the business staff to adopt changes to an IS system?
- Risk outcomes
  - What risks might arise from the absence of BA on an IS project?
  - How can BA help overcome these risks?
- Project outcomes
  - How would you define the 'success' of an IS project?
  - What do business analysts do to contribute to this success?
- Benefit outcomes
  - How does the BA help with the management of business benefits?
  - What do BAs do to define the changes needed to realise business benefits?
- Value outcomes
  - What factors do customers use to assess whether value has been realised from their IS projects?
  - What do customers need to do in order to realise value from IS projects?
  - What do BAs do to help organisations realise value from IS projects?

## Appendix D: business analysis techniques

Technique category	Techniques
Requirements engineering	Requirements catalogue/list, traceability matrix, requirements documentation, requirements management, prioritisation
Process modelling	Process model, swimlane diagram, BPMN, process map, activity diagram, event analysis
User role modelling	Use case diagram, scenario, user story, persona, UX diagram, storyboard
Data modelling	Data model, entity relationship diagram, class diagram
Investigation	Interview, workshop, focus group, prototype/wireframe
Business cases	Cost/benefit analysis, force-field analysis, risk analysis, benefits review, impact analysis
Stakeholder management	CATWOE, root definition, stakeholder wheel, stakeholder map, power/interest grid, social network analysis
Environment analysis	PESTLE analysis, Porters 5-forces, SWOT analysis, value chain, balanced scorecard, critical success factor, key performance indicator
Gap analysis	Gap analysis, 'as is' and 'to be' comparison, POPIT
Problem definition	Rich picture, mind map, problem statement, Ishikawa diagram, fishbone diagram, context diagram, brainstorming, post-it exercise
User Acceptance Testing	User acceptance scenario, test case
Implementation	Post-implementation/benefits review, training needs analysis, training material development, CPPOLDAT
Requirements specification	Sequence diagrams, state charts, CRUD matrix
Agile development	Backlog, kanban board, daily stand-up, retrospective, sprint

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