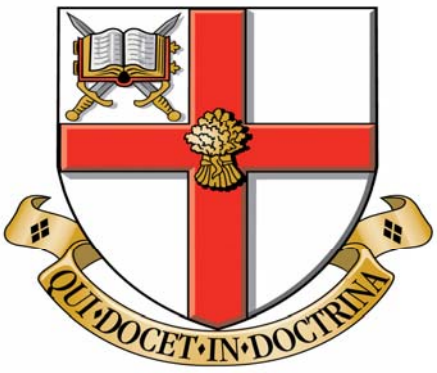

University of Chester

University of Chester

Decision-making in practice: the use of cognitive heuristics by senior managers.

Thesis submitted in accordance with the requirements of the University of Chester for the degree of Doctor of Philosophy

By

Mark Crowder

June 2013

Acknowledgements

Firstly, I would like to offer my sincere thanks to all who participated in this study. You are too numerous to mention individually, but you know who you are! Thank you for your knowledge, opinion and, not least, your time.

A big thank you also to Peter Cureton. Your support and companionship has been invaluable. I look forward to a drink or six once our PhDs are completed.

Thanks also to those at the University of Chester for your help and support. I would like to mention two people in particular. The first is Dr Jem Warren, who kept me going through several sticky patches, and who encouraged me to believe that this might actually be possible. The second is sadly no longer with us – Professor Tom Mason. Thank you, Tom, for your help in the early stages of this project. You will be sorely missed.

I am grateful too for the advice and guidance provided by my supervisory team, Professor Tony Proctor, Professor Caroline Rowland, Dr Russell Warhurst, and Dr Tom Scanlon. You kept me focused when I began to drift, and you kept me short when I was waffling!

Most of all, my heartfelt thanks go to my ‘three girls’ – my wife Sue and our two daughters Gemma and Laura. Your love and unfailing support has made this possible. I’m looking forward to spending quality time with you and making up for the years I’ve been glued to the computer!

Abstract

This thesis uses a grounded theory methodology to reveal the processes by which cognitive heuristics are used by senior managers to make decisions in a large UK local authority.

The thesis is based on primary data, organisational documentation and an extensive and critical review of the pertinent literature. Primary data was generated over four years and involved detailed observation of 156 senior managers making a total of 513 decisions, together with formal interviews and informal discussions with these managers.

The organisation under study provided an ideal context for this research since it offered a rich insight into management decision-making practices in diverse contexts such as social work and highways, and with varying degrees of urgency ranging from procurement decisions lasting several months to instant decisions concerning child protection. Furthermore, UK local government has been subject to drastic change in recent years, such as the introduction of private sector management practices and increased competition. This has been exacerbated by an austerity programme which means that local authorities, in common with much of the world, have to do a lot more with a lot less. The turbulent context of local government is, in Yin's (2009) terms, an 'exemplifying' case study, and hence the issues raised in this study resonate far beyond the scope of this thesis.

This thesis makes a number of significant contributions to knowledge. Firstly, original flow charts are developed that allow the underlying processes of heuristic decision-making to be identified, and these reveal that, whereas the academic literature treats heuristics as discrete entities, there is actually considerable interplay between them. Further, a new definition of the moral heuristic is developed, which allows researchers to view this heuristic at a higher, more conceptual level than has hitherto been possible. The thesis also extends the work of Daniel Kahneman and demonstrates that the role of the unconscious in decision-making is more complex than previously thought. For instance, intuitive heuristics can be used consciously and choice-based heuristics can be used unconsciously. It is also argued that the underlying processes of 'classical' theory are better explained by the degree of consciousness involved when making a decision, and not by the commonly accepted normative/behavioural distinction made by Herbert Simon and others. As such, this thesis represents an important contribution to the decision-making literature.

Declaration

This work is original and has not been submitted previously for any academic purpose. All secondary sources are acknowledged.

Signed: _____

Date: _____

Early versions of parts of chapters 2-6 appeared in Crowder (2013a) but were extensively reworked in this thesis.

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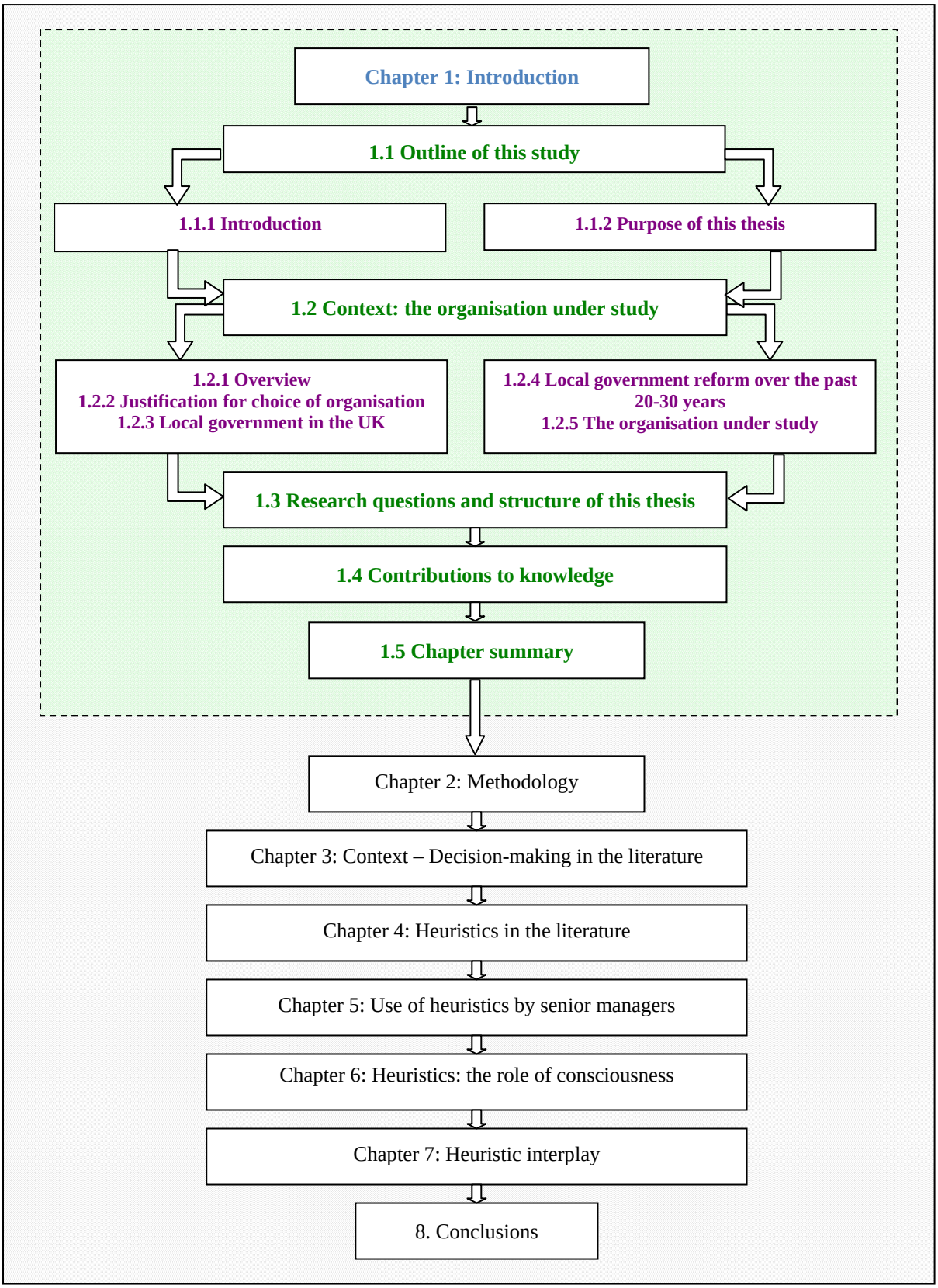
List of abbreviations

AD	Assistant Director
CAA	Comprehensive Area Assessment
CCT	Compulsory Competitive Tendering
CEO	Chief Executive Officer
CEST	Cognitive-Experiential Self-Theory
CRB	Criminal Records Bureau
EBA	Elimination By Aspects heuristic
HoBU	Head of Business Unit
HR	Human Resources
HSM	Heuristic-Systematic Model of information processing
ICT	Information and Communications Technology
ITT	Invitation To Tender
IYPS	Integrated Youth and Play Service
NDM	Naturalistic Decision-Making
NPM	New Public Management
OJEU	Official Journal of the European Union
SSADM	Structured Systems Analysis and Design Methodology
SSM	Soft Systems Methodology
UK	United Kingdom
USA	United States of America
UTT	Unconscious Thought Theory
WADD	Weighted Additive heuristic
YOS	Youth Offending Service

CHAPTER 1: INTRODUCTION

Fig 1: Context and structure of Chapter One



1.1 Outline of this study

1.1.1 Introduction

This thesis examines how senior managers use cognitive heuristics to make decisions within a large UK local authority. The study adds to knowledge by illustrating that heuristics behave somewhat differently than the literature suggests. It also has very broad practical relevance because UK local government, in common with much of the world, is currently experiencing times of great austerity and has to do a lot more with a lot less. The turbulent context of local government is, in Yin's (2009) terms, an 'exemplifying' case study, and therefore the issues raised in this study resonate far beyond the scope of this thesis. Furthermore, managers within the organisation felt that this study was important. Typical comments were:

> *"Decision-making in the real-world is not like testing in a lab"* (Adult Safeguarding) because *"there are no implications in the lab, but out in the real world, we have life and limb situations"* (Environmental Health) *"and people can get killed if we get our decisions wrong"* (Building Control).

The study of cognitive heuristics is important to the academic and practitioner communities, and is the focus of several doctoral theses. For instance, Frankl (2010) examined their use in Canadian businesses using a survey-based methodology; Mole (1999) studied how they were used in advice given to UK businesses using a mixed method approach; and Stahr (2000) explored the use of heuristics in risk management in the UK National Health Service using an Action Learning approach. This thesis differs from these, and from other research, both conceptually and methodologically. It identifies and addresses gaps in the existing literature, and provides a new way of looking at cognitive heuristics. This, in turn, has led to a number of key findings that add significantly to knowledge. These are outlined in the following pages, and are expanded upon in greater detail from Chapter Five onwards.

1.1.2 Purpose of this thesis

This thesis seeks to understand the **process** of heuristic decision-making, and this therefore defined the boundaries of the study. The research stopped at the point at which the decision was made, and it did not consider factors such as the decision's communication, its effectiveness, its implementation, or its quality. However, decision-makers' **perception** of the quality of their decisions *was* an important consideration. Findings showed that a decision perceived as being good by the decision-maker would be repeated if similar situations recurred in the future. Consequently, understanding the decision-maker's perception of the quality of the decision was more important to the process than establishing whether or not a decision was 'actually' good. Hence, the thesis does not seek to obtain an objective analysis of the quality of decisions.

1.2 Context: the organisation under study

1.2.1 Overview

To understand the decision-making processes in local government, it is necessary to place these in context. The following pages therefore briefly discuss local government from a national perspective and examine its role, function and structure. This is followed by an outline of the legislative and regulatory changes over the past 20-30 years, which shows that local government has evolved rapidly to meet the changing demands of its environment and citizens. Local government is then considered from a local perspective, and its organisation, governance and management arrangements are outlined. This locates the present study within the wider framework and provides the context for the remainder of this thesis.

1.2.2 Justification for the choice of organisation

The organisation under study was chosen for several reasons. Firstly, there were practical considerations. Since the author was employed by the organisation he was studying, potential problems of gaining access could be minimised. He had prior knowledge of many service areas, and his involvement in high-profile corporate projects meant that he was already well-known within the organisation, and this made it easier to build trust and to gather information. There were also more objective reasons. The organisation's recent selection for a prestigious international award gave the city an increased profile on the world stage and brought substantial financial investment. This led to a change in the number and type of decisions made across the council, and this presented a unique opportunity for study. Moreover, a major restructure had just taken place, and the managers involved in the key decisions were still available and indicated their willingness to participate in the research. Finally, the organisation is large and offers a wide variety of services across a large number of business units. Given these factors, the author felt that he would be likely to find the evidence he needed to support his research in a wide range of contexts.

1.2.3 Local government in the UK

In the UK, there is no written constitutional guarantee protecting local government (Barlow and Röber, 1996; Copus, 2004). It exists by virtue of Acts of Parliament, and hence the structures, functions, funding and many of the processes of local authorities are determined by law (Barlow and Röber, 1996). The arrangement of local government across the UK is complex and confusing (Chandler, 2001), and it is surprisingly difficult to establish exactly how many local authorities there are in the UK. For instance, the figure quoted for England ranges from 148 (BBC, 2008) to 388 (CLG, 2008); for England and Wales the figure may be 410 (LGA, 2008a); the figure for Britain may be 385 (Turley, 2008) or 467 (Chandler, 2001); and for the UK the number may be just under 400 (Bentley, 2009) or over 450 (Speller, 2001). It should also be noted that there are also approximately a further 9,000-10,000 Parish or Town Councils (Chandler, 2001; Copus, 2004). This complexity is reflected in the wide range of theories that have been used to try to study it. These include urban regime theory (Mossberger and Stoker, 2001), public choice theory (Atreya and Armstrong, 2002),

stakeholder theory (Laplume, Sonpar and Litz, 2008), rational choice theory (Donaldson, 1995), and localism theory (Stoker, 1991). The following sections explore local government reform over recent decades from the perspective of the New Public Management and Network Governance, before discussing more recent developments introduced by the current government.

1.2.4 Local government reform over the past 20-30 years

Introduction

It is important to understand the context of UK local government because it is crucial to this thesis. Local government managers need to make decisions on a range of topics. Some of these are long-term strategic decisions such as the procurement of a major contract, and others are literally life-saving decisions, such as those involving child protection.

Public management reform can be defined as *"deliberate changes to the structures and processes of public sector organisations with the objective of getting them (in some sense) to run better"* (Pollitt and Bouckaert, 2011: 2). As the authors themselves admit, this is rather a loose definition, but it aligns neatly with the purposes of this discussion. Traditionally, local government in the UK was built on direct provision of services (Appleby and Clark, 1997; Barlow and Röber, 1996), but from the 1980s onwards, this position rapidly changed (Morphet, 2008), with outsourcing of services to the private sector becoming more prevalent (Atkinson and Wilks-Heeg, 2001; Cooke, 2006). There are many reasons for this including scarcity of resources, strategic fit between the partner and the authority, the partner's knowledge of the specific service, and regulatory imperatives (Butler and Gill, 2001). However, local authorities still have the statutory responsibility for delivery of these services and therefore bear the ultimate risk while the partner makes the profit (Speller, 2001).

The New Public Management – Thatcher, Major and Blair

The Conservative victory in the 1979 general election heralded the beginning of a major programme of reform in UK local government. Compulsory Competitive Tendering (CCT) was developed in the early 1980's (Boyne, 1998), and this introduced purchaser-provider

splits (Stoker, 2006), and led to the division of large council departments into smaller groupings. Each sub-group was designated as a cost centre and supplied a clearly-defined range of products which were traded in an internal market (Barlow and Röber, 1996). This also effectively meant that councils were forced to consider private sector provision for the delivery of key services (Atkinson and Wilks-Heeg, 2000). This level of competition increased throughout the 1980s until by the end of the decade local authorities were starting to be seen as enablers rather than simply as service providers (Barlow and Röber, 1996).

CCT has been described as coercive isomorphism (Powell and DiMaggio, 1991), where pressure to adopt a particular structure comes from an influencing organisation – in this case, central government – and this influenced the decisions that were made: regardless of their own wishes, organisations were forced to act within the framework of the model (Pollitt, 2001). This was an example of a rise in the use of a new type of public sector management, which became known as the 'New Public Management' (NPM). NPM is radically different from traditional public administration. Traditional public administration can be likened to Scientific Management (Hagen and Liddle, 2007), as it entails detailed direction and supervision of employees in narrow, repetitive tasks (Hartley, 2006, Ryan et al., 2008), whereas NPM emphasises teamwork and co-operation (Ryan et al., 2008). NPM shifts the focus from the maintenance of structures, rules and procedures to the cost-effective achievement of market-oriented outcomes (Ryan et al., 2008). NPM literature as a whole is amorphous (Barzelay, 2001), and indeed Ferlie et al. (1996) suggest that at there are at least four alternative models of NPM:

- 'the efficiency drive' – this was an *"attempt to make the public sector more business-like and was led by crude notions of efficiency"* (Ferlie et al., 1996:10)
- 'downsizing and decentralisation' – this version is characterised by *"a shift for flexibility, downsizing and contracting out of functions"* (Ferlie et al., 1996: 12)
- 'in search of excellence' – this model represents the application to the public sector of the human relations school of management theory (Meek, 1998). It has a *"strong emphasis on the importance of organisational culture"* (Ferlie et al., 1996: 13).
- 'public service orientation' – this model seeks to re-energise public sector managers by outlining a distinct public service mission (Osborne and Gaebler, 1992) but *"one compatible with high quality management associated with the private sector"* (Ferlie et al., 1996: 13).

In spite of these differences, 'typical characteristics' of NPM can be identified, and these include improved financial management, performance targets, increased contracting out, and greater competition (Gruening, 2001; Hood and Jackson, 1991; Osborne and McLaughlin, 2002; Stoker, 2006), and the programme sought to achieve a greater orientation towards change, efficiency, and productivity (Orchard, 1998). Consequently, researchers generally agree that NPM brought to the public sector many of the principles prevailing in the private sector (Emery and Giauque, 2005; Hood, 1991; Newman, 2001). The programme affected the nature of decision-making because the focus of many mangers was changed so 'measurable' decisions became preferred to 'intangible' decisions (Stoker, 2006; Taylor and Kelly, 2006). Within the organisation under study, for example, managers often used the phrase *"what gets measured gets done"*, which of course has strong synergies with the Management By Objectives programme from decades earlier (see for instance Drucker, 2012; Odiorne, 1982).

Not everyone has accepted NPM (Pollit, 2001). For example, Ward (2007) questions the gains in efficiency and public satisfaction attributed to NPM. Others argue that, rather than reducing bureaucracy, NPM has actually created more, since managers must demonstrate that they have achieved particular targets (Ball, Bowerman and Hawksworth, 2000; Taylor and Kelly, 2006). There are also contradictions within the literature: Barberis (1988) suggests that NPM seeks to limit the discretion of public servants whilst Kaboolian (1998) believes that NPM actually gives public managers more discretion. NPM also finds itself associated with both the idea of *"letting managers manage"* and *"making managers manage"* (Kettl 1997: 447-448). Hence, as Cheung (1997) observes, there is no 'one best practice' to public sector reform and no ready-made solution applicable to all contexts.

A significant effect of the introduction of NPM was the move of local government managers away from purely financial considerations and towards aspects of the business such as quality and performance (Emery and Giauque, 2005; Taylor and Kelly, 2006). A second important effect was an increase in the power of many public sector managers at the expense, in relative terms, of 'professional' groups (Broadbent and Laughlin, 2002; Brooks and Weatherston, 2000). For instance, teachers can now be considered as 'technicians' rather than 'professionals' and head teachers have effectively become managers (Taylor and Kelly, 2006). Effectively, therefore, there has been a blurring of boundaries between the public and private sectors because responsibilities that previously belonged to central government have been shared by means of contracting-out and public-private partnerships (Emery and Giauque,

2005; Stoker, 1998). Stoker (1998) suggests that this can create an ambiguity in the minds of policy-makers and public about who is responsible and can lead to ‘passing the buck’ when things go wrong. Indeed, it may even be the case that public trust has decreased, with democracy being negatively affected and transaction costs increasing (Cong and Pandya, 2003).

The election of a Labour government in 1997 did not fundamentally change this shift away from traditional public administration. Indeed, the Local Government Act 1999 accelerated this with the introduction of Best Value, which provided the statutory basis on which councils planned, reviewed and managed their performance (IDeA, 2010). Under Best Value, local authorities had a duty to secure continuous improvement in the way their functions were exercised, having regard to a combination of economy, efficiency and effectiveness. This involved consideration of costs, making the most of money spent, and ensuring that services met the needs of communities and authorities' priorities (IDeA, 2010).

Network Governance – Blair and Brown

The Local Government Act 1999 was quickly followed by the Local Government Act 2000, and together these signalled a move to a post-NPM environment (Addicott, 2008) and brought a different emphasis to the modernisation agenda (Morphet, 2008). Essentially, it was recognised that knowledge and resources can sometimes be difficult to locate in a single organisation, and that instead, the necessary capabilities are more likely to be found across a network of different businesses and contractors (Buchanan and Huczynski, 2004). This approach became known as Network Governance, and it sought to ensure that local government decision-making processes were efficient, transparent and accountable, and that local communities were actively involved and engaged in decision-making (Addicott, 2008; Morphet, 2008).

As with NPM, more than one model has been identified. The ‘principal-agent’ model has one dominant party (the principal), which then contracts out to other parties (Broadbent, Dietrich and Laughlin, 1996), whereas the ‘inter-organisational’ form involves organisations negotiating joint projects in which by blending their capacities they are better able to meet their own objectives (Stoker, 1998). The latter may take the form of a ‘dominated’ network, with one organisation taking the lead, or the ‘equal partner’ network, consisting of several

similarly sized organisations (Buchanan and Huczynski, 2004). These different versions shared several key features, which included a widening of traditional public sector activities into public/private partnerships and formal agreements (Addicott, 2008; Turley, 2008) in which collaboration, innovation and flexibility were vital (Budd, 2007; Hagen and Liddle, 2007). Networks, partnerships and agreements began to replace internal markets, managerialism and contracts (Addicott, 2008), and a collaborative approach was taken to regional problems, with partnerships being formed between different local authorities and between local authorities and, for example, the National Health Service (Addicott, 2008). This provided opportunities for information sharing and learning from each other (Hill, 2001; Stoker, 2006), and partners worked together on the basis of trust rather than on the basis of a formalised, contractual relationship (Hagen and Liddle, 2007; Kettl, 2002; Klijn and Koppenjan, 2000). Network governance therefore has a significant focus on human relations and the importance of organisational culture in managing change and innovation (Addicott, 2008). It is a form of collective decision-making (Stoker, 2006), although accountability can be unclear if partners are dissatisfied or when things go wrong (Stoker, 1998). This was seen in the organisation under study within the Port Health function. This resides within the council but is actually staffed by employees from five regional local authorities. On one occasion, a mistake almost led to the closure of a major airport, and each of the local authorities blamed someone else. Effectively, decision-making was paralysed by a blame culture and it took the intervention of the Chief Executive to resolve the problem. Interestingly, Stoker (2006: 56) suggests that *"one must involve many stakeholders to make good decisions"* (author's emphasis), although as will be seen later in this study in the case of the retained organs scandal (page 193), 'good' decisions can also be made by deliberately ignoring other stakeholders.

From April 2009, a new performance assessment framework was introduced, namely Comprehensive Area Assessment (CAA) (IDeA, 2008; LGA, 2008b). This brought a legislative underpinning to the community leadership roles of local authorities and strengthened the legitimacy of the council in setting out the vision and direction for the area, and influencing partners to achieve these goals (Crowe, Dungey and Wall, 2008). Under CAA, local public organisations were collectively accountable for the outcomes they delivered for an area. Councils, health bodies, police forces, and others responsible for local public services were increasingly expected to work in partnership to tackle the challenges facing their communities (BBC, 2007; Scullion, 2008). CAA gave greater attention to local

priorities (CLG, 2006; LGE, 2008) and increased people's awareness of the services available to them, empowering them to make better decisions and obtain value for money (IDeA, 2008; Scullion, 2008).

A time of austerity – Cameron and Clegg

In 2010, the UK general election resulted in a hung parliament for the first time since 1974, and a coalition government was formed between the Conservatives and the Liberal Democrats. As Wilson and Game (2011) observe, two main themes dominated government policy making: cuts to public spending, and decentralisation.

The cuts that local government faced following the 2010 Comprehensive Spending Review were unprecedented in modern times. The last time major cuts of this nature occurred was in the 1920s, when Sir Eric Geddes set out proposals for reducing public spending in the aftermath of the First World War. The recommendation (the 'Geddes Axe') was for cuts of 25% in public spending but only two-thirds of these cuts were implemented, and spending increased again only two or three years later (Bevan, 2010). The cuts began almost as soon as the coalition government was formed, with major projects such as Building Schools for the Future being heavily curtailed. Perhaps the biggest impact on local government, however, was a massive reduction in the grant funding provided by the government. Although estimates vary, overall local government lost between a quarter (Audit Commission, 2012) and one-third (Smith, 2010) of its central funding. However, even these figures do not tell the whole story, because the cuts were not of equal measure across the country. Some councils fared comparatively well, and lost less than 1% of their budget, whereas others saw cuts of more than 40% (Audit Commission, 2012). The organisation under study was one of the worst affected and lost approximately 50% of its controllable budget during the life of the parliament. This affected decision-making at all levels, because the politicians decreed that front-line services would be protected at all costs, which effectively meant that managers were forced to make swingeing cuts in administration and other back-office functions, regardless of their own views on this.

In parallel with the cuts, a programme of local government reform was begun. The government sought to increase the accountability of local government at a local level (Shapps,

2010), whilst reducing the 'red tape' that it felt was constraining progress (Pickles, 2010). To this end, the previously complex and onerous reporting requirements to central government were significantly reduced (LGA, 2010a; Pickles, 2010). In other changes, Primary Care Trusts were abolished from April 2013, and local government was given a major new role in health improvement, scrutiny and joint working, and even in supplying back-office services to general practitioners (Burton, 2010). Education was another key area of reform. It had been an important political issue for the Labour government, and continued to be so under the Coalition government. It was felt to be a fundamental factor in ensuring economic productivity and competitiveness, in generating social mobility and tackling social inequality (Ball, 2013). Initiatives included the Academies programme, increasing parental choice, the introduction of Free Schools, and changes to the national curriculum (Ball, 2013).

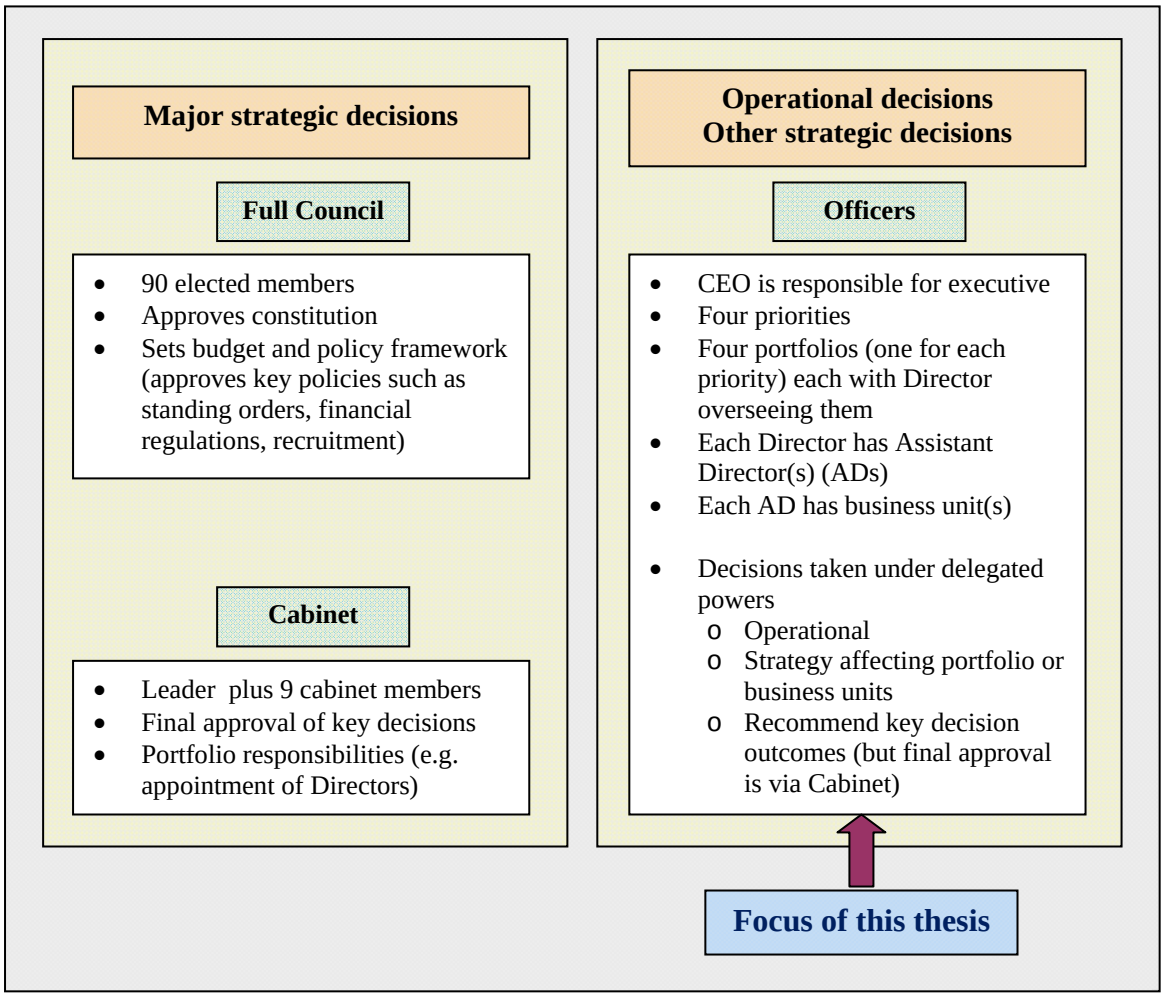
However, in spite of these high-level changes, the previous government's emphasis on local priorities was retained (Cabinet Office, 2010a), although the means in which these priorities were to be delivered was radically different. CAA was abolished (LGA, 2010a), and the 'Big Society' agenda became a plank of the government's reform programme (Sullivan, 2012). This sought to increase community involvement in local government through a range of measures. These included referenda for the creation of directly-elected mayors in the 12 largest cities (Cabinet Office, 2010b; LGA, 2010a); giving councils a general power of competence – i.e. a power to do anything they consider likely to benefit the community (LGA, 2010b); giving the public the opportunity to instigate referenda on any local issues or excessive council tax rises (Cameron, 2010; LGA, 2010a); and a mandatory two-year council tax freeze that further increased budgetary pressures following the programme of cuts (Audit Commission, 2012; Lowndes and Pratchett, 2012).

1.2.5 The organisation under study

Appleby and Clark (1997) suggest that the key processes of decision-making in local government are political ones in which the dominant factor is the political priorities of the majority party on the council. This is, however, a generalisation, and there are also several other significant factors, including the wishes of the electorate, the influence of pressure groups, and relationships between officers and councillors (Worthington and Britton, 2000). Decision-making in local government takes place within a framework where elected members

and officers have defined roles and levels of authority. This is reflected in the organisation under study, where governance arrangements are prescribed in the corporate constitution. The following diagram outlines the roles and responsibilities of those involved.

Fig 2: Decision-making structure of the organisation under study



Woodrow Wilson, in his essay 'The Study of Administration' (Wilson, 1887) sought to separate political decisions and their implementation, and these ideas still have resonance in the modern age (Dobuzinskis, 1997; Hagen and Liddle, 2007). It can be seen from Fig 2 that this approach is reflected in the organisation under study, where distinctions between politicians and officers are built into the organisational structures and decision-making processes (Barlow and Röber, 1996).

The council under study has adopted a cabinet form of governance. Although the ultimate responsibility for all that is done by a local authority rests with the full council, consisting of all the elected councillors (Appleby and Clark, 1997), in practice the full council is only

responsible for taking a small number of major decisions, such as the implementation of the corporate policy framework, and formal approval of the annual budget. The majority of decisions are taken by the cabinet. This consists of the leader plus nine elected councillors with each cabinet member being responsible for a major service, such as housing, education, or finance. The cabinet is responsible for taking 'key decisions'. These are defined in the constitution as those decisions which:

- form the policy framework for the Council; or
- affect more than one ward in the city; or
- incur expenditure or receive income over £500,000; or
- are sensitive or substantial.

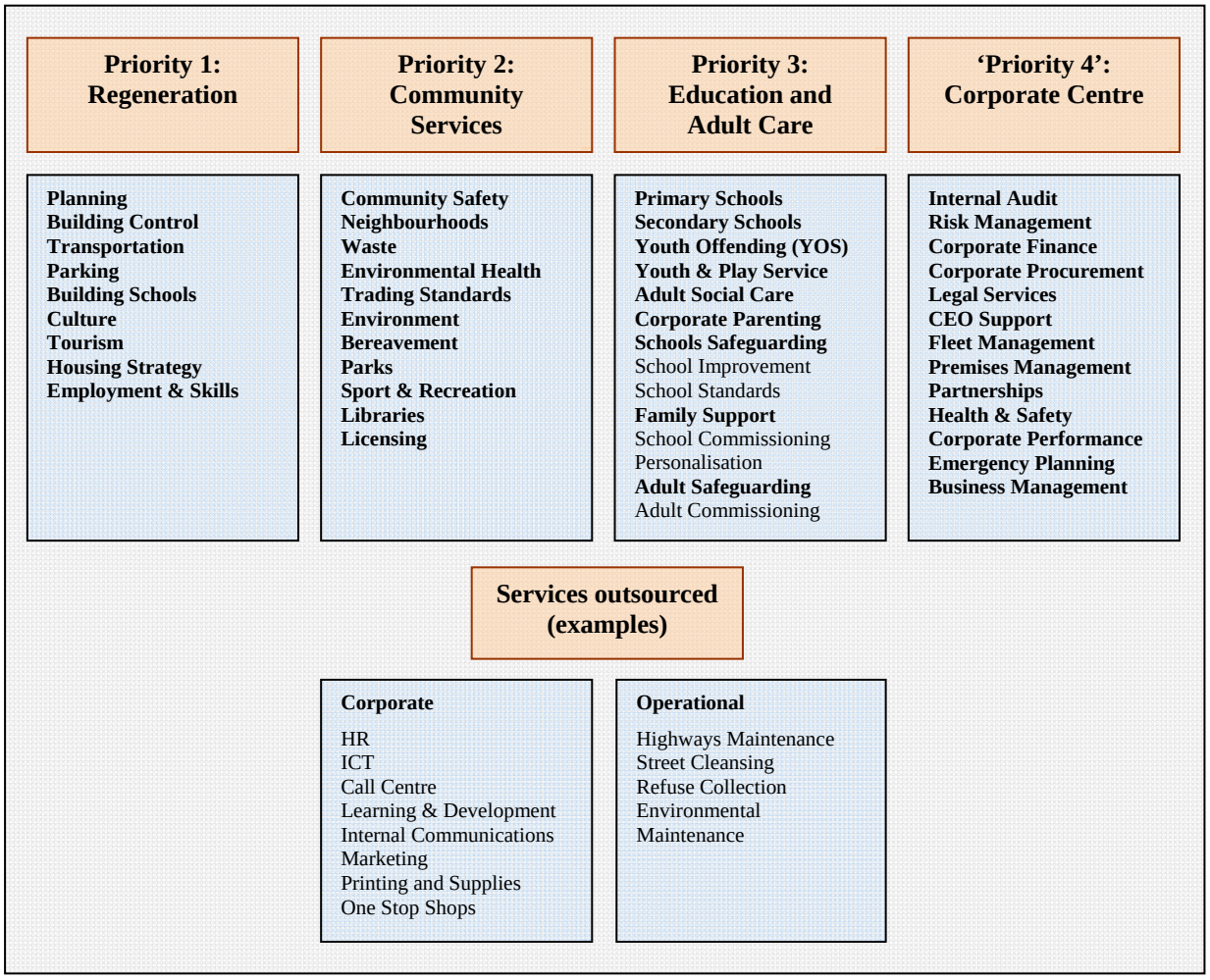
It is common for a key decision to satisfy more than one of these criteria, and it is not uncommon for a single decision to meet all four criteria – for instance the procurement of a city-wide highways contract. In practice, key decisions are normally proposed by officers, but the constitution decrees that they cannot be implemented without cabinet approval.

As noted in Fig 2, the focus of this study is on the management side of the structure. This is where day-to-day decisions are taken and strategic decision parameters established; this is where each of the participants in this study is located; this is where cognitive heuristics were found; and this is therefore the context for the remainder of this thesis.

Management

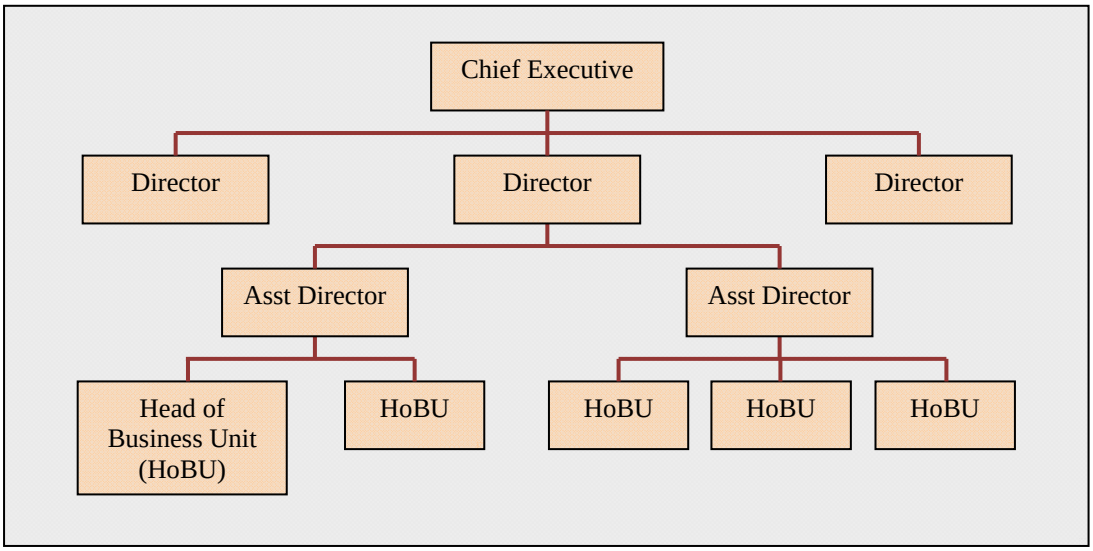
In local authorities the key divisions are typically the departments, which are usually headed by a chief officer normally drawn from the dominant profession in that department (e.g. social worker, teacher, or housing officer), and below the chief officers there is normally a multi-tiered hierarchy (Appleby and Clark, 1997). There are also normally several central departments (e.g. finance, legal, or chief executive), sometimes known as the corporate core, which are not directly involved in service provision (Appleby and Clark, 1997). In the organisation under study, the 'departments' are referred to as 'business units', but in all other respects the organisational structure follows these principles very closely, as can be seen from the following diagram.

Fig 3: Structure of the organisation under study



There are 47 business units within the organisation and these are grouped into three broad priorities, with a fourth 'informal' priority accounting for Appleby and Clark's (1997) 'corporate core'. In the above diagram, the 42 business units shown in bold have contributed to the present study, which means that the study has obtained data from 89% of the organisation. The author is the Head of Business Unit for Business Management ('Priority 4'). Some of the work done by Business Management and Bereavement is explored further by Crowder (2013b). Each of the four priorities is overseen by a Director, who reports directly to the Chief Executive. Fig 4 provides a conceptual illustration of the organisational hierarchy.

Fig 4: Management structure within the organisation



Each Director has a number of Assistant Directors, who are responsible for several business units. Each of these business units has a manager (designated as a 'HoBU' – Head of Business Unit). As noted above, the author is a HoBU and hence is a senior manager within the organisation. This greatly facilitated the present study because he had routine access to senior managers across the authority up to, and including the Chief Executive, and this simplified issues of gaining access and establishing trust. This is discussed further in the next chapter.

Within the frameworks outlined above, the organisation's constitution includes a scheme of delegation to its officers. This empowers the chief executive, directors, and other senior managers to make decisions on behalf of the council although, as noted above, 'key decisions' need cabinet approval before they can be implemented. It is impossible to outline every potential decision that officers are able to take – for instance, the scheme of delegation for Community Services is ten pages long, and this is only one of the four corporate priorities. However, typical examples include the recruitment of staff, emergency decisions, financial decisions (such as the write-off of debts and the virement of budgets between budget lines), procurement decisions (such as acceptance of tenders), and operational decisions (such as those pertaining to individual business units).

1.3 Research questions and structure of this thesis

Relatively early in the study, heuristics had been identified as the core category, and it was therefore evident that managers use heuristics to make decisions. Beyond this, there was considerable ambiguity and uncertainty, and resolution of these is a key goal of this thesis. The primary aim of this study is therefore to understand the processes by which senior managers in a large UK local authority use cognitive heuristics. To address this, several supplementary research questions are also addressed, namely:

1. Which heuristics do managers use?
2. Which types of decision are taken using heuristics?
3. How widespread is the use of heuristics within the organisation?
4. To what extent are managers conscious of the steps they take when making decisions?
5. What cognitive processes are used in heuristic decision-making?

The structure of this thesis was designed to address these objectives, and is consistent with a grounded theory methodology (Aloudat, 2010; Scott, 2007; Tan, 2008; Walsh, 2009). Chapter One (this chapter) outlines the nature and purpose of the study. It offers a justification for the research and orients the reader to the structure of the thesis by locating it within the context of local government. This chapter therefore provides the background to the research.

Chapter Two is a methodology chapter. It establishes the theoretical underpinnings of the research approach, and the techniques used in grounded theory research are explained. This chapter details the various stages of the research process – what was done, why, and how.

Chapter Three helps to establish the context of this study. It outlines the broader decision-making literature, and positions the present study within this wide body of work. In this way the chapter helps to outline this thesis's contribution to this established corpus of knowledge. This chapter addresses in part research objective two, as does the following chapter.

Chapter Four is a detailed literature review of cognitive heuristics. Grounded theory provides a systematic approach that considers extant theory but is not driven by it (Glaser and Strauss, 1967; Urquhart, 2001). It was important that the author had no preconceptions about what might be discovered (Glaser, 1978; Gummesson, 2000), and hence a detailed literature review of the core category – heuristics – was delayed until the research was well-established (Glaser, 1978; Glaser and Holton, 2004). The literature was read as a source of more data to

be compared with existing data (Glaser, 1998; Holt and Dunn, 2004), and was therefore coded and treated in exactly the same way as the research data (Glaser, 1992). It is possible that some may construe this *"as a neglect of the literature"* (Glaser, 1998: 360), but *"nothing can be farther from the truth"* (Fernández, 2004: 10). The literature review was delayed in order to minimise influences that could restrict the freedom required for theoretical discovery, not to ignore extant and relevant knowledge (Glaser, 1998; Parahoo, 2009). It is therefore methodologically consistent to place this chapter after Chapter Three. Indeed, as Fernández (2004: 10) points out, *"forcing a typical PhD dissertation's 'Chapter 2: Literature Review' would be incongruent with grounded theory and methodologically unsound, detracting from the true role of the literature in this type of research"*. In broad terms, therefore, the background reading undertaken by the author is presented in Chapter Three as part of a general contextual review of the wider decision-making literature, and a detailed review of the literature is contained in Chapter Four.

Viewed in terms of the traditional model (Phillips and Pugh, 2005), Chapters Five and Six illustrate 'what came out of what was done' (Scott, 2007). They therefore address research objectives one, three, and four. However, these chapters are not strictly 'results' or 'findings' chapters. Instead they begin to develop the grounded theory by identifying and explaining findings and interweaving these with the appropriate literature (Gynnild, 2006). Black (1999: 16) argues that *"a crucial characteristic of grounded theory is the simultaneous collection and analysis of data"*, and thus it would be misleading to try to disaggregate the data collection and analysis phases. Again, it is therefore more methodologically consistent to reflect the reality in the thesis structure, and consequently this relationship is presented in a way where the data and literature complement and extend each other and lead to an emerging theory. Those not used to the grounded theory methodology may feel some concern at this. However, grounded theory researchers do not classify the output of their research as 'findings' because the methodology produces a conceptual theory about a substantive area/population and not, for instance, a series of results achieved during the testing of hypotheses (Scott, 2007). Scott (2007) suggests that those unused to this method might find it helpful to think of the developed grounded theory (i.e. the output of the method) as 'findings'.

Chapter Seven explores the interplay between the different heuristics, and in some ways, it has similarities to a traditional 'discussion' chapter. However, it is not a discussion of results or findings per se; what matters to a grounded theorist is the theory itself, and its implications

(Scott, 2007). Chapter Seven therefore addresses research objective four and more fully develops the grounded theory, drawing on the previous chapters to pull together the various elements to form a coherent theory.

Chapter Eight is more in the traditional mould, acting as a 'conclusions' chapter to summarise the key points and highlight the contributions to knowledge. This chapter therefore addresses the primary research objective of this thesis. It also reflects on the the research question and methodology, and identifies opportunities for future research.

1.4 Contributions to knowledge

This thesis makes the following contributions to knowledge (see Chapter Eight):

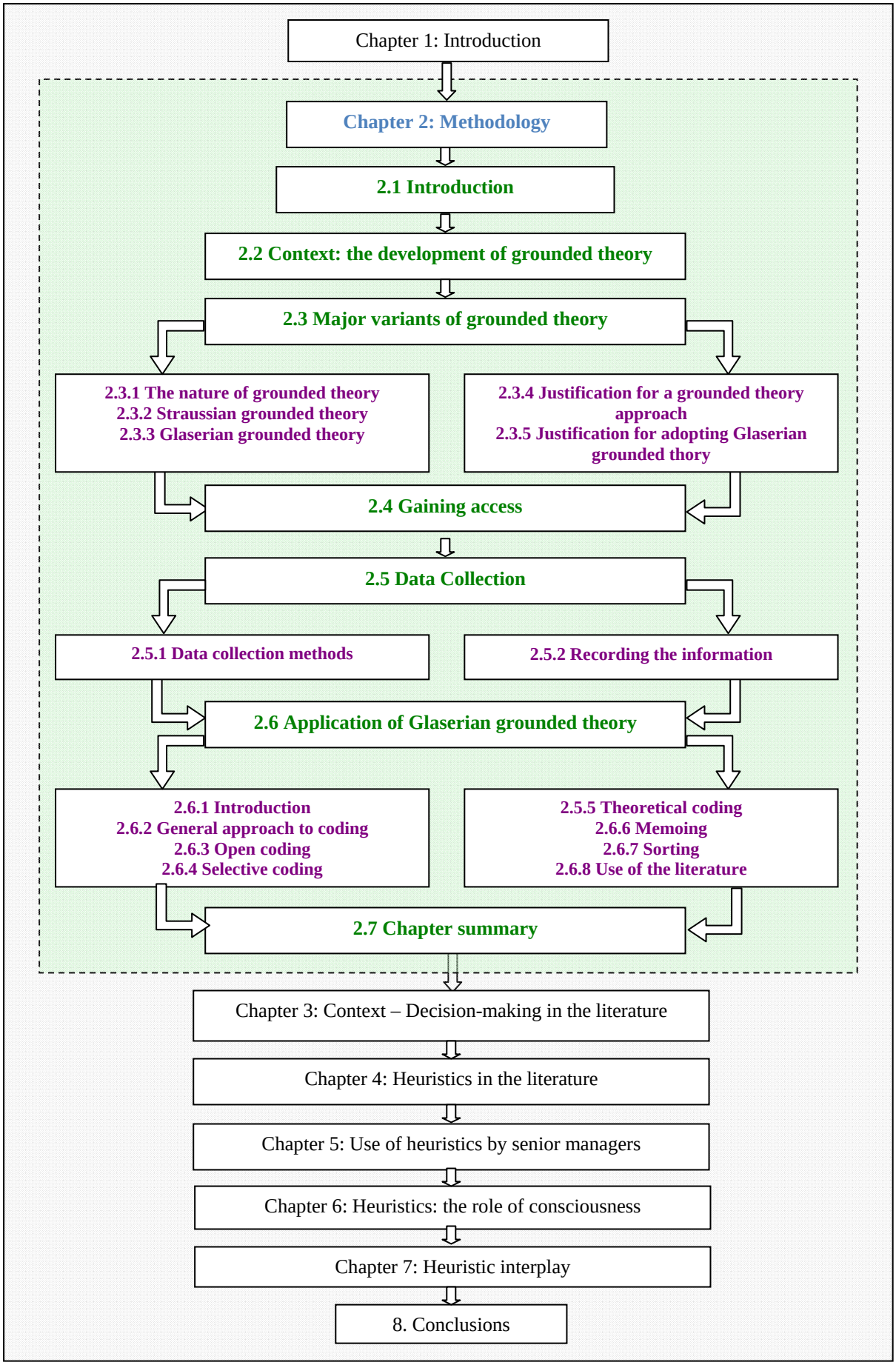
- The relevance of algorithms to describe the use of heuristics is questioned (Chapter Five).
- Whereas the literature treats heuristics as discrete entities, there is in fact considerable interplay between them (Chapter Seven).
- Heuristic processes do not necessarily 'flow' in an uninterrupted way (Chapter Five).
- A new definition of the moral heuristic is proposed (Chapter Five).
- Flow charts are developed that allow the underlying processes of heuristic decision-making to be identified (Chapters Five and Six).
- There may be a relationship between specific heuristics and work environment (Chapter Five).
- The underlying processes of heuristic decision-making are better described by dual-system theories than by the normative/behavioural framework (Chapter Six).

1.5 Chapter summary

This chapter has introduced this thesis. It began by establishing the primary objective of the research and then stressing its academic and practical importance. The chapter also provided the overall context of this study by outlining the key features of local government before discussing the extensive modernisation agenda of the past few decades. This provided the backdrop for an overview of the organisation under study, and the author's role within it. Finally, the main research objectives of the study were identified together with the major contributions to theory made by this thesis. Before commencing with a detailed review of the literature and the main findings of the thesis, it is important to understand the way in which the research was conducted. A grounded theory study has its own particular structure, and brings with it a unique way of working. In a 'traditional' thesis, the literature review would now follow, but grounded theory positions the literature differently. The next chapter therefore examines the methodology and demonstrates how this theoretical framework was applied in practice.

CHAPTER 2: METHODOLOGY

Fig 5: Context and structure of Chapter Two



2.1 Introduction

This chapter describes the methodology used in this study, namely grounded theory. The goal of grounded theory is to discover an explanatory theory of social processes (Glaser and Strauss, 1967), studied in the environments in which they take place (Douglas, 2005). The word 'discover' implies that the theory already exists in the data, waiting for the researcher to unlock it (Locke, 2001). Grounded theory research does not *start* with a theory to prove or disprove (Glaser, 1978); rather, the theory *emerges* naturally from the data (Charmaz, 1990; 1995; Glaser and Strauss, 1967).

The chapter outlines the development of grounded theory before briefly summarising the essential elements of the two most commonly cited versions. This leads onto a justification for the adoption of a grounded theory approach for this study by explaining why grounded theory was chosen, and why the Glaserian version was selected. The chapter then summarises the way in which the necessary access was secured, outlines the data collection methods used, and discusses the methods used to record the data. The remainder of the chapter highlights how the Glaserian methodology was applied in this study. It expands upon concepts such as open coding, selective coding, theoretical coding and memoing, and provides examples illustrating how theory was translated into practice. The chapter concludes by showing how the literature was handled and presents a summary of the key points.

2.2 Context: the development of grounded theory

Grounded theory stems from a 1965 book entitled *'Awareness of Dying'*, in which Barney Glaser and Anselm Strauss undertook research on terminally ill hospital patients (Glaser and Strauss, 2005). Two years later, they published a book based on this methodology, *'The Discovery of Grounded Theory'* (Glaser and Strauss, 1967). This developed the basic approach of constant comparison and contrasted grounded theory, which is developed directly from data obtained during research, with logico-deductive theories. Indeed, Glaser and Strauss were the first to document how to develop substantive theories from data at a time when the dominant method of producing knowledge was by testing theories (Parahoo, 2009). In 1978, Glaser further developed this methodology in his book *'Theoretical Sensitivity'*

(Glaser, 1978), in which he offered practical advice to researchers undertaking grounded theory and explained in more detail concepts such as theoretical coding and memoing, and introduced for the first time his list of theoretical coding families.

A spilt between Glaser and Strauss began to emerge in the late 1980s after Strauss published '*Qualitative Analysis for Social Scientists'* (Strauss, 1987). This widened in 1990, when Strauss published a book co-authored with Juliet Corbin entitled *'Basics of Qualitative Research'* (Strauss and Corbin, 1990). This proposed a different approach to grounded theory, and it particularly emphasised interpretation of data and theory building. Two years later, Glaser published a book in response to this, entitled *'Basics of Grounded Theory Analysis: Emergence v Forcing'* (Glaser, 1992), arguing that Strauss and Corbin had grossly misrepresented the most important features of grounded theory. His main disagreement was that he felt that his own approach allowed theory to emerge from the data, whereas in his opinion Strauss and Corbin were seeking to force the data into preconceived frameworks (Glaser, 1992).

In the mid 1990s, Glaser edited several collections of papers on grounded theory (Glaser, 1994; 1995a; 1995b; 1995c), and in the last of these, he again argued strongly for his own emergent approach, and arguing against preconceptions and forcing of data into rigid frameworks (Glaser, 1995c). In the late 1990s, Strauss and Corbin published a collection of ten case studies entitled *'Grounded theory in practice',* which used their version of grounded theory for building theory from field data (Strauss and Corbin, 1997). Further works by Glaser were also published around the same time, which were designed to highlight some of the pitfalls of grounded theory (Glaser, 1998) and outline his ideas as to its potential future (Glaser, 1999). In 1998, Strauss and Corbin published a second edition of *'Basics of Qualitative Research'* (Strauss and Corbin, 1998). This contained a revised version of their approach to grounded theory, and introduced the 'paradigm model' which was intended to provide a framework to ensure theory emergence, thereby answering some of the criticisms levelled by Glaser. The authors argued that a rigid process was never their intention, and used this edition of their book to increase the flexibility of their model. In 2008, a third edition of *'Basics of Qualitative Research'* was published (Corbin and Strauss, 2008). This was a further attempt to modernise and extend the original method, and bring it more in line with contemporary thought (Corbin and Strauss, 2008). To this end, the book includes additional chapters and exercises, and examines the use of computer programs and their role in the

analytical process. Also included is a previously unpublished chapter originally written for the second edition, which explores the theoretical foundation underpinning Strauss and Corbin's work.

Recently, there have been new developments in grounded theory; so much so that there is now a considerable debate and controversy over what can legitimately be called grounded theory (Parahoo, 2009). Some writers propose new approaches to grounded theory – for instance Constructivist Grounded Theory (Charmaz, 2000; 2006; see also Bryant, 2003; Ghezeljeh and Emami, 2009) and Situational Analysis (Clarke, 2005a; 2005b; Clarke and Friese, 2007). Others have sought to merge the Glaserian and Straussian variants into a single approach (Geiger and Turley, 2003), although this may not actually be advisable (Boychuk Duchscher and Morgan, 2004).

The following section briefly outlines the two major approaches – Straussian and Glaserian.

2.3 Major variants of grounded theory

2.3.1 The nature of grounded theory

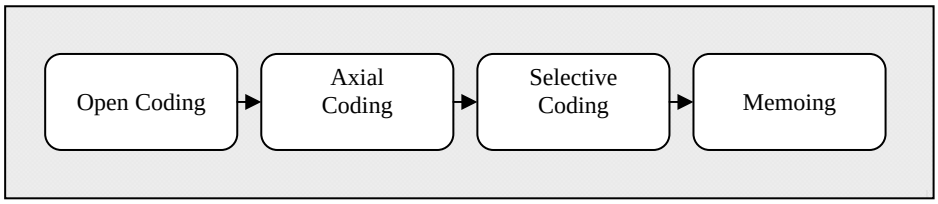
Before discussing the two main variants, it is important to understand the nature of a grounded theory. There are many definitions of what a 'theory' is. For example, participants in this study suggested that theories are *"just ideas"* (Building Control), or *"somebody's perception of the way events behave"* (Environmental Health). A more 'academic' definition was proposed by Albert Einstein, who suggested that a theory is *"a system of thought which [...] is built up logically from a small number of fundamental assumptions"* (Einstein, 1961: 141). There is, however, no consensus over the characteristics of a 'good' theory. Kuhn (1977) suggested that there are at least five; namely accuracy, consistency, scope, simplicity, and fruitfulness. Other authors suggest that a good theory must explain and not simply describe (Corbin and Strauss, 2008) – a view supported by 'dictionary definitions' (eg Merriam-Webster, 2013; Oxford Dictionaries, 2013) – whereas others stress the importance of generating a hypothesis that can be checked (Radford and Govier, 1991).

Whilst sharing many of these features, grounded theory also has several distinguishing characteristics. Its aim is to *"generate a conceptual theory that accounts for a pattern of behaviour which is relevant […] for those involved"* (Glaser, 2003: 3), and it is based on a series of integrated conceptual hypotheses, organised around a core category (Glaser, 1998; Lings and Lundell, 2005). Therefore grounded theory does not result in findings or facts as such (Glaser, 2001; 2003). Instead the result is a *"set of well-developed concepts related through statements of relationship, which together constitute an integrated framework that can be used to explain or predict phenomena"* (Strauss and Corbin, 1998: 15).

2.3.2 Straussian grounded theory

Strauss and Corbin's (1990; 1998) version of grounded theory involves progressive coding techniques that move from description, through conceptual ordering, to theorising (Holt and Dunn, 2004). There are three types of coding: open, axial, and selective, and these are followed by memo writing, but as with Glaser's model, these stages need not necessarily be followed in a strict, consecutive manner (Pandit, 1996). The major phases are illustrated in the following diagram:

Fig 6: Simplified outline of Straussian grounded theory



Open coding involves asking questions and making comparisons (Pandit, 1996). It aims to identify the key concepts and discover more about them (Dey, 1999; Strauss and Corbin, 1998). Data are initially broken down by asking simple questions such as *what, where, how, when,* and *how much* (Holt and Dunn, 2004; Strauss and Corbin, 1998). This is used to assess the similarities and differences in the data sets to add to the breadth and generalisability of the evolving theory (Strauss and Corbin, 1994; 1998). **Axial coding** refers to the process of developing main categories and their sub-categories (Pandit, 1996; Strauss, 1987). Its purpose is to give them greater explanatory power (Strauss and Corbin, 1998). It is used to reassemble the data based on relationships and patterns within and among the categories identified in the data (Dey, 1999; Strauss and Corbin, 1998).

Selective coding integrates and refines the theory (Strauss and Corbin, 1998). It involves looking for the 'storyline' in the data and any gaps within it (Geiger and Turley, 2003; Pandit, 1996). Although similar to axial coding (Strauss and Corbin, 1990), selective coding makes connections between discrete categories, whereas axial coding only makes connections between a single category and its subcategories (Strauss and Corbin, 1994; 1998). In other words, in selective coding, integration occurs at more abstract level of analysis (Strauss and Corbin, 1990). Strauss and Corbin (1998) also propose a 'coding paradigm', the basic purpose of which is to enable the researcher to think systematically about data and relate them in complex ways (Pandit, 1996). The paradigm focuses on a number of aspects of the phenomenon under study: the conditions or situations in which the phenomenon occurs; the actions or interactions of people in response to what is happening; and, the consequences or results of the action taken or inaction (Corbin and Strauss, 2008; Strauss and Corbin, 1998).

The 'conditional matrix' is an extension of the coding paradigm, and focuses solely on the conditions and consequences related to the phenomena under study (Walker and Myrick, 2006). It allows the researcher to explore the conditions or consequences that exist in the individual, group, or family context using a close-in micro lens, or explore the community or national context using a faraway macro lens (Corbin and Strauss, 2008). **Memoing** allows the researcher to keep track of categories, properties, and hypotheses. Memos are not simply 'ideas' – they are involved in the formulation and revision of theory during the research process (Corbin and Strauss, 1990).

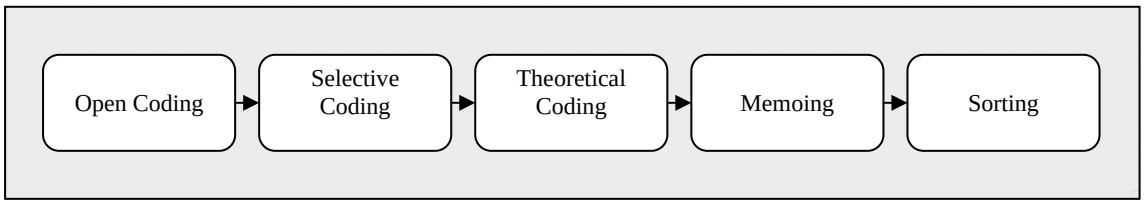
2.3.3 Glaserian grounded theory

Glaser's approach to grounded theory consists of four overall stages: coding, memoing, sorting, and writing (Glaser, 1978; 1998; Glaser and Strauss, 1967). The researcher obtains data, which is then coded and grouped into categories. The initial theory is developed through constant comparison. Literature is selectively reviewed, and the theory is modified in light of the literature and continued comparison. Further modification takes place through memo writing and theoretical coding (Glaser and Strauss, 1967). The constant comparison process provides objectivity for the research. The result of this detailed line-by-line or incident-by incident constant comparative microanalysis (Boychuk Duchscher and Morgan, 2004) is

ultimately a dense, rich theory that *"gives a feeling that nothing [has been] left out"* (Glaser 1978: 58).

Researchers have developed a number of diagrams to seek to capture Glaser's approach (Eisenhardt, 1989; Lehmann, 2001), but these are generally complex, whereas Glaser consciously seeks to keep things simple (Glaser, 1978). Stern (1980) points out that the stages in the process are not necessarily linear and activities may overlap. Consequently, although Fig 7 outlines the general approach, it is a simplification of what occurs when the model is applied in practice.

Fig 7: Simplified outline of Glaserian grounded theory



As noted above, the Glaserian version of grounded theory was adopted as the methodology for this study, and its key components are discussed more extensively below.

2.3.4 Justification for a grounded theory approach

A grounded theory methodology was chosen for a number of reasons. Firstly, as the author was researching inside his own organisation, he had considerable prior experience of the organisation and of much of the work undertaken. This meant that a methodology was needed that enabled him to manage this experience and minimise the risk of introducing bias into the study. Grounded theory was ideal because the researcher's own assumptions and knowledge can be treated simply as data (Fernández, 2004; Glaser, 1978). These data can then be compared with other data from the study, thus validating, modifying, or rejecting the researchers' observations (Glaser, 1978; Glaser and Strauss, 1967). However, a prior knowledge of the study area is not to be confused with a preconception of what might be found, and therefore the author deliberately began his research with no specific idea of what was to be studied until it emerged (Glaser, 1992; 1998).

Secondly, the methodology suits emergence (Glaser, 1998). Initially, the research topic was somewhat nebulous, and its early title was loosely stated as *'What it means to be a manager in the 21st century'*. In view of this vagueness, a methodology was needed that would allow the study to emerge, rather than trying to force a particular theory into an idea that was still being formed, and grounded theory was ideal for this (Glaser, 1992). This has implications for the study – for instance, the use of other methodologies may have led to different findings. Had a different approach been taken, perhaps the author may have found a particular heuristic in the literature and then simply gone looking for it in practice. By adopting grounded theory, it was possible to see what was actually happening and then compare this to theory. This resulted, for instance, in the identification of considerable interplay between the various heuristics. This is discussed in Chapter Seven.

Thirdly, the study sought to explore the process of decision-making from the perspective of individual managers as well as seeking to understand the 'big picture'. Miller and Fredericks (1999) recommend grounded theory as a suitable approach since it affords considerable flexibility in being able to investigate both macro- and micro-level issues. In addition, since decisions in organisations are made in a social context (Geiger and Turley, 2003) and are subject to constraints related to the context in which they are made (Miller, Hickson and Wilson, 2002), the methodology was appropriate for this research because it allowed information to be incorporated about the world in which the decisions are made. For instance, the particular properties of the various business units were incorporated into the emerging theory, and the processes which were affected by these could be identified (Pettigrew, 2002).

Finally, as noted elsewhere in this thesis, there is little research into the use of heuristics within local government, and grounded theory is recognised as a particularly suitable methodology in situations where there is little previous research in an area (Pauleen, Corbitt and Yoong, 2007), as in this case. Furthermore, the number of empirical studies in management research based on grounded theory is *"astonishingly low"* (Geiger and Turley, 2003: 580), and the use of grounded theory therefore enables this thesis to make a significant contribution to knowledge.

2.3.5 Justification for adopting Glaserian grounded theory

Having decided on a grounded theory methodology, it was necessary to determine which version would be adopted for the study. The literature does not identify a single accepted 'best way' to undertake grounded theory, with some authors following a Straussian methodology (for instance, Chenitz and Swanson, 1986; Holt and Dunn, 2004; Miller and Fredericks, 1999) and others following a Glaserian methodology (for instance, Douglas, 2005; Lings and Lundell, 2005; Wilson, 1992).

The Glaserian approach was chosen for several reasons. The first consideration was simplicity. Although rigorous, Glaser's approach is relatively straightforward (Boychuk Duchscher and Morgan, 2004; Glaser, 1978) and is more flexible and less prescriptive than Strauss and Corbin's method (Fernández, 2004). Furthermore, the relative complexity of the Straussian approach (Melia, 1996; Walker and Myrick, 2006) has meant that some researchers have experienced practical problems when trying to use it (Kendall, 1999; Urquhart, 2001). This was a major factor in the author's decision because he was new to grounded theory and he wished to ensure that he correctly followed a proven and tested method without getting lost in the process. Perhaps the single biggest reason, however, comes from the 'emergence v forcing' debate (Glaser, 1992). Although Glaser (1992) accepts that the Straussian approach is both significant and valid, he argues that it is not grounded theory because it effectively attempts to artificially force a process which will occur naturally if the researcher patiently awaits the emergence of ideas, allowing them to guide the ongoing inquiry (Glaser, 1992); a view supported by others (Lings and Lundell 2005; Walker and Myrick, 2006). The author consequently felt that a 'pure' Glaserian methodology would allow the theory to emerge naturally, and that this was more in line with the aims of grounded theory.

2.4 Gaining access

Prior to beginning his research, the author approached the Chief Executive of the organisation under study with an exploratory e-mail explaining the purpose of the study and asking for an informal meeting during which he would seek formal permission to undertake the research. The meeting took place on 9th June 2008, during which the project and the proposed

methodology were outlined. The Chief Executive was extremely supportive and was happy to give consent. He nominated two senior managers to act as key contacts, provide documentary evidence, and make introductions. He confirmed the details, including consent, by e-mail later the same day. Each of the Directors was then approached, and permission was sought to undertake the research within their own areas. Once again, face-to-face meetings took place, during which the proposed project was outlined. Once more, the Directors were extremely positive and supportive, and consent was given in each instance. These meetings took place on 16th June 2008 (Education and Adult Care), 18th June 2008 (Regeneration) and 20th June 2008 (Corporate Centre and Resources).

It was also important to obtain consent from Internal Audit, since staff time would be required throughout the project, together with the use of corporate resources such as e-mail servers. It was also likely that it would prove necessary to access and copy corporate documentation, some of which might be confidential. A meeting took place with the Head of Internal Audit on 8th July 2008 during which clarification was given as to the sort of information that would be needed, and the use to which it would be put. Once these explanations had been provided, Internal Audit gave their approval for the study.

2.5 Data Collection

2.5.1 Data collection methods

Overview

Glaser repeatedly advocates that “all is data” (e.g. Glaser, 2002: 1; 2004: 2; Glaser and Holton, 2004: 12). Hence, any combination of data collection methods can be used (Glaser and Strauss, 1967), although the primary methods of data collection adopted in this research were observation and interview. Consequently, grounded theory methodological procedures were applied to all empirical data, including the literature (Corbin and Strauss, 2008; Douglas, 2005), and not just to the interview data.

Initially, the author simply observed what was happening at meetings and in the normal day-to-day business of the organisation, and over time this began to shape his thoughts. However, he is a senior manager in the organisation himself and was thus part of the process he was researching. Thus, it was likely that he had some preconceptions and biases, and therefore a way was needed to identify and manage these.

The role of the author in this study

A common misunderstanding is that Glaser (1978; 1998) requires the researcher to enter the field with no preconceptions (Suddaby, 2006). However, this is not the case. Indeed, Carroll and Swatman (2000) argue that this would be practically impossible. Instead, the researcher is required to *manage* his or her preconceptions (Glaser, 1998; Heath and Cowley, 2004).

The author therefore conducted a series of self-interviews (Glaser, 1978), and was also formally interviewed on several occasions by fellow managers. This took place at the start of the research and was repeated periodically throughout the study, and this process allowed his thoughts, biases, and preconceptions to be identified. These were documented and analysed during the process of constant comparison that underpinned the entire study. However, although Glaser (1998) recognises that, as a participant within the organisation under study, the author's opinions are valid, he stresses that it is vital that these views are not given undue emphasis. The researcher's own data should not be given special status or significance; it must be treated like any other data (Glaser, 1998). Hence, the author's own data simply became more data to be compared to field data using the same coding, memoing, and constant comparison process (Fernández, 2005).

This revealed that the author did indeed have preconceptions and biases; many of which proved to be unfounded. For instance, an early self-interview generated the following comments, which are presented verbatim:

- *"Expect to see rational decisions"*
- *"HR is likely to get a pasting"*

In neither case was evidence found to support the assertion. However, on many occasions, the author's views were corroborated by other participants. Two typical examples can be provided to illustrate the approach. The first concerns the vacancy-filling process:

> *"When I want to fill a vacancy, my starting point is the current job. I get the job description from my file and then make changes here and there until I get what I want"* (author, interviewed by Bereavement Manger).

This can be compared with the following quote from a manager in Neighbourhoods:

> *"When I'm filling a vacancy I always start off from the existing job description and person specification. [Then] I'll tweak them a bit to reflect our current priorities"* (Neighbourhoods).

These quotes are identical in meaning. The second example concerns the use of personal experience in the promotion of staff:

> *"I sometimes promote people who I know can do the job. If they've done something well in the past, I'll remember that when something similar crops up in the future. They've proved to me that they can do it, so I'll give them the chance"* (author, interviewed by Parking Manger).

Similar views were offered by a senior manager in the CEO's support team:

> *"I promote people based on what I know they can do. Thing's I've seen them do in the past"* (CEO Support).

In both cases, the author and participants made similar comments. As noted above, although Glaser (1998) offers no objection to the author's own observations featuring within the text, in the interests of objectivity, where his views were shared by others it was felt that it was more appropriate to use their quotations rather than the author's. For instance, in the above examples, the participants' views have been presented within this thesis (on pages 150 and 174 respectively). In a similar vein, all quotes attributed to participants were actually made by participants. Hence, although phrases such as *"stereotyping"* recur frequently within Chapters Five, Six, and Seven, they are a true reflection of the data. The reasons for such widespread usage of similar phrasing are a matter of conjecture: it may perhaps be linked to

organisational culture, or to management training, but there is no evidence for this and it is merely speculation on the part of the author.

For the avoidance of confusion, it should be stressed that quotes in this thesis attributed to *'Business Management'* (i.e. the author's own business unit) were made by one of two deputy managers within the business unit, and not by the author. In summary, therefore, at no stage were any of the quotations in this thesis made by the author (except where stated in Chapter Two, where attributed extracts from the author's codes and memos are used to illustrate the methodology).

One problem that was encountered is that most decisions produce no direct evidence of themselves and thus knowledge of them can only be derived from indirect means (Barnard, 1938). Consequently, for the present study it was often necessary for the author to verify that his understanding of the underlying decision-making processes was correct by the use of respondent validation (see below). This is consistent with a grounded theory methodology. The following sections outline how the empirical data were gathered for this study.

Observation

As noted above, consent had previously been given by senior management, and therefore the author was comfortable with the fact that he was 'allowed' to conduct the research. However, he was unsure whether or not this approval had cascaded down the structure so that everyone involved was aware that the study was taking place, and it was important that he gained the trust of those he was researching. Thus, when the author was present at meetings as an observer, he gave a brief introduction before the formal business of the meeting began. He stated his research aims and objectives, explained that he had the approval of the senior management team and restated his commitment to confidentiality and anonymity. He emphasised that participants could choose not to be observed, and if they did give consent this could always be withdrawn at any stage. Pleasingly, consent was given in every case.

This approach was also followed during more 'general' sessions where managers would be observed going about their normal business. They were informed prior to the commencement of the session that they were about to be observed and that notes would be taken, and again informed consent was obtained on every occasion. Often, observations happened naturally

during the course of the author's own duties, and on these occasions, it was not always possible to inform managers beforehand. When this happened, the participants were informed after the event and were given the opportunity to withdraw consent should they wish to do so.

The initial intensive observation period lasted about nine months, although observation continued throughout the entire project, and it happened repeatedly that a seemingly trivial observation would trigger a new line of enquiry even several years into the study.

Unstructured interviews

Initial observations had led to the formation of some general themes. Although by this stage none of these themes had been developed to any great extent, it was already apparent that patterns were beginning to emerge, and it was therefore important to follow these up. The preferred method was to approach people socially and hold a series of informal discussions about what was being observed. This was not always possible, and sometimes discussions took place immediately following a meeting, or in a chance encounter in a corridor. In general, the author normally only had one or two questions that he wished to explore in more detail, with the rest of the discussion following its own, often random, course. The aim of these sessions was merely to 'add bulk' to the evidence that had been gathered to that point, and not to begin the process of theory formation.

Even though discussions were informal, in all cases, the author took considerable care to manage the interviews in a sensitive way, always ensuring that the interviewee remained in control of what was being discussed. In this way, the participants' own words guided the discussions and this thereby minimised any unintentional bias on the author's part. Initially, these discussions rarely lasted longer than five minutes. However, once categories had begun to form it was necessary to gain a more detailed insight about key points. Therefore, over time, interviews gradually became more semi-structured and less informal. However, these informal discussions continued right to the end of the project as and when it was important to clarify a single point.

Semi-structured interviews

Starks and Brown Trinidad (2007) argue that a semi-structured interview format can work well for grounded theory, and therefore these were used when it was necessary to probe deeply (Amaratunga et al., 2002; Evans and Mathur, 2005) and open up new lines of enquiry (Barnes, 2001; Rubin and Rubin, 2005). A further reason was the need to explore issues raised by other interviewees. This arose out of the constant comparison process underpinning grounded theory. Interviewees would frequently raise an issue that had not previously been considered important, and it was therefore necessary to revisit earlier interviews to determine the extent to which the new information was widely applicable. This was also part of an active and continual search for disconfirming evidence, since the new information was not always corroborated by other interviewees.

Hence, the list of questions during these interviews was flexible (Pauleen, Corbitt and Yoong, 2007) and was not a tightly structured set of questions to be asked verbatim (Lofland and Lofland, 1995). During the early stages, interviews focused on decision-making in a general way. Respondents were asked to reflect on their decisions, the triggers for these decisions, how the decisions were made, how they were communicated, and so forth. In line with Holt and Dunn (2004), as data collection and analysis progressed, questions became more focused. Some participants needed little prompting and spoke freely with only minimal guidance from the author, whereas others had to be prompted in order for the necessary data to be obtained. Also, some people were interviewed more than once in order to elicit the important information, or to allow the author to increase his knowledge and clarify areas of uncertainty (Cooke, 2006; Garson, 2008).

The importance of consent is emphasised by several authors (for example Cooper and Schindler, 2006; Saunders, Lewis and Thornhill, 2012), and great care was taken to obtain participants' informed consent. Prior to each interview, the participant was given a clear explanation of the research aims and objectives and assured of their anonymity (Greenfield, 2002; Walliman, 2004). It was stressed they had an absolute right to withdraw their consent – either during the interview or at any other stage of the research (Blaxter, Hughes and Tight, 2002; Rubin and Rubin, 2005). Once more, the study was aided considerably by the fact that this consent was given in every case. Most participants were happy to be interviewed in their normal working environment but where people expressed a preference for a neutral venue this was arranged, and interviews also took place in informal settings such as pubs or coffee bars.

Respondent validation

The identification of a decision heuristic can be problematic. For instance, as Gorman (2005) argues, it can be difficult to identify the presence of a heuristic by observation, because the same decision can potentially be obtained in a variety of ways. The main problem is that the underlying cognitive processes cannot be directly observed (Glöckner and Betsch, 2008), and therefore they must be inferred rather than discovered directly (Anderson, C. J., 2005; Glöckner and Betsch, 2008). To address this problem, this study identified the heuristics on the basis that they best described real-life decisions (Hauser, 2010), and many of these decisions were observed in person. It should be emphasised, however, that in accordance with grounded theory methodology, these inferences were subjected to rigorous scrutiny, and were validated *post-hoc* by the managers involved. To quote a single example, in Chapter Five it will be seen that in the case of the 'retained organs scandal' the same decision was made twice, but using a different process on each occasion, and it was possible to identify that the moral and representative heuristics had been used at different times. The author is aware that these are post hoc attempts to identify an unconscious process. Participants also recognised this, and the following comment was typical:

> *"Your diagrams look right, and they explain how I take my decisions. But you've got to bear in mind that how I explain things after the event might not actually be how I take decisions during the event"* (Parking).

This approach therefore brought a high degree of rigour and objectivity to the study, and therefore the author is confident that the underlying processes have been correctly identified. This is illustrated in later chapters, which from time to time report respondents' comments on the analysis and interpretation of the findings.

Confidentiality and anonymity

In addition to the measures outlined above, participants were treated with the greatest respect (Easterby-Smith, Thorpe and Lowe, 2002; Saunders, Lewis and Thornhill, 2012) and precautions were taken to ensure that their well-being, values and dignity were maintained (Carlson, Martin and Busksist, 2004). For example, no raw data or their sources were made available to anyone else (Douglas, 2005), and care was taken when reporting information,

such as in this thesis, that the individual participants could not be identified (Carlson, Martin and Busksist, 2004). All names were anonymised (Douglas, 2005), as was the organisation itself. Sometimes, it was impossible to totally disguise the identities of participants. In these cases, identities have been concealed as completely as possible, and the people concerned have provided their written consent for the author to publish these disguised facts in this thesis (Watson, 1994). Finally, as a result of similar pressures to protect people, there are occasions in the study where the author has been vaguer about details of events than he might have preferred (Watson, 1994). This has again been to protect the feelings, identities and interests of participants.

2.5.2 Recording the information

Introduction

Previous sections have outlined in broad terms how the data was gathered. The following pages illustrate how this information was recorded and explain the aspects that worked well, in addition to highlighting some of the problems that were encountered and outlining how these were overcome.

Microsoft Word

Generally, notes were made on paper at the time of the interviews/observations, or as soon as possible thereafter, and were later transferred to Microsoft Word. These notes did not always include verbatim transcripts, but they did illustrate the general themes. Although Glaser (1978) recommends against taking notes during interview sessions, it was frequently necessary to gather data from several people within a short period. Thus, notes had to be made at the time in order not ensure that key data was not forgotten or misremembered. In spite of Glaser's (1978) objections, Lings and Lundell (2005) observe that note taking is a common approach among grounded theory researchers, and this gave the author some comfort that he was not completely diverging from recommended practice.

Sometimes, especially when recording information from large meetings, use was made of a secretary who was proficient in shorthand. She proved particularly useful when the author was recording his observations. Initially, he simply typed his thoughts directly into Word. This was time consuming and he occasionally lost track of his ideas while correcting typos, improving grammar and so on, and he felt that a better approach would be to dictate his thoughts to the secretary. Essentially, he 'dumped his brain' and she made shorthand notes which she typed up verbatim. This was a much better use of his time since all he had to do was rearrange her pre-typed text into a more coherent order. A further benefit was that she typically asked him for clarification or expansion of key points, which prompted further observations in reply.

Microsoft Access

It quickly became apparent that Word would be very hard to analyse and that a database would be required, and Microsoft Access was chosen for this purpose. The reason for the choice of Access as the preferred analytical software was that author had no access to industry standard software such as NVivo and therefore had to find an alternative.

Glaser (1998: 185-186) warns against the *"technological traps"* of data analysis tools because, he says, they create unnecessary restrictions, inhibit the researcher's development of skills and impose time-consuming learning curves. This was not the case in this instance, since the author was extremely proficient in Access. Because he wrote the database himself, this gave him a number of advantages. Firstly, there was no need to learn new programs and there was no need to refer to software manuals and this saved a considerable amount of time early in the study. Secondly, it provided a fast way of checking and comparing incidents and allowed data to be migrated between software packages as and when necessary. Thirdly, the database structure meant that memos were stored separately from the raw data. This maximised the flexibility to analyse, retrieve and re-order ideas at any stage in the process without affecting the rest of the data. Consequently, the author disagrees with Glaser's (1998) opinion that technology restricts creativity. Indeed, if anything, creativity was enhanced by the flexibility offered by the database, since data could be manipulated and this revealed patterns which may not otherwise have been discovered.

Summary

The foregoing pages have outlined the main methods that were used to gather the data. Most of the initial evidence was gained through observation, and unstructured interviews were used to clarify key points and clear up misunderstandings. Over time, these interviews became more structured as categories developed and the theory began to emerge. Towards the end of the research, semi-structured interviews and direct observation provided the majority of the empirical data. This information was recorded initially on paper, typed up into Microsoft Word, and thereafter Microsoft Access was used as the main analytical tool for the research. The following sections illustrate how Glaserian grounded theory procedures were applied to the raw data, and how this led to the development of the final theory presented in Chapters Five to Eight.

2.6 Application of Glaserian grounded theory

2.6.1 Introduction

The following pages illustrate how Glaserian grounded theory was applied in this study. The fundamental concept of coding is discussed and defined in theoretical terms, and also in practical terms where this study's general approach is laid forth. This is followed by a detailed exposition of Glaserian grounded theory showing how it was applied, and the techniques are illustrated with examples from the study.

2.6.2 General approach to coding

Coding can be defined as *"conceptualising data by constant comparison of incident with incident, and incident with concept"* (Glaser, 1992: 38). The data must be approached without any particular preconceived notion or framework (Trauth and Jessup, 2000), and coding should start as soon as the first data are collected (Holt and Dunn, 2004). Coding is not simply *part* of data analysis; it is the essential relationship between data and theory (Corbin and

Strauss, 1990; Glaser, 1978) and is a process that *"gets the analyst off the empirical level by fracturing the data, then conceptually grouping it into codes that then become the theory which explains what is happening in the data"* (Glaser, 1978: 55). Coding is an iterative process that organises data, from which the researcher can then construct themes, descriptions, and theories (Walker and Myrick, 2006). It involves the breaking down of data, comparison of data with other data, and the organising of data into categories. Similar data are placed in similar categories, and different data creates new categories (Walker and Myrick, 2006). This process allows the researcher to identify patterns in the data (Glaser and Strauss, 1967; Martin and Turner, 1986); and thus coding starts the chain of theory development (Charmaz, 1983; 2000).

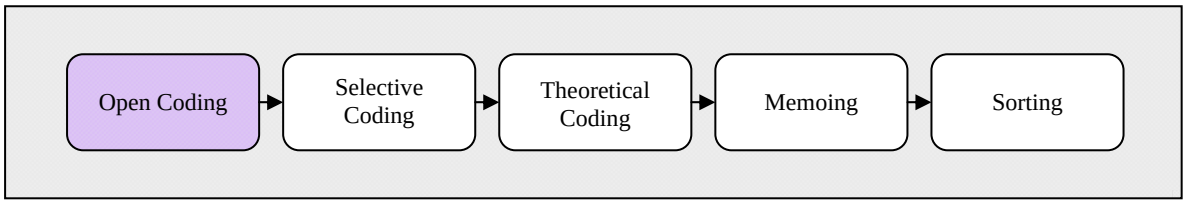
Serious consideration was given to automatically coding the data within Access. It would have been a simple matter to generate a code every time, say, the word 'restructure' appeared in the text. Although it would not have been possible to 'trap' for every possible word, regularly occurring phrases could have been identified and coded, and this would have resulted in a much smaller number of entries to code manually. However, this approach was rejected, and instead all data was manually coded, reading the text line by line while seeking to understand and explain the incidents. This process was extremely time-consuming, but this disadvantage was outweighed by other factors. Firstly, Glaser (1978; 1998) recommends that the data must be coded line by line, and by shortcutting the process, the methodology would not have been followed correctly. Secondly, automatic coding could have obscured the discovery of what was going on in the text, since patterns may have been missed, and the flexibility offered by a single piece of data having multiple codes might have been missed (Corbin and Strauss, 2008; Fernández, 2004). Finally, Glaser's (1998) reservations that technology could impair creativity would have been fully justified, since effectively the 'machine' would have assigned the codes rather than the author.

There are three types of coding associated with Glaser and Strauss (1967) – open, selective, and theoretical – and these are discussed below.

2.6.3 Open coding

Methodology

Fig 8: Position of open coding within Glaserian grounded theory



Open coding was the first step in the analysis of the data. All interview transcripts, as well as observational data and other relevant documents, were coded. After each bout of data collection the key issues were noted down, and these were then coded line by line (Charmaz, 2006; Glaser and Holton, 2004) by approaching the data from as many angles as possible (Charmaz, 1994) without a preconceived set of codes (Glaser, 1978). This often involved assigning multiple codes to a single sentence, to paragraphs of text, or to a whole document (Lings and Lundell, 2005). Wherever possible, each interview or observation was coded before the next was conducted so that new information could be incorporated into subsequent encounters (Starks and Brown Trinidad, 2007). This could not always be done because sometimes several interviews or informal discussions were held on a single day, but this approach was taken wherever feasible.

Constant comparison was at the heart of the process. Further data revealed further information, and these were constantly compared to earlier data, merged into new concepts, and eventually renamed and modified (Glaser, 1978; Walker and Myrick, 2006). This ensured that the author thought about the meanings participants attached to data, questioned taken-for-granted assumptions (Starks and Brown Trinidad, 2007), and pinpointed gaps, contacting participants to gain additional information as and when necessary (Charmaz, 2000). As coding continued, existing categories were revised in light of the data and new categories emerged which then shaped future interview schedules. As Boychuk Duchscher and Morgan (2004) note, this stage of the research process generated a range of provisional and tentative codes. This proved to be significant, since the author often found upon examination that he was unhappy with his first attempt, so he decided to re-run the coding process for this element from scratch. This posed little problem because the database allowed him to revisit and re-code the raw data as more evidence emerged and as new patterns were perceived.

Worked example

Glaser (1978) argues that it is not necessary to provide a detailed audit trail to be able to illustrate the methods used in the research process, suggesting that it is acceptable to offer *"**an** example of how one went about grounding **a** code"* (Glaser, 1978: 134 [author's emphasis]). Although this advice is followed in this section, it is extended to encompass the entire methodological process rather than simply the coding element. Hence, rather than providing a large number of examples, one example has been chosen to illustrate the methodology. This same example will be used throughout this chapter to provide consistency whilst outlining the research approach at various stages of the study. The following quotation is from a semi-structured interview with the Head of Schools Safeguarding, and is presented below exactly as it was recorded in Word.

Fig 9: Example of raw data

"Recently, I had to deal with a paedophile. He'd just been released from prison, and my service was offering support to him on his release from prison. That's what we do. We try to rehabilitate offenders. When some of my staff visited his house, they saw lots of birds in cages. It looked very suspicious. It looked like he was using the birds to entice children into his house. There was no evidence. Nothing to support this idea. It was all suspicion. It just looked wrong - you know what I mean? I had some difficult decisions to make. I ended up pulling my staff out and calling the police. That meant that I might have been getting him into trouble without evidence, and it meant that he wasn't getting any support any more from the Council. I had no evidence. Just a gut feeling that something was wrong. My staff felt it too, the ones who went to his home.

This was definitely a stereotyping decision - it was based on a stereotypical assumption of how a paedophile behaves. It was also a complex decision with many factors to consider. As I say, I had to think of the effect on him. Was I accusing him unnecessarily? I had the reputation of the council to consider. Through my actions, or through my inactions, people would form a view of the council. I had to think of my staff. Their safety is important. My overriding concern though was for vulnerable children. I had to take a moral decision - what did I think was best for the children?

This quotation was split into several records in the database, which were then coded individually. The quotation was represented in Access as follows:

Fig 10: Example of open coding

Quotation	Open codes
"Recently, I had to deal with a paedophile. He'd just been released from prison, and my service was offering support to him on his release from prison. That's what we do. We try to rehabilitate offenders."	• Business unit purpose
"When some of my staff visited his house, they saw lots of birds in cages. It looked very suspicious. It looked like he was using the birds to entice children into his house. There was no evidence. Nothing to support this idea. It was all suspicion. It just looked wrong - you know what I mean? I had some difficult decisions to make."	• Decision – operational • Stereotyping • Difficult decisions
"I ended up pulling my staff out and calling the police. That meant that I might have been getting him into trouble without evidence, and it meant that he wasn't getting any support any more from the Council. I had no evidence. Just a gut feeling that something was wrong. My staff felt it too, the ones who went to his home."	• Decision – operational • Stereotyping • Bias • Gut Feeling
"This was definitely a stereotyping decision - it was based on a stereotypical assumption of how a paedophile behaves."	• Stereotyping • Bias • Gut feeling • Complex decision
"It was also a complex decision with many factors to consider. As I say, I had to think of the effect on him. Was I accusing him unnecessarily? I had the reputation of the council to consider. Through my actions, or through my inactions, people would form a view of the council. I had to think of my staff. Their safety is important. My overriding concern though was for vulnerable children."	• Prioritisation • Many factors
"I had to take a moral decision - what did I think was best for the children?"	• Moral decision • Prioritisation

It can be seen from this example that, wherever possible, codes were created using the terms in the text.

Core category

The core category is the main theme of the research (Glaser, 1978), and has a pivotal role in the development of the emerging theory (Douglas, 2005; Fernández, 2004). Its main function

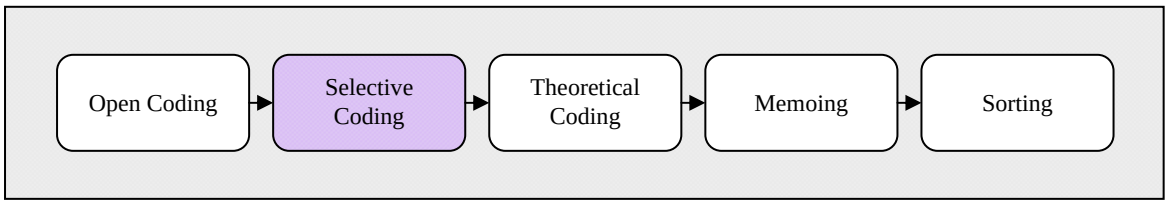
is to integrate the theoretical framework and render it dense and saturated (Glaser and Holton, 2004). Several months into the study, a core category still had not emerged in spite of rigorous constant comparison. This is usual in a Glaserian grounded theory study. As Boychuk Duchscher and Morgan (2004: 611) point out, *"if one is simply patient and willing to spend time with the data, the salient and core features of the studied phenomenon will emerge"*. Finally, after approximately six months, 'heuristics' had begun to recur frequently in the data, and this was also connected to many of the other categories which were emerging, such as 'decision types' and 'nature of work'. These links were later clarified using theoretical coding (see below). Crucially, heuristics accounted for most variation in behaviour patterns (Glaser, 1978), and this was thus classified as the core category – tentatively at first and then with more confidence as the data began to support it ever more robustly.

Now that the core category had been identified, coding ceased for any data which did not relate to it (Glaser, 1978), and factors which had little or no bearing on the core were ignored (Glaser, 1978; Pandit, 1996). In other words, all data collection was now focused on supporting the developing theory (Glaser and Strauss, 1967).

2.6.4 Selective coding

Overview

Fig 11: Position of selective coding within Glaserian grounded theory



Selective coding is based on a sample of data, and this section outlines the study's sampling processes and explains how the sample emerged. It begins by summarising the concept of theoretical sampling before discussing the sample used in this study. Finally, a worked example is presented to illustrate the key themes.

Theoretical sampling

Glaserian grounded theory relies on a process called 'theoretical sampling'. This is the process of ongoing data collection for the purpose of generating theory *"whereby the analyst jointly collects, codes, and analyses his data and decides what data to collect next and where to find them, in order to develop his theory as it emerges"* (Glaser, 1978: 36). This is therefore purposive sampling, which increases the diversity of the research sample (Glaser and Strauss, 1967), and Fernández (2004) suggests that it begins once patterns start to emerge in the data. It cannot be planned before embarking on a grounded theory study (Pandit, 1996); rather, the specific sampling decisions evolve during the research process (Strauss and Corbin, 1990). In other words, the entire data collection process is controlled by the emerging theory (Glaser and Strauss, 1967; Pauleen, Corbitt and Yoong, 2007).

Theoretical sampling is not concerned with the representativeness of groups or individuals. Instead, it is about those whose contribution can help to shed more light on, refute or confirm emerging theoretical ideas (Glaser, 1978; Parahoo, 2009). For example, *"cases may be chosen because of suspected intrinsic differences between them […]. The cases are then compared, and attention is drawn to differences and similarities"* (Gummesson, 2000: 95). This adds a level of richness to the data already gathered (Glaser, 1978). Hence, there is no minimum or maximum sample size for a good grounded theory (Geiger and Turley, 2003). The exact number of individuals needed, and the number of interviews per individual, depends on the goals and purpose of the study (Starks and Brown Trinidad, 2007). The sample is drawn, of course, from the data population, which is discussed next.

The data population

This study was concerned with the decision-making processes of senior managers within the organisation under study. *Senior managers* were defined as those earning more than £40,000 per year. This is standard practice within the organisation, and hence matters were greatly simplified because when interviewees spoke about senior managers, the author understood precisely which group of people were being discussed, and vice versa. *Managers within the organisation* were defined as officers of the council. This excluded elected members, and senior managers within the various partners of the council. By submitting a Freedom of Information request to the organisation, it was found that the data population was 178. A total

of 156 senior managers were observed during the study, which represents 88% of the population. It will be remembered from Chapter One that based on numbers of business units, 89% of the organisation was studied, and this therefore compares very closely to the percentage of managers studied.

Evolution of the data sample

The study began by examining a wide range of incidents, indiscriminate of their apparent relevance to the study (Geiger and Turley, 2003; Glaser and Strauss, 1967; Heath and Cowley, 2004). Research was initially confined to two business units – Bereavement and Parking. There were several reasons for this selection. Firstly, there were practical considerations. Because the author was well acquainted with these business units and their managers, there was already extensive mutual trust and this considerably eased potential access problems in the initial stages of the study. There were also more 'objective' reasons. Glaser and Strauss (1967: 61) suggest that the researcher should go out of his way to seek out *"groups that stretch diversity of data as far as possible, just to make certain that [the theory] is based on the widest possible range of data on the category"*. From experience, the author suspected that these business units might be sufficiently dissimilar to allow a rich range of data to be gathered, rather than a simple narrow range of data that merely confirmed each other. For example:

- Each of the business units reported to a different Director.
- Parking was heavily income-focused, whereas Bereavement had a strong focus on serving vulnerable customers.
- The Parking manager is, by his own admission, authoritarian and the Bereavement manager is extremely inclusive.

As the study progressed, it became clear that these business units were indeed dissimilar, and provided a wealth of rich and diverse research data. The next stage was to widen the sample, and this was achieved through theoretical sampling; i.e. targeting which data to select and from whom (Glaser and Strauss, 1967). Consequently, the data itself informed the process of interviews, observation and so forth (Glaser and Strauss, 1967). Thus, the initial sample evolved, according to Glaser and Strauss' (1967) recommendations, to a more focused

sampling approach specifically looking at heuristics. As Glaser (1998) suggests, the data included both new data and old field notes, seen in a new light following further sessions of constant comparison. During this stage, coding was more directed and more conceptual than in open coding, and accounted for most of the data that the researcher later categorised more precisely (Charmaz, 2000). In addition, in line with Glaser (1978; 1998), sampling was actively targeted at both confirming evidence (to support the emerging theory) and disconfirming evidence (to challenge and extend the emerging theory).

In time, the data relating to each category reached a point of theoretical saturation (Douglas, 2005). This is defined as the time when *"no additional data are being found whereby the [researcher] can develop properties of the category. As he sees similar instances over and over again, the researcher becomes empirically confident that a category is saturated"* (Glaser and Strauss, 1967: 61). In other words, the collection of new data adds nothing to what is already known about a category, its properties, and its relationship to the core category (Miller and Fredericks, 1999). It is impossible to predict beforehand what sample size will saturate a given theory (Starks and Brown Trinidad, 2007), and the actual number of cases needed in a specific study will be determined by the time taken to achieve this saturation (Gummesson, 2000). When this happened, coding ceased for the category in question and work was begun on another category. This continued to the very end of the study and this allowed the author to follow up emerging themes and maximise observation opportunities (Fernández, 2004).

Worked example

This process can be illustrated using the same example as above – the 'birdcage' case. The author was extremely interested in the fact that a senior manager working in the social care sector felt that she was taking a moral decision (As noted elsewhere in this chapter, further analysis revealed that this was actually not the case). This was the first time the notion of moral decisions had arisen in his data, and he wished to explore this in more depth. For instance, he wondered if this was a 'one-off' event or whether it was widespread within the sector. He wished to know what conditions resulted in moral decisions, what conditions did not, and so on. This led him to selectively sample – he consciously sought out other managers in this sector to explore this idea in more depth.

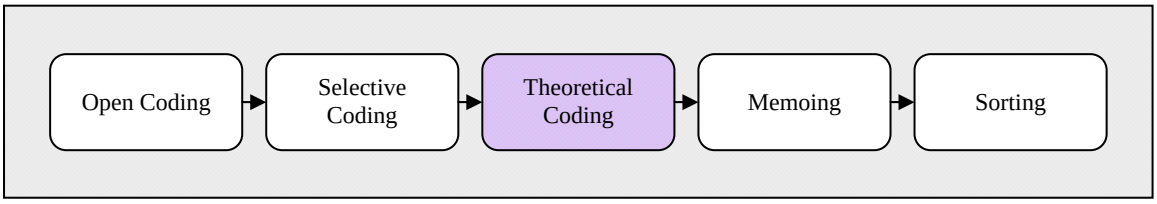
Later on in the study, the concept of moral decisions arose again – this time in Bereavement. By this stage, the memoing process was working well, and a possible link was quickly apparent to the moral decisions already identified in the safeguarding sector. Other business units were therefore selectively sampled in order to compare and contrast the new data with that obtained previously from Bereavement and Schools Safeguarding. Still later in the research, one of the memos triggered another idea. Was it possible that people in the Education sector might also make moral decisions? This sector was then selectively explored to confirm or deny this hypothesis. The data gathered was again compared and contrasted to the emerging theory and this in turn led to additional evidence gathering.

This short summary illustrates a number of important points. Firstly, the grounded theory process is not linear. Selective coding was used continually to refine the theory, and this was interspersed with constant comparison and memo writing. Secondly, a single event – 'the birdcage case' – opened up a completely new area of study that had not previously been considered. By 'pulling on this single thread', the author was able to unravel a large number of related threads, which in turn led to further discovery.

2.6.5 Theoretical coding

Overview

Fig 12: Position of theoretical coding within Glaserian grounded theory



Theoretical coding seeks to integrate the theory into the data by identifying potential relationships between the categories (Charmaz, 2006; Glaser, 2005) and by merging the disjointed analyses into hypotheses that work together in a theory explaining the main concern of the participants (Glaser, 1978). Theoretical codes emerge from the cues in the data, integrate at the conceptual level and work to weave the fractured story back together again (Glaser, 1978; 2005). In 1978, Glaser developed 18 theoretical coding families, which he

expanded in 1998, and he suggests that a working knowledge of these may help the researcher to become sensitised to the implicit integrative possibilities in the data (Glaser, 1978; 1998). They can be used to develop relationships between the substantive codes, and offer new ways of analysing the emerging data (Glaser and Holton, 2004). This process conceptualises the interrelation of substantive codes by generating hypotheses for integration into a theory (Fernández, 2004).

Walker and Myrick (2006: 554) criticise *"the vagueness"* of Glaser's coding families, and indeed, there are some areas of possible confusion. For example, in 1978, *'average (mean, median, mode)'* were part of the *'Degree'* family, but by 1998 these had become a separate family; and *'Confidence Limit'* and *'Tolerance Zone'* are part of both the *'Boundary'* and *'Average'* families. However, Glaser himself states that his theoretical codes should be used flexibly and are merely intended as a guide (Glaser, 1978), but as Fernández (2004) points out, however flexibly they are used, theoretical codes *must* remain grounded on data and must not be empty abstractions. It should also be noted that the use of theoretical codes is not mandatory within Glaser's method, and it is perfectly valid to ignore the list completely if the emerging theory warrants it (Glaser, 1978). As an illustration, the following sections highlight the main coding family that was used in this study, and outline the way in which it was applied to the emerging theory.

The 'Six Cs' Coding Family

This coding family consists of six components:

- Context (the background in which the particular study is set)
- Condition (factors that qualify, modify or limit the core category)
- Cause (factors that lead to the core category)
- Consequence (factors that result from the core category)
- Covariance (inter-relationships between concepts)
- Contingent (concepts dependent upon the core).

Glaser's theoretical codes were used to try to outline a framework that could begin to give the emerging theory some shape. Since Glaser views the Six Cs coding family as the *"bread and butter"* theoretical code, and argues that *"it is the first code to keep in mind when coding*

data" (Glaser, 1978: 74), this advice was followed and therefore the Six Cs were the first theoretical coding family used during the analysis. The following worked example illustrates how this theoretical coding family was used in the present study.

Worked example

The following illustration restates the 'birdcage' example from above and shows how the Six Cs began to structure the data.

Fig 13: Example of theoretical coding – the 'birdcage' case

Quotation	Theoretical codes
"Recently, I had to deal with a paedophile. He'd just been released from prison, and my service was offering support to him on his release from prison. That's what we do. We try to rehabilitate offenders."	• Context
"When some of my staff visited his house, they saw lots of birds in cages. It looked very suspicious. It looked like he was using the birds to entice children into his house. There was no evidence. Nothing to support this idea. It was all suspicion. It just looked wrong - you know what I mean? I had some difficult decisions to make."	• Cause
"I ended up pulling my staff out and calling the police".	• Consequence
"That meant that I might have been getting him into trouble without evidence, and it meant that he wasn't getting any support any more from the Council."	• Consequence
"I had no evidence. Just a gut feeling that something was wrong. My staff felt it too, the ones who went to his home."	• Cause
"This was definitely a stereotyping decision - it was based on a stereotypical assumption of how a paedophile behaves."	• Cause
"It was also a complex decision with many factors to consider. As I say, I had to think of the effect on him. Was I accusing him unnecessarily? I had the reputation of the council to consider. Through my actions, or through my inactions, people would form a view of the council. I had to think of my staff. Their safety is important".	• Consequence • Condition
"My overriding concern though was for vulnerable children"	• Cause
"I had to take a moral decision - what did I think was best for the children?"	• Cause

As can be seen by comparing Fig 13 with Fig 10, the author was not content to simply use the data in the same way that it had already been fractured during open coding. Instead, the raw data was fractured again. In this way, with the aid of the Six Cs, it was possible to identify patterns in the data that had hitherto gone unnoticed. Although only three of the Six Cs were used in this example, over time all six emerged from the data. The database was used to query out each of the Six Cs in turn, beginning with the 'cause' elements. These were manually analysed to determine whether or not there was a pattern to the data. Memos were used extensively to capture the author's thoughts, and a number of groupings were identified, such as the theoretical concepts 'complex decisions' and 'lack of trust in information'.

Other coding families

Use was also made of other theoretical coding families, most notably:

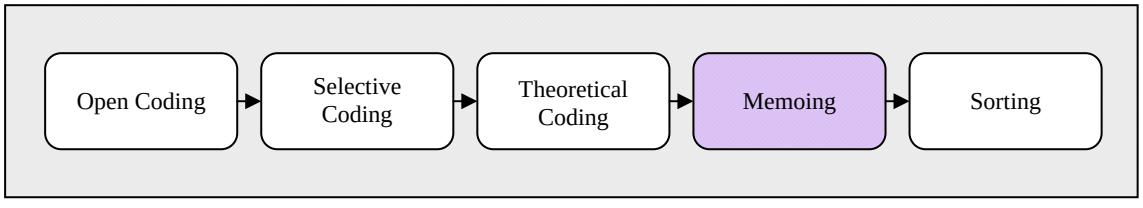
- Process family (to establish more precisely the actual processes used in making decisions);
- Structural Functional family (where it became clear that the type of work undertaken by individual business units was a significant factor in this study);
- Interactive family (which aided the analysis of interactions between categories – for instance mutual effects and mutual dependency).

For reasons of space, these have not been expanded upon these in this section, but the same overall techniques were used, namely utilising the Access database to re-fracture the data and manually assigning the theoretical codes as per the 'Six Cs' above.

2.6.6 Memoing

Overview

Fig 14: Position of memoing within Glaserian grounded theory



In essence, memos record the ideas that occur to the researcher in relation to the data, their codes, and their relationships during the research (Glaser, 1978; 1998). Memos prompt researchers to analyse data and find codes and categories in the data (Ghezeljeh and Emami, 2009) and to conceptualise that which to this point may have been purely descriptive (Boychuk Duchscher and Morgan, 2004). They are used to refine and keep track of ideas that develop when the researcher compares incidents to incidents and then concepts to concepts in the evolving theory (Glaser, 1998). Memos are produced constantly, from the beginning of the analysis process until the very end (Glaser, 1978; Fernández, 2004). This collection of notes contains key elements of what will later be the written theory. In other words, in using grounded theory methodology the researcher assumes that the theory is concealed in the data. Coding makes visible some of its components, but memoing adds the relationships which link the categories to each other (Glaser and Strauss, 1967).

Thus, Glaser (1978) regards this as the core stage of grounded theory methodology and suggests that memoing should be given a high priority, otherwise the researcher may lose the thought or may remember it out of context, thereby failing to properly develop other connected ideas (Glaser 1978; 1998). The importance of this stage in Glaserian grounded theory is underscored by virtue of its appointed sanction to interrupt the research process at any time (Boychuk Duchscher and Morgan, 2004). Boychuk Duchscher and Morgan (2004) suggest that that the importance given to memoing means that grounded theory stands in contrast to much qualitative research done in the social sciences, since in the latter the description of the problem tends to be highlighted rather than a conceptual analysis of it. Indeed, Glaser warns that *"if the analyst skips this stage by going directly from coding to sorting or writing he is not doing grounded theory"* (Glaser, 1978: 83).

In general terms, two strategies to memoing were adopted in the study. Firstly, a semi-formal approach was adopted. As the author was coding the data, thoughts would often occur to him concerning the data, their relationship to other data, and possible additions to the developing theory (Geiger and Turley, 2003). He made notes of these in Word as part of the record in square brackets to make it clear that these were not part of the original transcription but were the author's own ideas. These were transferred into Access and it was a simple matter to extract them from the record since they always had a square bracket at each end and so could easily be identified and 'queried out' and placed into a separate 'notes' field. It should also be noted that the initial codes (in Word) were re-recorded in Word as memos before he began

coding in Access, since they represented the initial thoughts of the researcher, and he did not wish to lose these ideas by overwriting them in Access. Secondly, a more informal process was used. The author had a series of small notepads and pencils stored everywhere he frequently went; in his car, in his pocket, in work, at home, and so on. He found that ideas could come to him at any time and these notepads allowed him to record these thoughts whenever and wherever they occurred to him. It frequently happened that this simple recording process triggered further thoughts, and these were captured in the same way. In the evening, the day's notes would be typed up, and once more this process often triggered new thoughts, which were typed up immediately. These notes would range from a single word to complete sentences and sometimes several paragraphs. As the notes were written as the thoughts occurred, they were often out of order and would have made little sense to an outsider. Therefore, one of the tasks in typing up was to restructure the day's notes into a more coherent order, and improve the phrasing and grammar. This, of course, is technically part of the 'sorting' process (see below) and once more illustrates Stern's (1980) contention that the grounded theory approach is not as rigidly linear as it might first appear.

Worked example

Again using the 'birdcage case', a short example can be presented to illustrate the memoing process. During the initial coding stage, the following memos were generated:

Fig 15: Examples of initial memos

- *Prudence bias seems to be inherent in this decision.*
- *The bias does not necessarily flow from the heuristic - it might even inform the heuristic.*
- *The manager was erring on the side of caution. Did this 'caution bias' (i.e. prudence?) shape the heuristic decision?*

Later in the process, further memos followed. The following selection is taken from various stages of the research and not all of these memos were generated at the same time:

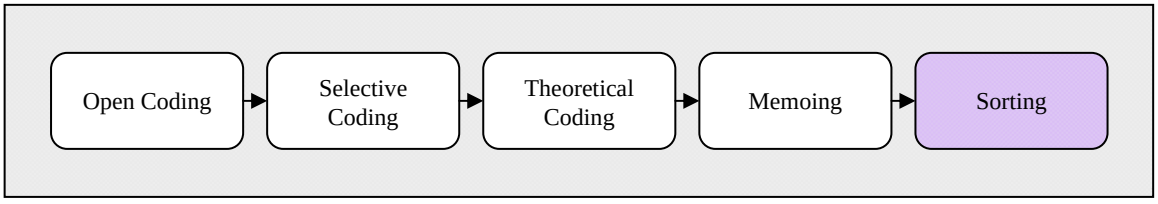
Fig 16: Examples of later memos

- *Are x's moral decisions the same as y's decisions?* [Note: x is the Bereavement Manager and y is the Head of YOS]
- *Are moral decisions only found in social work and Bereavement?*
- *Moral heuristics seem to be used in complex decisions. Are they used for any other decisions? Are they only used in complex decisions?*
- *Do moral heuristics occur anywhere else? Education? Maybe, because they still deal with vulnerable people – this time kids. 'Special needs' kids. 'Family breakdown'. Whatever. This is worth looking into. Maybe go to a school and interview the head. Maybe primaries and secondaries to see if they're different or whether they've got the same problems*

These examples illustrate a number of points. Firstly, the memos range from single sentences to paragraphs (Glaser, 1978). Secondly, they are very informal, with little attempt at grammatical accuracy (Boychuk Duchscher and Morgan, 2004; Glaser 1978; 1998). In addition, some of these memos pose questions; others suggest answers; whilst others suggest further data sampling opportunities. It should also be noted that the above memos refer to moral heuristics. Later analysis revealed that, in fact, the representative heuristic, and not the moral heuristic, was used in the 'birdcage' case. Hence, this example also evidences the author's evolving thought processes. This is explored further in Chapter Five.

2.6.7 Sorting

Fig 17: Position of sorting within Glaserian grounded theory



Together with memo writing, sorting is an essential step in grounded theory *"which cannot be skipped"* (Glaser, 1978: 116). Its purpose is to decide how the theory should be structured (Glaser, 1978; Glaser and Strauss, 1967). As memos are written, they are grouped to put the

fragmented data back together and then sequenced in whichever order best illustrates the emerging theory (Glaser and Strauss, 1967). As new ideas emerge during sorting, these are themselves recorded in memos (Glaser, 1978). Although the Access database could have been used to electronically sort the memos in various ways, it was decided to manually sort for similar reasons to those given above for manually coding the data. For the physical sorting, the author worked on a table. Firstly, the memos were printed out from Access and grouped on the basis of the similar categories or properties they addressed. These groups were then arranged to reflect their relationship. The intention was that their layout would capture the structure of the final thesis. By trial and error, the printed memos were arranged in the sequence which best allowed the structure to be described, and this provided the skeleton, and many of the words, of the final theory (Glaser and Strauss, 1967).

2.6.8 Use of the literature

Literature has a different role in grounded theory from that in other methodologies. Grounded theory provides a systematic approach that considers extant theory but is not driven by it (Glaser and Strauss, 1967; Urquhart, 2001). Hence, general background reading around decision-making and a thorough research of the grounded theory literature was undertaken prior to the commencement of this study (Glaser, 1978; 1998; Starrin et al., 1997), but a detailed literature review of the core category (heuristics) was delayed until the research was well underway (Glaser, 1978; Glaser and Holton, 2004). By this time the concepts, subcategories, and categories for all data sets had been developed (Strauss and Corbin, 1998), and this approach avoided preconceptions about what might be discovered (Glaser, 1978). As Gummesson (2000: 63) notes, *"the researcher must not force preconceived categories and concepts on reality, even if these are well established in extant theory"*.

The literature was read as a source of more data to be compared with existing data (Glaser, 1998; Holt and Dunn, 2004), and was therefore coded and treated in exactly the same way as 'other' data (Glaser, 1992). Thus, the same basic approach of data-collection (from the literature), coding and memoing was followed. As noted in Chapter One, it is possible that some may construe this *"as a neglect of the literature"* (Glaser, 1998: 360), but *"nothing can be farther from the truth"* (Fernández, 2004: 10). The literature was used to broaden the researcher's understanding of what was being studied (Parahoo, 2009), and the literature

review was delayed in order to keep the researcher as free as possible of influences that could restrict the freedom required for theoretical discovery, not to ignore extant and relevant knowledge (Glaser, 1998).

The literature was copied verbatim into Access. In the case of a text book, this was a manual retyping exercise, and with journals it was possible to copy and paste the pdf or html text directly into Access, with individual sentences or paragraphs being copied as separate records. The decision was taken to copy the exact text rather than paraphrasing it because it was not always possible to predict which literature would eventually prove to be the most useful, and a direct copy offered the best chance to use a piece of literature in a variety of ways. Furthermore, direct copying was the same technique that was used to transcribe the research data, and thus the research had internal consistency. Once a piece of literature had been copied, it was coded in the database line-by-line and paragraph-by-paragraph using the conceptual codes that had already been developed to analyse the core data (Holt and Dunn, 2004). The following is a short illustrative example to demonstrate the approach.

Fig 18: Example of coding of the literature

Quotation	Codes
"The principal heuristics should be seen in light of dual process theories of cognition (Kahneman & Frederick, 2002). Those theories distinguish between two families of cognitive operations, sometimes labeled System I and System II"	• Moral heuristic • System 1/2 • Links to other literature
"System I is intuitive; it is rapid, automatic, and effortless [...]. System II, by contrast, is reflective; it is slower, self-aware, calculative, and deductive. System I proposes quick answers to problems of judgment, and System II operates as a monitor, confirming or overriding those judgments".	• System 1/2 description • Syst 2 overrides Syst 1
"Consider, for example, someone who is flying from New York to London in the month after an airplane crash. This person might make a rapid, barely conscious judgment, rooted in System I, that the flight is quite risky; but there might well be a System II override, bringing a more realistic assessment to bear. System I often has an affective component, but it need not; for example, a probability judgment might be made quite rapidly and without much affect at all".	• System 1/2 examples • Syst 2 overrides Syst 1 • Risk • Probability
"Ordinary moral commitments are a set of mental shortcuts that generally work well, but that also produce severe and systematic errors".	• Moral heuristic • Error

Source: Sunstein (2005a: 533)

The process was identical to that for the coding of the empirical data. Where the literature and empirical data used different terms to refer to the same thing, codes were amended to match the literature. For example, the code 'process bias' was renamed 'Status Quo bias'. This aided the comparative element of the methodology whilst ensuring internal consistency of data. In this way, the relevant literature became integrated with the substantive theory (Eisenhardt, 1989; Fernández, 2004).

2.7 Chapter summary

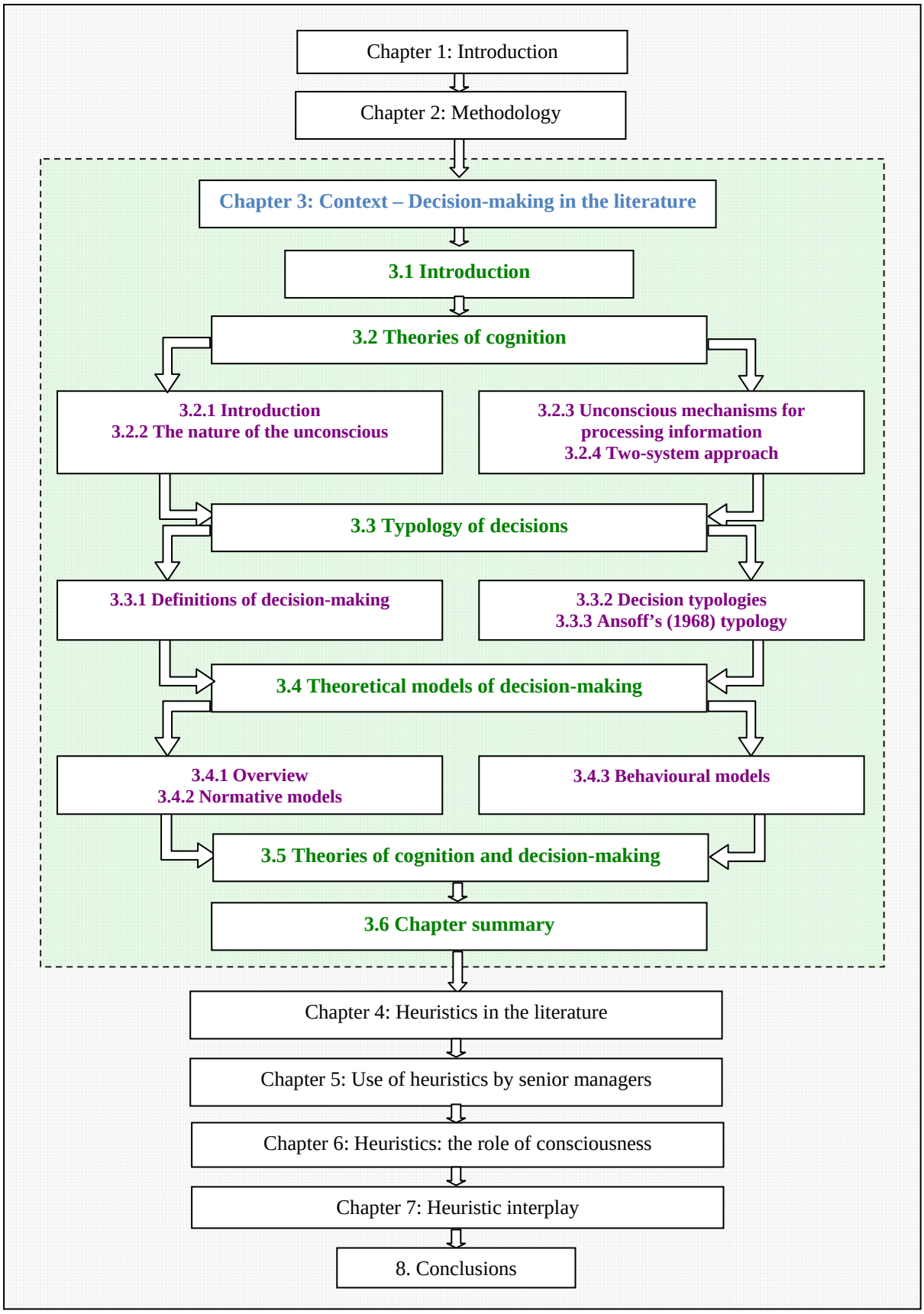
This chapter has outlined the methodology underpinning this study. It summarised the development of grounded theory before briefly highlighting the key elements of the two most commonly used versions. Several justifications for the use of grounded theory were presented. Firstly, grounded theory offered a way in which the author's own experiences and potential biases could be managed. Secondly, grounded theory enabled the investigation of both macro- and micro-level issues. Thirdly, the methodology allowed information to be incorporated about the context in which decisions were made. Finally, grounded theory is recognised a being a particularly suitable methodology in situations where there is little previous research in an area, as is the case with this study. Justifications were also presented for the adoption of the Glaserian variant of grounded theory. Firstly, it is simpler and easier to use than the Straussian approach. Secondly, and more importantly, the author felt that the Glaserian approach was more emergent and was more in line with the stated aims of grounded theory than the Straussian approach which, he felt, forces data into preconceived frameworks.

The remainder of the chapter showed how the methodology was applied within this study. As data were gathered, they were systematically coded and analysed using a process of constant comparison, where new data was compared to existing data. Cognitive heuristics emerged as the core category, and other categories were linked to this and a series of themes and patterns emerged. In accordance with Glaser's approach, although a 'detailed' literature reviewed was delayed until the study was well underway. The literature was integrated into the emerging theory with the result that the theory became richer and more robust.

The next chapter discusses how decision-making is reflected in the literature, and this then provides the context for the remainder of this thesis.

CHAPTER 3:
CONTEXT – DECISION-MAKING IN THE LITERATURE

Fig 19: Context and structure of Chapter Three



3.1 Introduction

This chapter provides context for the present study. It begins by exploring theories of cognition. One theory in particular is discussed in more depth (System 1/System 2) and this is used to conceptually encompass the other theories identified up to this point. The next section presents several definitions of 'a decision', and this leads onto a discussion of various decision typologies, where it is shown that Ansoff's (1968) typology is the most suitable for use throughout the present study. It is then demonstrated that there are two main categories of decision-making theories (normative and behavioural). Several decision-making theories are briefly discussed, and the normative/behavioural approach is mapped onto the cognitive System 1/System 2 approach. The final sections introduce the core component of this study, cognitive heuristics, and provide a short summary of the chapter.

3.2 Theories of cognition

3.2.1 Introduction

A detailed discussion of cognition is beyond the scope of this thesis. However, since the study is seeking to determine how cognitive heuristics are used to make decisions, there are overlaps with this topic. The following pages outline some of the key issues but, in presenting this brief overview, the author is fully aware that many important aspects have been omitted. The aim of this section is not to condense the whole of psychology into a few pages, but is to provide a general context for the study.

3.2.2 The nature of the unconscious

Researchers generally agree that there are two aspects to how people think – consciously and unconsciously. Beyond this broad consensus, however, there is considerable disagreement, and man theories have been proposed. Westen (1999) argues that 'the unconscious' refers to

the automatically occurring mental process that people are normally unaware of, and suggests that this includes memory, motivation, and a range of thought processes. The unconscious has been defined in many ways, but for the purposes of the present study, Westen's (1999) definition is adequate. Whilst the existence of the unconscious is widely supported amongst scholars, not everyone is convinced of this (e.g. Stannard, 1980; Webster, 2005). For example, Fromm argues that *"there is no such thing as the unconscious; there are only experiences of which we are aware, and others of which we are not aware, that is, of which we are unconscious"* (Fromm, 1980: 93 [author's emphasis]).

The unconscious has been extensively studied, and theories have evolved over time. **Sigmund Freud** (2001) argued that the human mind contains three main parts – consciousness, unconsciousness, and preconsciousness. The conscious is the part of the mind that is aware of its thoughts and actions, and is responsible for logical thinking and understanding. The unconscious is the part of the mind that is repressed, of whose contents we are unaware, and contains information that is hard to retrieve. The preconscious lies between these, and is where information that is not currently conscious is stored and can easily be retrieved (Freud, 2001). This summary offers an oversimplified representation of Freud's theory of the mind, and omits many fundamental components such as the id, ego, and superego – all of which are beyond the scope of this thesis.

Carl Jung built upon Freud's ideas and developed his own theory of the unconscious. He proposed that the unconscious contains two elements; the personal unconscious and the collective unconscious (Jung, 1968). The personal unconscious is unique to each individual and contains material that was previously held consciously but has since been forgotten or suppressed (Jung, 1968). This aspect is similar to Freud's theory. The collective unconscious, on the other hand, represents a diversion from Freud. This contains material that is common to all humans and is inherited. It is therefore a shared unconscious (Jung, 1968). Once more, a more detailed discussion of this topic is beyond the scope of this thesis.

More recently, scholars have developed alternative theories of the unconscious such as the cognitive unconscious (Kihlstrom, 2002; Kihlstrom, Beer and Klein, 2002) and the adaptive unconscious (Wilson, 2002), both of which operate differently from Freud and Jung's conceptions. A summary of recent developments and alternative theories is provided by Augusto (2010), and therefore further discussion is outside the scope of this thesis.

Having very briefly discussed the nature of the unconscious, the following section outlines some of the theories that seek to explain how the unconscious works in terms of processing information and this provides the context for the rest of this chapter.

3.2.2 Unconscious mechanisms for processing information

In the 1980s, Shelly Chaiken developed the **Heuristic-Systematic Model of Information Processing** (HSM). This seeks to explain how individuals receive and process persuasive messages (Chaiken, 1980; Lim, 2013), and suggests that this happens either heuristically or systematically, or in a combination of both (Eagly and Chaiken, 1993; Giner-Sorolla and Chaiken, 1997). The heuristic approach uses rules of thumb that have been learned over time and can be used automatically (Chen, Duckworth and Chaiken, 1999). There are, therefore, strong links to the present study. The systematic approach is more cognitively demanding, with the message being scrutinised to a greater extent, and is influenced by factors such as the content of the message and the degree of reliability of the sender – both of which may influence the success or failure of the attempt at persuasion (Chaiken, 1980; Chen, Duckworth and Chaiken, 1999). It also makes the assumption that the recipient of the message is able to understand it, whereas the heuristic approach makes fewer cognitive demands because the recipient can 'fill in' anything that is not understood by drawing on their own experiences (Eagly and Chaiken, 1993; Ratneshwar and Chaiken, 1991). The original model has since been refined to take account of underlying personal motivations and other factors such as how the two alternatives are triggered (Dillard and Pfau, 2002).

Donald Schön examined the processes involved in the making of professional judgments, and from this he developed the notion of 'reflection-in-action' and 'reflection-on-action' (Schön 1983; 1990). Reflection-in-action is shown *"by our spontaneous, skilful execution of [...] performance; and we are characteristically unable to make it verbally explicit"* (Schön 1990: 25) whereas *"we may reflect on action, thinking back on what we have done in order to discover how our knowing-in-action may have contributed to an unexpected outcome"* (Schön 1990: 26). Reflection-in-action is an intuitive action takes place during the decision-making process, and can be described as thinking on one's feet. In other words, the decision-maker *"reflects on the phenomenon before him, and on the prior understandings which have been*

implicit in his behaviour. He carries out an experiment which serves to generate both a new understanding of the phenomenon and a change in the situation" (Schön 1983: 68). This contrasts with reflection-on-action, which takes place after the incident, and is a deliberative action whereby the decision processes are analysed, and this allows decision-makers to explore what happened and to learn from the experience (Schön 1983). Schön (1983) argues that when looking at a situation, people are influenced by precedents and assumptions. These allow decision-makers to develop routines that bring memories into play and thus begin to build theories and responses that fit the new situation. Hence, there are synergies with the present study, such as the availability and representative heuristics.

Whilst recognising the importance of Schön's work, **Michael Eraut** criticises his model because it does not consider time factors (Eraut, 2004). He argues that when time is short, rapid decisions need to be made and there is therefore little time for reflection (Eraut, 1994). Instead, he proposes three modes of cognition, and relates these to decision-making (Eraut, 2000). The instant/reflex mode of cognition results in instant decisions; the rapid/intuitive mode of cognition leads to intuitive decisions; and the deliberative/analytic mode of cognition results in considered decisions, where factors are weighed in a deliberative way. He argues that a shortage of time forces decision-makers to adopt an intuitive approach, and a longer period of time gives people time to take a more considered view (Eraut, 2000; 2004; 2010). There are some similarities between Eraut's model and Schön's model, as the following diagram illustrates:

Fig 20: Comparison of Eraut's (2000) modes of cognition and Schön's (1983) categories of learning

Eraut's (2000) modes of cognition	**Schön's (1983) categories of learning**	
	Reflection-in-action	Reflection-on-action
Instant/reflex		
Rapid/intuitive		
Deliberative/analytic		

Around the same time, Guy Claxton (1997; 2010) proposed the existence of the **intelligent unconscious**. He suggests that the mind has three different processing speeds. The first is faster than thought, the second is slower and is more leisurely and dreamy, and the third is associated with creativity and wisdom (Claxton, 1997; 2006). He argues that conscious

thought follows formal, logical, rules whereas unconscious thought uses associations that are either inherent or learned through experience. In this way, the unconscious is able to create patterns between seemingly disparate information if given time, and it can therefore make sense of hazy and ill-defined problems (Claxton, Lucas and Webster, 2010). Claxton therefore suggests that decision-making can be improved if the mind is relaxed and freed from stress, and if better use is made of the mind's slower 'tortoise' ways rather than always using the faster 'hare' ways (Claxton, 1997).

Some years after HSM was proposed, Seymour Epstein developed **Cognitive-Experiential Self-Theory** (CEST) (Epstein, 2003). This seeks to explain how people process information and concludes that this is done in one of two ways: analytical-rational and intuitive-experiential (Epstein, 2003). This is therefore another dual process theory and, as with HSM, again there is a place for heuristic processing (Denes-Raj and Epstein, 1994; Epstein, 1994). The analytical-rational system is careful and slow with an emphasis on deliberation and logic; whereas the intuitive-experiential system is rapid and automatic (Epstein, 2003). CEST differs from earlier dual-process theories in that it sits within a wider context of personality, rather than being an isolated construct (Epstein, 2013; Pacini and Epstein, 1999). It also proposes that the unconscious is adaptive (Norris and Epstein, 2011) because behaviour is effectively the result of a constant interaction between the two systems. The fast and efficient experiential system is guided by emotion and past experience, and handles routine information processing on a daily basis, which occurs outside of conscious awareness. This allows people to focus the more limited capacity of their rational system on whatever requires their conscious attention at the time (Epstein, 2003). Repeated conscious behaviour can cause an act to become automatic, such as learning to drive, and the act then moves into the experiential system (Sladek, Bond and Phillips, 2010). Epstein (2003) therefore argues that CEST represents a holistic cognitive personality theory that brings together previously-disparate frameworks.

More recently, Ap Dijksterhuis and Loran Nordgren proposed the notion of **Unconscious Thought Theory** (UTT) (Dijksterhuis and Nordgren, 2006). They argue that conscious thought simply relates to situations where one is aware of the processes involved, and unconscious thought relates to situations where one is unaware of the processes, such as when thoughts pop into someone's head without them knowing how or why (Bignetti, 2004; Dijksterhuis, 2004). The theory proposes that the mind uses a dual process to solve problems,

with unconscious thought being better at solving complicated tasks and conscious thought being better at solving simpler tasks. UTT suggests that conscious thought follows stringent rules whereas unconscious thought engages in associative processing (Dijksterhuis and Nordgren, 2006). On this basis they suggest that if someone is working on a complex problem, if they are distracted part-way through the process, the unconscious part of the mind will continue to work on the problem during the period of distraction, and in this way decision-making will be improved (Dijksterhuis and Nordgren, 2006). Thus, there are similarities with Claxton's (1997; 2010) work, which also treats conscious and unconscious thought in this way. UTT has been criticised, since there may be alternative explanations of its findings (Lassiter et al., 2009; Waroquier et al., 2010), the theory itself may have dubious validity (Acker, 2008) due to a lack of theoretical rigour (González-Vallejo et al., 2008; Rey, Goldstein and Perruchet, 2009).

It is evident from the foregoing that dual (or multiple) approaches to cognition are relatively common within the literature, although there is no single model that is generally considered to be 'correct'. However, in recent years, another dual-process approach has emerged which is gaining broad support, and this is discussed in the following section.

3.2.3 Two-system approach

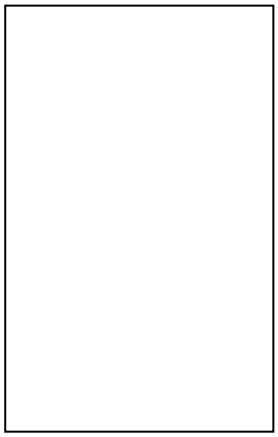
Building upon the idea that humans adopt a dual-processing approach to cognition, Kahneman and Frederick (2002) propose that humans call on two systems to make decisions, labeled System 1 and System 2. Kahneman (2011) makes it clear that 'System 1' and 'System 2' are merely labels. They are not systems in the standard sense with interacting aspects or parts, and there is no single part of the brain that they 'call home'. The terms merely aid understanding. Kahneman (2011) notes that they could be called 'automatic system' and 'effortful system', but argues that these terms are not as easy to remember or distinguish between.

System 1 contains learned associations between ideas (such as asking 'what is the capital of France?'); it also has learned skills such as reading, and more-or-less involuntary activities such as chewing (Kahneman, 2011). System 1 is therefore intuitive, rapid, automatic, and effortless (Adler, 2005; Weber and Ancker, 2005). System 2, by contrast, is reflective, slower, conscious, calculative, and deductive, and embodies the laws of logic and probability

(Anderson, E., 2005; Tetlock, 2005). Sometimes these definitions are reversed so that System 1 relates to the rational and calculating process, with System 2 being more instinctive and reactive (Wickham, 2006). However, this thesis has chosen to side with the majority, and for the purposes of this study System 1 relates to intuitive operations and System 2 relates to more rational operations.

The nature of the two-system model is illustrated by Kahneman (2011) in the following way. In the first instance, the face of an angry woman is presented to the reader:

Fig 21: Illustration of System 1



Source: Kahneman (2011: 19)

Intuitively and rapidly, the reader can pick up the cues that determine the appearance of anger, and can even predict that perhaps the woman was about to start shouting when her picture was taken. This happens automatically and is an example of fast thinking – i.e. System 1. To illustrate System 2, Kahneman (2011) asks his reader to calculate 17 x 24 using a pencil and paper. As the multiplication is carried out, the reader proceeds through a series of steps. First, the reader retrieves from memory the cognitive program for multiplication. Then this is implemented. Carrying out the computation takes thought and effort, and this is an example of System 2. In other words, System 1 takes shortcuts to process information quickly, and System 2 deliberately processes information (Shah and Oppenheimer, 2008).

There are parallels between the dual-system approach and the theories considered above. For example, Eraut (2000) presents the following scenario:

> *"Riding a bicycle in traffic involves the simultaneous operation of two or more modes of cognition. Maintaining balance and steering are fully automated activities, while responding to traffic movements may entail both reflex responses to sudden events and rapid intuitive responses to anticipatory readings of a developing complication. When the traffic is relatively calm, it would not be unusual to engage in deliberative thinking about one's route or actions to be taken after reaching one's destination"* (Eraut, 2000: 129)

Viewing this example from a dual system perspective, System 1 describes the acts of maintaining balance, steering, and responding to traffic movements; whereas System 2 describes the act of deliberative thinking. These parallels also extend to the other theories outlined above. For instance, the notion of a two-component mind – unconscious and conscious (akin to Dijksterhuis and Nordgren, 2006; Freud, 2001; Jung, 1969) – is reflected by System 1 and System 2 respectively; and Claxton (1997; 2010) contrasts reason with intuition, thereby mirroring the dual system approach. Furthermore, like CEST, the dual system approach is a holistic theory that brings together disparate frameworks, but it goes beyond CEST's emphasis on personality (Epstein, 2003), and encompasses the workings of the wider human brain.

Thus, the dual system approach is useful because it can consolidate a number of models at a conceptual level, as the following diagram illustrates:

Fig 22: Consolidation of System 1/System 2 with other models of cognition

Theory	Aspect	System 1	System 2
Chaiken's (1980) HSM model			
	Heuristic processing	■	
	Systematic processing		■
Schön's (1983) categories of learning			
	Reflection-in-action	■	
	Reflection-on-action		■
Eraut's (2000) modes of cognition			
	Instant/reflex	■	
	Rapid/intuitive	■	
	Deliberative/analytic		■
Claxton's (1997) intelligent unconscious			
	Unconscious thought	■	
	Conscious thought		■
Epstein's (2003) CEST model			
	Intuitive-experiential	■	
	Analytical-rational		■
Dijksterhuis and Nordgren's (2006) UTT model			
	Unconscious thought	■	
	Conscious thought		■

The dual-system model has not been universally accepted. For instance, Kruglanski et al. (2004) argue that separate systems are not needed to account for differences in behaviour. Indeed, Gennaioli and Shleifer (2010) suggest that the differences can be explained in terms of retrieval from memory and argue that in the case of System 1, *"retrieval is not only quick but also partial and selective"*, but in the case of System 2 *"retrieval is complete"* (Gennaioli and Shleifer, 2010: 1430). Nonetheless, as shown below, the dual-system overlaps neatly onto the major schools of thought in decision-making. It also resonates with the findings of the present study, which models several cognitive heuristics against this framework. However, the dual-system theory is merely a conceptual one. It does not explain, for instance, how decisions are made – only that they are made using one of two systems. Therefore, to address the research aims of this thesis it is necessary to examine various models of decision-making in more detail. To this end, the following pages offer a definition of decision-making and this leads into a discussion of some of the major decision-making models.

3.3 Typology of decisions

3.3.1 Definitions of decision-making

Within the literature, there is no universally-agreed definition of 'a decision', but authors generally agree that choice is involved (see for instance Akanbi, 2011; Eysenck and Keane, 2010). Indeed, Simon (1997: 3) argues that *"the words 'choice' and 'decision' [can be] used interchangeably"*, whereas others go further and state that *"decisions are choices"* (ICSA, 1997: 255). In other words, they are the same thing. These definitions also imply that a decision takes place at a particular point in time. However, Mintzberg and Waters (1990: 3) dispute this; arguing that decisions can evolve gradually or even *"inadvertently"*. This study is concerned with situations where a 'real' decision was made at a particular point in time. In other words, managers either consciously decided upon a course of action, or else 'something happened' that was recognised to be a decision at the time – even if the underlying mechanisms were not understood at that stage. In either case, the thought processes are the focus of the present study.

3.3.2 Decision typologies

Given the lack of clarity over what 'a decision' actually is, it is unsurprising that there is no consensus as to what 'types' of decision there are. Thus, the following pages merely 'scratch the surface' of this wide topic. Numerous typologies have been developed that reflect individual areas of research. For example, Yao (2011) classifies decisions as being either immediate or delayed; whereas CSSP (2003) developed a typology for group decision-making, which analyses decisions into two main categories (structural characteristics and performance characteristics) with a further 20 subcategories, including power, legitimacy, stability, results-driven, and data-driven. Spezio et al., (2012: 332) propose the notion of *"thin-slice decisions"*, which are decisions that are made based only on a small amount of information, rather than a detailed consideration of a large suite of information. It will be seen below that this is an alternative formulation of cognitive heuristics, which are considered in depth from Chapter Four onwards. Within the field of medicine, several decision-making typologies have been proposed, which are typically risk-based (see for instance Connecticare,

2010; Sturmey, 1995). To cite a single illustrative example, Simon Whitney analysed medical decisions into four types: high risk-high certainty, high risk-low certainty, low risk-high certainty, and low risk-low certainty. This categorisation was then used to examine the issue of patient consent, with the conclusion that differing levels of consent were appropriate for different types of decision (Whitney, 2003; Whitney, McGuire and McCullough, 2004).

In a more general series of studies known as the Bradford Studies (Rowe, 1989), researchers studied top strategic decisions in 30 organisations ranging in size from 100 to more than 50,000 employees. Five decisions were analysed from each organisation, making a total of 150 decisions (Hickson et al., 1986; Miller and Wilson, 2006). Decisions were categorised in three ways, vortex-sporadic, tractable-fluid, and familiar-constricted. Vortex-sporadic decisions are controversial, complex and involve ambiguity and uncertainty together with a need to manage conflicting viewpoints of many managers, and as a result are often time-consuming (Cray et al., 1991). Tractable-fluid decisions are generally less complex, and because they are normally non-controversial, there is less likelihood of disagreement amongst decision-makers (Rowe, 1989). Familiar-constricted decisions are normal decisions, which are straightforward and involve the smallest number of managers (Hickson et al., 1986; Miller and Wilson, 2006). It should be noted that the researchers stressed that these categories are merely approximations for what happens in practice (Rowe, 1989). The study concluded that decisions can be studied by treating them as a combination of factors: problems (creating a need for judgment) and interests (creating a need for compromise) which provides a process for reaching a choice (Rowe, 1989).

This brief overview illustrates that decisions can be classified in many ways. The following table highlights some other categories that have been proposed. Again, this list is intended to be representative rather than exhaustive.

Table 1: Illustrative typology of decisions

Type of decision	Comments
Routine	Involve the use of pre-established organisational procedures or rules (Miller, Hickson and Wilson, 2002).
Innovative	Made when a situation is confronted that has no precedent (Buchanan and Huczynski, 2004)
Significant	These decisions are highly consequential and have widespread and long-term impact (Miller, Hickson and Wilson, 2002).
Compromise	Making a decision that is acceptable to all requires 'give and take'. The decision is therefore rarely ideal (Basi, 1998; Drucker, 2001). This may not be a decision type in its own right, because all decision-making is a matter of compromise (Brown, 2004; Simon, 1997).
Complex	In general, the more complex a decision is, the harder it is to make (Watson, 1994), and complexity depends on factors such as the degree of familiarity, because topics which are unfamiliar to the decision-maker will not only require alternatives to be sought, but will also require the construction of mechanisms for search and evaluation (Cray et al., 1991).
Programmed	Decisions which occur frequently and can be made in a relatively straightforward fashion, and there are normally tried and tested protocols, formulae or procedures for making them (Greenberg and Baron, 2008)
Non-programmed	Decisions which are unfamiliar, and for which there is no pre-specified course of action and no procedure to follow (Greenberg and Baron, 2008)

There is considerable overlap between these categories. For instance, programmed and routine decisions are very similar; as are non-programmed and innovative decisions.

3.3.3 Ansoff's (1968) typology

Ansoff (1968) identified three categories of decisions: strategic, operational and administrative. Across the organisation under study, managers explicitly conceptualised their decision-making in these terms. Furthermore, the same meaning was understood, as the following table illustrates.

Table 2: Ansoff's (1968) typology of decisions

Type of decision	Academic comments	Comments from managers in the present study
Strategic	These are decisions *"regarding the direction [an] organisation should take to achieve its mission"* (Greenberg and Baron, 2008: 384). They may also have effects for large segments of society (Colignon and Cray, 1980). Examples include decisions relating to corporate objectives, which products/services should be offered and where should they be marketed (Ansoff, 1968). Large-scale procurements are strategic decisions (Murray, 2011; Walker, 2007).	*"Strategic decisions are ones that impact on the direction of the organisation"* (Business Management). *"When we make the strategic decision to stop such-and-such a service then this can have a big impact on vulnerable people"* (Adult Social Care). *"Our big procurements are strategic decisions because they commit the organisation to a course of action and set the policy for maybe the next decade or more"* (Corporate Procurement).
Operational (tactical)	These decisions are short-term and routine (Hicks, 1991) and comprise most of the decisions taken by managers (Ansoff, 1968). They seek to maximise the efficiency of resources (Ansoff, 1968). Examples include quality management, inventory control, and budgeting (Ansoff, 1968).	*"Operational decisions are how we operate from day to day"* (Building Control). *"They're how we do the day job"* (Primary Schools). *"Operational decisions are the decisions we take on the ground to implement our strategic decisions"* (YOS).
Administrative	These decisions seek to ensure the smooth and effective collaboration of the strategic and operational decisions (Ansoff, 1968). Examples include decisions involving the organisation of people (Hicks, 1991) such as personnel and finance (Ansoff, 1968).	*"Administrative decisions are the glue that holds the [organisation] together"* (Director of Regeneration). *"They're all the back-office decisions that people moan about, but that you can't do without. Things like HR and IT"* (IYPS).

Therefore, because this reflects the empirical data, Ansoff's (1968) typology was adopted throughout the remainder of this thesis. It will be clear that Ansoff's (1968) three categories overlap with elements of Table 1. For instance, an innovative decision may be strategic, operational, or administrative according to circumstance.

Having identified a range of decision types, the following section explores some of the ways in which decisions can be made.

3.4 Theoretical models of decision-making

3.4.1 Overview

Buchanan and Huczynski (2004) suggest that decisions can be modelled in one of three ways: prescriptive, descriptive, or explanatory, and such a categorisation is endorsed by other authors (Dougherty and Thomas, 2012; Merad, Dechy and Marcel, 2012). The characteristics of these models are summarised in the following table:

Table 3: Three-way categorisation of decision models

Type of model	Characteristics
Prescriptive	Models which recommend how individuals should proceed to achieve a desired outcome.
Descriptive	Models which investigate how individuals actually make decisions.
Explanatory	Models which seek to account for decisions made by individuals, groups, and organisations. They typically examine specific decisions after the event and seek to explain how they occurred.

Source: Adapted from Buchanan and Huczynski (2004: 757-762).

For many, decision-making should be a normative (i.e. rational) process consisting of a sequence of steps that enhance the probability of attaining a desired outcome (Bekker, Putters and van der Grinten, 2004; Hill, 1979a; Patton, 2003). A number of models have been developed that seek to prescribe the way in which decisions 'should' be made. These include the Rational Economic model, Brunswik's Lens Model, the Vroom-Yetton decision-making model, and the Cynefin Framework. These models are briefly outlined in the next section.

Some authors suggest that the normative approach is an ideal, rather than a description of how decision-makers actually function (Tarter and Hoy, 1998), and question the ability of people to behave in a truly rational manner. As such, they call into question many of the models of decision-making that have the concept of rationality at their heart (North, 1993; Quackenbush, 2004). For instance, the approach assumes that complete information is available to the decision-maker (Tarter and Hoy, 1998), whereas in reality, information may be needed which is difficult to collect and to categorise (Miller, Hickson and Wilson, 2002). Furthermore, organisational goals are often complex and may conflict (Tarter and Hoy, 1998). Thus, it is

rarely possible to consider all the alternatives, since there may be too many or some alternatives may not occur to the decision-maker (Buchanan and Huczynski, 2004), and potential solutions may be hard to recognise and may in turn create new problems (Miller, Hickson and Wilson, 2002). Hence, an alternative to the normative approach has been developed, known as the behavioural approach. Once more, there are a number of models, but one thing they have in common is that they seek to describe the way in which decisions are *actually* made, regardless of their efficiency, wisdom or practicality (Hill, 1979b). Examples of these models include Bounded Rationality, Incrementalism, Naturalistic decision-making, and cognitive heuristics. Again, these models are briefly outlined in the following pages.

These definitions and characteristics were widely recognised within the organisation under study as the following statements illustrate – although the term 'rational' was used rather than 'normative'.

> *"There are two types of decision-making, aren't there? You've got rational and [...] behavioural"* (Building Control). *"Rational [models] follow a logical, ordered, structured route"* (IYPS). *"There's a process that gets followed. Certain steps happen in a certain order"* (Bereavement). *"Behavioural decision-making is not like that. It's different"* (Internal Audit). *"People make assumptions and take shortcuts"* (Environmental Health), *"and so these decisions are less logical and less predictable"* (Planning).

The definitions and characteristics of normative and prescriptive models are very similar, as are those of behavioural and descriptive models. Within the organisation under study, the normative/rational and behavioural terminology was well-understood, and hence this proved to be the most suitable framework for this study. The following pages briefly outline the key features of these models. It should be noted, however, that in line with Akanbi (2011), the models shown below are not mutually exclusive because different models share some of the same components.

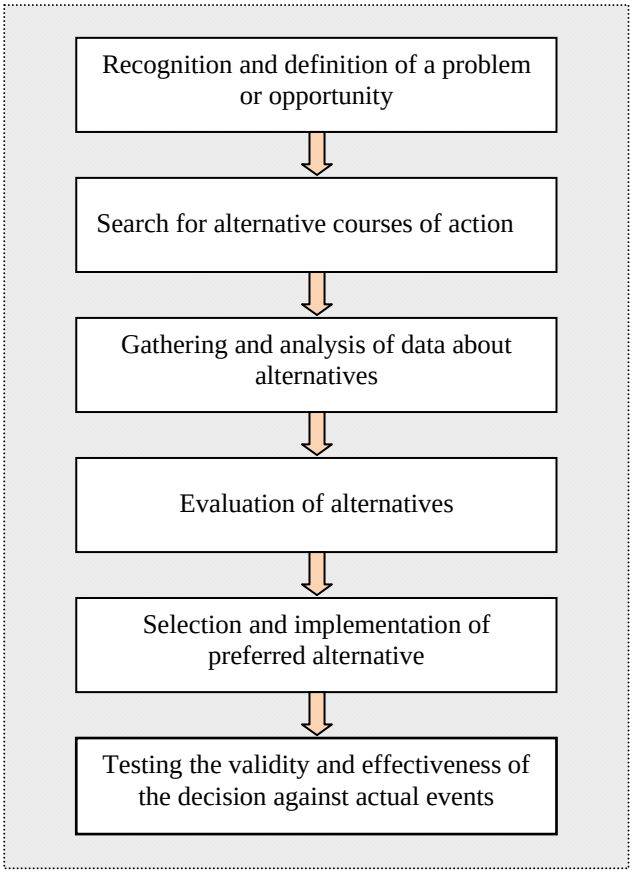
3.4.2 Normative models

Normative models prescribe how decisions 'should' be made in order to achieve the best possible outcome (Ben-Daya and Hariga, 1998; Hutchinson and Gigerenzer, 2005; Jost, 2001). Indeed, Patton (2003: 993) argues that rational decision-making is *"desirable"*, whilst Hill (1979a: 21) goes so far as to say that it is the *"ideal decision-making process"*. Although there are many different tools used in normative decision-making, for instance decision trees (Buchanan and Huczynski, 2004) and statistical techniques (Kahneman and Tversky, 1973), they typically possess certain common features which include a list of steps, and a logical framework (Buchanan and Huczynski, 2004). It follows that two people, given the same skills, the same objectives and values, the same knowledge and information, can rationally decide only upon the same course of action (Hicks, 1991; Simon, 1997). The following pages briefly outline the key features of some of these methods

Rational Economic model

This model assumes that decision-making is a rational process consisting of a series of steps. To arrive at a decision, a manager must define the purpose of the action, list the options available, choose between the options, and then turn that choice into action (Heller and Hindle, 1998). This can be illustrated by the following diagram, which is presented in full purely because it is, perhaps, the simplest example of a normative model owing to its straightforward, logical, flow.

Fig 23: Rational Economic model of decision-making



Source: Adapted from Buchanan and Huczynski (2004); Drucker (2001); Miller Hickson and Wilson (2002).

Since this diagram is derived from a combination of sources, it is rather generic. However, versions of the model have been studied in contexts as diverse as motivation (Rowley, 1996), strategic policy-making (Kørnøv and Thissen, 2000), fraud (McKeever, 2012), and energy management (Greene, 2011).

Brunswik's Lens Model

Egon Brunswik (1952; 1956) argues that people do not make decisions directly, but view the environment and the object of the decision through a lens of factors and clues, each of which is assigned a statistical weighting. In this way, 'stray' causes and effects are identified, and action can be taken accordingly. The important factors are 'focused' via the lens (i.e. the effect of the different weights), and this determines the conclusion reached (Brunswik, 1952; 1956; Wolf, 2005). The model remains influential more than half a century after its creation (Wolf, 2005; Wigton, 2008) and has been used in a range of contexts, including statistical

correlation (Stewart, 1976), clinical judgment (Dana and Cocking, 1968), exploring the relationship between organisms and their environments (Petrinovich, 1979), and understanding non-verbal behaviour (Gifford, 1994).

Vroom-Yetton decision-making model

This model was developed by Victor Vroom and Phillip Yetton (Vroom and Yetton, 1973), and was later expanded by Vroom and Arthur Jago (Vroom and Jago, 1988). It is essentially a decision tree, and seeks to help managers determine the degree to which they should involve their subordinates in the decision-making process (Vroom and Yetton, 1973). The model argues that effectiveness depends on managers' ability to adjust their decision-making method to the requirements of the situation. To help managers achieve this match, seven questions are asked in order. Answers to these questions lead along different routes, ultimately directing managers to the best decision-making method for that situation (Vroom and Jago, 1988; Vroom and Yetton, 1973; Yukl, 2012). The relevance of the model in the present day is emphasised by Li (2011), who argues that future studies in decision-making and business management should adopt the Vroom-Yetton model, although much of the empirical research is several decades old (Crouch and Yetton, 1987; Field, 1982; Paul and Ebadi, 1989).

The Cynefin Framework

In the late 1990s, Dave Snowden and colleagues developed the 'Cynefin' framework which attempts to determine how people perceive and make sense of situations in order to make decisions (French and Niculae, 2004; Kurtz and Snowden, 2003). Cynefin views decisions as a process (O'Neill, 2004), and it seeks to assist decision-makers *"to see things from new viewpoints; assimilate complex concepts; and address real-world problems and opportunities"* (Snowden and Boone, 2007: 70). The framework links learning and knowledge (Cronjé and Burger, 2006) and comprises five contexts – simple, complicated, complex, chaotic, and disorder – and defines the leader's role in each of these domains (Kurtz and Snowden, 2003; Snowden and Boone, 2007). For example, in complex situations managers should seek to increase the visibility of the underlying patterns before taking any action, and in chaotic situations managers should act quickly and decisively to reduce the turbulence and then rapidly respond to the reaction to that intervention (Snowden and Boone,

2007). The model is well-regarded (French, 2013). Indeed, in 2011, Snowden and Boone's (2007) paper was awarded a 'citation of excellence' (Emerald, 2012) and has been used in a range of contexts including knowledge management (Kurtz and Snowden, 2003), the study of emergency situations (French and Niculae, 2004), and food-chain risk management (Shepherd et al., 2006).

3.4.3 Behavioural models

Behavioural models refer to the way in which decisions are actually made (Hill, 1979b). They accept that factors such as emotional response, altruism or prejudice may all be important in the decision-making process (Amaldoss, Bettman, & Payne, 2008). The following pages briefly outline some of these models.

Bounded rationality

Normative decision-making requires the comparison of alternatives in order to select the best (Brown, 2004). However, in 'real world' decision-making, alternatives are often examined sequentially and the first satisfactory alternative is likely to be the one actually selected (Fagan and Piquero, 2007; Simon, 1991). In other words, decision-makers look for the first workable option rather than trying to find the best possible option (Klein, 2008), so the decision neither maximises nor satisfies. It is said to 'satisfice' (Simon, 1997). Once an option is found, decision-makers will look no further (Tarter and Hoy, 1998). This is bounded rationality, and was proposed by Herbert Simon in the 1950s and 1960s (March and Simon, 1993; Simon, 1957; 1997).

Although more than half a century old, this is still among the most influential decision-making theories (Porac and Tschang, 2013). It recognises that most people do not think like computers, dispassionately assessing all of the known facts before reaching the optimal decision (Fagan and Piquero, 2007; Simon, 1991). It suggests that decision-makers tend to construct simplified mental models when dealing with complex problems (Simon, 1991). For instance, they may not have enough time to apply a normative approach (Gigerenzer and Selten, 2001), or the situation may be extremely complex (Simon, 1997). Therefore, decision-makers use bounded rationality to make decisions rather than a strict rigid rule of optimisation

(Kahneman, 2003; Simon, 1997). This links to the main topic of this thesis, although some authors feel that bounded rationality is itself a heuristic (Johnson, Meyer and Ghose, 1989; Payne, Bettman and Johnson, 1993). Because of its pedigree and wide acceptance, bounded rationality has been studied in many contexts including health insurance (Korobkin, 2012), understanding political reasoning (Marcus and McKuen, 1993), organisational learning (Simon, 1991), and the adoption of new technology (Gounaris and Koritos, 2012).

Incrementalism

Incrementalism was developed by Lindblom (1959), and argues that decisions are rarely made at a fixed point in time. Instead, they slowly evolve in a series of small incremental steps (Tarter and Hoy, 1998). The outcomes of each change are monitored and further changes are made as a result, and the process continues until a suitable solution is found (Tarter and Hoy, 1998). McElhinney and Proctor (2005) suggest that this is a way of avoiding serious mistakes, although they argue that this approach means that decision-makers are unable to cope with problems presented by sudden or substantial paradigm shifts. This has been described as the *"science of muddling through"* (Lindblom, 1959: 79). It differs from the normative and bounded rationality models in a number of ways. For instance, setting objectives and generating alternatives are not separate (Tarter and Hoy, 1998). Furthermore, the direction is not fixed by the process; *"in fact, the more complex the problem, the more likely that objectives will change as decisions evolve"* (Tarter and Hoy, 1998: 215), whereas with both normative models and bounded rationality, alternatives are assessed sequentially in order (Simon, 1997). Indeed, incrementatlism can be seen as a 'middle ground' lying between normative models and bounded rationality (Lindblom, 1959; 1977).

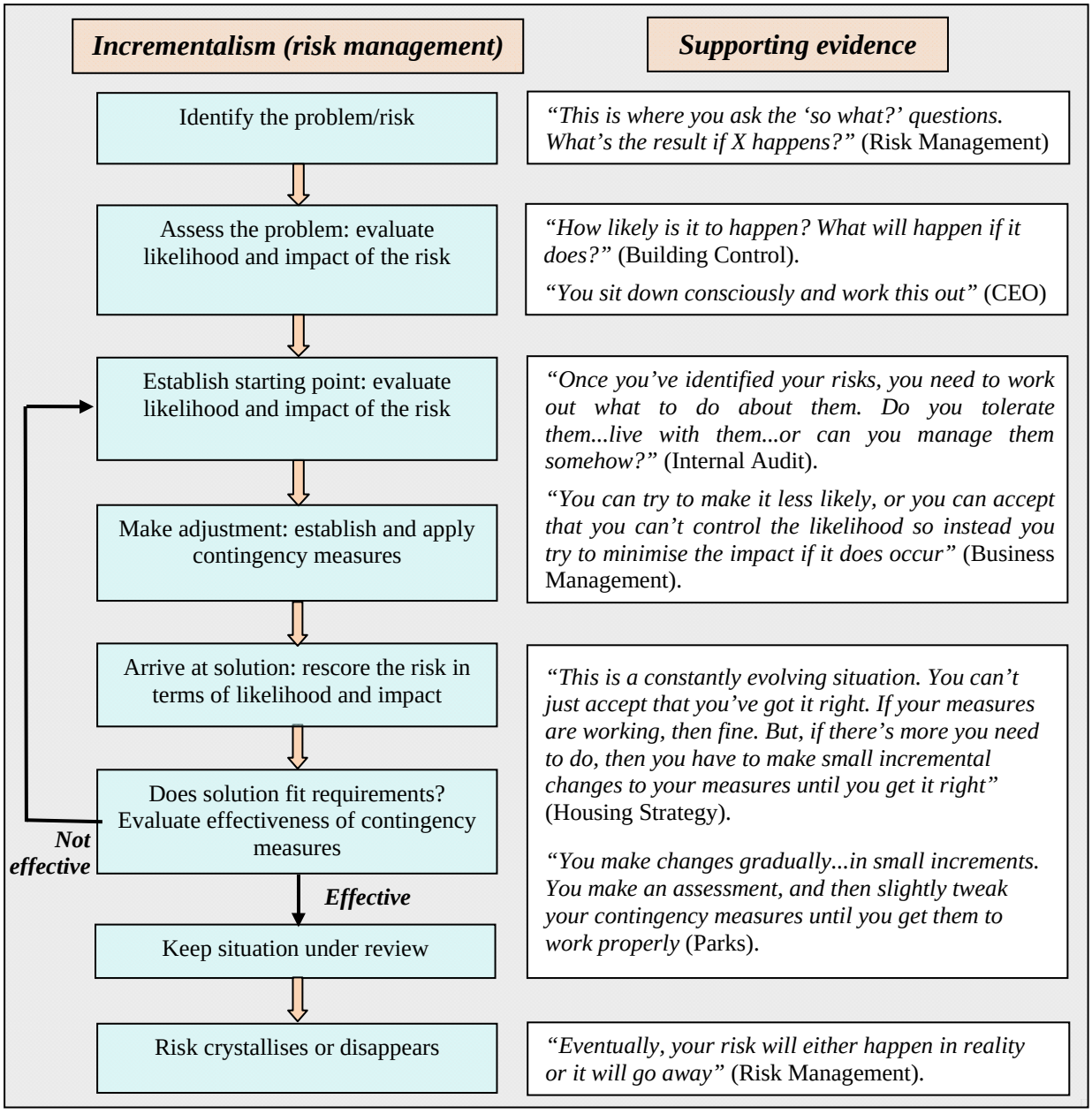
As will be shown in Chapter Six, incrementalism is very relevant to the present study. It is therefore appropriate that a small digression is made at this point. Incrementalism was used across the organisation under study to make decisions in relation to risk management. The following quotes were typical:

> *"When you manage risks you use a phased approach. You make a change here and you make a change there. Small steps. At the end, you're left with a usable solution"* (Head of Planning).

> *"You need to manage the process. You live with the risk or else you find a way to reduce its likelihood or severity [...] There's no single right way of doing this. You find it out through trial and error. You put small changes in place and monitor how they work. Then you make some more small changes, and so on. You do it in small stages"* (Director of Regeneration).

These quotations align closely with the academic view of incrementalism stated above. The following diagram outlines how these decisions were made. It identifies the process, and supporting evidence in the form of quotations is presented alongside.

Fig 24: Risk management process in the organisation under study



Source: Adapted from Vongprasert et al. (2011); Yanai et al. (2010); Supporting evidence comes from this study.

This diagram was the result of respondent validation. Several managers commented that the illustration can be viewed in either of two ways. The following quote from the corporate risk manager was typical:

> *"Maybe the risk has a value of £100k. Maybe what you've done so far has mitigated some of the risk – say £80k – so we still need a solution to mitigate the full £100k. The other way of looking at it is that we've sorted out £80k, so now we actually have a new problem – how to mitigate £20k".*

In other words, in the first scenario, the feedback arrow loops back to the process so that the risk can be managed in small incremental stages. In the second scenario, the feedback arrow loops back to the first box – the risk itself – so that the result of resolving one risk incrementally leads to the generation of a new risk. Therefore, whichever version one chooses, an incremental approach is adopted.

Incrementatlism has been researched in a number of contexts including strategic planning (Quinn, 1978), politics and governance (Lindblom, 1977), health-care technology (Claxton et al., 2011), marketing (Wierenga, 2011), and crowd behaviour (Kameda et al., 2011). Incrementalism will be revisited in Chapter Six.

Naturalistic decision-making (NDM)

Klein (2008) suggests that naturalistic decision-making (NDM) emerged as a major theory in 1989, and makes the following observation:

> *"By 1989, it was fairly clear how people didn't make decisions. They didn't generate alternative options and compare them on the same set of evaluation dimensions. They did not generate probability and utility estimates for different courses of action and elaborate these into decision trees. Even when they did compare options, they rarely employed systematic evaluation techniques. But what did they do instead?"* (Klein, 2008: 456)

NDM was an attempt to answer this question. There are many situations that occur in natural settings that are difficult to replicate artificially, such as stressful conditions, high stakes,

danger, and varying levels of experience (Beach and Lipshitz, 1995; Duggan and Harris, 2001); and existing theories did not adequately explain how decisions were made under these circumstances (Klein, 2008). Researchers therefore began to use cognitive field research methods such as task analysis to observe and study skilled performers (Klein et al., 1993; Zsambok, 1997), and the results were used to develop models and theories that can then be tested in the real world (Klein, 2008). It was found that people behave differently in 'real world' situations than they do in 'laboratory' conditions (Duggan and Harris, 2001; Pruitt, Cannon-Bowers and Salas, 1997). Indeed, this is borne out by the present study, which demonstrates that cognitive heuristics operate differently in 'reality' than in the literature, which is mostly based upon research carried out under 'laboratory' or 'artificial' conditions. Essentially, therefore, naturalistic decision-making is as a *framework* rather than a *model* per se (Klein et al., 1993; Zsambok, 1997; but see McAndrew and Gore, 2005 for an overview of NDM literature).

NDM can have important practical implications. To quote a single example, although aircraft could be evacuated smoothly and rapidly when on the ground, when emergencies occurred for real, fatalities resulted because the aircraft were not evacuated as quickly as they 'should' have been. NDM researchers sought to identify the reasons for this. They offered financial inducements to volunteers to evacuate quickly, and it was found that people began climbing over seats, pushing each other out of the way, and so forth. There was chaos and evacuation took far longer than it should have done. It was established that the aircraft design could not cope under these conditions, and this helped to explain why lives were lost in real disasters. As a result, aircraft designs were modified, aisle lighting was introduced, and exits were improved. In short, lives were saved (Barreto and Ribeiro, 2012; Muir, Bottomley and Marrison, 1996). Indeed, the importance of NDM can be illustrated by the range of contexts in which it has been studied. These include training delivery (Cannon-Bowers and Salas, 1998), production planning and scheduling (Gasser, Fischer, and Wäfler, 2011), military planning (Schmitt and Klein, 1999), outdoor adventure (Boyes and O'Hare, 2011), and software development (Moe, Aurum and Dybå, 2012).

Cognitive heuristics

Cognitive heuristics are the main focus of this thesis. They are briefly introduced here to show them in the wider context of decision-making. They have been defined in the literature in many different ways, including *"simplifying strategies"* (Payne, Bettman and Johnson, 1993: 2), *"rules of thumb"* (Greenberg and Baron, 2008: 400) or even simply as *"shortcuts"* (Atkinson et al., 1996: 306; LeBoeuf and Shafir, 2005: 126). Essentially, cognitive heuristics are general rules that are useful in guiding a search for a path to the solution of a problem. Interestingly, cognitive heuristics are usually recognised as a behavioural model (Payne, Bettman and Johnson, 1993; Douglas, 2005) although Buchanan and Huczynski (2004) suggest that they are a separate model in their own right.

Heuristics are discussed in depth in subsequent chapters. Chapter Four is a literature review of cognitive heuristics, and Chapters Five to Seven build upon this by outlining key data from the study and using this in conjunction with the literature to derive a grounded theory of cognitive heuristics.

3.5 Theories of cognition and decision-making

The previous pages have summarised some of the key theories of cognition and outlined many of the prominent models of decision-making. Although the dual System 1 / System 2 process refers to human cognition in a holistic way, it can also be applied to these decision-making models. When this is done it can be seen that the intuitive and unconscious System 1 broadly equates to behavioural models and the logical and deliberative System 2 broadly equates to normative models:

Fig 25: Comparison of two-school decision-making with dual-system cognitive models

Decision category	Model	System 1	System 2
Normative			
	Rational Economic model		
	Brunswik's Lens Model		
	Social Judgement Theory		
	Vroom-Yetton decision-making model		
	The Cynefin Framework		
Behavioural			
	Bounded rationality		
	Incremental decision-making		
	Naturalistic decision-making		
	Heuristics		

Within the organisation under study, several managers recognised that this synergy exists, although it must be emphasised that nobody used the terms 'System 1' or 'System 2'. Rather, it was the *concept* that was recognised, as the following typical quotes illustrate:

> *"Most of what you do is unconscious [...] like breathing and eating. You don't think about it. But when I'm working out a difficult or complicated problem, like when I'm helping my kids with their maths homework, I use logic and I'm conscious of what I'm doing. It's the same when I'm making decisions in work. I make conscious and logical decisions too. It's the same thing. You can't separate the two"* (Adult Social Care).

> *"The way you make decisions is the same way you function overall. You've got your intuitive, unconscious side and you've got your logical, conscious side. And then you've got your intuitive, unconscious decision-making and your logical, conscious decision-making. It's the same. It's just a different application of the same thing"* (Business Management).

The foregoing suggests that there is no ambiguity. However, subsequent chapters will demonstrate that this picture does not reflect reality. It will be shown that heuristics actually reside in both System 1 and System 2, and indeed, individual heuristics can move between the two systems according to circumstance.

3.6 Chapter summary

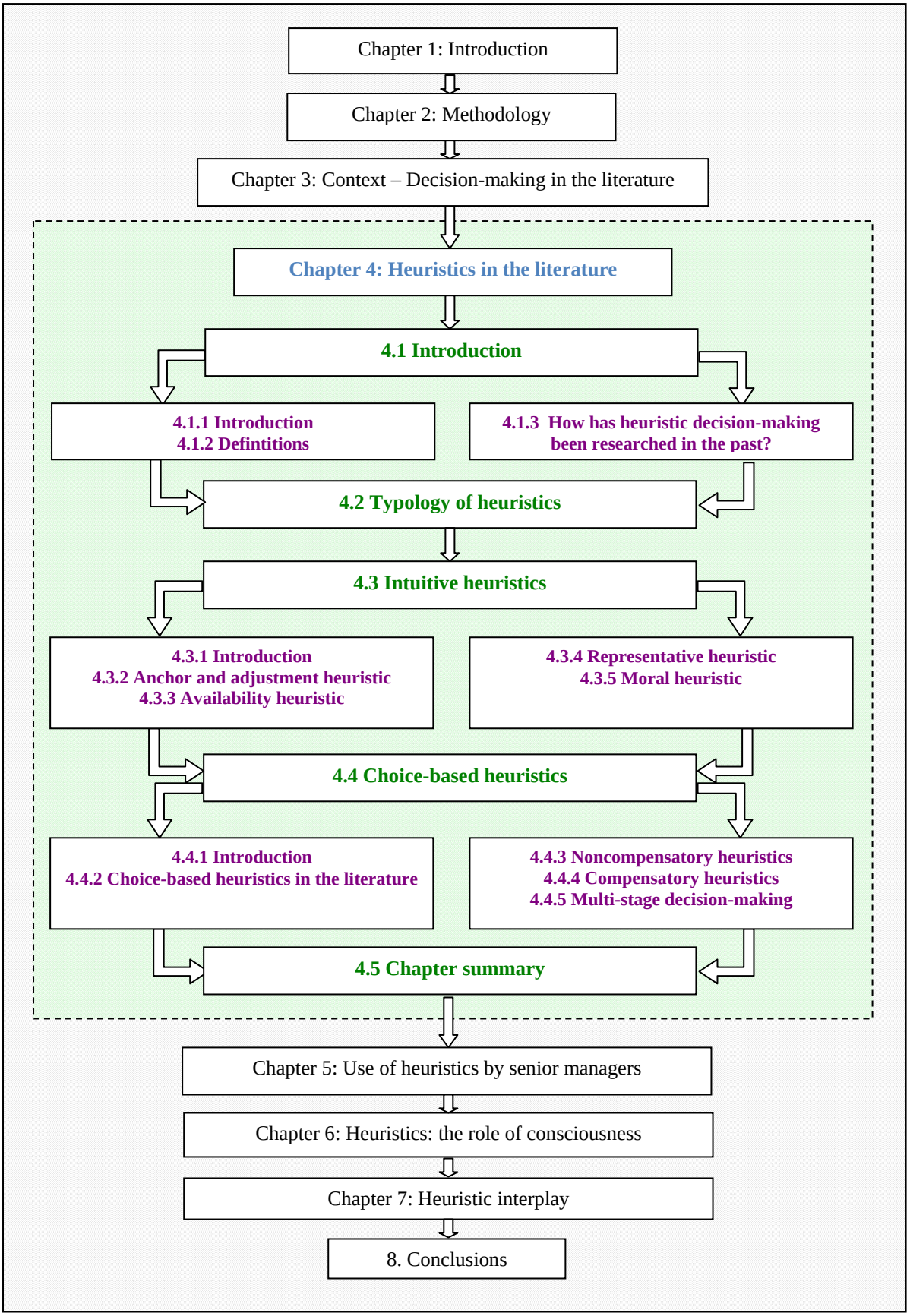
This chapter began by exploring theories of cognition and it was shown that the unconscious has long been a source of interest to researchers. There is little consensus as to what 'the unconscious' actually is, but there is a general agreement that the mind uses two 'techniques' for processing information (unconscious and conscious) – although precisely what these 'techniques' are is the subject of debate. Many theories have been proposed to explain this, but this chapter shows that Kahneman and Frederick's (2002) dual-system theory aligns most closely with the main themes of this thesis.

This discussion led onto an exploration of the different types of decision. It was shown that Ansoff's (1968) typology of decisions was widely understood by participants in this study, and hence it was adopted as the the theoretical framework for this thesis. Similarly, the 'traditional' normative and behavioural schools of thought were understood by participants in this study in the same terms as the literature, and therefore these have been used throughout the remainder of this thesis. Several theories of decision-making were then outlined, both normative and behavioural, and these were linked back to the dual-system theory. In this way, Kahneman and Frederick's (2002) ideas have begun to be extended to encompass models of decision-making. This process is continued in subsequent chapters. For example, this thesis will challenge the normative/behavioural schools of thought and argue that the dual-system theory better explains the reality in the organisation under study.

Chapter Four builds upon this chapter, and presents a literature review of cognitive heuristics which, as shown above, is normally considered to be a behavioural model of decision-making.

CHAPTER 4: HEURISTICS IN THE LITERATURE

Fig 26: Context and structure of Chapter Four



4.1 Introduction

4.1.1 Introduction

This chapter underpins the remainder of this thesis. It examines how cognitive heuristics are addressed in the literature. It begins by defining the term 'heuristics' and by reviewing the two main schools of thought in heuristic theory. This is followed by a typology of heuristics, which shows that they are often classified as intuitive or choice-based. Intuitive heuristics are rapid and unconscious, where as choice-based are deliberative and are more akin to normative models. The chapter then identifies eight heuristics and examines how these have been researched in the literature. The first three are the 'classical' heuristics identified by Daniel Kahneman and Amos Tversky, whereas the fourth is the moral heuristic associated with Cass Sunstein. Hence, the first four heuristics are intuitive. This review of the intuitive heuristics is followed by an examination of four choice-based heuristics, which classifies these as either compensatory or noncompensatory. Two examples of each are presented, before an overall summary is presented which leads into the next chapter.

4.1.2 Definitions

The definition of heuristics depends largely upon one's field of study. From a pedagogic perspective, a heuristic is an educational process in which learning happens through experience or observation rather than through reasoning (Patton, 2002). In an information management context, heuristics *is the study of the interrelation between human problem solving and artificial intelligence techniques for handling ill-defined questions"* (Leigh, 1983: 162). However, for the purposes of this study, the term has a different meaning, and the focus of this thesis is cognitive heuristics. Amos Tversky and Daniel Kahneman argue that *"people rely on a limited number of heuristic principles which reduce the complex tasks of assessing probabilities and predicting values to simpler judgmental operations"* (Tversky and Kahneman, 1974: 1124). Cognitive heuristics have therefore been variously defined in the literature as *"simplifying strategies"* (Payne, Bettman and Johnson, 1993: 2), *"trial and error"* (Douglas, 2005: 432); *"decision rules"* (Stroebe, 2008: 140),*"rules of thumb"* (Greenberg and Baron, 2008: 400), *"simplifying short cuts"* (Wickham, 2006: 58), *"cognitive*

short-cuts" (Bryant, 2007: 733), or even simply as *"shortcuts"* (LeBoeuf and Shafir, 2005: 126). However, as this study progressed and the core category began to crystallise, it became apparent that these definitions did not properly describe the use of heuristics within the organisation under study, and therefore the following definition of cognitive heuristics was developed, based on their usage within the present study.

Fig 27: Definition of cognitive heuristics

> *'Strategies that simplify decision-making by using shortcuts to reduce the available options, or reduce the information upon which the decision is based'.*

This better described the research data and, for the first time, a single definition was able to encompass both of the main types of heuristic. The first part of this definition relates to choice-based heuristics and the latter relates to intuitive heuristics. These terms are discussed later in this chapter.

4.1.3 How has heuristic decision-making been researched in the past?

The present study differs from previous research in a number of significant ways. Firstly, research into cognitive heuristics has hitherto been conducted experimentally, rather than by observing the heuristics in action in the 'real world'. Researchers have therefore utilised approaches such as questionnaires (for instance Oppenheimer, 2004; Ross and Sicoly, 1979), simulations (Presutti, 1995), and scenario testing (Keller, Siegrist and Gutscher, 2006; Vaughn, 1999). However, as Presutti (1995: 19) recognises, such approaches have *"one inherent defect: [they are] not reality. No matter how realistic the attempt is to make the experiment replicate real life, it cannot"*. The present study is different because it uses grounded theory to investigate the phenomenon. In this way, it *was* able to research real life. The study was able to observe managers in action and was able to examine real-life situations as they occurred and evolved and, in so doing, discovered that the behaviour of heuristics in the 'real world' differs from that in the literature. Moreover, this allowed a longitudinal element to be brought to the study, which is generally absent in the literature, and this allowed comparisons to be made. For instance, as will be shown in Chapter Five, it was found that the same decision can be made by the same manager using two different heuristics.

Secondly, this study also differs from previous research in terms of context. Previous research has examined cognitive heuristics in contexts such as consumer behaviour (Lee and Marlowe, 2003), entrepreneurship (Wickham, 2003), the role of emotion in decision-making (Ericson, 2010), and the role of motivation in decision-making (Simmons, LeBoeuf and Nelson, 2010). However, the present study examined the behaviour of senior managers in local government. This context is currently under-explored in the heuristic literature. This is particularly important in view of the impact of many of the decisions being made. Some of these are literally life and death decisions – such as those involving child safety – and hence it is important to understand the decision-making processes used to see if any lessons can be learned. Even less-urgent decisions often involve large sums of money – the Streetscene contract discussed in Chapter Five was roughly £¼ billion – and it is important to understand how managers behave in order to ensure that public money is well spent. Furthermore, by concentrating on a single topic, or a small number of topics, previous research has not explored the 'totality' of decision-making. The present study is not constrained by a narrowness of scope. This thesis studies heuristics for strategic, operational and administrative decisions across a range of services from auditing to parking and from primary schools to bereavement. It has therefore been possible to examine their behaviour in contexts that, to date, the literature has neglected.

This study also differs from previous research in terms of the subject group under study. Although individual professions have been studied, such as retail store clerks (Read, 1995), engineers (Douglas, 2005), and the legal profession (Englich, Mussweiler and Strack, 2006), most of the previous research has focused on students (For instance McKelvie, 1997; Shedler and Manis, 1986). Such groups are, by definition, narrow in terms of experience, and have 'artificial' motivation for taking part in the research, such as participation being a course requirement (Oppenheimer, 2004) or financial inducements being offered (Nilsson, Juslin and Olsson, 2008). In the present study, participation was voluntary and no inducements were offered. Also, and importantly, the breadth of services involved in this study allowed a range of decisions to be observed, and this allowed patterns to be identified in the behaviour of heuristics that extended beyond the limited findings in the literature.

Mathematical modelling of heuristics

In recent years, writers such as Itzhak Gilboa, Tomasz Strzalecki, and Ken Binmore have been credited with revolutionising the field of decision-making in which mathematical and economic models have been integrated with findings from contemporary studies examining the psychology of choice (See for instance Binmore, 2009; Gilboa, 2009; 2011; Strzalecki, 2011). Such modelling is also at the forefront of research into artificial intelligence (Presutti, 1995), and in this context Joelle Pineau and others have used it to break down decisions into a series of small problems that can be tackled more efficiently (Pineau et al., 2003). Mathematical modelling of decision-making is also important from a practitioner perspective. It is widely taught in business schools (see for instance University of Manchester, 2013), and is integral to frameworks such as Six Sigma (Fazlollahtabar, 2012; Garg, Narahari, and Viswanadham, 2004). It has even been used in more generic management standards such as ISO 9001 and ISO14001 (Flégl and Brožová, 2011).

Heuristics can also lend themselves to mathematical analysis because this provides a precise specification of theory (Elrod, Johnson and White, 2004). Consequently, many authors have developed algebraic models to illustrate the working of various heuristics (for instance Andrews and Manrai, 1998; Dieckmann, Dippold and Dietrich, 2009; Nilsson, Juslin and Olsson, 2008; Nosofsky and Bergert, 2007). Others have used algorithms to test the effectiveness of different heuristics under different conditions (Gigerenzer, 2011a), or to actively model heuristics in an attempt to enable artificial intelligences to make decisions based on incomplete information (Doshi-Velez, Pineau and Roy, 2012).

However, there was no evidence that such mathematical constructs were used in the organisation under study. On the contrary, as will be shown in Chapters Five and Six, nearly all managers were completely unaware of the existence of these formulae and all were adamant that this is not how they make decisions in their working lives. Being mindful of the grounded theory methodology underpinning this study and the consequent need to be true to the empirical data, a detailed discussion of the mathematical models is beyond the scope of this thesis. It must be emphasised that this thesis does not question the usefulness of these models; nor does it question the extent of the insights that they provide. However, an understanding of the use of heuristics in real-life situations, and their interaction, is important because only by taking this complexity into account will researchers be able to develop realistic models that truly reflect human behaviour in the workplace.

4.2 Typology of heuristics

It is generally recognised that the 'founding fathers' of heuristic research are Daniel Kahneman and Amos Tversky. They identified the three heuristics which have underpinned subsequent research (Hardin, 1999), namely *anchor and adjustment, availability*, and *representative*, but more recent research has expanded the list and it now includes several dozen heuristics ranging from the general, such as the moral heuristic (Sunstein, 2005a), to the very specific, for instance Apte and Hong's (1995) technical two-rule iteration. Given the number of heuristics available, it is unsurprising that many authors have sought to categorise them, and two main approaches have emerged.

Firstly, over the past two decades, researchers have begun to align themselves with one of two schools of thought. These are mutually opposite, and some of the debates between them have been surprisingly forthright. The first of these is the **heuristics and biases model**. This is associated with Daniel Kahneman and Amos Tversky, who used the rational approach as their starting point, and argued that managers used heuristics to simplify complex decisions. Their research focused on the effectiveness of heuristics, the errors that resulted from their use, and how these errors might be overcome, or at least managed (Tversky and Kahneman, 1972; 1973; 1974). Since then, many others have taken a similar position (e.g. Greenberg and Baron, 2008; Slovic et al., 2004; Sunstein, 2005a), and the fact that these decisions are sometimes regarded as flawed has resulted in a considerable effort to find ways to improve heuristic decision-making (Bryant, 2007; De Neys and Feremans, 2013).

The second school of thought is the **fast and frugal** model, associated with Gerd Gigerenzer. This suggests that people make rapid decisions (i.e. 'fast') using only part of the available information (i.e. 'frugal') (Cosmides and Tooby, 2006; Gigerenzer, 2008). Hence, fast and frugal heuristics are effectively the same as the 'thin-slice decisions' proposed by Spezio et al. (2012) that were outlined above. One objective of the 'fast and frugal' research is to understand how heuristics operate (Katsikopoulos, 2009; Shah and Oppenheimer, 2008), and 'rules' have been proposed that seek to explain how heuristics are used when searching for a solution. These include starting rules (i.e. what triggers the search?), searching rules (i.e. how is the search conducted?), and stopping rules (i.e. what causes the search to end?) (Gigerenzer, 2008; Goldstein and Gigerenzer, 2009). However, the primary focus of such research is to demonstrate that heuristics do not necessarily lead to error, and to show that

they are at least as effective as normative models (Fleischhut and Gigerenzer, 2013; Hammond, 2000; Schwartz, 2002). Indeed, heuristics are so in-built that this school of thought goes so far as to argue that *"Homo sapiens can be seen [...] as a Homo heuristicus, a species that relies heavily on appropriate simple heuristics to get the job of making decisions done"* (Hertwig and Hoffrage, 2013: 3).

As stated above, the present study examines the processes by which cognitive heuristics are used, and it is not concerned with how 'good' or 'bad' heuristic decisions are, or what degree of error they may or may not produce. Of greater relevance to this study is the idea that heuristics can be classified as either **intuitive** or **choice-based**. Intuitive heuristics are those whose underlying mechanism is unconscious (Gigerenzer, 2008), whereas choice-based heuristics are more rational in their processes and are more consciously applied (Payne, Bettman and Johnson, 1993). Hence, this classification is closely related to the dual theories of cognition described in Chapter Three, and in particular, to the concept of System 1 and System 2. This study focuses on four intuitive heuristics and four choice-based heuristics. As will be shown in subsequent chapters, analysing heuristics in this way has allowed this study to compare how decisions are made in the literature to how they are made in the 'real world', and thereby to discover many significant contributions to knowledge. Hence, this classification is used throughout the rest of the study, and a detailed literature review against these categories comprises the remainder of this chapter.

4.3 Intuitive heuristics

4.3.1 Introduction

Intuitive heuristics can be defined as those which are *"fast in consciousness, whose underlying mechanism is unconscious, yet is nevertheless strong enough to act upon"* (Gigerenzer, 2008: 23). It has been suggested that these heuristics may have developed on an evolutionary basis and that they have built up gradually over time (Cosmides and Tooby, 2006; Montier, 2002), whilst other authors suggest that social factors may also be responsible (Gigerenzer, 2011b; Sunstein, 2005b). There are many intuitive heuristics, but only four are explored in this thesis because these were the ones identified in the present study. Table 4 illustrates some of those that are not considered further, either because they were not found in

the empirical data (such as the affect heuristic), or because their behaviour was exactly as described in the literature and therefore nothing new was added to knowledge (such as the scarcity heuristic).

Table 4: Intuitive heuristics not explored further in the present study

Heuristic	Definition
Affect	This occurs when people base a judgment about an object on emotional evaluations of that object (Shah and Oppenheimer, 2008).
Trust	With most managers having to make decisions with limited resources and high uncertainty, they have to trust others to provide honest and reliable advice and support (Bryant, 2007).
Recognition	If one of two objects is recognised and the other is not, then it is inferred that the recognised object has greater importance (Goldstein and Gigerenzer, 2002).
Outrage	When people seek punishment of a crime, one of the factors considered is the outrageousness of the crimes. For instance, killing a baby may result in a longer prison sentence than killing an adult (Shah and Oppenheimer, 2008).
Scarcity	This heuristic suggests that people judge rare products to be of high value or quality (Brannon and Brock, 2001). Moreover, as things become less available they become more desirable (Buchanan and Huczynski, 2004).

Table 5 outlines the intuitive heuristics that form part of this study.

Table 5: Intuitive heuristics explored in the present study

Heuristic	Definition
Anchor and adjustment	Making *"estimates by starting from an initial value that is adjusted to yield the final answer"* (Tversky and Kahneman, 1982: 14).
Availability	The assumption that an event's probability is directly related to the frequency with which it has occurred in the past (Gross, 2001; Tversky and Kahneman, 1982). Hence, the easier something is to remember, the more important it seems (Greenberg and Baron, 2008).
Representative	A judgment of probability of the degree to which A resembles B (Tversky and Kahneman, 1972) or to situations in which people judge things on the basis if how well they match particular stereotypes (Buchanan and Huczynski, 2004).
Moral	*"Decision rules that generate intuitions about fairness and justice, punitiveness and approval, right and wrong"* (Cosmides and Tooby, 2006: 181).

Diagrams illustrating each of these processes are presented in Chapter Five. The remainder of this section explores each of these four heuristics in turn, beginning with the anchor and adjustment heuristic.

4.3.2 Anchor and adjustment heuristic

Introduction

The anchor and adjustment heuristic is one of the three heuristics identified by Daniel Kahneman and Amos Tversky in the 1970s. As noted above, it can be defined as making *"estimates by starting from an initial value that is adjusted to yield the final answer"* (Tversky and Kahneman, 1982: 14). Individuals try to get 'close' to the right answer and then make adjustments from the initial point by obtaining and using additional information as it becomes available (Hardin, 1999; Presutti, 1995). To cite a single example, participants in an experiment were asked to estimate the percentage of African countries in the United Nations. Respondents gave different answers depending upon whether they given 10% or 65% as a 'starting point' (Tversky and Kahneman, 1974). Because the initial value provided an anchor from which they could adjust, the estimated percentages were significantly higher when people were initially exposed to a high number rather than a low number. This example has been cited by several authors (see for instance LeBoeuf and Shafir, 2009; Simmons, LeBoeuf and Nelson, 2010), and although this concept was first illustrated by Tversky and Kahneman (1974), it has been confirmed many times since (see for instance Chapman and Bornstein, 1996; Wong and Kwong, 2000).

This heuristic may be unavoidable because anchoring effects are present in everyday judgement (Epley and Gilovich, 2005a; LeBoeuf and Shafir, 2009). Nevertheless, it has been argued that the use of this heuristic can lead to flawed decisions. For example, decision-makers may give disproportionate weight to the first information they receive (Hammond, Keeney and Raiffa, 2001). This was shown in the above example where different starting points yielded different answers (Buchanan and Huczynski, 2004). Hence, if the initial anchor is wrong, the resulting decision will be adversely affected (Hardin, 1999). Furthermore, the anchor may exert some drag on the process of adjustment, with the result that adjustments could be insufficient, leading to final estimates which are too close to the original anchor (Epley and Gilovich, 2005a; Tversky and Kahneman, 1982). It will be remembered that the present study is not concerned with 'good' and 'bad' decisions, but with the *process* of decision-making, and therefore such concerns are outside the scope of this thesis unless they impact upon this process.

Alternative theories and contradictions in the literature

The above definition has been accepted, with minor variations, by most researchers. There is, however, no consensus as to how decision-makers apply this heuristic in practice, and two theories have been proposed, namely 'anchor and adjustment theory' and 'selective accessibility theory'. According to the **anchor and adjustment theory**, there are multiple stages in the process of generating estimates after considering anchor values (Epley and Gilovich, 2004; 2006; Simmons, LeBoeuf and Nelson, 2010; Tamir and Mitchell, 2013). However, the process does not take established probabilities and revise them in a mathematically correct way (Presutti, 1995). Essentially, this is an iterative process that starts from an initial value (the anchor) which is then modified up or down in stages according to circumstance (the adjustment). This modification process is continued until decision-makers are satisfied with their estimate (Epley and Gilovich, 2004).

An alternative theory, the **selective accessibility theory** was proposed by Thomas Mussweiler and Fritz Strack (see for instance Mussweiler and Strack, 1999; Strack and Mussweiler, 1997). Essentially, the theory argues, people use anchors *"to test the hypothesis that the true value is equal to the anchor value"* (Simmons, LeBoeuf and Nelson, 2010: 919). This can be illustrated by two examples. Suppose that in the first case someone tried to estimate the length of the Mississippi River. Then, simply considering a value of 1,200 miles brings to mind information that suggests that the river's length may be near to that value (Simmons, LeBoeuf and Nelson, 2010). In the second case, suppose that a judge has to sentence a criminal. If the criminal had used force, then this would make accessible in the mind the information that speaks for a long prison term (Englich, Mussweiler and Strack, 2006). In other words, the necessary information is simply called to mind. This is suggestive of a link with the availability heuristic, although this is not identified in the literature. It should also be noted that, in contrast to anchor and adjustment theory, the selective accessibility model has no adjustment process (Mussweiler and Strack, 1999; Simmons, LeBoeuf and Nelson, 2010).

Although there is an abundance of research to explain the *effects* of the anchor and adjustment heuristic (see for instance Chapman and Johnson, 2002; Epley, 2004; Mussweiler and Strack, 2004), as Epley and Gilovich (2006) observe, there is less research into the *process* of anchoring and adjustment. What research there is is the subject of debate. For instance, the literature does not agree on the importance of the **relevance of the initial anchor value**. Some research suggests that anchoring refers to the use of an *irrelevant* number as the basis of

a judgment (Epley and Gilovich, 2005a; Simmons, LeBoeuf and Nelson, 2010; Wickham, 2006). However, this is countered by others, such as Tversky and Kahneman (1982: 20), who suggest that this heuristic is employed *"when a relevant value is available"* [author's emphasis added]. Indeed, it is argued, the better the data supporting the anchor, then the better the outcome (Nelson, 2005; Presutti, 1995).

Similarly, the literature suggests that there are two distinct types of anchor point – **self-generated anchors** and **externally-generated anchors**. In the first case, people adjust from values they generate themselves (Epley and Gilovich, 2001). As an example, participants in a study were asked to estimate the length of Mars's year and were given no other prior information. They knew that Earth's year is 365 days, and they knew that Mars was further away from the sun and so took longer to orbit. The self-generated anchor of 365 was used as the basis for their estimate. The actual answer is 869 days, but estimates varied from 392 days to 1043 days (Epley and Gilovich, 2006). In the second case, anchors may be obtained from elsewhere, such as being given to participants by researchers (Epley and Gilovich, 2004; 2005a). For instance, people were asked to estimate the date when George Washington was elected president of the USA, and they were given an anchor point of 1776 (the year of the Declaration of Independence). The actual answer is 1788, but estimates varied from 1777 to 1784 (Epley and Gilovich, 2006). However, Simmons, LeBoeuf and Nelson (2010) challenge this idea. Although they accept that the two variants exist, they argue that the differences are not fundamental. They argue that the distinction is unnecessary and people follow largely similar processes when coming to judgments, regardless of the type of anchor used.

The adjustment process is also of importance to this thesis. As shown above, under the selective accessibility theory, there is no adjustment process. However, under the anchor and adjustment theory, adjustment is present. This has been extensively studied, and is repeatedly shown to be an incremental process (Gilbert, 2002; Quattrone, 1982). LeBoeuf and Shafir (2009: 84) actually use the words *"incrementally adjust"* when describing the process. As shown in Chapter Five, this is supported by the present study. Indeed, as will be shown in Chapter Six, this study illustrates that there are many similarities between this version of the heuristic and the 'almost-normative' model of incrementalism, and it proposes that they are different manifestations of the same process.

The following section examines the second of the 'classic' heuristics identified by Tversky and Khaneman (1973) – the availability heuristic.

4.3.3 Availability heuristic

Introduction

The availability heuristic can be defined as *"the ease with which one can bring to mind exemplars of an event"* (Folkes, 1988: 13). In essence, *"people use the ease with which examples can be brought to mind as a cue for estimating the probability of [an event]"* (Keller, Siegrist and Gutscher, 2006: 632). Thus, people may base their judgments on information that is readily available; even though it might not be accurate (Greenberg and Baron, 2008). Many instances of this heuristic in action are provided in the literature, but a single example is presented below as an illustration. In an often-repeated study, participants are given a list of well-known people containing both men and women and are asked to judge whether there are more men or women in the list. The actual numbers are identical but estimates are usually skewed in one direction or the other. The availability heuristic is suggested as the explanation, since the degree of fame (or infamy) of the people in the list influences the ease of recall, and hence distorts the estimates (See for instance Hertwig, Hoffrage and Martignon, 1999; Tversky and Khaneman, 1973; 1974)

Several studies have sought to examine the availability heuristic by undertaking experimental manipulation of key factors rather than by studying the heuristic itself directly (Folkes, 1988; MacLeod and Campbell, 1992). In the present study, reality is observed and no attempt is made to manipulate factors. Consequently, this study provides direct evidence of the heuristic in action. This addresses a common criticism. Taylor (1982) argues that research claiming to support the existence of the availability heuristic is based on evidence that is inferential rather than direct, and hence it may merely be one of several possible explanations for the phenomena reported in the studies. Indeed, Gigerenzer (2011a) is particularly scathing, arguing that the availability heuristic is so vague *"it can be used to explain almost anything [in] heaven or on earth"*. By observing the heuristic in its natural state, this study can show that the availability heuristic is actually the *real* explanation for the instances under investigation.

Alternative theories and contradictions in the literature

The availability heuristic is based on the assumption that an event's probability is directly related to the frequency with which it has occurred in the past, and that more frequent events are easier to remember than less frequent events (Eiser and van der Pligt, 1988; Tversky and Kahneman, 1982). Wickham (2006) supports this, and suggests that the heuristic leads decision-makers to assume that those things that can be called to mind are in some way more significant than those that cannot. This, in turn, can lead to error because the decision-maker may over-weight current information rather than processing all relevant information (Kliger and Kudryavtsev, 2010), possibly leading to overconfidence in the 'wrong' data (Gross, 2001). Consequently, if decisions are based solely on information that happens to be available, this increases the possibility of inaccuracy (Greenberg and Baron, 2008; Taylor, 1982). In addition, decision-makers' own beliefs and fears may foster preconceptions that heighten the availability of evidence (Sunstein, 2005a; Taylor, 1982), and once a task or situation has been perceived in a certain way such a perception is difficult to change (Hardin, 1999).

Another type of error that might arise from the use of the availability heuristic is known as the **'conjunction fallacy'** (Tversky and Kahneman, 1983). This occurs when there is an illusory correlation of factors (Hardin, 1999) such that the occurrence of two events is rated as more likely than either in isolation (Gaynor, Washio and Anderson, 2007; Tversky and Kahneman, 1982). The most commonly cited example concerns 'Linda'. The precise wording varies from study to study, but the following is a typical account:

Fig 28: 'Linda'

Linda is 31 years old, single, outspoken, and very bright. At University, she studied philosophy. As a student, she was deeply concerned with issues of discrimination and social justice, and also participated in anti-nuclear demonstrations.

[People] are then asked to rank the following statements in order of their probability:

- *Linda is a bank teller*
- *Linda is a feminist and a bank teller*
- *Linda is a feminist*

Source: Fisk (2002: 432).

In this example, it is repeatedly found that people state that the greatest probability is that Linda is a feminist and a bank teller – even though this is mathematically the least probable option of the three (e.g. Fisk, 2002; Gennaioli and Shleifer, 2010). This fallacy may occur because people might be able to remember someone similar to Linda, and this person is therefore called to mind using the availability heuristic, based on familiarity. As will be shown below, the present study supports the link between the conjunction fallacy and the availability heuristic. However, the conjunction fallacy can also arise from other sources, including the use of the representative heuristic and indeed, this is where it most often features in the literature.

The 'core' debate in the literature relates to the terms **'availability' versus 'accessibility'**. Tversky and Kahneman (1973) refer to *availability* in their original formulation, and this has more or less been accepted by the general research community ever since. However, as some authors point out, this concept is virtually indistinguishable from *accessibility* (MacLeod and Campbell, 1992; Shedler and Manis, 1986). The debate can be summarised thus:

> *"The terms availability and accessibility often have been used interchangeably, despite their precise definitions being quite different. Specifically, availability refers to the existence of memory traces within the cognitive system, whereas accessibility refers to the ease with which such memory traces can be retrieved"* (MacLeod and Campbell, 1992: 891)

In other words, one may hold a large amount of information in memory that is potentially retrievable (i.e. available) under suitable circumstances. Some of this information may be relatively accessible (i.e. easy to retrieve from long-term storage), although other information may be less accessible (Shedler and Manis, 1986). Consequently, MacLeod and Campbell (1992) argue that the availability heuristic actually relates to accessibility. However, for reasons of clarity, whilst recognising the validity of this argument, this thesis follows the standard convention of referring to this heuristic in terms of 'availability'. This is how the vast bulk of the literature refers to it, and by their own admission, even Shedler and Manis (1986) refer to availability and accessibility interchangeably in their article. The nature and workings of memory are vast topics, and space constraints do not permit a detailed discussion in this thesis (although see Atkinson and Shiffrin, 1971; Cantor and Engle, 1993 for models of how memory works, and Chabris and Simons, 2010 for issues in relation to 'false memory').

Another source of contradiction concerns the precise **way in which the heuristic operates**. Hasher and Zacks (1984) argue that when an event occurs, people subconsciously store a count of its frequency, and when required to estimate its frequency, access this count. In contrast, Tversky and Kahneman (1973), suggest that people do not keep a record of event frequencies but construct a sample of the event in question and then infer event frequencies from the ease with which the sample could be constructed. Hertwig, Hoffrage and Martignon (1999) seek to combine these conflicting views by proposing that a further heuristic is at work – the estimation heuristic. This differs from the traditional availability heuristic in that *"how it exploits particular environmental structure is specified; […] it has a precise stopping rule that terminates memory search; [and] finally, it is formalised such that we can simulate its behaviour"* (Hertwig, Hoffrage and Martignon, 1999: 218). However, this debate is not pursued further in the present study because no data either supported or disproved the notion of the estimation heuristic. This thesis returns to the issue of frequency in Chapter Five.

The representative heuristic is the last of the three 'classic' heuristics identified by Kahneman and Tversky in the 1970s, and is the subject of the following section.

4.3.4 Representative heuristic

Note: When Kahneman and Tversky (1973) first introduced this heuristic, they termed it the 'representativeness heuristic'. Throughout this thesis, the heuristic is referred to as the 'representative heuristic', but it refers to the same phenomenon, and there are precedents for this in the literature (see for instance Graber et al., 2000; Lam, Liu and Wong, 2010).

Introduction

The representative heuristic is based on the similarity of one thing to another. Indeed, Atkinson et al. (1996: 306) note that it is also known as the *"similarity heuristic"*. It refers to a judgment of probability of the degree to which A resembles B (Tversky and Kahneman, 1972). Examples include judging the probability that an object or event A belongs to class or process B (Tversky and Kahneman, 1982); judging the probability that a sample A came from

a population, B, or that A is an effect and B was the cause (Wickham, 2006); and judging the probability of an event on the basis of how well it represents the process that generated it (Wickham, 2003). These definitions expressly state that this heuristic is used to assess probability. Indeed, Nilsson, Juslin and Olsson (2008) argue that probability underpins the heuristic, because it is based upon the divergence between perceived representativeness and a normative probability. However, Gross (2001) offers a more general definition, stating that this heuristic is used "*whenever we judge the likelihood of something by intuitively comparing it with our preconceived ideas of a few characteristics that we believe represent a category*" (Gross, 2001: 300), although the word 'likelihood' still implies probability. As will be shown in Chapter Five, this definition is the one that best illustrates the evidence found in this study.

The 'Linda' example, presented above is frequently quoted in relation to the representative heuristic because, as Gavanski and Roskos-Ewoldsen (1991) observe, people generally have stereotypes for feminists and stereotypes for bank tellers against which Linda's description can be compared. A similar example concerns 'Mrs Hill':

Fig 29: 'Mrs Hill'

> *"Mrs Hill is not in the best health and she has to wear glasses to see. Her hair is grey and she has wrinkles. She walks kind of hunched over"*

Source: Fisk, Bury and Holden (2006: 498)

In this case, research suggests that the representative heuristic is generally used to determine that it is more likely that Mrs Hill is old than that she works in a restaurant (Fisk, Bury and Holden, 2006). The representative heuristic has also been applied to real-life practical situations. To quote a single example, Garb (1996) argues that when making a diagnosis that a patient has schizophrenia a clinician is likely to use the representative heuristic because the patient can be compared to a typical patient with schizophrenia, or the typical symptoms of schizophrenia can be compared to the present case. It has been suggested that people use this heuristic because the human mind has a tendency to think in terms of categories (Rothbart and John, 1985), or even simply because it has worked in the past (Fox, 1992), and Kahneman and Tversky (1973) suggest that the use of the heuristic is so entrenched that decision-makers tend to use it in spite of other information being available. As Chapter Five shows, this was borne out in the present study, where the representative heuristic was by some distance the most commonly used heuristic.

In spite of its long pedigree, however, the representative heuristic has been criticised for being vague, both in respect of when the heuristic is applied, and in respect to which cognitive processes are involved (Gigerenzer, 1996). The present study helps to address these criticisms because real-life examples of the use of the heuristic were identified, and the cognitive processes being used by decision-makers were explored in detail. Another criticism is that that the representative heuristic describes how decision-makers make decisions but not how they make predictions (Garb, 1996). When predictions are made, Garb (1996) suggests that the 'past-behaviour heuristic' is used, which is defined as "*when people make predictions of future behaviour by looking at past behaviour. For example, to predict violence, one can consider if a person has been violent in the past"* (Garb, 1996: 272). Although some authors recognise the existence of the past behaviour heuristic (for instance Albarracin and Wyer, 2000), the bulk of the literature is largely silent on this point, and as will be seen in Chapter Five, this thesis argues that the effect outlined by the past behaviour heuristic is merely a manifestation of the representative heuristic.

Alternative theories and contradictions in the literature

The original theory proposed by Kahneman and Tversky (1973) has undergone several refinements and extensions (Glass and Waterman, 1988), and many aspects of the representative heuristic have been the subject of debate. Firstly, the source of the heuristic mey be described as either **semantic or cognitive**. The semantic origin suggests that decision-makers do not read the key information in the intended way (Wickham, 2003) or make assumptions that the senders of the information do not give out the correct details (Politzer and Noveck, 1991). For example, in the 'Linda' example presented above, *"'Linda is a bank teller' may be being read as 'Linda is a bank teller and is not active in the feminist movement'"* (Wickham, 2003: 159). The cognitive origin suggests that the heuristic is based on a pattern of beliefs, such as stereotypes, that the decision-maker possesses, as in the way the Linda example is described above using 'someone similar to Linda' (Gavanski and Roskos-Ewoldsen, 1991). The literature is divided on this issue with some authors favouring a semantic source (Politzer and Noveck, 1991) with others favouring a cognitive source (Morrier and Borgida, 1984, Wickham, 2003). As will be seen in Chapter Five, this thesis supports the theory of a cognitive source for this heuristic.

The cognitive source is itself the subject of two incompatible hypotheses (Nilsson, Juslin and Olsson, 2008) – **the prototype hypothesis and the exemplar hypothesis**. Assuming that a 'category' can be thought of as a person or a situation, in the prototype hypothesis, the decision-maker compares the category to their view of what constitutes the average (or most typical) member of that category (Kahneman and Frederick, 2002). However, in the exemplar hypothesis the category is compared to a real example that was previously encountered by the decision-maker (Glass and Waterman, 1988). For example, subjects in a research project were given features associated with a 'death-bug' (i.e. a fictitious venomous beetle), such as length of legs and possible patterning on the body, and were asked to determine which combination was the best representation of the beetle. Participants with particular knowledge were able to use a real example from memory (i.e. the exemplar hypothesis) to derive their answer, whereas those without this knowledge used a stereotype of the 'most average' beetle (i.e. the prototype hypothesis) to come to a conclusion (Nilsson, Juslin and Olsson, 2008). In other words, the prototype hypothesis requires a level of abstraction that is not present in the exemplar hypothesis, and this is a possible drawback since exceptions to the prototype can potentially be forgotten (Nilsson, Juslin and Olsson, 2008). As will be seen in Chapter Five, the present study is somewhat inconclusive. Some evidence was found to support both hypotheses, although the weight of evidence favours the exemplar hypothesis

Some authors argue that the representative heuristic refers to situations in which people judge things based on how well they represent or match particular **stereotypes** (Greenberg and Baron, 2008). There is a considerable body of literature on the nature of stereotyping, which dates back to seminal research by Daniel Katz and Kenneth Braly (Katz and Braly, 1933), who found that most, if not all, people have clear stereotypes in their minds. It may be that stereotyping is inevitable (Brewer, 1989; Fox, 1992), although other researchers recognise its prevalence but disagree in relation to its inevitability (Gilbert and Hixon, 1991). A detailed discussion of stereotyping is beyond the scope of this thesis because the present study is not concerned with examining the reasons for the creation of stereotypes, or the way in which they are developed. This thesis recognises that stereotypes exist, and is effectively only concerned with how they are used to make decisions. As will be shown in Chapter Five, stereotyping by decision-makers was extremely common in the present study.

Also important to this study is the moral heuristic. This is not one of those identified by Kahneman and Tversky, although as will be shown in Chapter Five, it was widely used within

the organisation under study and was the source of several significant findings. This heuristic is examined in the following section.

4.3.5 Moral heuristic

Introduction

Moral heuristics can be defined as *"decision rules that generate intuitions about fairness and justice, punitiveness and approval, right and wrong"* (Cosmides and Tooby, 2006: 181). This can be illustrated by several examples, including:

- *"Always keep your promise"* (Bartsch and Wright, 2005: 546).
- *"Avoid and punish betrayals of trust"* (Koehler and Gershoff, 2005: 556)
- *"Be honest"* (Weirich, 2005: 564)
- *"It is wrong to hurt some people for the benefit of others"* (Hahn, Frost and Maio, 2005: 552)

These examples demonstrate that whereas other intuitive heuristics have been generalised (e.g. *'the'* availability heuristic, *'the'* representative heuristic), moral heuristics in the literature are very specific. Sunstein (2005a) argues that moral heuristics are rules that lead decision-makers to jump to intuitive moral conclusions, and this view is supported by several authors, who emphasise the unconscious nature of these heuristics (Hauser, 2005; Ritov, 2005). This unconscious use explains why this thesis treats moral heuristics as being intuitive.

The use of moral heuristics is illustrated by Sunstein (2005a), who presents two related hypothetical scenarios (originally formulated by Thomson, 1985), which are sometimes referred to as the *'trolley versus footbridge'* problem:

Fig 30: 'Trolley versus footbridge' problem

> *"The [...] trolley problem, asks people to suppose that a runaway trolley is headed for five people, who will be killed if the trolley continues on its current course. The question is whether you would throw a switch that would move the trolley onto another set of tracks, killing one person rather than five. Most people would throw the switch".*
>
> *"The [...] footbridge problem, is the same as that just given, but with one difference: the only way to save the five is to throw a stranger, now on a footbridge that spans the tracks, into the path of the trolley, killing that stranger but preventing the trolley from reaching the others. Most people will not kill the stranger. But what is the difference between the two cases?"*

Source: Sunstein (2005a: 540).

This problem has been researched extensively in many different forms (see for instance Greene et al., 2009; Hauser et al., 2007; Waldmann and Wiegmann, 2010), and studies show that people are less opposed to throwing the switch than to pushing a bystander onto the tracks. In general, the literature researches people's responses to hypothetical situations (Greene et al., 2009; Sunstein, 2005a) such as the 'trolley versus footbridge' example. For instance, Bartels and Pizarro (2011) studied 14 simulated moral dilemmas, but they failed to recognise that people may respond differently in real-life situations than they do in the laboratory. Sunstein (2005a) suggests that these different reactions are based on different moral heuristics. Sunstein (2005a) recognises the drawbacks of research into hypothetical scenarios, and suggests that moral heuristics would benefit from a practical study of real-life situations. This thesis contributes to knowledge by taking exactly this approach.

Sunstein (2005a) offers a four-fold categorisation of moral heuristics, although it is interesting to note how his own thinking has changed over time. In 2003, he explores the hypothesis that some widely accepted rules of morality are heuristics, and outlines "*several possibilities"* for different types of heuristic (Sunstein, 2003: 5). By 2005, he now treats these '*possibilities'* as separate '*categories'* of moral heuristic. Table 6 outlines Sunstein's four categories of moral heuristics.

Table 6: Sunstein's (2005a) categories of moral heuristic

Category	Sub-Category	Examples
Morality and risk regulation		
	Cost–benefit analysis	A company decides whether or not to take certain safety precautions for its products and they undertake a cost-benefit analysis where measures could not be justified if they would cost $100 million and save only four lives
	Emissions trading	In a number of countries, polluters are typically given a license to pollute a certain amount, and the licenses can be traded on the market.
	Betrayals	A betrayal of trust is likely to produce anger. If a security guard steals from his employer, people will be angrier than if the identical act is performed by someone in whom trust has not been reposed
Morality and punishment		
	Pointless punishment	Penalties should be a proportional response to the outrageousness of the act. This is a restatement of the outrage heuristic outlined above (Table 4), and this means that the outrage heuristic is actually a moral heuristic.
	Probability of detection	To increase deterrence, the law might increase the severity of punishment or increase the likelihood of punishment
Playing God: Reproduction, nature, and sex		
	n/a	Consider human cloning. The ethical and legal issues here are extremely difficult and moral heuristics play a large role in judgments
Acts and omissions		
	n/a	Harmful acts are generally worse than harmful omissions. A murderer is typically more malicious than a bystander who refuses to come to the aid of someone who is drowning. The murderer wants his victim to die, whereas the bystander need have no such desire.

Source: Adapted from Sunstein (2005a: 536-540).

These categories have yet to be fully researched within the literature. However, it should be stressed that Sunstein (2005a) himself states that this catalogue is meant to be illustrative rather than exhaustive. The present study is unable to clarify the position because, as will be shown in Chapter Five, this thesis argues that there is actually only one moral heuristic, and this therefore renders any categorisation unnecessary.

Alternative theories and contradictions in the literature

Although the study of moral judgment can be traced back to John Dewey (Dewey, 1922), much of the literature derives from a series of articles in 2005 that were published in the journal *'Behavioral and Brain Sciences'*. In these, Cass Sunstein argues that moral heuristics sometimes misfire and produce errors, and this is then debated by other authors before Sunstein concludes the discussion by responding to the issues raised during the debate. More recently, Lapsley and Hill (2008) studied the use of moral heuristics within educational practice; Wilkinson-Ryan and Baron (2009) used moral heuristics to investigate breaches of contract; and Fisher and Malde (2011) explored the role of morality and heuristics in the context of the collapse of Lehman Brothers and the global financial crisis.

There is a considerable body of literature on **the nature of morality**, and many sources have been proposed for moral heuristics. These include evolution (Montier, 2002; Tobler, Kalis and Kalenscher, 2008); how the particular situation is framed (Cosmides and Tooby, 2006); and national and religious cultures (Badaracco, 2003; Singer, 2005). A detailed discussion of morality is beyond the scope of this thesis because the present study is not concerned with examining the reasons for the development of moral viewpoints, nor how they develop over time. Instead the focus is on understanding how morality is used to make decisions (but see Waldmann, Nagel and Wiegmann, 2012 for an interesting overview of the current debates and competing theories in relation to morality).

In common with the intuitive heuristics discussed above, much of the previous research has focused on the **effectiveness or ineffectiveness** of moral heuristics rather than the **processes** used when the heuristics are applied (for instance Bartels and Pizarro, 2011; Bartsch and Wright, 2005). As before, this thesis addresses this by focusing on the underlying processes used by decision-makers. It has also been suggested that moral heuristics are different to other intuitive heuristics because the 'classical' heuristics of Kahneman and Tversky are based on 'facts' whereas moral heuristics are based on subjective viewpoints (Haidt and Kesebir, 2008; Sunstein, 2010). However, others disagree (Gerrig, 2005; Gigerenzer, 2010) and argue that the 'classical' heuristics are also prone to subjective factors. The present study supports this argument and treats moral heuristics as 'just another intuitive heuristic' because, as will be shown in Chapter Five, both the classical and moral heuristics are subjective, and both are applied in similar ways to make decisions.

One of the biggest debates in the literature has centred on the question of which principles best guide moral heuristics (Bartels and Pizarro, 2011), and two main camps have emerged: the **utilitarian** perspective and the **deontological** perspective. Whilst a detailed review of utilitarianism and deontology is outside the scope of this thesis, a brief outline of the debate is presented, since it has some relevance to the findings of this study presented in Chapter Five. Utilitarianism is the doctrine associated with Jeremy Bentham, and is concerned with taking action for the greater good (Bentham, 2007); whereas deontology involves taking action out of a sense of duty, with Immanuel Kant being a key figure in the debate (Kant, 2011). In essence, a deontological approach describes a set of rules or principles that provide constraints on what kinds of actions are morally permissible; whereas utilitarianism argues that what is morally required is determined by one simple rule – whether or not an action brings about the greatest total well-being (Bartels and Pizarro, 2011). Indeed, Baron (2005: 546) states that the *"main feature"* of utilitarianism is *"its focus on consequences"*. This contrasts with the deontological view that the motives of the decision-maker, and not the consequences of the decision, determine the degree of 'rightness' or 'wrongness' of the decision (Kant, 2011; Ritov, 2005). Tobler, Kalis and Kalenscher (2008) provide an example of the two viewpoints:

> *"Someone who employs the don't kill rule can justify that rule on a utilitarian basis (such a rule brings about the most happiness), but also on a deontological basis (life has moral value and thus must be protected). In the first case, the rule is justified by referring to values that are themselves not moral (such as happiness); in the second case, the underlying values are themselves moral"* (Tobler, Kalis and Kalenscher, 2008: 397).

Weber and Ancker (2005) argue that moral heuristics are predicated on the adoption of a utilitarian position, because they depend on a consensus of morally correct answers. Others disagree and suggest that the heuristics have a deontological basis because they are determined by cultural norms (Bucciarelli, Khemlani, and Johnson-Laird, 2008; Waldmann, Nagel and Wiegmann, 2012). In fact, as Bartels and Pizarro (2011) observe, in the 'trolley versus footbridge problem', most people dislike the idea of throwing a bystander onto the tracks, and therefore a utilitarian approach is effectively being rejected because 'the greater good' is being disregarded. Because the present study is adopting a grounded theory

methodology and is seeking to understand the processes by which moral heuristics are used, rather than their effectiveness, it remains neutral. In Chapter Five it will be seen that both utilitarian and deontological perspectives are adopted by different managers, and this supports Sunstein (2005b) who was adamant that moral heuristics do not require the adoption of any particular framework as a precondition.

Finally, the distinction between **moral heuristics and moral principles** is rather fuzzy (Fried, 2005). This is not helped by the fact that *"[most moral principles are] so vague that it is hard to know precisely what to do in a particular situation. How exactly does one love one's neighbours?"* (Argyle, 1983: 298). It has therefore been argued that moral heuristics and moral principles are actually the same thing (Weirich, 2005). For instance, Bartsch and Wright (2005) suggest that there is little difference between heuristics such as 'punish, and do not reward, betrayals of trust' and principles such as 'do not knowingly cause human death'. Other authors disagree and regard the two as entirely separate, arguing that the key difference is that a principle is always true for a particular decision-maker, whereas a heuristic is dependent on the particular situation (Sunstein, 2005b). This is illustrated in Chapter Five when similar debates were held with managers within the organisation under study, and it will be shown that these managers offer a very similar explanation to Fried (2005: 549), who feels that moral heuristics are *"just a means to advance some other, often unstated, moral principle"*.

This brief discussion has introduced the four intuitive heuristics identified in the present study and has also outlined some of the key debates relevant to this thesis. These issues are discussed in more detail in Chapter Five. The following section discusses the second main type of heuristic – the choice-based heuristics.

4.4 Choice-based heuristics

4.4.1 Introduction

Real-life decisions normally entail a large number of alternatives and attributes. These terms can be defined as follows:

- **Alternatives** are the options from which to choose (Glöckner and Betsch, 2008). An alternative might be a different brand of coffee or a different bank.
- **Attributes** are components of the alternatives (Payne, Bettman and Johnson, 1993). Attributes might include the taste or smell of the coffee or the location or opening hours of the bank.

Similarly, the phrases 'cues' and 'cue validities' are mentioned within this section:

- **Cues** are *"pieces of evidence"* (Glöckner and Betsch, 2008: 1055).
- **Cue validities** are the 'reliability' of this evidence (Glöckner and Hodges, 2011).

For instance, if estimating the physical area of city A, a cue (i.e. evidence) might be the size of its population, but the reliability of this evidence (i.e. cue validity) would be greater if it could be put into context – for instance by saying that city A is larger than city B, which has a specified population (Glöckner and Betsch, 2008). The following example of a choice-based heuristic is typical of those in the literature:

Fig 31: Typical example of a choice-based heuristic

> *When consumers choose a bank, a number of factors may be relevant including convenience, fee levels, range of services offered, reputation, and so forth. Sometimes a single factor is considered to be key, such as convenience, and other factors are ignored when the decision is made. Sometimes a combination of these factors is important – there may be certain 'must haves' and so long as the other factors are not too negative, a bank may be chosen on this basis.*

Source: Lee and Marlowe (2003).

These decisions are typically made using choice-based heuristics, where alternatives are identified and then a structured, ordered process is used to evaluate the alternatives and come

to a final decision (Gilbride and Allenby, 2006). Choice-based heuristics therefore differ from intuitive heuristics which, as noted above, are largely unconscious in their application. In addition, choice-based heuristics are quantitative, whereas intuitive heuristics are normally qualitative (Andrews and Manrai, 1998; Frankl, 2010). Interestingly, although many researchers classify these as 'heuristics' (Laroche, Kim and Matsui, 2003; Lee and Marlowe, 2003; Payne, Bettman and Johnson, 1993), other researchers label them differently, and various titles are given in the literature, including 'decision rules' (Tversky, 1972), 'comprehensive evaluation rules' (Hauser, 2010), 'models' (Gilbride and Allenby, 2006), and 'random utility choice models' (Lee and Geistfeld, 1998).

As will be seen below, many writers have found that several choice-based heuristics can be used within the same decision, and this was also the case in the present study. Hence, this part of the literature review is presented differently to that in previous pages, and less emphasis is given to the literature relating to the specific heuristics. This approach was undertaken for several reasons. Firstly, much of the literature around these heuristics is highly mathematical, as briefly discussed in Chapter Four, and such an approach would be at odds with the empirical data. It is not the case that mathematical modelling has been 'dismissed'. Indeed, its importance has already been emphasised above. Rather, this thesis remains true to the data and to the underpinning grounded theory methodology. As Chapter Five illustrates, no evidence was found that managers in the organisation under study used mathematical models. Secondly, space constraints prevent this. A 'full' literature review of each heuristic would be lengthy and would divert attention away from the key points that relate to the present study. Finally, presenting the literature in this way allows the analysis to flow, and links between the heuristics are readily demonstrated.

As will be shown in Chapter Five, four choice-based heuristics were identified in the organisation under study, namely Conjunctive, Elimination By Aspects (EBA), Linear Compensatory, and Weighted Additive (WADD). These will be discussed in detail below. However, there are many more choice-based heuristics that are not explored further in this thesis because they were not found in the empirical data. The following table provides a selection of the most commonly cited of these, but it is not exhaustive and is presented to give the reader a flavour of the scale and breadth of the topic.

Table 7: A selection of choice-based heuristics not considered further in this study

Heuristic	Description
Additive difference	Pairs of alternatives are compared by taking the difference between the values of the two alternatives on each attribute. Attributes are weighted in terms of their importance. The weighted differences are added and the sign of the sum indicates the better alternative (Lee and Geistfeld, 1998).
Simple additive	The number of favourable attributes each alternative possesses are counted. The alternative having the largest number of desirable attributes is chosen (Lee and Geistfeld, 1998).
Equal weight	This heuristic considers all attribute values for all alternatives, but an equal weight is applied to each attribute, thereby ignoring relative importance or probability. A choice is made by summing all attribute values for each alternative, and selecting the alternative with the highest overall total (Zhang and Pu, 2004).
Lexicographic	Attributes are ordered in terms of importance and are compared with respect to the most important attribute. The alternative with the best value on this attribute is selected (Payne, Bettman and Johnson, 1993). Gigerenzer (2008) suggests that the lexicographic heuristic is a class of heuristics rather than a single heuristic.

The following table outlines the choice-based heuristics that are important to this study.

Table 8: Choice-based heuristics explored in the present study

Heuristic	Definition
Conjunctive	*"Minimum cut-offs are established for each attribute. If an alternative does not exceed all the cut-offs for all attributes, it is rejected"* (Lee and Geistfeld, 1998: 230).
Elimination By Aspects (EBA)	*"The most important attribute is selected, and all alternatives not exceeding the cut-off with regard to this attribute are eliminated. The attribute that is second in importance is then selected and the elimination process continues until only one alternative remains"* (Lee and Geistfeld, 1998: 230).
Linear Compensatory	*"All attributes of a given alternative are considered in a way that a desirable attribute may offset or compensate for an undesirable attribute. This is done for each alternative. The alternative with the greatest overall score is chosen"* (Lee and Geistfeld, 1998: 230).
Weighted Additive (WADD)	This occurs where *"good values on one attribute can offset bad values on another"* (Payne, Bettman and Johnson, 1993: 29). This heuristic *"considers the value of each alternative on all the relevant attributes and considers all the relevant importances or weights of the attributes to the decision-maker"* (Payne, Bettman and Johnson, 1993: 24).

Again, diagrams illustrating these processes are presented in Chapter Five. The remainder of this chapter focuses on these four heuristics.

4.4.2 Choice-based heuristics in the literature

Choice-based heuristics have been studied in a range of situations, including how people choose a job (Sheridan, Richards and Slocum, 1975), but the majority of the literature examines consumer choice or spending preferences (e.g. Bettman, 1979; Laroche and Toffoli, 1999). Often, choice-based heuristics are considered holistically, with one heuristic being explored alongside others. For instance, Laroche, Kim and Matsui (2003) examine five choice-based heuristics – conjunctive, disjunctive, lexicographic, linear additive, and geometric compensatory; other authors seek to compare and contrast the take-the-best and weighted additive heuristics (Payne, Bettman and Johnson, 1988); and elimination-by-aspects has been studied alongside other heuristics such as lexicographic-by-aspects and acceptance-by-aspects (Yee et al., 2007). As seen earlier in this chapter, this is not the case with intuitive heuristics, where the literature considers each heuristic in isolation.

Choice-based heuristics are sometimes classified into two groups: **attribute-by-attribute** and **alternative-by-alternative**. In the former, comparisons are made of each attribute across various alternatives, and in the latter each alternative is considered separately (Hofacker, 1984; Mantel and Kardes, 1999). For example:

- *Attribute-by-attribute* – when searching for a new bank, people may explore many banks but only assess them on one key issue (i.e. attribute) such as the deposit required, or fee levels. The 'best performing' bank is then chosen on this basis. If necessary, the process can be repeated with another attribute, such as personal safety (Lee and Marlowe, 2003).
- *Alternative-by-alternative* – when searching for a new bank, people may select several banks (i.e. alternatives) and then evaluate each one holistically using criteria such as opening hours, fee levels, or reputation. The whole 'package' then forms the basis of the decision (Lee and Marlowe, 2003)

However, most researchers classify choice-based heuristics in a different way – compensatory and noncompensatory. **Compensatory** heuristics make tradeoffs between attributes (Payne, Bettman and Johnson, 1993). In other words, the decision-maker considers all attributes of a given alternative in a way that allows good values on one attribute to make up for bad values on other attributes (Johnson, Meyer and Ghose, 1989). For example, when choosing a bank, people may make trade-offs. For instance, they may compromise location for fees, where

cheaper fees are more important than how close a particular branch is. Alternatively, people may be prepared to pay more in exchange for a particular level of convenience (Lee and Marlowe, 2003). In contrast, **noncompensatory** heuristics do not make tradeoffs between attributes (Yee et al., 2007). For example, when choosing a bank, people may have minimum standards. For instance, convenience might be vital. If a bank is not convenient (for instance in terms of its opening hours or online banking facilities) then it may be rejected no matter how good it is on other factors (Lee and Marlowe, 2003).

The following pages provide an outline of the literature relating to the four choice-based heuristics observed in the present study. As noted above, several pages could be devoted to each of these heuristics, but this thesis has intentionally chosen to provide a relatively brief overview of each. This allows the essential arguments to be identified without the reader getting 'lost' the complexities of mathematical formulae which, as already mentioned, are beyond the scope of this thesis. However, the interested reader is pointed to several key pieces of research should they wish to explore matters in more depth. The outline begins with a discussion of two noncompensatory heuristics – conjunctive and elimination by aspects, and this is followed by a discussion of two compensatory heuristics – linear compensatory and weighted additive. It may appear strange to start with noncompensatory heuristics, but the rationale for this is that it is natural to deal with these simpler heuristics before the more complex, multi-faceted ones.

4.4.3 Noncompensatory heuristics

Conjunctive

The conjunctive heuristic is defined as: *"minimum cut-offs are established for each attribute. If an alternative does not exceed all the cut-offs for all attributes, it is rejected"* (Lee and Geistfeld, 1998: 230). In other words, it consists of a series of *"must-have or must-not-have"* criteria, all of which must be met (Hauser, 2010: 20). If *all* of the must-have *and all* of the must-not-have rules are satisfied, the alternative will be considered further (Hauser, 2010). For example, a house that is unaffordable will be rejected regardless of its features or location. In other words, it fails to meet a minimum level of desirability for at least one of its attributes

(Elrod, Johnson and White, 2004). Some authors regard this heuristic as a variation on bounded rationality (Johnson, Meyer and Ghose, 1989) because for a given alternative to be selected, it must be 'good enough' on the key attributes (Gilbride and Allenby, 2006).

That this heuristic can have different forms. The above definition states that values must be *"exceeded"* in order for a given alternative to be considered further, and this implies a 'maximum' value (Zhu and Givan, 2005). For instance, the requirement might be the number of years' work experience *above* a certain point (Elrod, Johnson and White, 2004). However, the converse might also be true, with a 'minimum' value being important, such as only alternatives with prices *below* a certain threshold being considered (Zhu and Givan, 2005). As will be seen in Chapter Five, both of these variants were found in the present study. A further variant was proposed by Hauser (2010) – the *subset conjunctive* variant – whereby the decision-maker accepts that it is impractical to insist on all cut-offs being met, and chooses to accept a smaller number, or subset, of these being met. For instance, suppose that someone is purchasing a car and had originally identified nine key requirements. These include a sunroof, a given fuel efficiency, a given reliability, and a moderate price. On reflection, they decide that they might be willing to accept a car that satisfies seven of the nine criteria. Perhaps the car has no sunroof and is not moderately priced, but they might still be willing to consider it because the other seven attributes are fully met (Hauser, 2010). It should be noted, of course, that such a 'trading off' violates a strictly noncompensatory interpretation because a compensatory aspect has been introduced.

Elimination By Aspects (EBA)

Alternatives are described by the attributes or aspects that they possess. The decision-maker places different levels of importance on each of these aspects (Gilbride and Allenby, 2006). This heuristic is defined as occurring when: *"the most important attribute is selected, and all alternatives not exceeding the cut-off with regard to this attribute are eliminated"* (Lee and Geistfeld, 1998: 230). An alternative interpretation of this heuristic is that the decision-maker selects an aspect and eliminates all alternatives that do not have that aspect (Hauser, 2010). A slight refinement is offered by Yee et al. (2007), who suggest that eliminating an aspect is effectively the same as accepting its complement. As an example, when shopping, people typically have a set of brands that they will consider buying from a product category. This set is derived by eliminating certain aspects. For instance, all coffees below a certain price might

form the consideration set, with those above this price being eliminated (Fader and McAlister, 1990).

This heuristic was first proposed by Tversky (1972). It is popular among decision-makers because it is simple, it considers a single attribute (Shah and Oppenheimer, 2008), and it is much less cognitively demanding than compensatory heuristics, which consider *all* attributes of *all* alternatives (Gilbride and Allenby, 2006). Despite its simplicity, however, Tversky's original formulation has been modified over subsequent decades. Originally, EBA was used to sequentially eliminate alternatives that do not have the desired aspects or attributes (Tversky, 1972). This theory was expanded to take into account 'groupings' and 'hierarchies' of attributes, where the decision-maker can examine several attributes simultaneously. For instance, prices may fall within a range rather than being a discrete cut-off value (Tversky and Sattath, 1979). Some authors have also proposed variations of EBA, such as Elimination by Cutoffs (Manrai and Sinha, 1989). However, to reflect the findings of this study, this thesis is concerned with the original version proposed by Tversky (1972).

There is a debate about how this heuristic works in practice. Some authors argue that the decision-maker eliminates aspects in a fixed order with the most important attribute being eliminated first (Johnson, Meyer and Ghose 1989; Payne, Bettman, and Johnson 1988), whereas others suggest that a fixed order is not required – so long as all undesirable attributes are eliminated, the order in which this happens is unimportant (Marewski, Galesic and Gigerenzer, 2009). However, it is argued that if the order does not matter, this can result in different alternatives being selected from identical choice sets, or in different alternatives being selected if the same decision is required on separate occasions (for instance Gilbride and Allenby, 2006).

4.4.4 Compensatory heuristics

Linear Compensatory

This heuristic is defined as: *"all attributes of a given alternative are considered in a way that a desirable attribute may offset or compensate for an undesirable attribute [and the alternative is then scored]. This is done for each alternative. The alternative with the greatest overall score is chosen"* (Lee and Geistfeld, 1998: 230). An example of this occurs when

someone wishes to purchase a new television. A range of factors is likely to be considered by the buyer, such as screen size, picture quality, and price. Perhaps the screen size is smaller than the buyer would ideally like (i.e. an undesirable attribute), but this may be offset by a better picture quality and a cheaper price (i.e. desirable attributes) (Johnson, 1996). Parkinson and Reilly (1979) outline two variants of this heuristic, unweighted and weighted, which, they argue, are used to reach a binary decision (e.g. yes/no; pass/fail, etc). If the heuristic produces a 'yes' outcome, the alternative is included for further consideration, but if a 'no' outcome is produced, the alternative is rejected. The variants can be defined as follows:

- Unweighted: *"brand attributes are measures, summed, and averaged, and the brand with the highest score is selected"* (Laroche, Kim and Matsui, 2003: 193).
- Weighted: *"brand attributes and the importances (weights) of these attributes are measured, and the attributes multiplied by the weights are summed and averaged, and the brand with the highest score is selected"* (Laroche, Kim and Matsui, 2003: 193).

Parkinson and Reilly (1979) examine these variants in the context of purchases of toothpaste and deodorant, but if the above television purchase is substituted, the following example can illustrate the key points. When making the purchase, several 'price' components could be grouped (e.g. actual cost, support costs, interest rates) and several 'screen' components could be grouped (e.g. size, resolution). Scores could be assigned to each element and then averaged so there was one score for price and one score for screen. In the unweighted variant, these average scores would be summed and the television with the highest score would be selected for further consideration. In the weighted variant, each of the average scores could be weighted based on importance, and then summed. Again, the television with the highest score would again be selected for further consideration.

As will be shown in Chapter Five, the instances of this heuristic found in this study made use of absolute values, and took no account of average values. For example, this heuristic was used in the recruitment process, but 'actual' candidates' scores were used to make the decision – at no stage were the scores averaged. A definite decision was made by the selection of one option from a larger sample. Hence, on each occasion the 'classical' version of the heuristic was used and not one of these variants.

Weighted additive (WADD)

The WADD heuristic considers the value of each alternative on all the relevant attributes and considers all the relevant importances of the attributes to the decision-maker. The relative importance, or weight, reflects *"the extent to which one is willing to trade attribute values"* (Payne, Bettman and Johnson, 1993: 24), and the weighted 'scores' *"are summed to yield the overall value"* (Shah and Oppenheimer, 2008: 207). As an example, when purchasing a car, a customer could consider range of factors relating to several cars, including price, fuel efficiency, reliability, and so forth. Each factor could be weighted by the consumer to reflect their relative importance to him/her. Suppose that reliability was felt to be the most important attribute, with a low price also being desirable: in this case, reliability would receive the highest weighting, and trade-offs could be made so that high reliability could compensate for a high price (Cimarosti, 2009).

This strategy involves substantial computational processing of the information. The decision-maker needs to assess the importance of each attribute and assign a subjective value to each possible attribute level. Then, the decision-maker considers one alternative at a time, evaluates each of the attributes of the alternative in question, multiplies each attribute's subjective value by its weight, and sums these products across all of the attributes to obtain an overall evaluation for each alternative. Finally, the alternative with the highest value is selected (Cimarosti, 2009). As will be seen in Chapter Five, this level of computation does not always take place in the organisation under study.

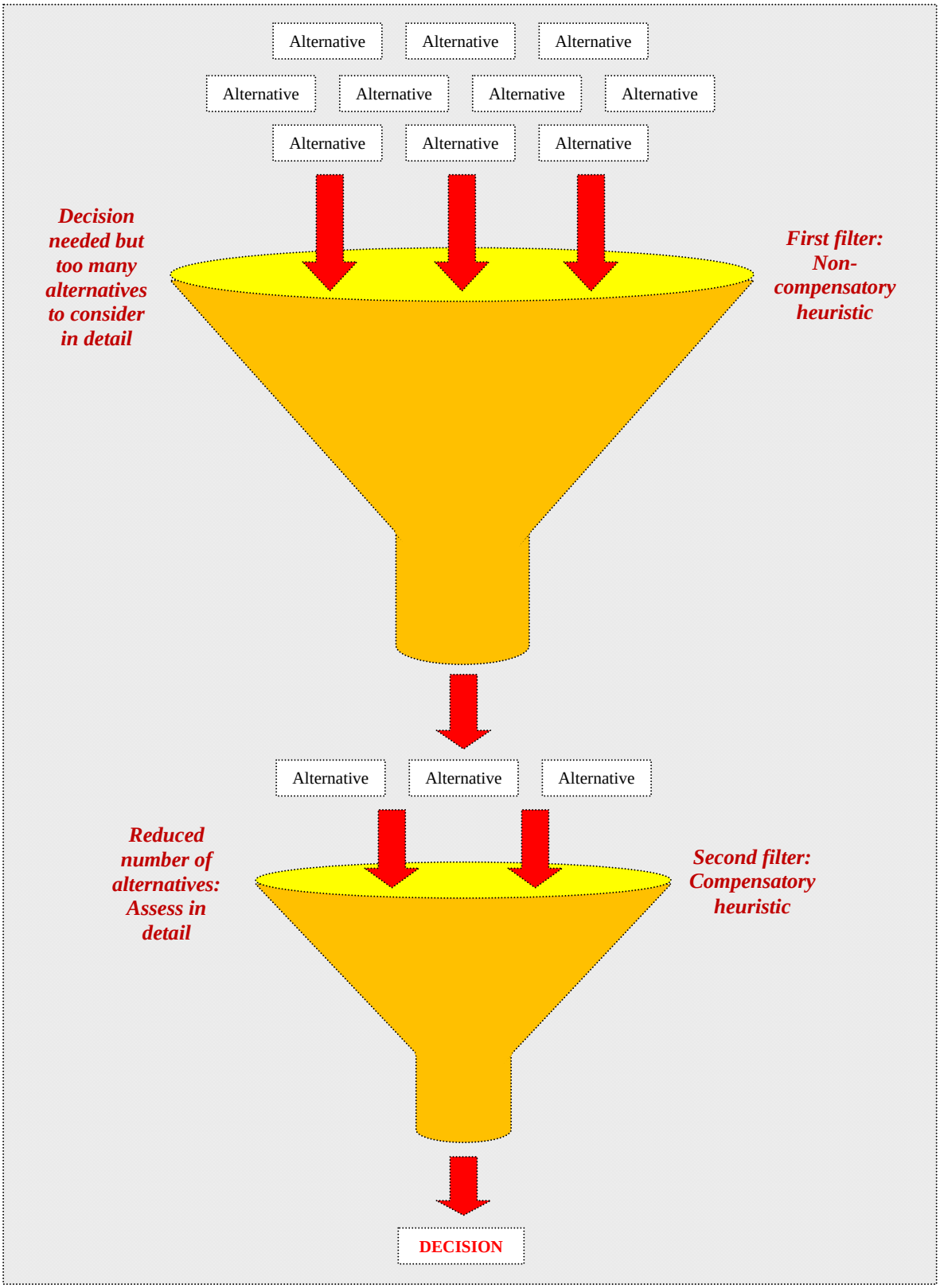
However, due to this level of computation, the WADD heuristic is sometimes regarded as the most accurate heuristic (Shah and Oppenheimer, 2008) and hence it is the *"gold standard"* for decision-making (Gigerenzer and Todd, 1999: 26). However, others disagree. For example, because the decision-maker sums evidence associated with individual cues or attributes, the weighted additive heuristic is insensitive to combinations or interactions between cues (Nosofsky and Bergert, 2007). Therefore, it has been argued that there is no single 'ideal' choice model (Lee and Geistfeld, 1998), and this was also the case in the organisation under study, where a range of approaches was used in different circumstances, as will be shown in Chapter Five.

4.4.5 Multi-stage decision-making

The preceding pages have outlined the four choice-based heuristics that were identified in the organisation under study. Although the foregoing implies that these heuristics exist in isolation and sit neatly within the compensatory and noncompensatory categories, several researchers have found that decisions are frequently made using a combination of these heuristics. This stands in contrast to the intuitive heuristics, which, as noted above, have to date have been examined in a non-holistic way. The following section offers an overview of the research into this multi-stage heuristic decision-making.

There is a consensus in the literature that where a multi-stage decision-making process is applied, people first identify a range of products (the consideration set), for further evaluation and then choose from this group (Bettman, 1979; Hauser, 2010). Decision-makers may use both compensatory and noncompensatory rules on different occasions or even at different stages in the same task (Elrod, Johnson and White, 2004). If a compensatory heuristic were used first, the decision-maker would initially need to evaluate each alternative to determine whether it should be in the consideration set (Andrews and Manrai, 1998). However, this effectively precludes a two-stage process because having already evaluated each alternative, the decision-maker would not actually *need* to form a consideration set, and could simply choose the best alternative (Andrews and Manrai, 1998). The problem that normally confronts decision-makers is the number of possible alternatives, rather than the number of attributes (Bettman and Park, 1980), and therefore researchers agree that the first stage is the use of a noncompensatory heuristic to somehow reduce this number to a more manageable level (Elrod, Johnson and White, 2004; Payne, 1976). By definition, none of these alternatives will have any unacceptable attributes, and thus, they can all be thought of as being ‘good’ to a greater or lesser extent (Gilbride and Allenby, 2006). The second stage uses a compensatory heuristic to apply more rigour to the process and select the best option from these alternatives (Dieckmann, Dippold and Dietrich, 2009; Sheridan, Richards and Slocum, 1975). Researchers recognise that stage two is cognitively more demanding than stage one (Andrews and Manrai, 1998) but argue that the increased accuracy of the compensatory heuristics makes the effort worthwhile (Gilbride and Allenby, 2006). The following diagram outlines the general approach.

Fig 32: Conceptual representation of multi-stage decision process



Although the use of a noncompensatory heuristic followed by a compensatory heuristic has been generally accepted, there is no hard and fast rule as to which heuristics are actually used.

The conjunctive heuristic is the usual first choice (Laroche, Kim and Matsui, 2003; Raju and Reilly, 1980), but others argue that EBA is normally the first heuristic used in a multi-stage process (Bettman and Park, 1980; Fader and McAlister, 1990). Similarly, the choice of compensatory heuristic in phase two will depend on the precise situation, and both linear compensatory (Hofacker, 1984) and weighted additive (Gigerenzer and Todd, 1999) may be viable options. EBA, in particular, can be used in several iterations, and it could be argued that this is a form of multi-stage decision-making that does not involve other heuristics (Gilbride and Allenby, 2006). Where this happens, the decision-maker needs to consider different attributes on each occasion, since otherwise all alternatives would share the last screened attribute (Andrews and Manrai, 1998). However, as Dieckmann, Dippold and Dietrich (2009) state, most people are equipped with a repertoire of decision strategies from which to select depending on the decision context, and therefore a mix of strategies is often employed. It will be shown in Chapter Five that within the organisation under study, a further variant was used, namely EBA followed by conjunctive, followed by WADD. In other words, a three-stage process was followed: two noncompensatory heuristics were followed by a compensatory heuristic. Although it has not been possible to locate examples of this process in the literature, it falls within the general principles outlined above, and therefore the multi-stage approach is supported by the present study.

Although a range of 'external' factors may influence the choice of heuristic, including gender (Lee and Geistfeld, 1998) and familiarity with the problem at hand (Raju and Reilly, 1980), particular attention has been given to the number of attributes, but there is no consensus in the literature. Some authors have found that when the number of attributes is small, people tend to use compensatory models (Lee and Geistfeld, 1998), but as the number of attributes increases, people switch to noncompensatory models (Lee and Geistfeld, 1998; Tversky, 1972). In contrast, Russo and Dosher (1983) found that as the number of attributes increased, a compensatory model was more likely to be used. However, still other research (Olshavsky, 1979; Payne, 1976) found that there is no evidence that increasing the number of attributes affects the choice of heuristic. As will be seen in Chapter Five, this thesis is inconclusive in this debate, and evidence was found to support more than one argument.

4.5 Chapter summary

This chapter offered a detailed literature review of cognitive heuristics. It began by defining the term ‘heuristics’ and by demonstrating that they are often classified as intuitive or choice-based. Intuitive heuristics are rapid and unconscious, akin to behavioural models, whereas choice-based heuristics are deliberative and are more akin to normative models. As will be shown in Chapter Six, this has important implications for this thesis, because it will be argued that the normative/behavioural distinction is somewhat artificial.

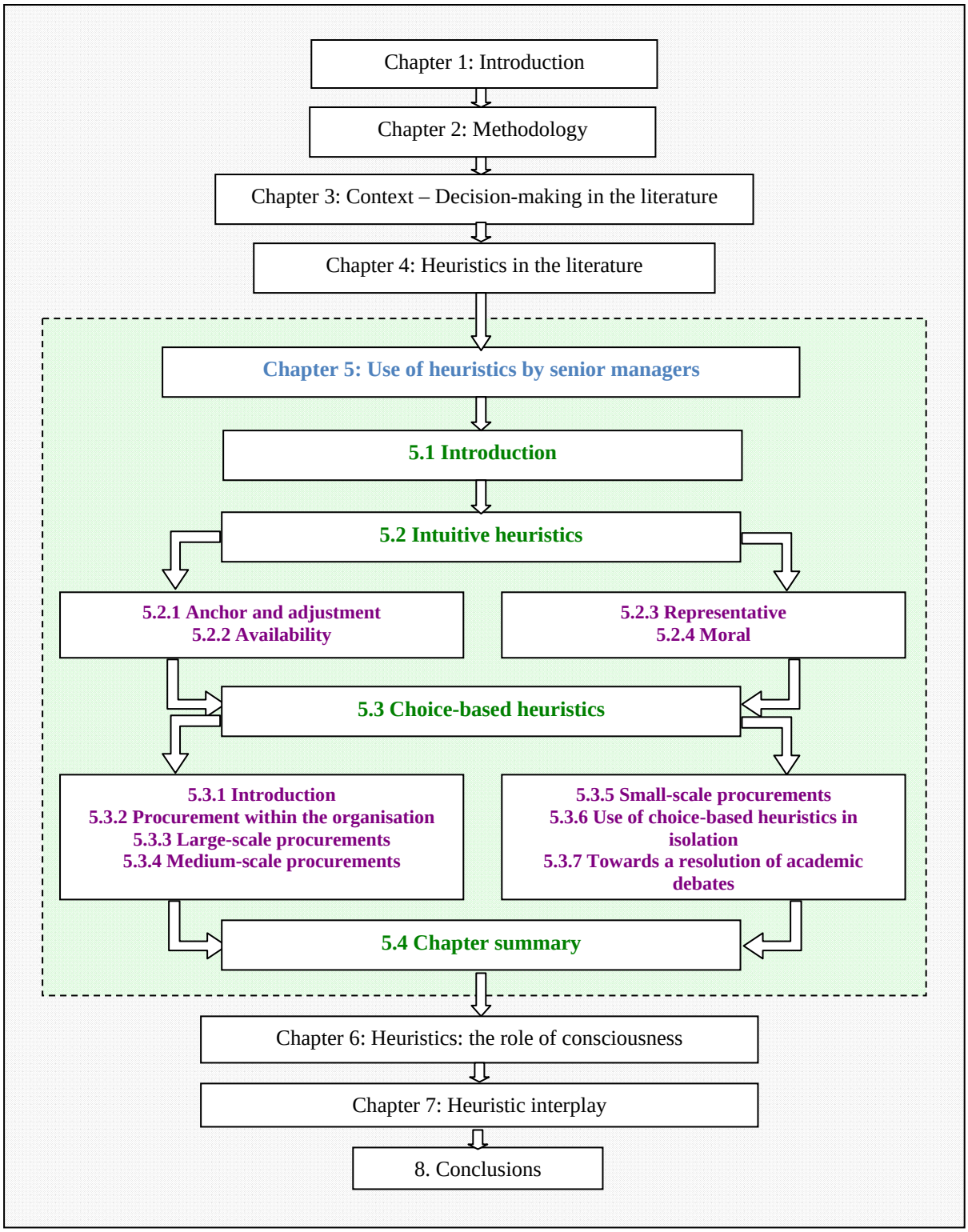
The chapter identified eight heuristics and examined how these have been researched in the literature. Four of these are intuitive and four are choice-based, and in each case there are debates in the literature, such as alternative theories and contradictions. Examples include different formulations of a principle (such as with the anchor and adjustment heuristic) and significant variations in definitions (such as with the moral heuristic). These issues are addressed in subsequent chapters, and this thesis therefore represents an important contribution to the ongoing debate.

One important finding from this chapter is that the literature generally examines each heuristic in isolation. This is particularly true of the intuitive heuristics. As will be shown in Chapters Five and Seven, the reality in the organisation under study was much messier. Far from being discrete entities, there is considerable interplay between the different heuristics.

This chapter therefore underpins the remainder of this thesis. Chapter Five expands on this chapter by exploring how each of the eight heuristics was used in the organisation under study, and some key themes are then followed up in detail in Chapters Six and Seven.

CHAPTER 5: USE OF HEURISTICS BY SENIOR MANAGERS

Fig 33: Context and structure of Chapter Five



5.1 Introduction

As noted in Chapter One, the structure of a grounded theory thesis differs from a 'traditional' thesis. Hence, this chapter is not a 'findings' or 'results' chapter. Instead, it begins to develop the grounded theory by identifying and explaining what was found during the study, and interweaving this with the relevant literature (Gynnild, 2006). Indeed, as Black (1999: 16) observes, *"a crucial characteristic of grounded theory is the simultaneous collection and analysis of data"*, and thus it would be misleading to try to disaggregate the data collection and analysis phases.

As with the previous chapter, the four intuitive heuristics are examined first. The discussion begins with the three 'classic' heuristics identified by Daniel Kahneman and Amos Tversky – anchor and adjustment, availability, and representative – and then considers the moral heuristic associated with Cass Sunstein. This is the same order as Chapter Four, and indeed this order is followed throughout this thesis. The discussion then explores the four choice-based heuristics. Three are identified as 'procurement heuristics' – EBA, conjunctive, and WADD – and, as will be shown, there is an order of precedence. Therefore, they are discussed in this order, and they are followed by the linear compensatory heuristic. This order differs from Chapter Four, which discussed the choice-based heuristics in terms of whether they were compensatory or noncompensatory in nature. The order in this chapter better reflects the way in which they are used in the 'real world', and it is therefore this order is used for the remainder of this thesis.

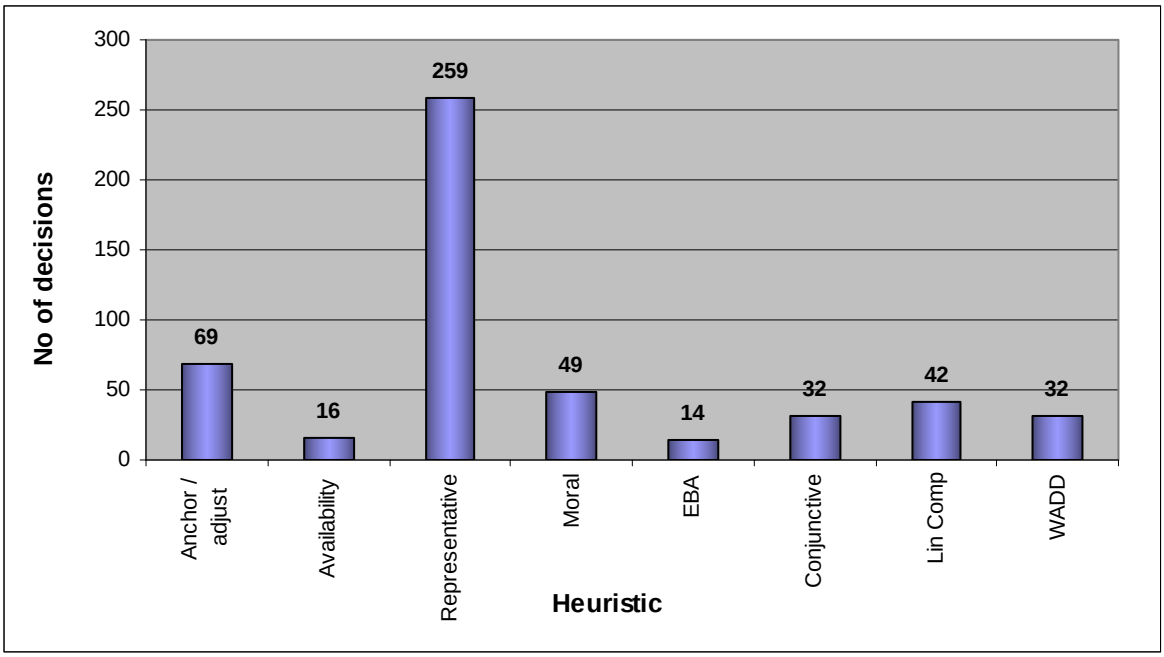
The following diagram illustrates which heuristics were used in each of the 42 business units within the organisation under study.

Fig 34: Heuristics used by each business unit

Business Unit	Anchor/ Adjust	Avail	Rep	Moral	EBA	Conj	WADD	Lin Comp
Planning	■		■					■
Building Control	■	■	■					■
Transportation			■					■
Parking	■	■	■					■
Building Schools			■					■
Culture	■		■			■	■	■
Tourism			■					■
Housing Strategy			■			■	■	■
Employment & Skills			■	■				
Community Safety	■	■	■	■		■	■	■
Neighbourhoods	■	■	■	■		■	■	■
Waste	■	■	■					■
Environmental Health	■	■	■	■				■
Trading Standards			■					■
Environment			■					■
Bereavement	■	■	■	■				■
Parks	■		■					
Sport & Recreation	■		■					■
Libraries	■		■			■	■	
Licensing	■		■					
Primary Schools	■		■	■				■
Secondary Schools	■		■	■				■
Youth Offending (YOS)	■		■	■				■
Youth & Play Service			■	■		■	■	■
Adult Social Care	■		■	■				
Corporate Parenting	■		■	■				■
Schools Safeguarding	■		■	■				■
Family Support	■		■	■				■
Adult Safeguarding	■	■	■	■				■
Internal Audit		■	■		■	■	■	
Risk Management	■		■					
Corporate Finance			■		■	■	■	■
Corporate Procurement			■		■	■	■	■
Legal Services	■		■		■	■	■	
CEO Support	■		■					■
Fleet Management	■		■					■
Premises Management	■		■					■
Partnerships			■		■	■	■	
Health & Safety			■					■
Corporate Performance			■		■	■	■	
Emergency Planning			■			■	■	■
Business Management	■		■					■

Heuristics are used in each of the 42 business units in the study. Indeed, each business unit uses at least two heuristics. The representative heuristic was found in each business unit, and the achor and adjustment heuristic and the linear compensatory heuristic were also widely used. When a count is made of the use of each heuristic, the following picture emerges.

Fig 35: Number of times each heuristic was found in the study



It is clear from this diagram that the representative heuristic was observed in the greatest number of decisions (259), with EBA being observed in the fewest decisions (14). The following pages examine these findings for each of the eight heuristics in turn, and also identify the underlying cognitive processes used by decision-makers.

5.2 Intuitive heuristics

5.2.1 Anchor and adjustment

5.2.1.1 Nature of this heuristic

The anchor and adjustment heuristic can be defined as *"[the making of] estimates by starting from an initial value that is adjusted to yield the final answer"* (Tversky and Kahneman, 1982: 14). Its use in the present study can be highlighted with two examples. In the first, a manager provided the following account of how he estimated the number of staff who had taken voluntary redundancy:

> *"I was asked to estimate how many people had left […]. I had a base figure that I knew was more or less correct from a couple of months earlier, and I then adjusted this upwards"* (Business Management).

In the second example, a manager explained how a key decision was made:

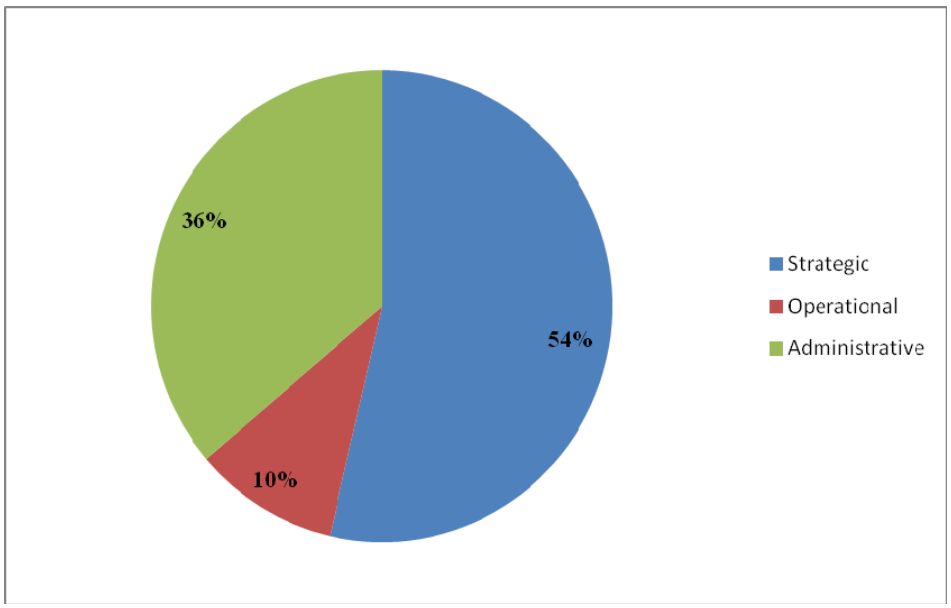
> *"I had to design a maintenance programme to survey and manage our headstones, and to make safe the dangerous ones. But, I had no idea how many headstones we actually had, and it was important to get a figure so I could design the programme properly. In the end, I found a value that was pretty accurate when it was taken, but it was about four or five years old. So I used this value as my baseline and then adjusted it upwards by a few thousand to account for the burials we'd done since then"* (Bereavement).

These examples are in the same vein as those quoted throughout much of the literature. However, both managers used the word *"adjusted"* in their accounts, and were fully conscious of the steps they had taken in reaching their final estimations. Although they were unaware that they were using a heuristic, or what its name was, the managers consciously followed the steps. This raises an obvious question: the anchor and adjustment heuristic is one of the intuitive heuristics…but how can an *intuitive* heuristic possibly be *consciously* applied? This is a clear contradiction, and is addressed more fully in Chapter Six.

5.2.1.2 Extent of use of the anchor and adjustment heuristic

This heuristic was observed in 69 decisions across 27 business units. It is therefore clear that the heuristic is commonly used within the organisation. Interestingly, although Presutti (1995) identified the use of the anchor and adjustment heuristic in the auditing profession (for instance in auditors' use of previous audit reports as part of their preparation), the present study found no evidence of the heuristic within the Internal Audit business unit. This thesis draws no conclusions from this – this does not mean that the heuristic is not used, only that no evidence of its use was found. However, a considerable time was spent in this particular business unit, and hence the finding is suggestive and would therefore be a fruitful topic for further research. The heuristic was used for making several types of decision, as illustrated by the following diagram.

Fig 36: Types of decision for which the anchor and adjustment heuristic was used

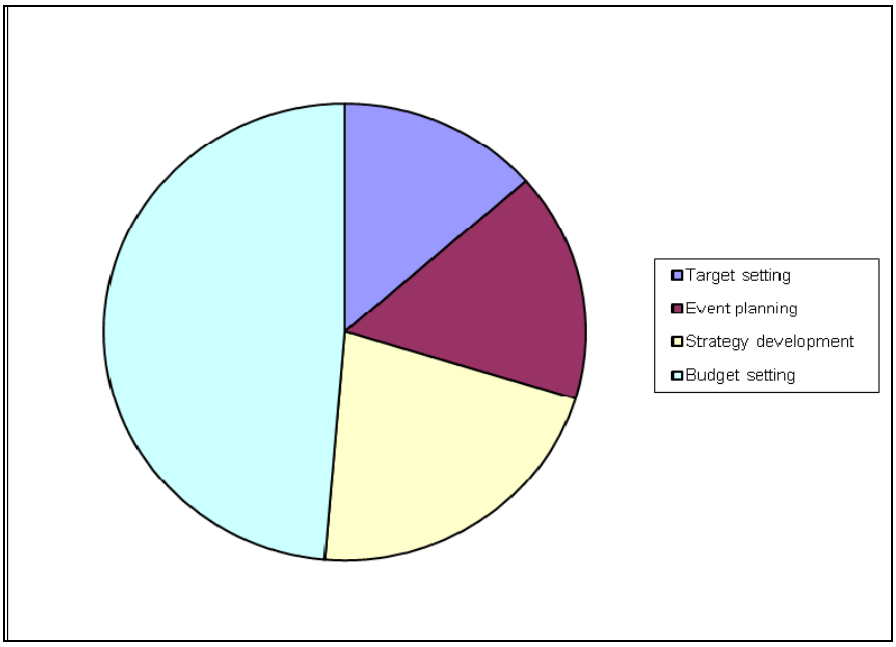


More than half (54%) of the 69 occurrences of this heuristic related to strategic decisions, with administrative decisions (36%) accounting for most of the remainder. The following pages explore how the heuristic was used in each of the three categories.

Strategic decisions

As the Fig 37 shows, strategic decisions were made in this way on 37 occasions (54% of 69 decisions) in relation to target setting, planning of events, strategy development, and budget setting.

Fig 37: Strategic decisions for which the anchor and adjustment heuristic was used



In the case of **target setting**, the anchor and adjustment heuristic was used in five decisions, and there was a considerable similarity between the empirical data and the literature. When setting performance targets for the coming year, managers developed their new targets by adjusting from a fixed anchor point. The following comments were typical:

> *"Our [performance indicators] for the coming year are normally just last year's target plus 3% or so"* (Waste).

> *"Targets for next year are based on this year's performance plus a few percent more"* (Corporate Performance).

In all cases, the anchor point was self-generated, and it was evident that the steps involved in the decision-making process were taken consciously, as the Corporate Performance manager confirmed:

> *"Yes, it's a conscious process. I know exactly what I'm doing. I set myself a predetermined starting value and I make adjustments from there until I get the […] value that I want"* (Corporate Performance).

As before, the manager explicitly refers to "adjustments". On each occasion, the target-setting process was observed directly.

In some parts of the organisation, senior managers are responsible for **planning of large civic events**, such as the Lord Mayor's Parade and the Christmas Lights Switch-On. However, these form part of a larger programme of events that take place through the year, which include sporting events, pop concerts and cultural activities. Again, the anchor and adjustment heuristic is used to make key decisions, and the following quote was typical:

> *"If an event worked at a certain time of year last year, then I'll leave it where it is for this year. I'll schedule all the other events around this – making adjustments and modifications around this framework. My starting point is last year and I then adjust from that"* (Culture).

Once again, the word "adjustment" was used, and on each of the six occasions, it was apparent from direct observation that the process was a conscious one.

Development of strategy also followed very similar processes. On eight occasions managers were observed writing business plans to deliver key strategic aims and all followed the same process. The following comment was typical:

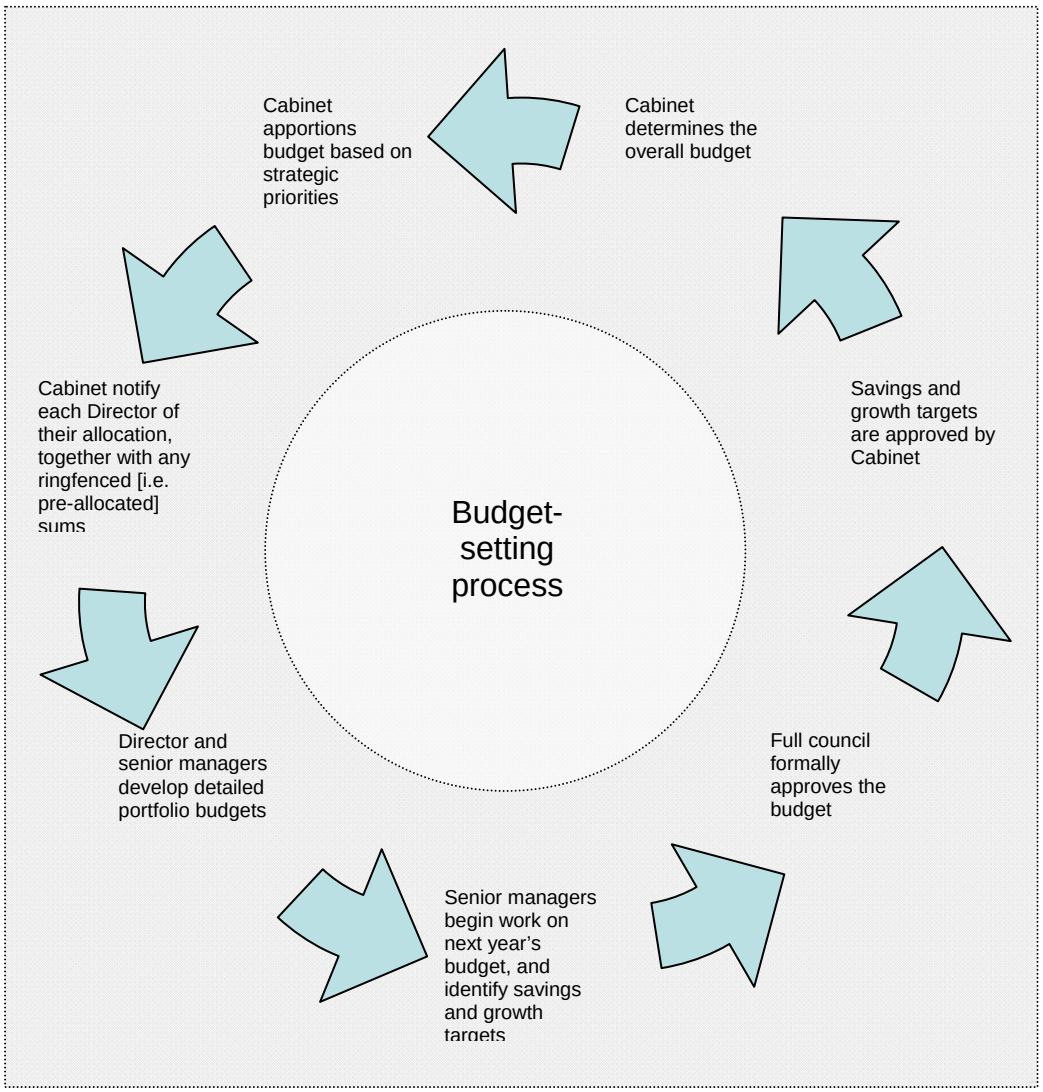
> *"You can't develop a business plan out of thin air. You need somewhere to start from. So what you do is look at last year's plan and then use that as the basis for your new plan"* (Family Support).

It would be repetitious to itemise further comments, because they were all very similar. Essentially, the anchor point was the previous year's business plan, and adjustments were made from this. The anchor point was thus self-generated, but was consciously based on a precedent.

Budget-setting was observed on 18 occasions. Managers were required to develop budgets for the coming year. This was a complex process, and the reader may therefore wish to refer

back to Fig 2 to help to clarify the responsibilities of elected members and council officers. A greatly simplified version of the process is shown below:

Fig 38: Budget-setting process



In essence, these decisions were made in the same way as those relating to strategy development, as the following comments illustrate:

> *"I had a savings target of 28%. You start from your current budget and take 28% off it. Then you look to see if the result is viable"* (Business Management).

> *"I make my [budget] decisions based on the present position. I adjust my savings target down from this in one big hit"* (Adult Social Care).

Some managers recognised that this was not the only way that budgetary decisions could be made, but nevertheless, they followed the same process as the others:

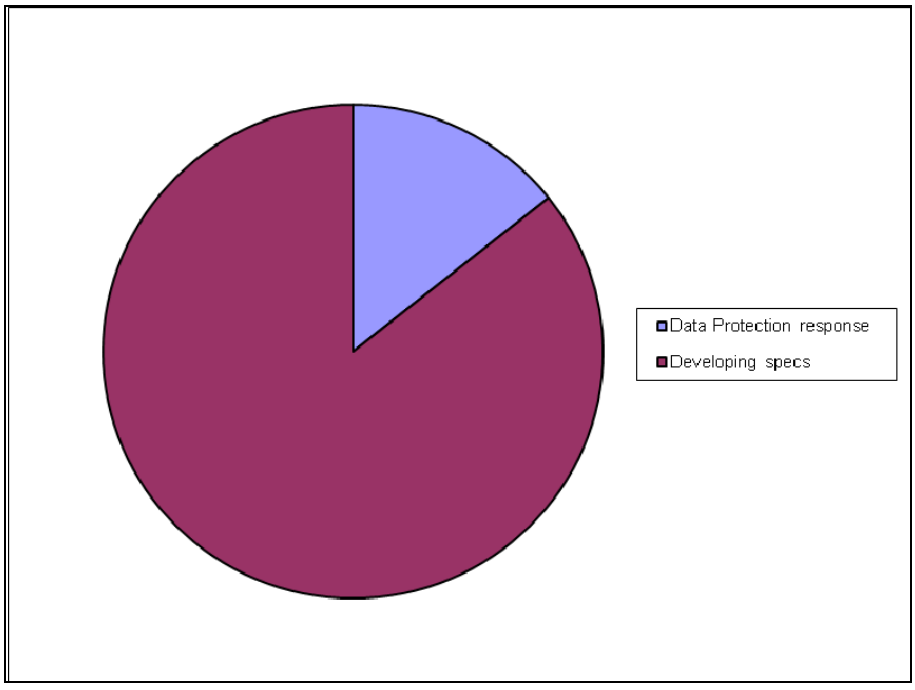
> *"I suppose you could start from a budget of zero and then justify what you need – zero base budgeting – but you don't. Nobody does. You start from last year and adjust your figures up or down from there"* (Community Safety).

The conscious nature of this process was observed in several parts of the organisation. In each case, managers deliberately started from the previous year's budget (i.e. the anchor point) and adjusted accordingly to achieve the desired savings. The major difference from the strategy development process was that the *objective* was set externally (i.e. the final budget), not the *anchor point*, and it was up to decision-makers to determine how this would be achieved. In the case of strategy development, individual managers had much more freedom to operate.

Operational decisions

Operational decisions were made by the anchor and adjustment heuristic on seven occasions (10% of the total of 69 decisions). The following diagram provides an analysis of this.

Fig 39: Operational decisions for which the anchor and adjustment heuristic was used



On one occasion, the anchor and adjustment heuristic was used to **respond to a Data Protection request**. This particular request was similar to previous requests, and therefore it was felt that to ensure consistency, and to minimise the risk of subsequent challenge, the response should be based on the one that was issued last time.

> *"I need to be consistent. If I answer something in one way this week and answer the same question in a different way next week, then the council will look stupid. Even worse, we could end up getting censured by the Information Commissioner. So, when I get a question in that we've had before, I look at how we answered the question last time, or I look at how other councils have answered it. Then I use these answers as the basis for my own"* (Business Management).

In other words, the process is conscious, and is based on adjustment from a self-generated anchor.

Managers also used the anchor and adjustment heuristic on six occasions when they were **developing contract specifications.** In each case, the process was almost identical to that for strategy development. Managers based the specifications for a new contract on existing contracts. The following quote was typical:

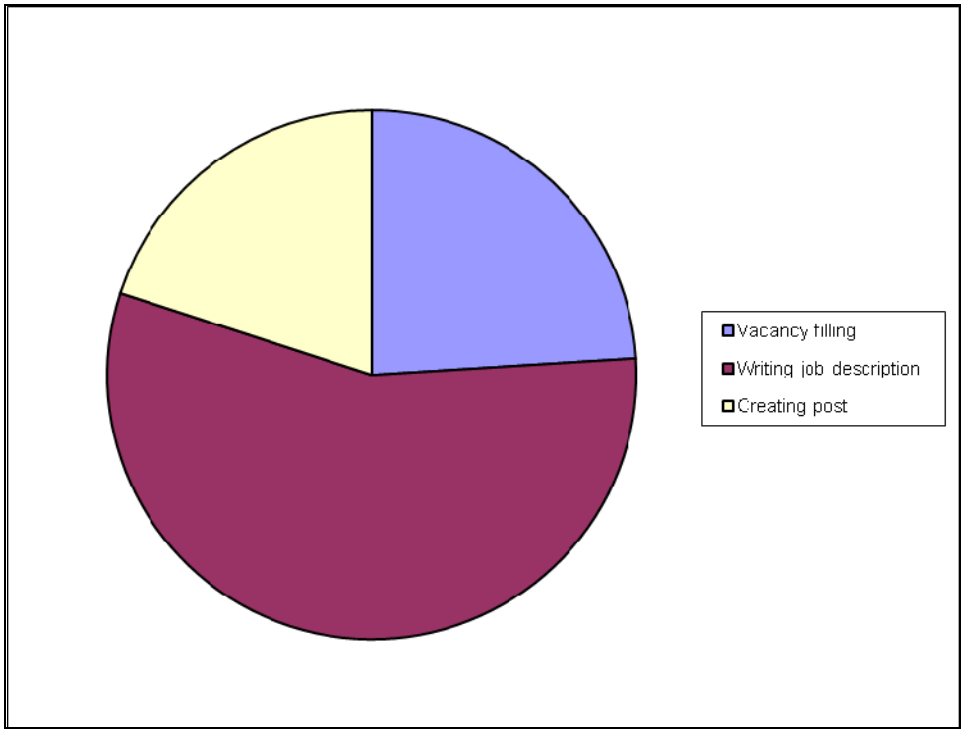
> *"When you develop the [specifications] for a new contract, you always start with what you've got now. You base the new contract on the current contract, but make some changes. You don't start with a blank piece of paper"* (Corporate Performance).

Again, this is a self-generated anchor that is consciously based on a precedent.

Administrative decisions

In each of the 25 cases (36% of the total of 69 decisions) where the anchor and adjustment heuristic was used to make administrative decisions, the decision was concerned with recruitment and selection, as the following diagram illustrates

Fig 40: Administrative decisions for which the anchor and adjustment heuristic was used



This was the most common type of decision for which the anchor and adjustment heuristic was used, and the following comments were typical of all:

In relation to filling a vacancy:

> *"When I'm filling a vacancy I always start off from the existing job description and person specification. [Then] I'll tweak them a bit to reflect our current priorities"* (Neighbourhoods).

In relation to writing a job description and person specification:

> *"When you write a job description and person spec for a new job, your starting point is to look at the ones you already have for existing jobs"* (Primary Schools).

In relation to creating a new post:

> *"I start off by looking and the job description and person spec from a current post. Then I tweak them to make them suitable for the new post, and then I can set my grade for the new job. This also gives me*

an anchor for future recruitment when I want to do the same thing again in the future" (Building Control).

Again, the process is conscious, and is based on adjustment from a self-generated anchor.

5.2.1.3 Underlying processes of the anchor and adjustment heuristic

Direct observation and interviews with managers enabled the underlying processes underpinning the heuristic to be revealed. The following diagram is the result of respondent validation, and it outlines the processes used by managers when they use this heuristic. In each case, the stages of the process are supported by illustrative comments from managers.

Fig 41: Anchor and adjustment process chart

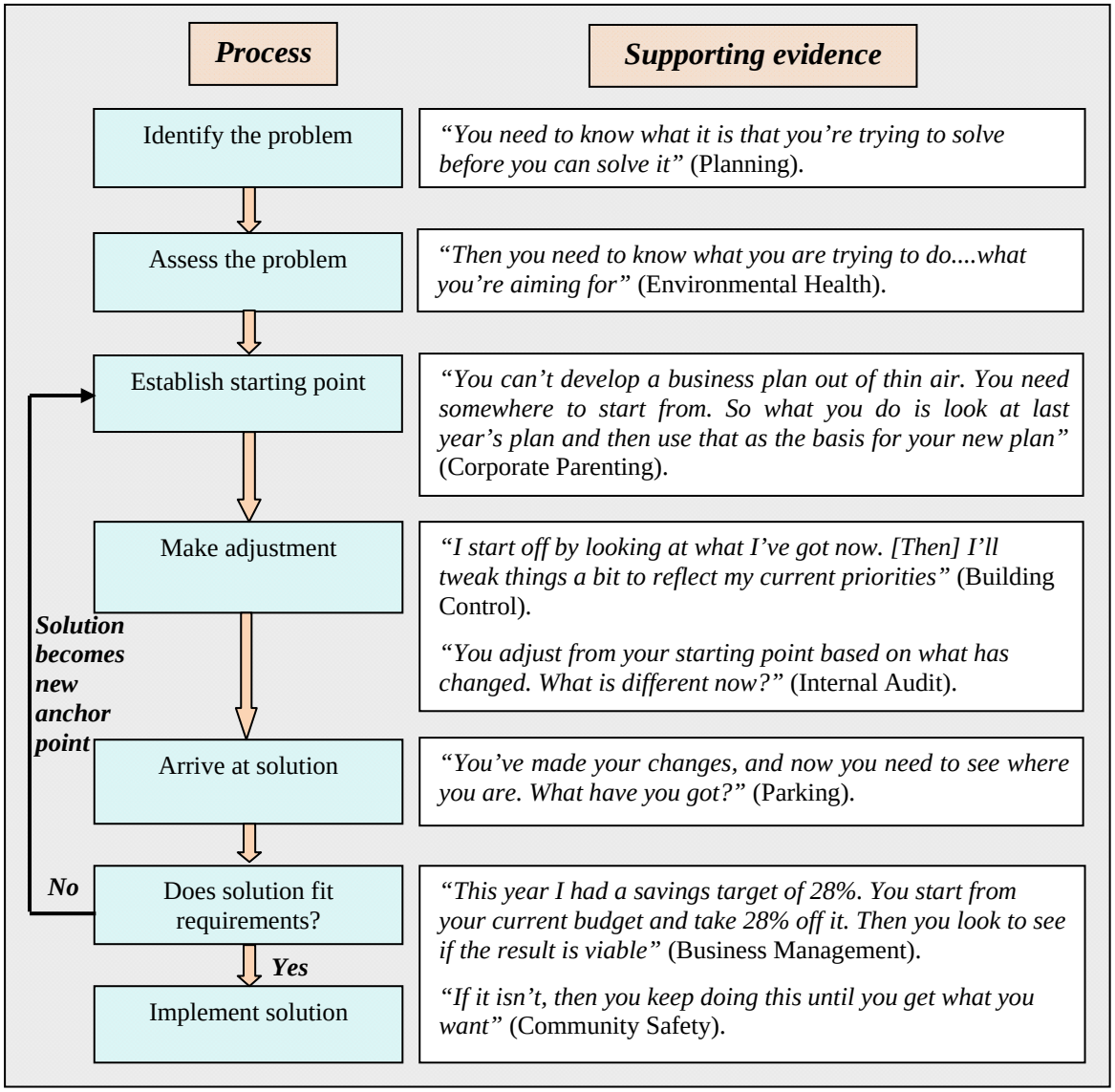


Fig 41 shows that there is a feedback loop and that the process therefore repeats until a decision is reached. The chart not only reflects the empirical data, it also diagrammatically illustrates the procedure described by Epley and Gilovich (2006) thus:

> *"Adjustments proceed in a cybernetic, 'test-operate-test-exit' function […] One adjusts a possibly-sufficient amount from a given anchor and tests whether the adjusted value is plausible. If so, adjustment terminates. If not, an additional adjustment is made, its plausibility is assessed, and so on"* (Epley and Gilovich, 2006: 312-313).

Both the process chart and this quotation are highly suggestive of an incremental process being at the heart of the anchor and adjustment heuristic. Indeed, LeBoeuf and Shafir (2009: 84) actually use the phrase *"anchor [...] and incrementally adjust"* when describing the workings of this heuristic. This is discussed further in Chapter Six.

5.2.1.4 Summary

This discussion demonstrates that the anchor and adjustment heuristic is widely used within the organisation under study. This thesis has helped to address the relative paucity of literature related to the *process* of using this heuristic. In many ways, the literature is supported. The existence of this heuristic is confirmed, as is the way in which the literature describes its use. However, some important differences have emerged. Firstly, the conscious use of the heuristic has rarely been identified in previous research. This has several implications, because it calls into question the notion of *intuitive* heuristics. Moreover, the heuristic has many similarities to incrementalism, and this is discussed further in Chapter Six. Secondly, the identification of self-generated anchor points raises the obvious question – where do these anchor points come from? This is suggestive of possible interplay with other heuristics because, as will be seen later in this thesis, factors such as stereotyping may be relevant. This is discussed further in Chapter Seven.

5.2.2 Availability

5.2.2.1 Nature of this heuristic

In Chapter Four, the availability heuristic was defined in terms of decisions that are made on the basis of how readily information comes to mind. This may lead to some confusion, for as Taylor (1982: 199) notes, *"one's judgments are always based on what comes to mind"*. Therefore, this thesis outlines *how* the information came to mind, and in this way it confirms that the availability heuristic is indeed being used.

A single example can be used to illustrate the use of the availability heuristic in the organisation under study. The Head of Community Safety recalled how her entire strategy changed because of a single incident:

> *"I had developed a long-term strategy to improve the crime rate in the city [...]. It was all logical and planned, and it was based around facts and figures, and then it was derailed by a single incident. This forced me to totally change the direction of what I was trying to achieve. The focus shifted to a more people-oriented approach and there was less of a statistics-oriented approach. But, I didn't know why I was doing it. It was only later when I sat down and thought about it that I became aware of why I'd done what I'd done"* (Community Safety).

When asked to expand on her reasoning, the manager provided the following account:

> *"You remember things that have gone wrong more easily than things that worked well. They just pop into your head, and [they] influence how you develop your strategy. You arrange things to prevent the bad thing happening again – even if it was just a single case. We had a 17-year-old mother who was stabbed to death and just because of that one incident, a task force was established to put measures in place to stop it happening again. Our whole strategy changed as a result. All your successes are forgotten about"* (Community Safety).

What was most significant about this case, from the perspective of this thesis, was the emotional impact it had on the decision-maker, because this was instrumental in calling the incident to mind:

> *"You remember it because it affected you [...]. There's the whole debate around being a mother at 17. You can't fail to have an opinion on that one way or the other – so it affects you. Then you've got a young baby who's lost its mother. As a mother myself, that has an effect [...]. Logic tells you that you can't possibly prevent every single stabbing, but at the back of your mind, you can't help wondering whether there was something you could have done differently. So you have a feeling of failure too. All of that makes this case stand out in your mind [...]. You can't control it."* (Community Safety).

It is clear from this account that the availability heuristic was at work. An incident came to mind, and this incident caused the manager to change her plans. The emotional impact of this case turned out to be a common theme amongst many of the managers who used this heuristic, and it is discussed further below.

5.2.2.2 Extent of use of the availability heuristic

This heuristic was identified in 16 decisions within nine business units. What is particularly significant is that each of these business units is involved in some form of enforcement activity, such as the enforcement of regulation or legislation, with fines or even jail terms being a potential consequence. For instance, Parking enforce traffic violations, Waste enforce trade waste entering the commercial waste stream, and Bereavement enforce investigations into causes of death. This is highly suggestive of a link between work environment and the use of the availability heuristic, but further research would be needed to definitively identify such a relationship. Managers felt that any relationship was an influencing one and they contrasted this to the role played by emotion, as the following quotes illustrate:

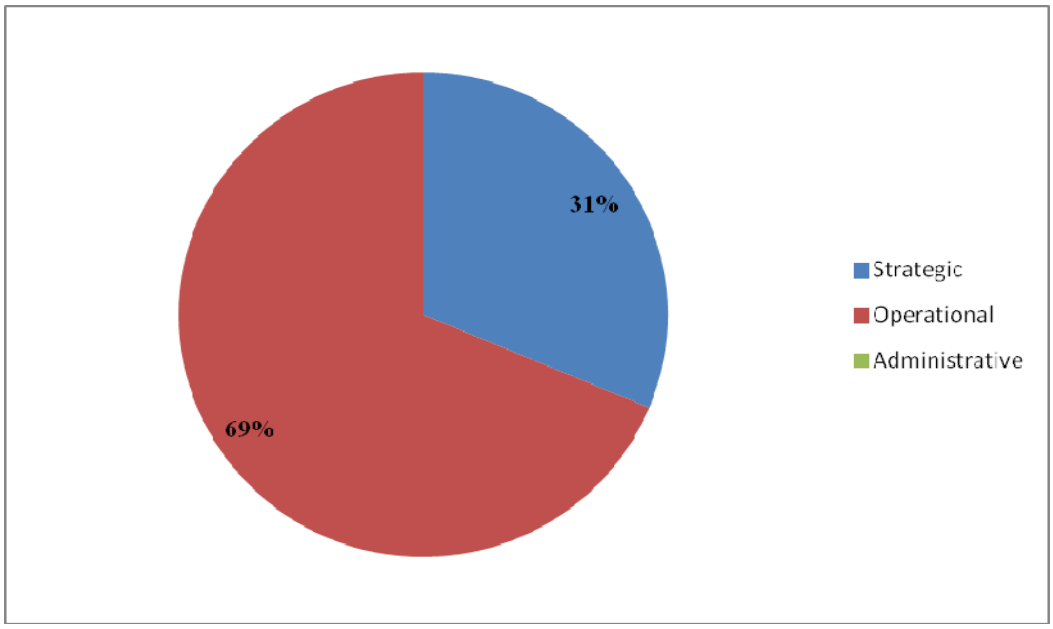
> *"No, [work environment is] not part of the process. It's not like emotion. Emotion is fundamental. It helps you call things to mind. But if there's a link to the type of work you do, it's more tenuous. Type of work might be a factor that facilitates the process, but it's not part of the process"* (Bereavement).

> *"In one you've got an integral part of the process. Emotion makes things pop into your head. Emotion is interwoven with the rest of the process. I'm not sure about type of work. Maybe certain decisions gravitate to certain business units. So the kind of work might just be something that aids the process. Makes it more likely maybe. But, it's not part of the process"* (Community Safety).

Because factors that influence heuristics are beyond the scope of this thesis, the potential link to work environment is not discussed further. However, managers feel that the role of emotion is part of the process, and hence this is explored further below.

The availability heuristic was used for making both strategic and operational types of decision, as illustrated by the following diagram.

Fig 42: Types of decision for which the availability heuristic was used



Approximately one-third (31%) of the 16 uses of this heuristic related to strategic decisions, with the remaining two-thirds (69%) relating to operational decisions. The heuristic was not found in administrative decisions. The following pages explore how the heuristic was used in each category. However, the 'stand-alone' nature of these decisions means that a graphical representation would be counter-productive, since most of the 'segments' in a pie chart would refer only to a single decision.

Strategic decisions

The availability heuristic was used in strategic decision-making on five occasions. Two examples can be given to illustrate the key points. In the first, the organisation under study had identified a problem with unsafe monuments in its cemeteries, and a maintenance regime had been developed to address the issue. Mid-way through this programme, the Bereavement manager changed its direction from a geographical, cemetery-by-cemetery approach to a risk-based regime predicated on the size and condition of the memorials. Hence, it was necessary to undertake condition surveys of more than 250,000 memorials and then devise a programme to prioritise remedial work based on risk. In addition to the increased cost due to the surveying work, contractors were now moving across the city in an uneconomic fashion instead of working in a single area and completing the work before moving onto the next site. Nonetheless, the manager was unrepentant, and argued that the decision to change the approach was a good one. He explained how he had made his decision:

> *"You only remember the bad things, and so you don't take account of [probability]. One memorial fell over in one of [another council's] cemeteries and killed someone who just happened to be passing. Never mind all the other millions of times when people walked past unscathed. Never mind all the millions of memorials that have stood the test of time across the country and have never fallen over. I've had to react to that single situation because that's what came into my mind. When I found out about the incident, I changed tack straight away. It was a conscious decision and I knew exactly what I was doing."* (Bereavement)

The second example is broadly similar, and refers to a nationally significant news story. 'Baby P' was a child who died as a result of neglect and cruelty on the part of his parents and guardians, and the public sector as a whole received tremendous criticism by the judiciary and the press:

> *"Some of your strategic decisions can be influenced by recent events – especially negative ones. A single incident [...] can unduly distort your strategy. Look at Baby P, for instance. I took a deliberate decision to change my programme of visits and I changed how I responded to allegations. Nowadays, alarm bells ring whenever there's an allegation. They are all assumed to be true and are investigated accordingly. In the past, I'd kind of assumed that parents could be trusted and I would only step in if there was clear evidence. Now the emphasis is to act first and ask questions afterwards. Baby P stays in your mind […]. Whatever you do, you always remember that case and you need to make sure it can't happen again"* (Schools Safeguarding).

The conscious nature of these decisions should be emphasised, since the literature tends to focus on the unconscious use of the heuristic. This is considered further in Chapter Six.

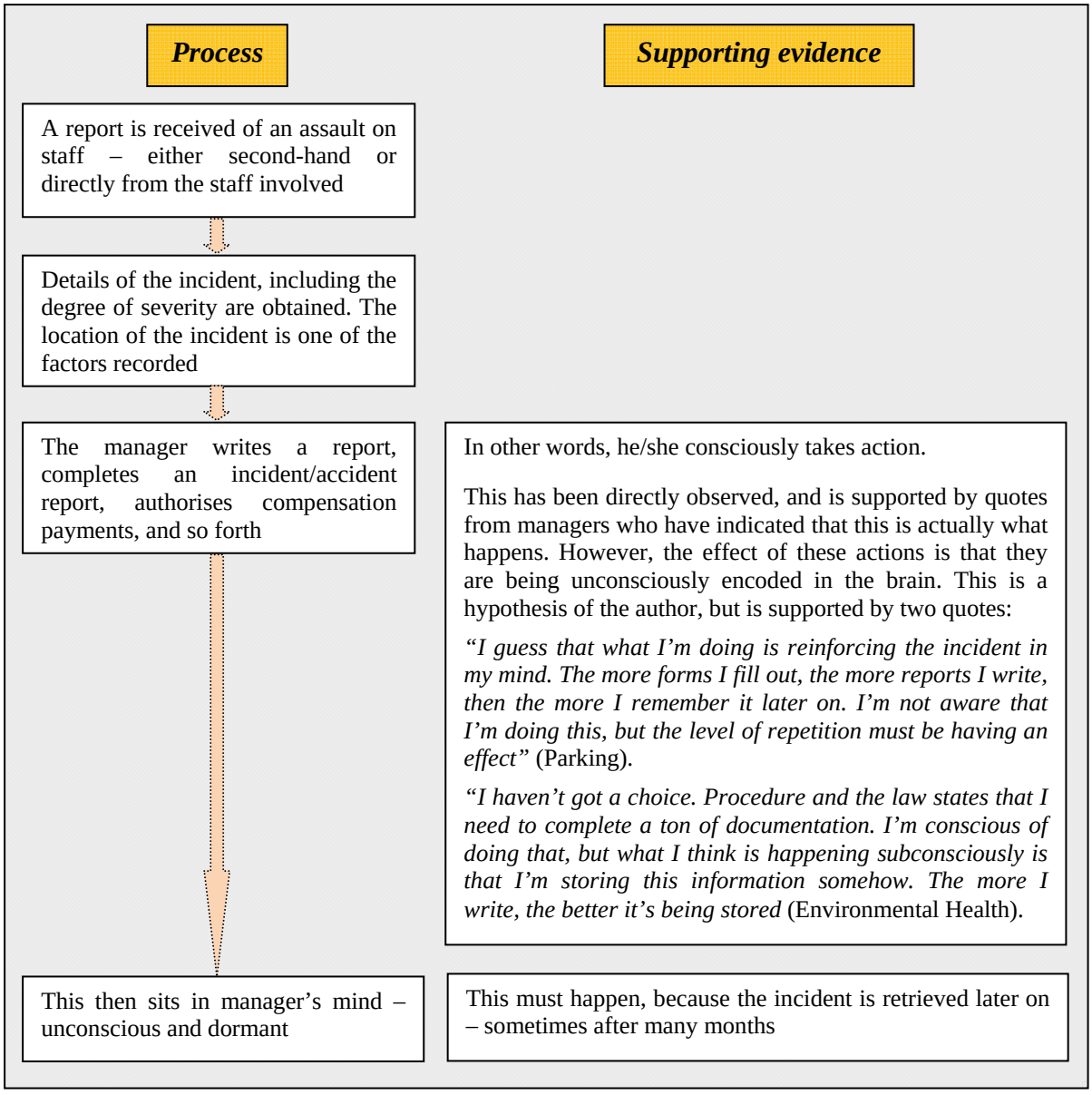
Operational decisions

Eleven operational decisions were made using the availability heuristic. With strategic decisions, the availability heuristic is used differently to the literature (i.e. consciously). However, where operational decisions are concerned, the heuristic is used unconsciously, in line with the literature. As noted above, each of the business units who use the availability heuristic are involved in an enforcement role in some capacity, and each is responsible for protecting their staff, who are often the subject of verbal or physical violence. In these cases, the availability heuristic is used to determine operational decisions such as whether or not to revisit the site in future, or whether to request a police presence at such a visit. Managers felt that a rapid decision was essential in these circumstances:

> *"If someone gets violent towards one of my men I need to take quick and decisive action. I haven't got time to consult"* (Parking).

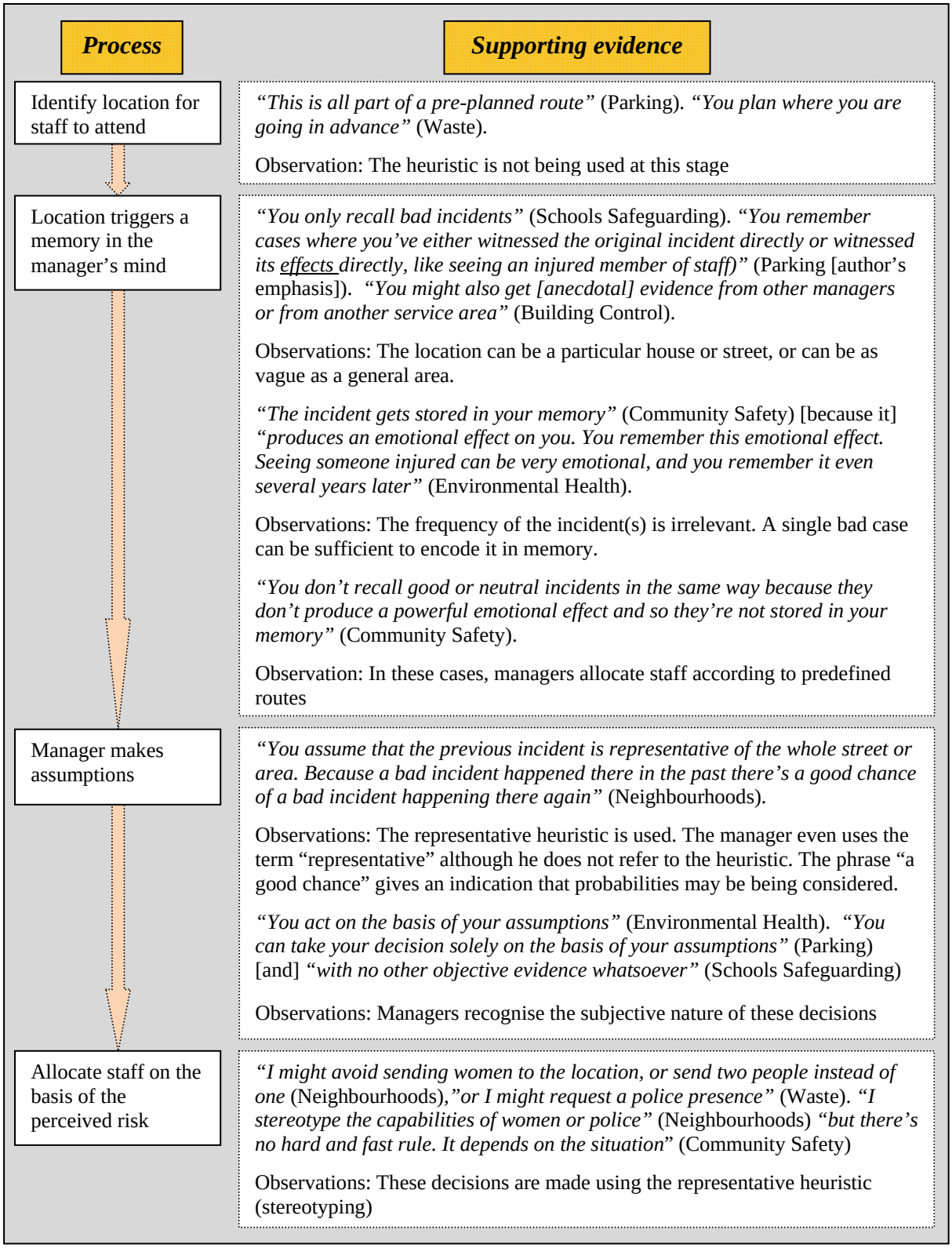
There was considerable similarity between business units, and again, the underlying processes were captured in a series of flow charts. These are presented below, and are supported with comments from managers as appropriate. Such comments were supported by the direct observations of the author, who witnessed instant responses first-hand. The first charts relate to situations where a member of staff is injured or threatened:

Fig 43: Staff safety – Encoding of information in decision-makers' minds



At some point in the future, there is often a need to visit the site again. The following chart outlines how managers allocate staff to the site, and shows how the initial incident is recalled via the use of the availability heuristic.

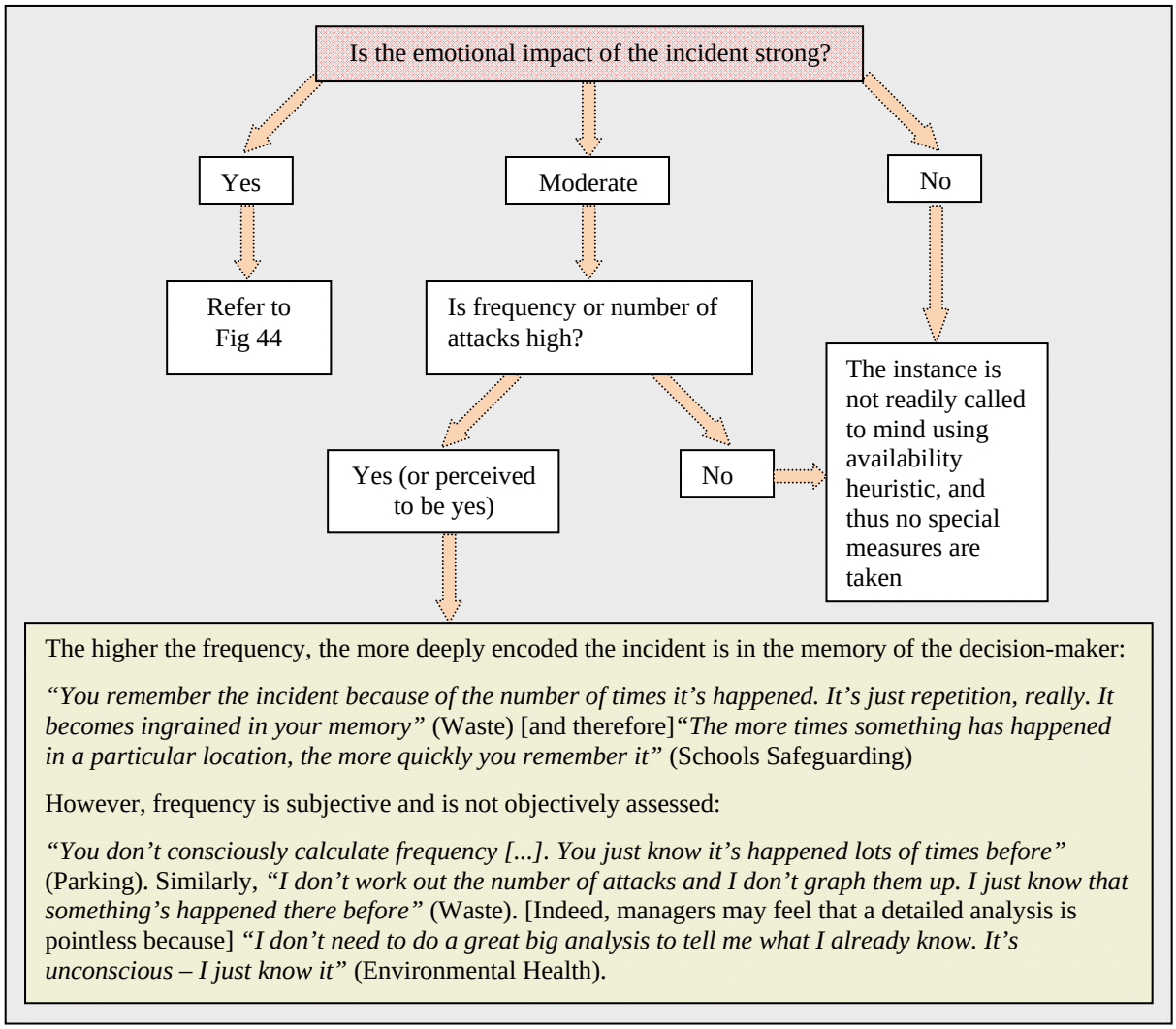
Fig 44: Staff safety – Use of the availability heuristic



This suggests that emotional impact is a key factor, since it plays a role in calling situations to mind. Of course, it does not follow that *only* instances of physical or verbal attacks on staff produce a significant emotional response, and many other ideas have been proposed as factors

that influence how readily something can be brought to mind. Some authors suggest that the number of events is crucial (Koriat, Lichtenstein and Fischoff, 1980; Ross and Sicoly, 1979), whilst others argue that the key factor is the vividness, or distinctiveness of the events, with particularly unusual events being easier to recall that 'mundane' events (Kliger and Kudryavtsev, 2010; Shedler and Manis, 1986). This study has found that frequency may also be a factor, which supports research by Schwarz et al. (1991) and Tversky and Kahneman (1973). However, the 'true' frequency may not always be important. If frequency *seems* high to the decision-maker, the availability heuristic is invoked, as the following diagram illustrates.

Fig 45: Staff safety – Impact of frequency in the use of the availability heuristic



What is particularly evident is that, whilst frequency can indeed by an important influence, a particularly significant factor is the emotional effect that is produced in the decision-maker (which supports authors such as MacLeod and Campbell, 1992 and Slovic et al., 2004). It is

clear from Fig 45 that the more a manager was affected by an incident, the easier it is to recall. Boud, Keogh and Walker (1985) argue that emotion has a crucial role in reflective learning and practice. They stress the need for individuals to recall incidents, think about the emotions the incidents evoked, and reflect on the matter by making use of helpful feelings and removing obstructive feelings. This work links to that of Schön (1983) who explored the idea of reflection-in-action and reflection-on-action. This is discussed further in Chapter Three (section 3.2.3). Further discussion is beyond the scope of this thesis.

This study also suggests that recency is a key factor (supporting Folkes, 1988). The more recently an event occurred, the easier it was to recall, as the following quotes indicate:

> *"If [an emergency] happens then I need to react quickly [...] All I've got to go on is the pattern of recent events, and so I need to use these [...] to guide my decisions"* (Community Safety).

> *"I have to be aware of recent issues. In some areas, I send my staff out in twos, or I don't send women unaccompanied to certain areas. My decisions need to be informed by the most recent information"* (Neighbourhoods).

Unlike the availability effect produced by the emotional impact on the decision-maker, these comments show that the recency effect is a conscious one. Managers deliberately seek out the most recent information upon which to base their decisions.

5.2.2.3 Conjunction fallacy

Chapter Four shows that the conjunction fallacy occurs when the occurrence of two events is rated as more likely than either in isolation (Gaynor, Washio and Anderson, 2007). Participants' comments suggested that that this phenomenon was present within the organisation under study. One example is the phrase *"women are likely to be attacked in [this location]"* (Neighbourhoods). This comprises two components:

- women are likely to be attacked
- an attack is likely in this location

Individually, both components are believed by managers to be statistically low. For instance, women are thought to be less likely to be attacked than men because *"a man is more likely to punch another man than to punch a woman"* (Parking), but, managers *"can't take the chance"* (Environmental Health). *"I have to assume the worst. I've got to do whatever I can to protect my staff. "I have a legal duty to do all I can, so I can't just rely on statistics"* (Community Safety).

In some cases, more than two components are involved, as the following quote demonstrates:

> *"It's not safe to work alone [in this location] after dark because the gangs come out and target council workers"* (Schools Safeguarding).

In this instance, there are four separate assumptions:

- an attack is likely to take place after dark
- gangs are likely to come out after dark
- lone workers will be targeted (by gangs)
- council workers will be targeted (by gangs)

This study therefore supports the limited literature that identifies links between the availability heuristic and the conjunction fallacy (such as Moutier and Houdé, 2003; Tversky and Kahneman, 1983) as opposed to the link between the representative heuristic and the conjunction fallacy. However, it must be emphasised that this support should be treated as suggestive, and not conclusive, because probabilities have not been calculated to verify this.

5.2.2.4 Summary

The above discussion demonstrates that the availability heuristic was only found within an enforcement context. As noted above, this is suggestive of a relationship. Much of the literature is supported and the existence of this heuristic is confirmed. Frequency (or at least, perceived frequency) and recency have been identified as factors that influence recall, and this therefore advances the academic argument in favour of Tversky and Kahneman (1973) and Folkes (1988). Once more, however, some important differences have emerged. The availability heuristic is another 'intuitive' heuristic that can be applied consciously, as in the case of the cemetery headstones and Baby P. This is discussed further in Chapter Six. In

addition, interplay with the representative heuristic was identified, as noted above. This is discussed further in Chapter Seven.

5.2.3 Representative

5.2.3.1 Nature of this heuristic

This heuristic is based on the similarity of one thing to another (Atkinson et al., 1996) or, in more formal terms, the heuristic refers to a judgment of probability of the degree to which A resembles B (Tversky and Kahneman, 1972). A typical example of the use of the representative heuristic within the organisation under study concerns the way in which Fleet Management allocate vehicles to particular people.

> *"I allocate cars based on stereotypes. People expect the Lord Mayor to turn up in something posh and not an old banger, and so I provide that. Joe Bloggs would get something more basic. More of a run-around. It's about meeting expectation rather than need"* (Fleet Management).

And in a similar vein, another manager stated that:

> *"People expect to see a formally dressed Lord Mayor. He can't turn up in jeans and a T-shirt. He has to look the part, and it's my job to make sure he does"* (CEO Support).

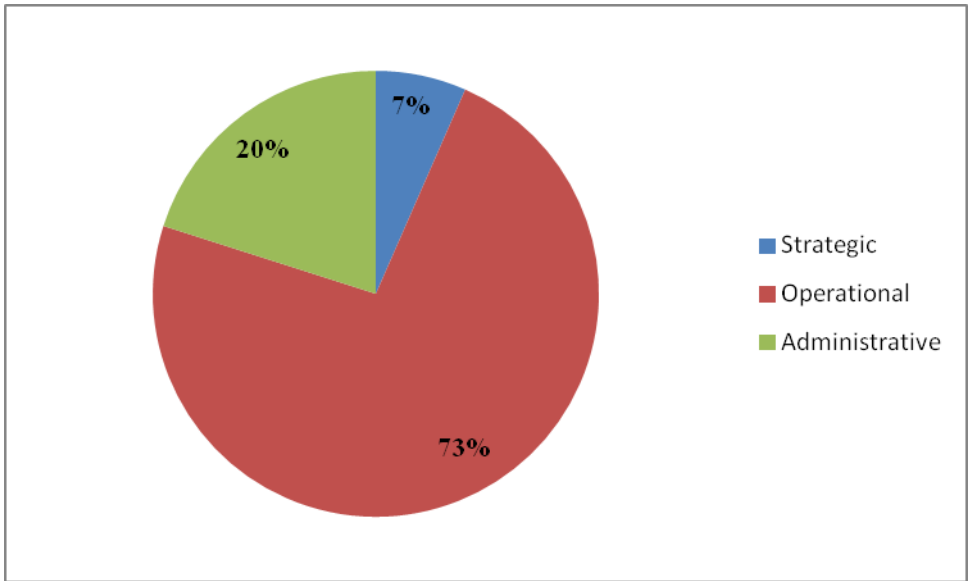
5.2.3.2 Extent of use of the representative heuristic

This heuristic was observed in 259 decisions across all 42 business units. As Fig 34 shows, it was by far the most commonly found heuristic within the present study. When managers were asked for their comments in relation to this finding, they tended to class the heuristic as *"experience"* rather than the *"representative heuristic"*. The following comment was typical:

> *"It's all based on experience. Everyone has experience to a greater or lesser extent, and that's why this [heuristic] is more common than the others"* (Neighbourhoods).

Managers were frequently unable to explain how they made their decisions. As one manager in Planning commented, *"I've no idea how I made this decision. I just made it"*. However, as Glass and Waterman (1988) observe, decision-makers do not need to be aware of the decision-making process in order for the process to be present and, as illustrated below, there is extensive evidence to conclude that the representative heuristic was widely used. The heuristic was used for making several types of decision, as the following diagram illustrates:

Fig 46: Types of decision for which the representative heuristic was used



Relatively few (7%) of the 259 occurrences of this heuristic related to strategic decisions, with administrative decisions (20%) accounting for one-fifth of the total. The vast majority of decisions (73%) were operational. These findings are discussed below.

Strategic decisions

Managers across the organisation used the representative heuristic to make strategic decisions. It was was used in this way on 17 occasions (7% of decisions), all of which were broadly

similar. In each case, the heuristic was used in the development of plans or programmes for the coming year(s). This can be illustrated by a typical example:

The Culture service is responsible for arranging the programme of major civic events across the city, and these events are arranged several months, or even years, in advance. As the manager observed, stereotyping is fundamental:

> *"You use stereotypes. You make assumptions that the public will want to see such and such and thing and then you arrange it. You don't have time to consult properly so you have to make assumptions"* (Culture).

One such occasion was based on a similar event that had happened in France some years earlier which had involved a large display that wound its way through the city's streets.

> *"You remember how well the [event] went down with the French, and you stereotype on that basis. Because the [event] was popular over there, you assume that it will be popular here too, and so you make all the arrangements without any objective idea of what will really happen"* (Culture).

However, this approach can have its problems. When the event in question took place, there was considerable chaos. Traffic jams were caused, many arterial roads were blocked, the emergency services were severely hampered, and there was considerable public dissatisfaction.

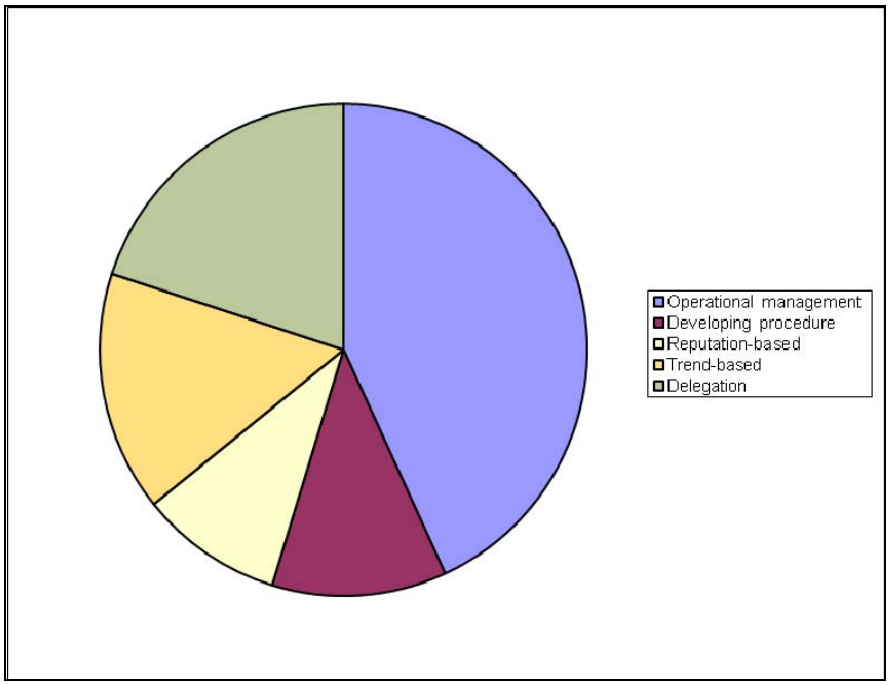
> *"We made a big mistake. We looked at how the French public behave for this kind of event. They get there early and wait patiently for the [event] to pass by, and then they go home. We assumed that the British public would behave in the same way [but they didn't]. The British still arrived nice and early, but when the [event] came past, they started to follow it instead of going home like the French do. So, by the time we got to town, there were massive crowds everywhere and there was gridlock. We'd have been better off looking at how the British behave at big events and using that as our benchmark. We used the wrong crowd behaviour stereotype"* (Culture).

Strictly speaking, use of this heuristic resulted in a significant error, which places it beyond the scope of this thesis. However, it is included here because the manager felt that any error was attributable to the wrong stereotype and not to a fundamental problem with the heuristic process. This process was the same for each of the seventeen decisions made in this way: in all cases a stereotype was used consciously to develop strategy.

Operational decisions

Operational decisions were made using the representative heuristic on 190 occasions (73% of 259 decisions). Broadly, these could be subdivided into five categories: development of operational procedures, decisions based on reputation, decisions based on trends, decisions to delegate work, and routine operational decisions. This is illustrated in the following diagram.

Fig 47: Operational decision for which the representative heuristic was used



The following pages provide illustrative examples from each of these categories.

In the case of **the development of operational procedures**, 22 decisions were made using the representative heuristic. Across the organisation, it was felt that there was a significant difference between ‘operating procedures’ and ‘rules’, as the following typical comment illustrates:

> *"There is a contrast between operating procedures and procedures that have been imposed by Central Government or Standing Orders that have been imposed across whole council [...]. Operating procedures are borne from experience. The others are imposed because someone thinks this is the best way to meet legislation or whatever. These aren't based on experience. They are just rules to be followed"* (Adult Social Care)

It was felt that the writing of operating procedures is accomplished using the representative heuristic. The following comments were typical:

> *"You write operational procedures using stereotypes. You can't cover every possible variation in your procedure notes or you'd end up with a manual that's three feet thick. So, what you do is you generalise…make assumptions…just pick out the things that are most likely"* (Parks).

> *"You think of how you responded in a given situation. If you think it worked, then you write it down in a procedure. If it didn't work, then you write down what you <u>should</u> have done. You stereotype. You assume that next time the situation arises, your solution will still work"* (Corporate Finance).

Decisions in relation to the *development* of operating procedures were contrasted with decisions in relation to *following* operating procedures, which was variously described by phrases such as *"blind obedience"* (Transportation) and *"unthinking behaviour"* (Family Support).

Eighteen cases were observed where the representative heuristic was used to make **decisions based on reputation.** This category encompasses a range of decisions, including those relating to job references, company references, and the employment of suppliers with a 'proven pedigree'. A typical example concerns the use of consultants:

> *"I like to use consultants who I've used before. I'd already used [X] before, and I had a related problem that I needed to resolve quickly. I knew [X] would do a good job for me and so I used them again. I didn't look at anyone else"* (Parks).

It was recognised that this is not always the best answer, and the Chief Executive had the perception that consultants were over-used:

> *"We've got a problem. Let's get a consultant in. That's the knee-jerk stereotyped answer to any problem"* (Chief Executive).

Nevertheless, decisions such as these were made in many business units and were not confined to any particular part of the organisation. Also common were **decisions based on trends**, which were observed on thirty occasions. Typical examples were financial decisions, which involved forecasting on the basis of prior-year trends, or on the basis of other assumptions. The following examples were typical:

> *"We have to make a lot of assumptions when we're trying to predict the final spend. We assume that last year's trends are going to be repeated this year and so we use that stereotype as our basic pattern for forecasting lots of budget lines"* (Corporate Finance).

> *"In parks, you have shops that are only open when lots of visitors are expected. During quiet periods, the shops are closed. We try to predict these peaks and troughs and arrange our staffing and our supplies accordingly. We can only do that by making assumptions like the one that school holidays will be peaks. All things being equal, that's probably a fair assumption, but then we'll get the shop fully staffed and fully stocked, and then it will rain all week and nobody will turn up. You can get things like this wrong, but how else can you do it?"* (Parks).

Whilst some thought that *"there must be a better way of doing things"* (Waste), it was widely felt that *"we've got nothing else to go on"* (Primary Schools) and therefore it was *"inevitable"* (Tourism) that decisions were made in this way.

Similarly, decisions taken involving **delegation of work** were observed to be made using the representative heuristic on thirty-eight occasions, *"because there's no other way of doing it"* (Regeneration Director). Two distinct approaches were found. Firstly, many managers retained work they felt had to be done by themselves and delegated the balance to subordinates. The following comments were typical:

> *"When I delegate work, I look at what I absolutely must do myself, then I delegate the rest based on who I know could do the job"* (Adult Social Care).

> *"I ask myself, 'what must I not delegate?' I keep all that stuff and then I delegate the rest to people who I know from experience are good at the various aspects because they've done it before"* (Building Control).

The second approach to delegation was to start with a 'blank slate' and delegate from there. Typical comments included:

> *"I start from nothing. I go through my workload and see what I can delegate to whom, based on my experience of how well I know they could do the job"* (IYPS).

> *"It's not that hard, really. I look at my workload and decide who I can delegate which bits to. I base my decision on who I know from experience is good at which bits"* (Employment & Skills).

Both approaches made use of the representative heuristic. Managers effectively stereotyped the skills and abilities of their subordinates and allocated work on this basis. There is, of course, a large literature on delegation, but a detailed discussion of the pros and cons of various methods is outside the scope of this thesis (but see Mullins, 2010, Chapter 17, for an overview of approaches to delegation). The key issue as far as this thesis is concerned is that the evidence from this study suggests that the representative heuristic is fundamental.

It could be argued that the way in which delegation is managed is a variant of making decisions based on reputation. Whether or not a decision is delegated to person X depends upon how they are perceived by the manager concerned – in other words, it depends on the reputation that the individual has. There are, however, a number of differences. Firstly, a decision can be delegated to a service area rather than an individual. In the case of a major contract, for example, a manager reported that she *"had to make a decision around TUPE arrangements, but [she] knew nothing about the technicalities of TUPE. Legal [Services] and HR are the experts, so the decision got passed straight to them"* (Corporate Finance). Secondly, the person concerned might have a bad reputation and yet still be delegated to. As one manager put it, *"[X] is terrible. She's lazy and arrogant, but I had no choice. She knew*

more about the [child protection] case than I did, and so I had to delegate several key decisions to her. I didn't like doing it, but I had no choice" (Schools Safeguarding). Finally, delegation can take place on the basis of structure or seniority rather than on individual reputation. A manager observed that *"I've got two deputies. They're both senior managers, and decision-making comes with the territory. They should be able to write complex committee reports on their grade, and so I delegate these whenever I can"* (Corporate Procurement).

In the case of **routine operational management decisions**, 82 decisions were made using the representative heuristic. It will be appreciated that due to the large number of situations observed, it is not practical to itemise every occurrence in this thesis. Similarly, due to the range of services involved, it is not possible to group these decisions as 'neatly' as those throughout the rest of this study. For instance, an operational decision in one area may involve urgent site-based work whereas an operational decision in another area may involve less urgent ICT-based work, and hence it is difficult to generalise. Therefore, three examples are presented below, and these are intended to represent a wide variety of operational management decisions. In the first example, a manager explains about how she arranges the practicalities of servicing and facilitating different events:

> *"Orchestral or choral events [...] tend to have a higher uptake of sherry and cocktails, but fewer hits at the bar. Corporate events tend to hit the bar more, and there are fewer spirits sold. So, I consciously stereotype events when I'm ordering supplies. I consciously stereotype events when I'm ordering waiters and cleaners. I consciously stereotype events when I'm sorting out the arrangements for waste collection. I'm well aware that it's only a generalisation and it's not an exact science, but it's a good approximation and I'm never far out"* (Culture).

The second example concerns the assessment of building safety, and supervising demolitions.

> *"When we're looking at how safe a building is, we fall back on our training and experience, and then we compare the current situation to that [...] That then leads us in a particular direction with regard to safety. When we're working out the best way to drop a building, we compare our previous experience to the present situation. That tells us*

> *whether to use wrecking balls or explosives, or how much explosive to place where. It's all based on using our experience to compare two things – <u>this</u> situation to <u>that</u> situation"* (Building Control – emphasis as per the original quote).

In the third example, the Bereavement manager describes the operational process of cremation. The cremators are computer-controlled but there is the facility for direct intervention by the technicians:

> *"The computers can only do so much. At the end of each cremation, we take over. For the last half hour or so, we're in sole charge. Our experience tells us whether to increase the heat, or whether to change the air-to-gas ratio. We've done that many [cremations] now that we know what to look for, and we base our decisions on the similarity between the present situation and ones we've seen in the past"* (Bereavement).

A more detailed study concerns the 'birdcage' example from Chapter Three, where it was used to illustrate the way in which data was coded using the grounded theory methodology. However, in the following vignette, the quotations are given in their full context.

Vignette 1: Operational decisions – the 'birdcage' case

The following comments *(in italics)* were made by the Schools Safeguarding manager. They are presented exactly as they are recorded in the author's handwritten notes.

"Recently, I had to deal with a paedophile. He'd just been released from prison, and my service was offering support to him on his release from prison. That's what we do. We try to rehabilitate offenders.

When some of my staff visited his house, they saw lots of birds in cages. It looked very suspicious. It looked like he was using the birds to entice children into his house. There was no evidence. Nothing to support this idea. It was all suspicion. It just looked wrong - you know what I mean?

I had some difficult decisions to make. I ended up pulling my staff out and calling the police. That meant that I might have been getting him into trouble without evidence, and it meant that he wasn't getting any support any more from the Council. I had no evidence. Just a gut feeling that something was wrong. My staff felt it too, the ones who went to his home".

"This was definitely a stereotyping decision - it was based on a stereotypical assumption of how a paedophile behaves. It was also a complex decision with many factors to consider. As I say, I had to think of the effect on him. Was I accusing him unnecessarily? I had the reputation of the council to consider. Through my actions, or through my inactions, people would form a view of the council. I had to think of my staff. Their safety is important. My overriding concern though was for vulnerable children. I had to take a moral decision - what did I think was best for the children?"

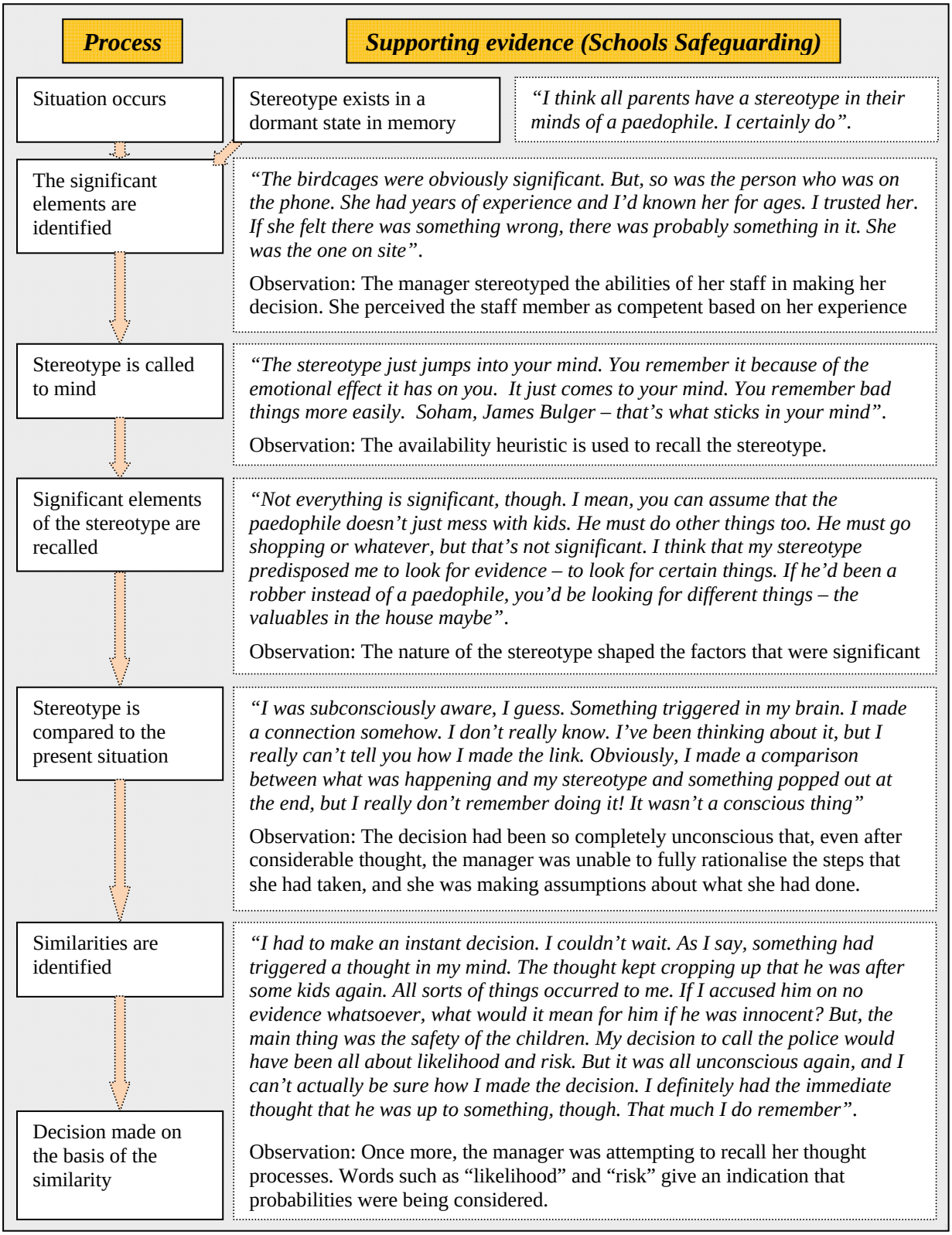
Up to this point, the manager had outlined what had happened, but had not actually stated what the outcome was – merely that she had called the police. The author asked the manager what had happened next.

"I was right. The police came to his house and they were bothered by what they were seeing. He was arrested and taken away. It turned out that he had been trying to entice young children into his house. They'd see the birds in the cages and they'd come in to look at them. And so, he was beginning to build up a relationship with the kids. A level of trust. We got to him just in time. The police told me that he'd had some kids in his house but so far he hadn't actually abused them or anything.

So it was a good decision. I didn't know at the time how I'd made it. I just made it on the spur of the moment. It's only when I'm talking it through with you now that I'm able to make sense of it all and work out what I actually did"

In a series of discussions, the Schools Safeguarding manager sought to identify the steps that were taken in the 'birdcage' case, and this was ultimately captured in the following flow chart, which contains further annotations by the manager that were made as she attempted to understand how her decision had been reached.

Fig 48: Analysis of the decision made in the 'birdcage' example



This diagram is highly suggestive of interplay between the availability and representative heuristics, where the former is used to call the stereotype to mind. This is discussed further in Chapter Seven.

Administrative decisions

The representative heuristic was used in fifty-two administrative decisions. All of these concerned recruitment, and there was considerable similarity in the comments made by managers. Across the organisation, managers indicated that their *"experience"* or *"judgment"* was used in determining whether key staff would or would not be promoted. For instance:

> *"I promote people based on what I know they can do. Things I've seen them do in the past"* (CEO Support).

> *"People get given work based on what I've seen them do in the past. Things like presentations and statistics. That then leads to promotion because I know what they can and can't do"* (Premises Management).

In each case, that the representative heuristic was key to these decisions. A stereotype was present in the manager's mind and this was used to determine suitability for the job. Because someone was perceived to have worked well in the past, the assumption was made that they would be able to work well in the future.

5.2.3.3 Underlying processes of the representative heuristic

It will be appreciated that, given the number and variety of decisions for which the representative heuristic was used, it is difficult to develop a single flow chart that covers every situation. Typically, however, the process was as follows (all quotes from a Secondary Schools manager):

Fig 49: Key components of the representative heuristic

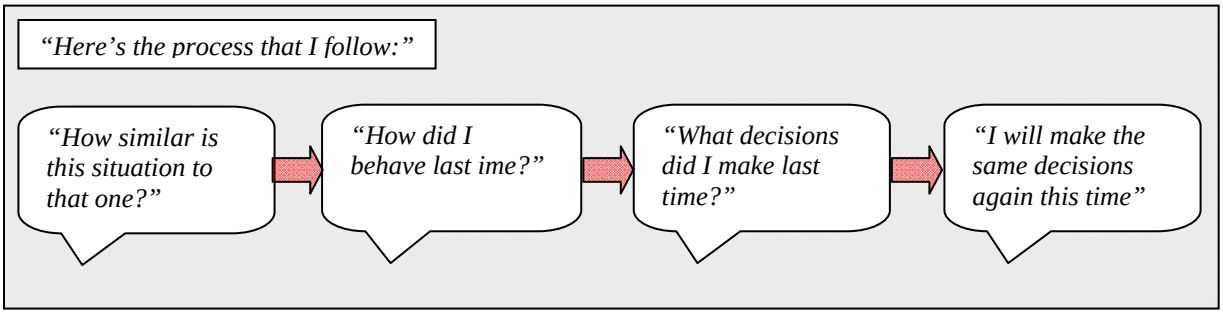
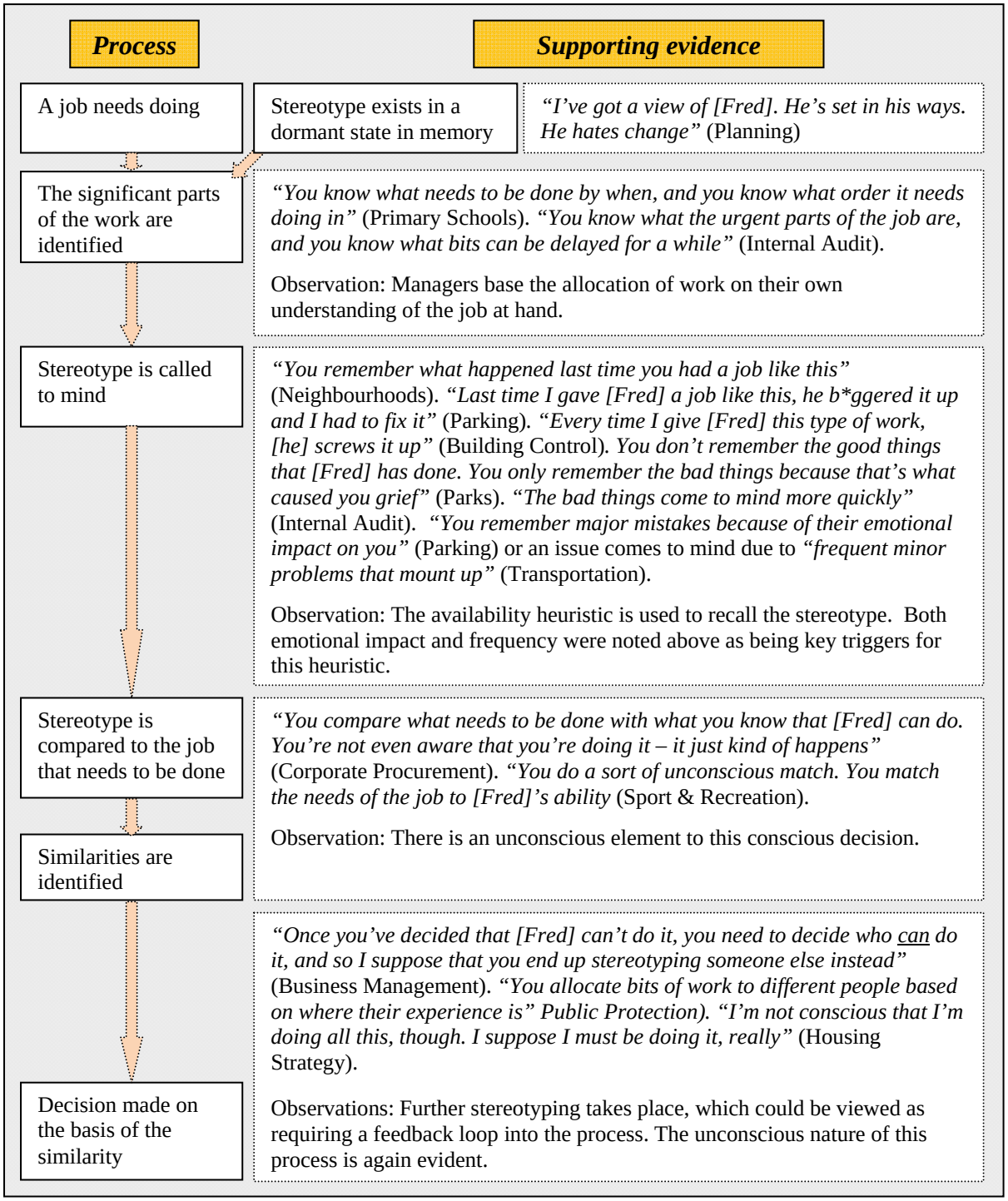


Fig 50 expands on this and uses an example where a manager has to give a piece of work to someone, but feels that the obvious person is not capable of doing the job properly. As with

previous heuristics, the diagram is the result of respondent validation. In the following example, this person under discussion is called 'Fred'.

Fig 50: Process of allocation of work when Fred is perceived as not being capable



This flow chart is very similar to Fig 48 (the birdcage case). The main difference is that in the latter, there is an extra box to highlight that 'significant elements of the stereotype are recalled'. The birdcage example provides detail at this point, whereas the more generic

example above combines this with the surrounding steps. Once again there is evidence of interplay between the availability and representative heuristics. This is discussed further in Chapter Seven.

5.2.3.4 Prevalence of this heuristic

The wide range of situations outlined above supports the literature, which shows that this heuristic is both common and widespread, and which has identified the heuristic in situations as diverse as children's understanding and reasoning (Fisk, Bury and Holden, 2006), real-estate management (Kohlas, 1989), and legal decision-making (Curley and Golden, 1994). At the start of this chapter, quotes were presented that suggested that the representative heuristic was prevalent because it is *"based on experience"* and that *"everybody stereotypes"*. From the foregoing, it is clear that these explanations are only part of the story.

This thesis illustrates that, whereas some heuristics were only identified in discrete contexts, such as the availability heuristic only being found in enforcement situations, the representative heuristic was used in a much wider variety of settings. This can include urgent decisions, such as the birdcage example, but the heuristic can also be used in situations where time is less of a factor, such as development of procedure notes. Furthermore, *"all managers have experience to some extent"* (Parking) *"even if this comes from life outside work"* (Planning), and they are able to draw on this experience to create and utilise stereotypes with little effort. Situations from their past can be compared to the situation they find themselves in at the present time, as noted in Chapter Four in respect of a clinician making a diagnosis that a patient has schizophrenia (Garb, 1996). Also, representative situations are common. For example, *"all managers have to recruit staff. It goes with the territory"* (Neighbourhoods). Hence, managers from whatever background are likely to find themselves in similar situations at some point, and consequently, there are more situations where a stereotype is relevant to decision-making processes. This contrasts with occupations such as enforcement, where the type of operational decisions made by these managers will be different from those made by other managers.

5.2.3.5 Towards a reconciliation of the academic debates

This study has helped to resolve some of the debates presented in Chapter Four. The reader will recall that Garb (1996) proposes that the past-behaviour heuristic is a distinct heuristic whereby people use past behaviour to predict future behaviour. However, this study argues that this is not the case, and it is actually the representative heuristic that is being used. Past behaviour is a stereotype that is held by the decision-maker, and this stereotype is used to make the decision in accordance with the representative heuristic (Greenberg and Baron, 2008). Consequently, this study argues that the effect outlined by the past-behaviour heuristic can be explained as being merely a manifestation of the representative heuristic.

Chapter Four also outlined two alternative sources of the representative heuristic; namely semantic and cognitive. This study favours the cognitive hypothesis. This proposes that the heuristic is based on a pattern of beliefs, such as stereotypes, that the decision-maker holds (Gavanski and Roskos-Ewoldsen, 1991), and this chapter provides clear evidence in support of this proposition. The above examples, such as the development of operational procedures and decisions based on reputation (and many others), include repeated references to the use of stereotypes. The evidence for a cognitive source is therefore extremely compelling. Indeed, this thesis found no evidence that supported the semantic proposition.

However, with respect to the two irreconcilable explanations of the cognitive hypothesis, this thesis is more ambivalent. The prototype hypothesis proposes that decision-makers make use of abstract, or 'typical' constructs from a category (Kahneman and Frederick, 2002), whereas in the exemplar hypothesis, decision-makers use real examples as the basis for their decisions (Juslin and Persson, 2002). Of the 259 occurrences of the representative heuristic in the present study, it was possible to identify the source in only 125 cases. This was a primarily as reflection of the time that the author was able to spend with each manager. As was noted in Chapter Two, it was possible to visit or observe some areas on many occasions, whereas other areas were only visited once or twice. This was compounded by the fact that the organisation under study had embarked on a radical programme of voluntary redundancy, which meant that several key staff left the organisation during this study, and therefore it was frequently impossible to follow up important points. Table 9 illustrates the number of times each source was identified.

Table 9: Origin of the cognitive source of the representative heuristic

Source	No of decisions
Abstract (or 'typical) construct (prototype hypothesis)	16
Real examples (exemplar hypothesis)	109
Total	**125**

Clearly, this study strongly favours the exemplar hypothesis. There were many cases where real-life experiences were instrumental in shaping the stereotype, such as those concerning building safety and cremations. Such evidence supports the exemplar hypothesis. However, in the above examples related to delegation, the evidence is less clear-cut. In the case of X being *"terrible"*, this was based on the real experiences of the manager (supporting the exemplar hypothesis), but where deputies *"should be able to write complex committee reports"*, this was not based on real examples, but on an abstract construct of how deputies 'should' behave (supporting the prototype hypothesis). This study also provided examples that unambiguously supported the prototype hypothesis, such as the 'birdcage' example, where the decision was made on the basis of how a 'typical' paedophile *would* behave rather than how a 'real-life' paedophile *had* behaved. In conclusion, therefore, the balance of evidence study is substantially in favour of the exemplar hypothesis, but there is also a solid body of evidence (admittedly smaller, but still strong) in favour of the prototype hypothesis.

5.2.3.6 Summary

The representative heuristic is prevalent throughout the organisation under study. As before, the literature has been supported. The existence of this heuristic is confirmed, as is the way in which the literature describes its use. This study has also taken a view on key academic debates. It strongly supports a cognitive source for the representative heuristic, and suggests that the exemplar hypothesis is the best explanation for this. In more general terms, similar themes have emerged to other heuristics, in that conscious applications of the heuristic have been identified, together with strong evidence suggesting interplay with other heuristics. These issues are explored further in Chapters Six and Seven respectively.

5.2.4 Moral

5.2.4.1 Nature of this heuristic

Moral heuristics can be defined as *"decision rules that generate intuitions about fairness and justice, punitiveness and approval, right and wrong"* (Cosmides and Tooby, 2006: 181). In other words, they are unique to the individual, and several moral heuristics have been identified. These include "a*lways keep your promise"* (Bartsch and Wright, 2005: 546), and "a*void and punish betrayals of trust"* (Koehler and Gershoff, 2005: 556). As will be shown below, this study has developed a new definition that encompasses these 'mini' heuristics and proposes the existence of *the* moral heuristic, as opposed to *a* moral heuristic.

In the present study, these decisions were broadly of two types: instant and reflective decisions. An example of an instant decision is the following:

> *"I had to take an instant decision when there was a 15-year old girl who I felt was being abused by her stepfather, but I had no real evidence. I took the moral decision to take her from her stepfather and place her with her biological father. That was tough. He had a criminal record and had been to jail, but I felt it was the right thing to do. His conviction had been for fraud, not for abuse, and it was a long time ago and he'd been clean since then. Maybe it was wrong to place her with him when I knew he'd been to jail, but I felt it was right at the time, and I've been vindicated since. The two of them are getting along great and the stepfather is now in jail because of what he'd been doing to her"* (Schools Safeguarding).

An example of a reflective decision is given below:

> *"It's normal for three bodies to be buried in a grave; one on top of the other with some space in between. Once they're buried, they're not supposed to be disturbed again. We used to bury our cremated remains caskets about 18 inches deep when we had a new grave. So, we had to remove the casket when we needed to bury a coffin in the same grave, and replace it afterwards. This was all legal, but I felt morally uneasy.*

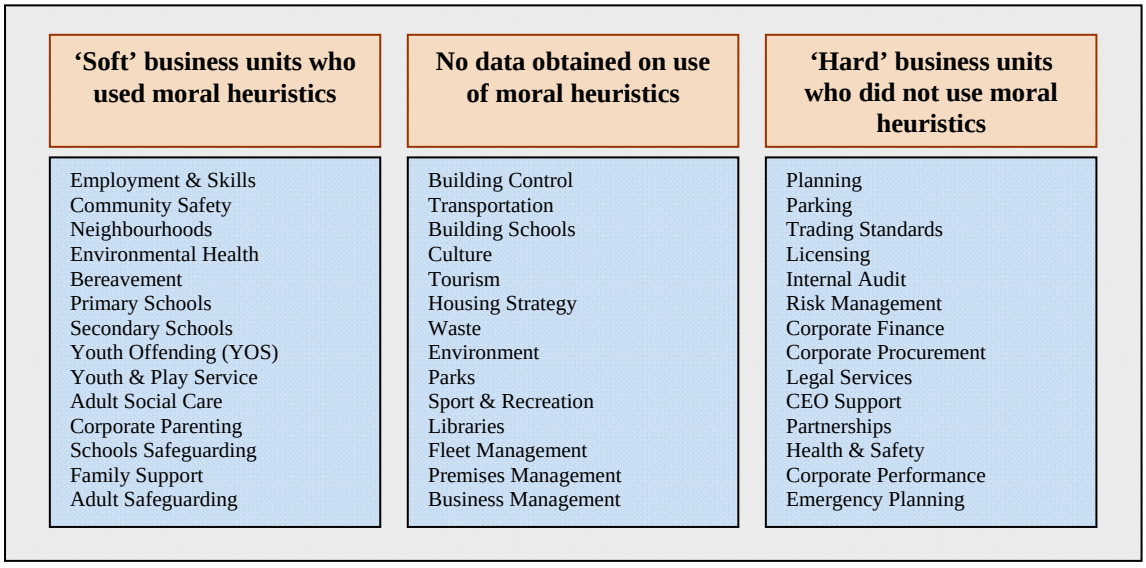
> *I gave it some thought and decided that in future, we would bury the casket at the bottom of the grave; slightly set back so that it would not be crushed by the weight of future coffins buried above it. This looks a bit daunting for families when they first see it. Such a huge hole for such a tiny casket. When the reasoning is explained to them they are actually pleased"* (Bereavement).

Both of these cases presented a moral dilemma. In neither case was there an objectively 'right' answer. Therefore, the manager had to make a decision using his own moral beliefs.

5.2.4.2 Extent of use of the moral heuristic

This heuristic was identified in 49 decisions within 14 business units. Up to this point, no conclusions have been drawn from 'nil evidence'. Because a heuristic has not been found within a particular business unit, this does not mean that it is not used there – only that it has not been found there. This is different in the case of moral heuristics. In this instance, compelling evidence has been found for non-use within certain business units, and there is a clear divergence in the way in which moral heuristics are viewed within the organisation under study. Fig 51 illustrates the use of moral heuristics.

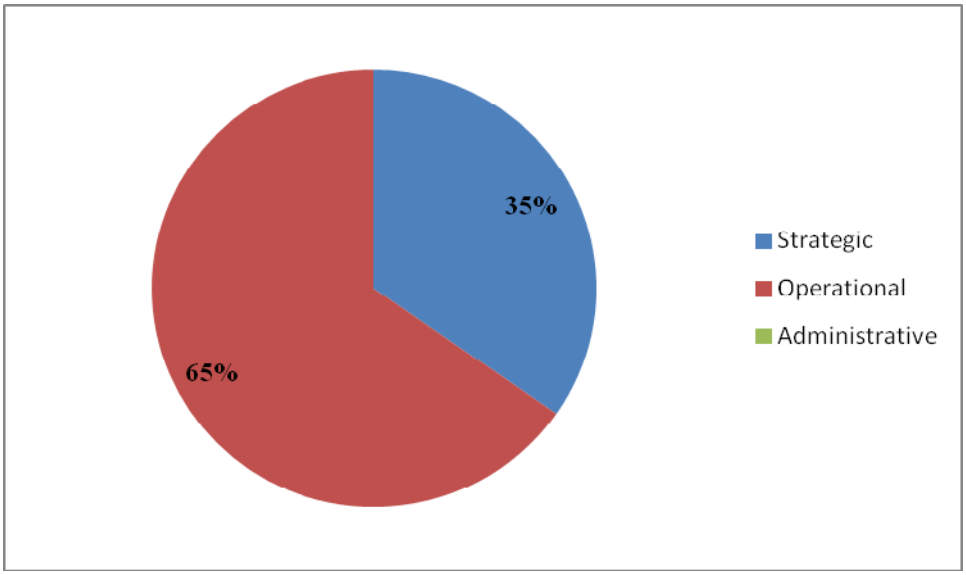
Fig 51: Use of moral heuristics within the organisation under study



In this diagram, there are separate sections for 'soft' and 'hard' business units. 'Soft' business units deal with vulnerable groups such as bereaved families (Bereavement), adults or children in care (e.g. Adult Social Care; Schools Safeguarding), and people on low incomes (e.g. Corporate Parenting). They therefore contrast with procedurally-based – or 'hard' – business units such as Corporate Finance, Internal Audit, and Legal Services, where the emphasis is on *"fact and logic [rather than] personal interaction with vulnerable people"* (Internal Audit). This is discussed further below. Fig 51 shows that moral heuristics are used in 'soft' business units, but are opposed in 'hard' business units. As before, no conclusions are drawn in respect of areas where no evidence was found; and these are not considered further. The following discussion begins by exploring the situations where moral heuristics *are* used, before considering the situations in which they are *not* used.

Within 'soft' business units, moral heuristics were used for making strategic and operational decisions, as illustrated by Fig 52.

Fig 52: Types of decision for which moral heuristics were used

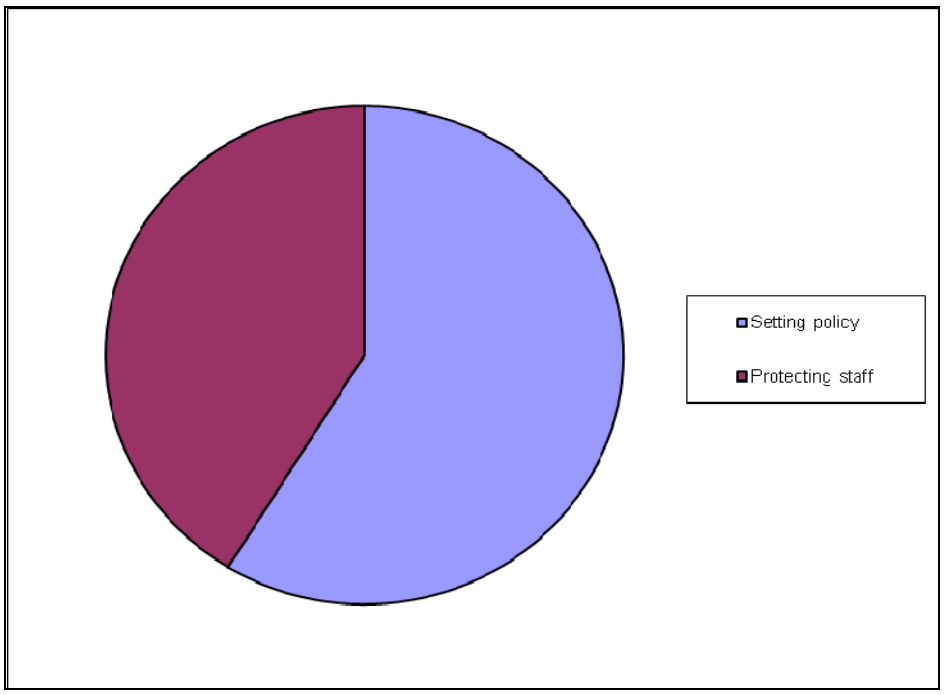


Approximately one-third (35%) of the 49 uses of this heuristic related to strategic decisions, with operational decisions accounting for the remainder (65%). Moral heuristics were not used in administrative decisions. These findings are discussed in the following pages.

Strategic decisions

Strategic decisions were made using the moral heuristic on 17 occasions (53% of the total of 49 decisions). These fell into two categories: development of policy, and protecting staff during a period of budget cuts. This is illustrated in the following diagram.

Fig 53: Strategic decisions for which the moral heuristic was used



The following pages provide illustrative examples from each of these categories.

When managers were **setting future policy**, the moral heuristic was identified on ten occasions. The following vignette illustrates a typical example, and all quotations were provided by the Bereavement manager.

Vignette 2: Recycling heat from cremations

Background

Within the UK, there is a legal requirement for crematoria to install specialist equipment to remove mercury from cremation gases.

"The biggest piece of expenditure is the boiler unit. This doesn't act like a normal boiler, which heats things up from cold – this works the opposite way. It reduces the heat from the cremation emissions from 1300˚C down to about 200˚C, and only then are the emissions fed through the equipment. Now, all this heat has to go somewhere".

The manager had to make a decision to determine what would happen to this excess heat.

Decision

"I decided to recycle it and use it to heat the chapels. It was just a case of installing a heat exchange plate, and we've connected to the water from here and reuse the heat. Looking at the costings, it only cost around five or six grand to put the equipment in place, but on a normal day's operating at [the crematorium], we can now provide enough heat to heat a leisure centre – swimming pool, central heating and water supply. That's how much heat we can reuse – huge savings. We don't have a choice with the mercury abatement. It's a legal requirement".

Justification for the decision

When the manager explained how he made this decision, it was clear that moral heuristics were key:

"I've had to make a moral decision. There are moral issues about recycling heat from cremations. Some would argue that we're saving money from the dead, and that it's gruesome. But there is another moral aspect too. We're living in a green and environmental age. There's a moral argument that we should be conserving energy and recycling whatever we can – other morality comes into play. Then there's a third argument. If we could save this amount of money it would mean that we can keep our charges down. It could be argued that morally we shouldn't charge the earth for our services at a time when families are at their lowest ebb. You can't reconcile all sides of the argument. I've tried. I've spent ages going over the arguments in my mind, and I can't find a way to satisfy all extremes. So, I've done what I believe to be morally right. I've installed the plant".

The consequences of the decision are unclear

"I realise that this is one of those situations where there isn't a 'right answer' and that plenty of people will disagree with me, and I'm expecting a lot of criticism. I can take that so long as I feel that it's the right thing to do in my own mind".

This decision was taken after much reflection and as *"a last resort"* (Bereavement) after the manager had tried in vain to find an alternative solution. A second example concerns social work, and all quotes were provided by the Adult Social Care manager.

Vignette 3: Social work – allocation of budget

A senior manager was attempting to improve the service that was provided to vulnerable people.

"I thought and thought, and finally made a moral decision. I decided to give people a say in how we spend our money on them. This was well before it became national policy. Not all of our budget – just a small amount. We gave each family a set amount of money and they could choose how we spent it to best meet their needs. That was a moral decision. The right thing to do was to give families more of a say in how we helped them".

Again, this decision was taken after careful deliberation. In this case, the consequences of the decision were ambiguous, but the manager stood by her decision.

"No, their choices didn't always chime with what we'd rather have done. Some of them would go straight out and buy fags and booze, but it was still the right thing to do. They felt empowered. It gave them a feeling that they had some control over their own lives".

These examples are typical of those that were found within the 'soft' business units in relation to the setting of future policy by means of the use of moral heuristics.

Moral heuristics were also used in relation to the **protection of staff during a period of budget cuts**, which was identified on ten occasions. Once again, a vignette can be provided to illustrate these cases. In this instance, the vignette is a composite of several similar examples, and therefore the quotes come from several sources.

Vignette 4: Protection of staff during budget cuts (1)

Background

As noted in Chapter One, following a major global financial crisis, the UK government imposed a series of austerity measures. One of those which greatly impacted upon the organisation under study was a large reduction in the amount of government grant that was paid to the organisation. This amounted to a 13% reduction of income in year one with a further reduction of 15% over the next two years. In order to set a legal budget, the organisation decided to reduce staff numbers by approximately 2,000 posts over the three-year period.

Decision

"I had to take a decision to balance two fundamentally conflicting priorities. I had to balance the need to make savings with the need to protect front line services. I chose to protect existing staff and delete my vacant posts" (Schools Safeguarding). *"This is a moral issue. My staff have been loyal to me over the years under difficult circumstances. Now they need me to look after them. I need to repay them. It's the right thing to do"* (Corporate Parenting). *"This was an ideal chance to get rid of the dead wood. I could get rid of the people I don't like. It was an ideal opportunity, and I'd have got away with it. People would have understood. But that was morally wrong. I had to protect my current staff as best I could. I deleted my vacant posts, got rid of overtime, supported early retirement for those who wanted to leave. I did everything I could because I felt it was the right thing to do"* (YOS).

Although staffing decisions are normally regarded as administrative decisions (Ansoff, 1968), managers felt that these were strategic decisions:

> *"Definitely strategic. I knew when I was making the decision that by cutting my vacancies I was effectively saying that we can't deliver particular parts of the service in future. Quite consciously, I was setting out my service delivery priorities for the next few years"* (IYPS).

> *"I was setting out the size and shape of my business unit [...] for the next three years, but also protecting the key services and setting out how I was going to deliver these with fewer staff. So, it's a strategic decision"* (Adult Social Care).

It will be seen below that in 'hard' business units the same decision (to protect current staff) was taken, but for very different reasons.

In all cases, strategic decisions using moral heuristics were made as a result of managers' conscious reflection on the situation, and this is illustrated in the above examples. However, operational decisions were more urgent, and therefore instant decisions were taken. The following section outlines the processes involved.

Operational decisions

Thirty-two operational decisions were made using moral heuristics. All related to the day-to-day working of the 'soft' business units. They ranged from technical issues in post-mortems to taking children into care, but by definition, these were all different in nature and cannot easily be grouped together for illustrative purposes. In view of this, two examples are presented, and these are intended to be representative of all:

> *"On a daily basis, we have to get [...] kids interested in education [...]. You can't wait until next week; you have to get the kids into school the same day if you can. You have to make a decision <u>now</u>. Because every [child] is different, what works for one won't work for the next person. It's all based on our own perspective of the family situation. Maybe the mum's gone off the rails or had a breakdown. Maybe the child has got some medical need. We need to identify the need and do what [...] seems right to us. In these situations, there's no right or wrong answer, and we need to make a quick decision about what's best for the child. Your own morality is sometimes all you've got to go on"* (Schools Safeguarding).

> *"I'm only called in when there's a crisis. Maybe there's some family problem and I have to defuse it straight away [...] I've taken children to McDonalds. I've taken them go-carting. I've sent people to anger management courses. It all depends. I often don't have any real evidence to back me up – I just have to do what I think is right"* (Family Support).

The views of 'soft' business unit managers were summarised as follows:

> *"We're not in a business. We can't say that we'll stop making T-shirts and make something else instead. We can't stop caring for vulnerable children because it costs too much"* (YOS).

This quotation was supported by several managers. For example, the Bereavement manager stated that:

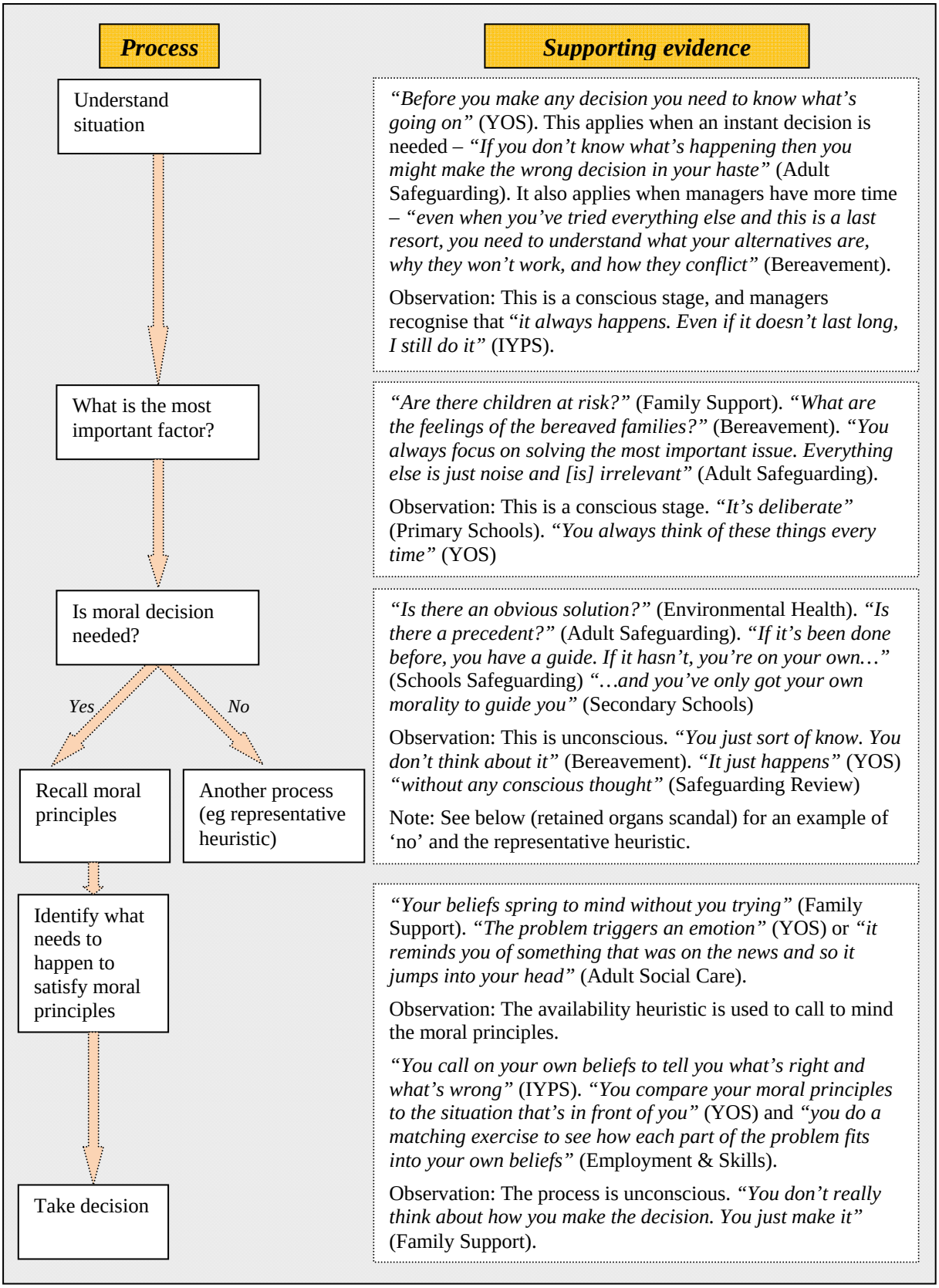
> *"Yes. That's spot on. I mean, we don't deal with vulnerable children...we deal with bereaved families. But otherwise, it's spot on. You can't suddenly decide to stop your service just because of cost. You owe it to the family. You have a moral duty"* (Bereavement).

This, of course, implies a deontological perspective. This is discussed in more detail below.

5.2.4.3 Underlying processes of the moral heuristic

In spite of the the variety of decisions for which the moral heuristic was used, a surprising degree of commonality was found and it was possible to develop a single flow chart that covered all situations. Once again, the following diagram is the result of respondent validation and is the product of several iterations.

Fig 54: Process used in the application of moral heuristics



Managers felt that the essential difference between instant and reflective decisions comes in the 'understand situation' box.

> *"This box is where you decide how bad or how urgent the situation is"* (YOS), *"whether you need to sort out a life-and-limb situation"* (Adult Social Care), or *"whether you've got time to reflect and weigh things up"* (Environmental Health). *"Once you get past that stage, the rest of the chart is the same for instant decisions and for more thought-out decisions"* (IYPS).

Therefore, managers were satisfied that there was no need for a separate flow chart to reflect the different degrees of urgency.

As stated above, there was a clear disparity between the views of 'soft' and 'hard' business units, with the former using moral heuristics, and the latter avoiding them and even stating that they are 'wrong'. The following section explores this issue further.

5.2.4.5 Non-use and outright rejection of moral heuristics in this study

A number of business units stated that there was no room for moral decision-making. Rules were there to be obeyed and the right thing to do was to follow them. These are identified above in Figure 51, and are described as being 'hard'. These services deal with regulatory matters such as the law (Legal Services), compliance with procedure (e.g. Internal Audit), and budgetary control (Corporate Finance). In the case of 'less obviously hard' business units such as Planning, Parking, and Trading Standards, they viewed themselves as falling into the 'hard' category. For instance:

> *"Planning applications are a matter of fact. Either an application meets the criteria or it doesn't. There's no room for morality or interpretation in what we do. What we do is governed by legislation [...] We can't start bringing our own morality into it"* (Planning).

> *"If we don't [follow procedure] and some infected meat slips through and kills a couple of dozen people then it will be our fault. We've got no time for moral decisions. We have to play it by the book because the stakes are so high if we get it wrong"* (Trading Standards).

These business units therefore contrast with the ‘soft’ business units described above. These managers were asked why they did not use moral heuristics, and the following comments were typical of their responses.

> *“As a lawyer, I can’t allow morality to enter into it. Otherwise, when I was in private practice, how could I properly defend a murderer or a paedophile? Now that I’m with the council, how could I possibly defend the council if I believed that what we’d done was actually wrong? You can’t bring morality into it because it would mean that your work is affected”* (Legal Services).

> *“There’s plenty that I’m morally opposed to, but I’ve got to do anyway. If I believed in everything, I’d be a Tory supporter, a Lib Dem supporter and a Labour supporter. I’d be in favour of massive cuts and I’d be against massive cuts. I’d be schizophrenic in other words. I can’t take a moral view, I just have to follow procedure and make sure the wheels are well-oiled”* (CEO Support).

One manager even stated that *“moral decisions are wrong. Full stop”* (Internal Audit).

In spite of this, it is possible to illustrate non-use through vignettes. The following vignettes illustrate that the same decision can be viewed from different perspectives.

Vignette 5: Protection of staff during budget cuts (2)

Background

It was shown above that in 'soft' business units, the decision to protect staff was taken using moral heuristics. However, in 'hard' business units, although the same decision was taken, it was taken for different reasons and using different methods.

Decision

As before, the decision was made to delete vacancies and thereby protect existing staff. However, managers explained this decision in very different terms. For instance:

"In reality, it's not that easy to get rid of someone who's not performing. It's hard to do. I heard about x in Environmental Health who was suspended for gross misconduct, appealed and came back. So why bother going through all the hoops? It's easier to get rid of vacancies" (Planning).

"In the current climate, it's cheaper to keep your existing staff than trying to recruit new staff" (Internal Audit).

"If I lose my current staff then I'd lose the post. I won't be able to fill it [because] that's the corporate procedure. So, I'd rather keep some iffy staff than lose the posts for good" (CEO Support).

In other words, even though the same decision (protect staff during budget cuts) was made in both 'hard' and 'soft' business units, completely different processes were used to make the decision. This difference of opinion is even more starkly displayed in the following example:

Vignette 6: To cremate or not to cremate (1)?

Background

A large funeral arrived at a crematorium. Procedure dictated that payment for the cremation must be received 'up-front' otherwise the cremation could not be allowed to proceed. In this particular case, payment had not been made. This was the funeral of a six-year old girl and the family had begun to get angry and threatening when crematorium staff said they couldn't proceed. The Bereavement manager was called.

"When I got there all hell was about to break loose. The family were going potty, and the delay was causing other funerals to back up and form a backlog down the driveway. I had no time. I had to make an instant decision there and then" (Bereavement).

Decision

"I took a moral decision. What was the right thing to do? I decided to cremate without payment. The right thing to do was to let the cremation proceed. The family had already suffered terribly. They'd lost their six-year old child, and now here we were adding to their distress because of a procedure. I did what felt right. We could always chase the payment from the funeral director at a later stage. The situation cooled straight away and the funeral passed off smoothly. Later on I got a lovely letter from the family thanking me for my decision and for the way I'd handled things. And we got the payment too" (Bereavement).

Follow-up

"When [Internal] Audit found out what I'd done, they had a different view, and I was disciplined" (Bereavement).

"*Yes, we disciplined [the Bereavement manager]. Procedures are there for a reason. They're there to protect individuals as well as the council. What would have happened if it had gone wrong? We'd have had no comeback if the family had decided not to pay. The decision cost the council a few hundred quid, and there was no guarantee that we'd get our money back. Now we've set a precedent. If this family can get away without paying, how can we possibly enforce it for other funerals? The right thing to do was to follow procedure"* (Internal Audit).

Each side was convinced that they had acted properly:

"This decision cost the council money. Basically we spent taxpayers' money so that [the Bereavement manager] could sleep at night" (Internal Audit).

"I stand by my decision. It was the right thing to do. I'd do the same thing again" (Bereavement).

These examples demonstrate the difference of opinion between 'soft' and 'hard' business units, and illustrate that many decisions are not straightforward and that the 'right answer' depends on one's point of view.

5.2.4.6 Can the same decision be made by the same manager using different heuristics?

This study has shown that the same decision can be taken in different ways. This was shown above when considering the protection of staff in periods of budget cutting, but this example involved different managers making decisions for their own reasons. However, it was also found that managers were able to use different strategies on different occasions to make the same decision. The following example was typical. All comments were made by the Bereavement manager.

Vignette 7: Retained organs scandal

Background – first instance

There had been a national outcry about organs that had been taken from deceased children and had been retained against the knowledge of the families. The 'culprits' were a hospital and a university, and there was a major concern about how these organs should be treated. The issue had nothing whatsoever to do with the organisation under study – the local council – but it fell to the council as the burial and cremation authority to organise dignified and proper arrangements.

Decision process

"I had to decide if, and how, the council should get involved. There were lots of organisations involved – local churches, Church of England nationally, national and local media, [the local] university, [the local hospital], [the families' self-help and support group], and of course the Council. Each organisation had its own ideas about what should be done, in which order, by whom and when. There were legal implications too. I knew I was setting a precedent, but I still had to make sure the law was complied with".

"It was too complex a decision to make if I considered all factors. I tried. I wrestled with this for a while. In the end, I simplified the decision by taking a moral stance. If I was one of the families, how would I like it to be handled? I decided that this would be my guiding principle. I took my own perspective and made my decision based on that. I'd never have made the decision if I tried to take account of all the different viewpoints".

Decision

"I made a moral decision. I chose to dedicate a plot of land in [one of the council's cemeteries], organised the burial arrangements, made sure that the service was dignified, and so on. This was all done under the glare of national publicity and all costs were borne by the council".

"As well as the overall moral decision about what to do, I made a moral sub-decision that the remains would be buried instead of being cremated. I took this decision because I felt it was the right thing to do - just in case it was ever possible in the future to identify some of the remains, then they could be exhumed if necessary and handled in accordance with the families' wishes. You couldn't do that with cremation".

"Whatever I decided, I knew I would upset someone, so there was a significant possibility of the decision being seen as a failure - either by me, or by the families, or by the press. The decision was dealing with intangible elements like people's emotions and feelings, and not factual matters. This also meant that outcomes were very uncertain - there were lots of people with differing views, and it was impossible to satisfy all views. There were lots of risks – political, reputational, and financial issues – and individual careers were at stake, including mine, if it went wrong. Time was not a major factor though, and an instant decision was not needed. I had about three months [in which] to make the decision. There were no deadlines as such, but I strongly felt a moral pressure not to delay because there was a need to provide closure for the families".

Comments

It is clear that moral heuristics were used to make the decision. *"Yes, it was purely moral. I did what I felt to be morally right"* (Bereavement).

Background – second instance

Some months after the above decisions were made, the same situation arose again. *"It's just come out of the blue. They've found another 11,000 cases that relate to about 600 children"* (Bereavement). This decision was observed directly by the author, and the manager also provided his reasoning, which was fully in line with the observations.

Decision

"I did exactly the same thing I did last time. I set aside a dedicated plot of land in [the same] Cemetery, I organised burial rather than cremation, I worked with family groups and churches, I worked with the media. I oversaw the whole thing. Exactly the same as before. The only difference was the number of cases. The second time round it was much smaller, but it made no difference to my decision at all".

Decision process

On this occasion, the representative heuristic was used to make the decision. At the time, the manager stated:

"This time it's different. Because of last time, we have a plan. I got it right last time. We've got the precedent now. I just need to make sure I do the same thing"

Some weeks later, the manager explained in more detail how the decision was made.

"I stereotyped. I made assumptions. The first time round, I'd made a good decision – or at least, it was a good one from my point of view. I was happy with it. It worked well and I could use this experience to stereotype what needed to happen the second time round. I stereotyped the problem. Everything seemed to be the same so I made the assumption that the second time would be the same as the first and that the smaller numbers would make no difference. I stereotyped the actions. Because the problem was the same, and because the actions worked the first time round, I made the assumption that they'd work second time round too".

Outcome and comments

In both cases, the decision was felt to have worked well and the manager received a corporate award for his work. In discussions with the author, the manager accepted that the same decision was made in two different ways: *"Yes, the first time it was moral and the second time it was stereotyping"* (Bereavement).

This example highlights that the same decision may be made in two different ways depending on sequencing. The first decision (moral heuristic) was completely novel, but a few months had passed by the time of the second decision (representative heuristic) and a precedent had been established.

5.2.4.7 Towards a reconciliation of the academic debates

Moral heuristics or moral principles?

As shown in Chapter Four, there is a debate in the literature as to whether or not heuristics or principles are at work (Argyle, 1983; Sunstein, 2005b). This study has cast some light on this question. Managers in 'soft' business units felt that moral heuristics *"can also be moral principles. The difference is that your principles stay the same, more or less, but your decisions on how you implement your principles can be different"* (YOS). The Bereavement manager illustrated this by means of two examples. Firstly, he stated the moral principle that he felt was at work:

> *"I have a moral principle that says 'do what is right for the family'. That never changes. But within a week I had two similar situations. Each time I used my rule of thumb to 'do what I think is morally right' but I made a different decision for each one"* (Bereavement)

The first example is the 'to cremate or not to cremate (1)' vignette presented above, and the manager contrasted this with a second example, which appears to be similar at first glance, but which closer inspection shows to be subtly different.

Vignette 8: To cremate or not to cremate (2)?

Background

As in the first example, a large funeral arrived at the same crematorium. Procedure dictates that cremation must not proceed if the paperwork is incorrect. In this case, the paperwork was incorrect, but again this was the funeral of a young child, and again the family was getting angry at the delay. The Bereavement manager was called to make a decision.

Decision

"Again I made a moral decision. This time I decided not to cremate. That was the right thing to do. The family went bananas but I stood my ground" (Bereavement).

The manager justified his decision, and the fact that his moral principle was not compromised, in the following way.

"It was morally the right thing to do. Stopping the cremation supported my principle of 'doing what is right for the family'. The most important thing for the family was to make sure the right body was cremated. OK, so the family was upset and called me all sorts of names. They felt that the right thing to do was to cremate their young child, but I don't thing that was the right thing. Imagine if I'd pushed the cremation through and then we'd found out next day that it wasn't the right body. That would have been far worse for them than a couple of days' delay while the paperwork was sorted out. There's a legal requirement too, to make sure the paperwork is right before we go ahead. But to be honest, that takes second place. I'm driven by my moral principle first and the law is second" (Bereavement).

Therefore, the manager concerned was able to make two different decisions in very similar circumstances, and in each case, he felt that his moral principles were supported. Unsurprisingly, in this case Internal Audit was supportive of the manager *"because he'd done the right thing and followed procedure"* (Internal Audit). The findings of this study therefore argue against authors such as Bartsch and Wright (2005) and Weirich (2005), who suggest that moral heuristics and moral principles are effectively the same thing. Instead, the views of managers within the organisation closely mirror the definition proposed by Fried (2005: 549), who argued that moral heuristics are *"just a means to advance some other, often unstated, moral principle"*. As one manager put it, *"my moral principles will determine what I believe to be right, and the heuristic will be how I implement my principles"* (Environmental Health),

and this view was echoed by another manager, who stated that *"moral rules of thumb [i.e. moral heuristics], are how you enact your moral principles"* (Family Support).

Utilitarian or deontological principles?

Chapter Four notes that literature is undecided whether moral heuristics are best guided by utilitarian or deontological principles. This thesis is unable to resolve this debate, because both utilitarian and deontological perspectives have been identified in broadly equal measure. For instance, a utilitarian perspective is evident in the following example:

> *"Technically, there's no question unauthorised memorials [in cemeteries] should be removed, but I try to think of the families. I try to take a moral viewpoint. What's the right thing to do? I use this moral rule of thumb as the starting point and I make all my other decisions fit around it. I only move the memorials when they get a bit excessive, when they interfere with another grave, or when they stop families and funeral directors going about their business. I think of what will lead to the greatest good."* (Bereavement)

Such an example supports authors who argue that moral heuristics are essentially utilitarian in nature (Weber and Ancker, 2005). However, a deontological position is apparent in the following example:

> *"I have a duty to vulnerable children. If I see a child being abused, I have a duty to that child. The greater good doesn't come into it. I do what my morality tells me is best for the child. If the good of the wider family suffers, then so be it"* (Schools Safeguarding).

This example supports the deontological underpinning of moral heuristics proposed by several authors (e.g Bucciarelli, Khemlani, and Johnson-Laird, 2008; Waldmann, Nagel and Wiegmann, 2012). In a third example, however, the situation is unclear. A head teacher made a moral decision to consciously encourage his deputy to train for a head teacher's course, and ensured he gave her as much experience as he could. *"I knew that this decision was bad for the school because this valued and skilled teacher would leave [...], but it was morally the*

right thing to do" (Primary Schools). The deputy duly qualified and then left the school. The head teacher made the following observations:

> *"Even while I was taking the decision I knew it was bad for the school, but it was still the right thing to do. I had a duty to the profession. I had a duty to my staff. I had a duty to the children of the future to make sure they get the best education possible. So, although my decision was bad for my school, it's good in the bigger picture. The end justifies the means as they say"* (Primary Schools).

Because a sense of duty was at the core of the decision and was the primary motivation, it could be argued that this is a deontological decision. Furthermore, there may be an argument that staff development is also a duty for any manager. However, the greater good was also a factor in the decision, which suggests a utilitarian perspective. Therefore, this example is a dual deontological and utilitarian decision. This agrees closely with Sunstein (2005a; 2005b) who argues that it is not necessary to adopt one or other position as a prerequisite for using moral heuristics. This study is therefore neutral in the debate between deontological and utilitarian approaches.

Workplace – hard and soft business units

In Chapter Four, several factors were proposed as being the source of the moral heuristic including evolution, framing, and national and religious cultures. This thesis adds to knowledge by proposing a new factor – working environment. As has become evident from the preceding pages, there is a marked difference between how 'soft' and 'hard' business units view moral heuristics. 'Soft' areas make use of the heuristics, but 'hard' areas do not, and even feel that such heuristics are 'wrong'. This study does not claim a definite relationship because the requisite mathematics has not been used. Nonetheless, managers in both 'soft' and 'hard' areas feel that a relationship exists, and have put forward their opinions as to why this might be the case. 'Soft' business units made comments such as:

> *"Our decisions are about dealing with human beings. They're not machines and don't always respond in the way that you expect. You have to base your decisions on your own morality. People like IT, Finance and Legal are dealing with facts and processes...things that might have a right answer. It's not comparing like with like. The two sectors are completely different"* (YOS).

These views were supported by 'hard' business units:

> *"It's all about distance from the decision. At the front end, you might have to make moral decisions because you're exposed to the flak and have to make an instant decision. When things reach us, all the noise and urgency has died down. We can take time to reflect and review what's happened"* (Legal Services).

Quotes such as these, which describe the importance of the 'distance from the decision', echo aspects of the literature. For instance, the directness of the intervention in the 'trolley vs footbridge' problem presented in Chapter Four has been suggested as a reason why people are less opposed to throwing the switch than pushing a bystander onto the tracks (Waldmann, Nagel and Wiegmann, 2012).

Indeed, an analogy might be made to 'hard' and 'soft' problems or systems. A hard problem is structured and has a clear answer; whereas a soft problem is unstructured and has no clear answer (Checkland and Poulter, 2006; Wilson, 1990). Similarly, in hard systems approaches, such as Structured Systems Analysis and Design Methodology (SSADM), firm and structured techniques and procedures are used to provide unambiguous solutions to clearly-defined problems (Clayton and Radcliffe, 1996). In soft systems approaches, such as Soft Systems Methodology (SSM), a range of approaches are available as appropriate, and these may be comparatively unstructured and less rigid (Checkland, 2000). It should be noted that SSM is often considered to apply only to soft systems, but its originator (Peter Checkland) argues that it is a framework that can be used for both 'soft' and 'hard' problems (Checkland, 2000; Checkland and Poulter, 2006). A discussion of systems theory (including SSADM and SSM) is outside the scope of this thesis. However, there are parallels between the present study and hard/soft problems and systems. In the organisation under study, 'soft' business units deal largely with issues such as *"personal feelings and emotion"* (YOS) where *"there is no right*

answer" (IYPS) (i.e. soft problems), whereas 'hard' business units deal largely with *"matters of fact"* (Corporate Performance) that *"have a right answer"* (Corporate Procurement) (i.e. hard problems). Similarly, 'soft' business units have to deal with *"new problems there and then...on the spot"* (Bereavement) to find *"an answer that satisfies [the manager's] own moral feelings"* (Family Support) (i.e. soft systems); whereas 'hard' business units can work through problems *"logically using formulas and equations"* (Corporate Finance) and can automate much of the process *"using computers to get the right answer"* (Corporate Finance) (i.e. hard systems).

Therefore, these findings in relation to the importance of workplace are highly suggestive and, whilst no formal relationship has been established, this topic could fruitfully form the basis of further research.

New definition of the moral heuristic

Within the organisation under study, there are a number of very specific moral heuristics in use, such as *"put the needs of the children first"* (Primary Schools; Schools Safeguarding; Secondary Schools), *"do not take any action that will put staff at risk"* (Community Safety), and *"treat people as you would like to be treated yourself"* (Bereavement). These are broadly similar to moral heuristics identified in Chapter Four, such as *"avoid and punish betrayals of trust"* (Koehler and Gershoff, 2005: 556). However, within the literature, the other intuitive heuristics have generalised definitions. For instance, as noted in Chapter Four, the definition of the availability heuristic does not identify *everything* that is recalled to mind; only that decisions are made on the basis of how readily things come to mind. This study therefore sought to establish whether a general definition could be derived for moral heuristics.

Managers were asked how *they* would define moral heuristics. In this way, any definition arising out of this study would be grounded in the data. Exactly the same words were used by several managers: *"it's the right thing to do"* (Bereavement; Community Safety; IYPS; YOS). At first glance, this appears to be simply 'just another moral heuristic' similar to those above, but upon closer inspection, it is actually an all-embracing heuristic which includes the 'mini heuristics'. Managers agreed, noting that *"this definition covers all the others"* (Family Support), and therefore *"you don't need all the mini definitions"* (Environmental Health).

However, as Internal Audit stated, *"everyone sets out to do the right thing. Nobody sets out to make a bad decision"*. Therefore, although 'doing the right thing' reflected the views of many, it was inadequate by itself as a definition. It was therefore necessary to revisit the definition to see if it could be refined. After discussions with eleven managers from 'soft' business units, the following definition was agreed as accurately capturing their views:

Fig 55: New definition of the moral heuristic

> The moral heuristic can be defined as *taking the decision on the basis of what the decision-maker believes to be morally right*".

The implication of this is that this thesis argues that there is *'the'* moral heuristic and not *'a'* moral heuristic, and that the 'mini' moral heuristics are merely specific applications of this higher, more conceptual version. Having developed this idea, moral heuristics in the literature were revisited, and it was clear that the definition neatly encompassed heuristics such as *"people should not be permitted to engage in moral wrongdoing for a fee"* (Sunstein, 2005a: 537), *"always keep your promise"* (Bartsch and Wright, 2005: 546), and *"it is wrong to hurt some people for the benefit of others"* (Hahn, Frost and Maio, 2005: 552). Indeed, the more the author looked, the more the literature 'slotted into' this definition, and it therefore began to seem to be increasingly correct. But not all managers were satisfied – particularly those in 'hard' business units. As one observed, *"everyone's moral position is different. Using your definition, Hitler could have argued that he was taking a moral decision in killing the Jews. What he was doing was morally right from his perspective"* (Risk Management). However, this thesis does not seek to defend or justify moral decisions; only to identify and explain the processes used. The fact that Hitler's decision-making might be explained by the moral heuristic is an interesting idea, but one which is outside the scope of this thesis. Consequently, the proposed definition is unaffected by this issue and therefore survives this objection.

This thesis therefore encourages future researchers to empirically test this new definition, and the idea of '*the*' moral heuristic, and to refine the definition in light of their findings.

5.2.4.7 Summary

On this occasion, this thesis is unable to confirm the existence of the moral heuristics in the literature. They are extremely precise and limited to specific situations. However, similar heuristics were found in the study, which lends support to the idea of these heuristics, if not the heuristics themselves. More importantly, this thesis proposes the existence of *the* moral heuristic, rather than *a* moral heuristic. This allows researchers to conceptualise the heuristic in a way that has hitherto not been possible. This thesis also proposes that work environment is a factor that influences the development of the heuristic, and this is again new to theory. This study has also been able to form a view on some key academic debates. It strongly supports the distinction between moral heuristics and moral principles, although it is neutral in the debate between utilitarian and deontological sources for the heuristic. Once more, similar findings have been made to the other heuristics, in that conscious applications of the heuristic were identified, together with evidence suggesting interplay with other heuristics. Again, these issues are explored further in Chapters Six and Seven respectively.

5.3 Choice-based heuristics

5.3.1 Introduction

In Chapter Four, four choice-based heuristics were examined. Two were noncompensatory – conjunctive and Elimination By Aspects (EBA) and two were compensatory – weighted additive (WADD) and linear compensatory. The literature suggests that these heuristics are often used together within a single decision, and this was confirmed in the present study. Consequently, this section of the thesis necessarily has a different structure to the previous sections. In the following pages, the heuristics are studied in a procurement context. Three procurements of different sizes and complexity are outlined, and it is shown that in major procurements, three heuristics operate together. As the scale of the procurement reduces, so does its complexity and the number of heuristics decreases. With very small procurements, this reduces still further. There are also occasions when the heuristics were used

independently – in the case of linear compensatory – and therefore the section ends with a discussion of these situations.

For ease of reference, in the following pages EBA, conjunctive and WADD have sometimes been referred to as the 'procurement heuristics'. This is for clarity only. Although this study only identified them procurement situations, it does not imply that this is the only context in which they may be found. Equally, other heuristics may be used within procurement.

5.3.2 Procurement within the organisation

5.3.2.1 Overview

Within the organisation under study, procurement decisions are essentially group decisions and not individual decisions. The decision to award a contract involves a team of managers from corporate procurement, legal services, finance, and service-specific technical managers. During observations, decision-making was witnessed using means other than heuristics. For instance, there was significant evidence of groupthink (Janis, 1972; 1982), but this is beyond the scope of this thesis. This section focuses on individual decision-making.

This section examines three types of procurement. Large procurements are the most complex and typically take more than a year to complete, and there are many legal and regulatory constraints built into the process. By law, procurements for contracts that exceed specified values must be advertised in the *Official Journal of the European Union* (OJEU) and follow a series of prescribed stages. At the time of writing, the thresholds relevant to this thesis were €125,000 for public sector supply and service contracts, and €4,845,000 for public sector and utility works contracts or contracts involving civil engineering activities (EU, 2009). With medium-scale procurements, these *de minimis* thresholds do not apply and managers have more flexibility in how they operate. At the bottom of the scale, very small procurements are normally straightforward and can be completed within a couple of weeks.

Within the organisation, large-scale procurements are classed as strategic decisions, as the following quotes illustrate.

> *"These are definitely strategic. You're setting out a course of action for maybe the next 10 or 15 years"* (Corporate Procurement).

> *"You'd be hard-pressed to find a better example of a strategic decision. You're shaping the future direction of the council for the next decade or more"* (Corporate Finance).

Medium-scale procurements are felt to be operational decisions:

> *"[These procurements try] to solve an operational problem on the ground [...]. Let's solve this one particular problem in this one particular place at this one particular time"* (Environmental Health).

> *"[These decisions] are operational. They're not setting out a long-term strategy. I want something that will work on this one occasion"* (Culture).

Small-scale procurements are thought to be administrative decisions, as shown in relation to the ordering of paper for an office:

> *"All I was really trying to do was to make sure the office carried on working. That was all…there was no grand scheme or anything…I was just doing the boring 'admin-y' things that you need to do to keep things ticking over"* (Neighbourhoods).

Within these categories, of the 35 decisions observed to use the procurement heuristics, 11 were large-scale procurements (strategic decisions), 21 were medium-scale procurements (operational decisions), and three were small-scale procurements (administrative decisions).

5.3.2.2 Introduction to the use of heuristics in procurement

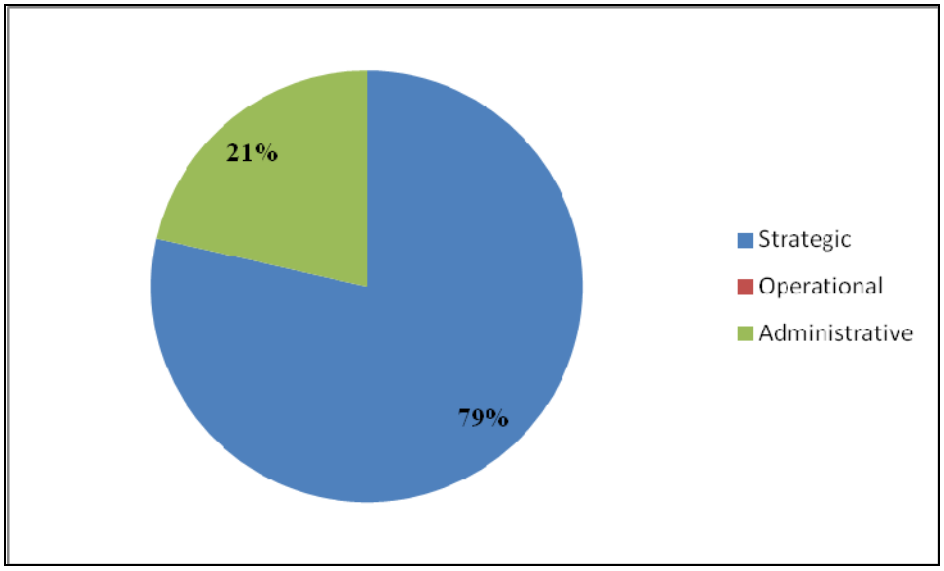
Table 10 shows which heuristics were used within each type of procurement.

Table 10: Use of choice-based heuristics within procurements

	Scale of procurement		
Heuristic	**Large**	**Medium**	**Small**
EBA			
Conjunctive			
WADD			

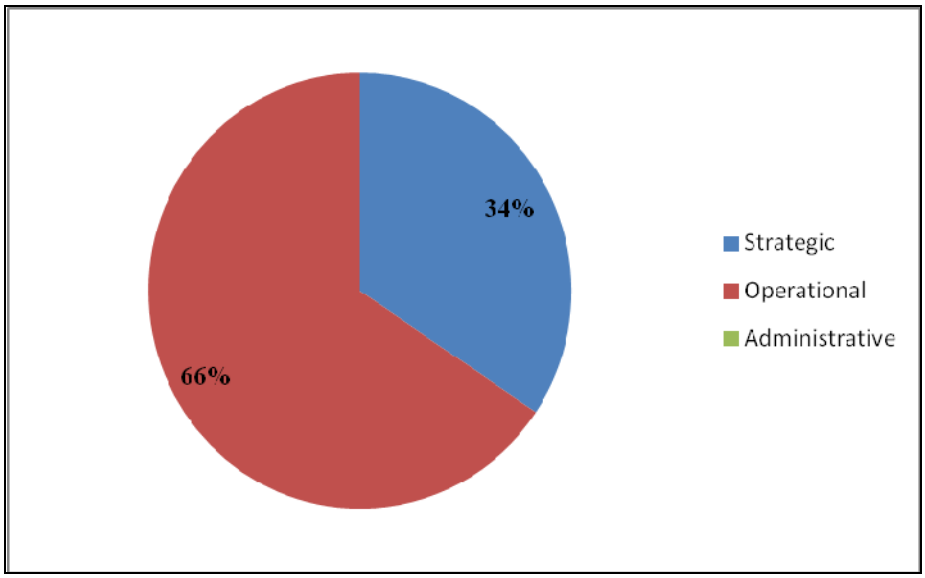
Three heuristics were used for strategic decisions; the conjunctive and WADD heuristics were used for operational decisions, and the EBA heuristic was used by itself for administrative decisions. The following diagram provides an analysis of the use of the EBA heuristic.

Fig 56: Types of decision for which the EBA heuristic was used



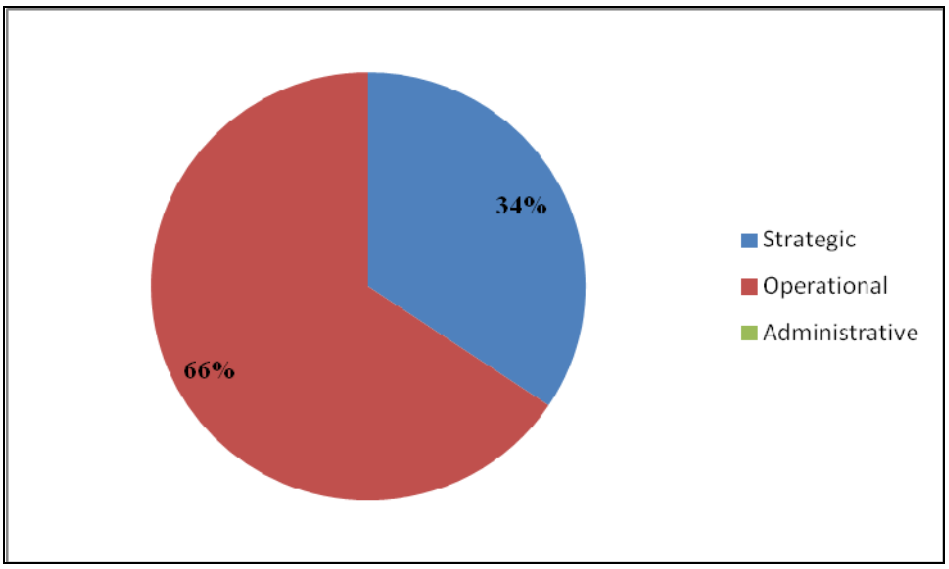
Approximately three-quarters (79%) of the 14 uses of this heuristic related to strategic decisions, with operational decisions accounting for the remainder (21%). These findings are discussed in the following pages. When a similar analysis was made of the conjunctive heuristic, the following results were obtained

Fig 57: Types of decision for which the conjunctive heuristic was used



Here, strategic decisions account for roughly one-third (34%) of the 32 observed uses of this heuristic, with the bulk (66%) relating to operational decisions. Again, these findings are discussed below. Fig 58 shows the results of a similar analysis for the WADD heuristic.

Fig 58: Types of decision for which the WADD heuristic was used



These results are identical to those of the conjunctive heuristic. This is unsurprising, because as Table 10 shows, these two heuristics were used for the same decisions. The following section provides examples from each category of procurement, and the use of heuristics in each of these categories is illustrated.

5.3.3 Large-scale procurements

5.3.3.1 Introduction to large-scale procurements

As noted above, large-scale procurements are regarded as strategic decisions within the organisation under study, and are subject to a strict legislative framework (Public Contract Regulations, 2006). The UK government has produced a number of guidance documents which seek to interpret the legislation (e.g. OGC, 2005; OGC, 2008) and *"translate it into a form that non-lawyers can understand"* (Legal Services). *"These [...] tell us how we should proceed"* (Corporate Procurement). Therefore, there is a clearly defined process for undertaking large-scale procurements that must be followed on every occasion. The following vignette example concerns the procurement of a 'streetscene' contract, and illustrates the key stages.

Vignette 9: Procurement of streetscene contract

Background

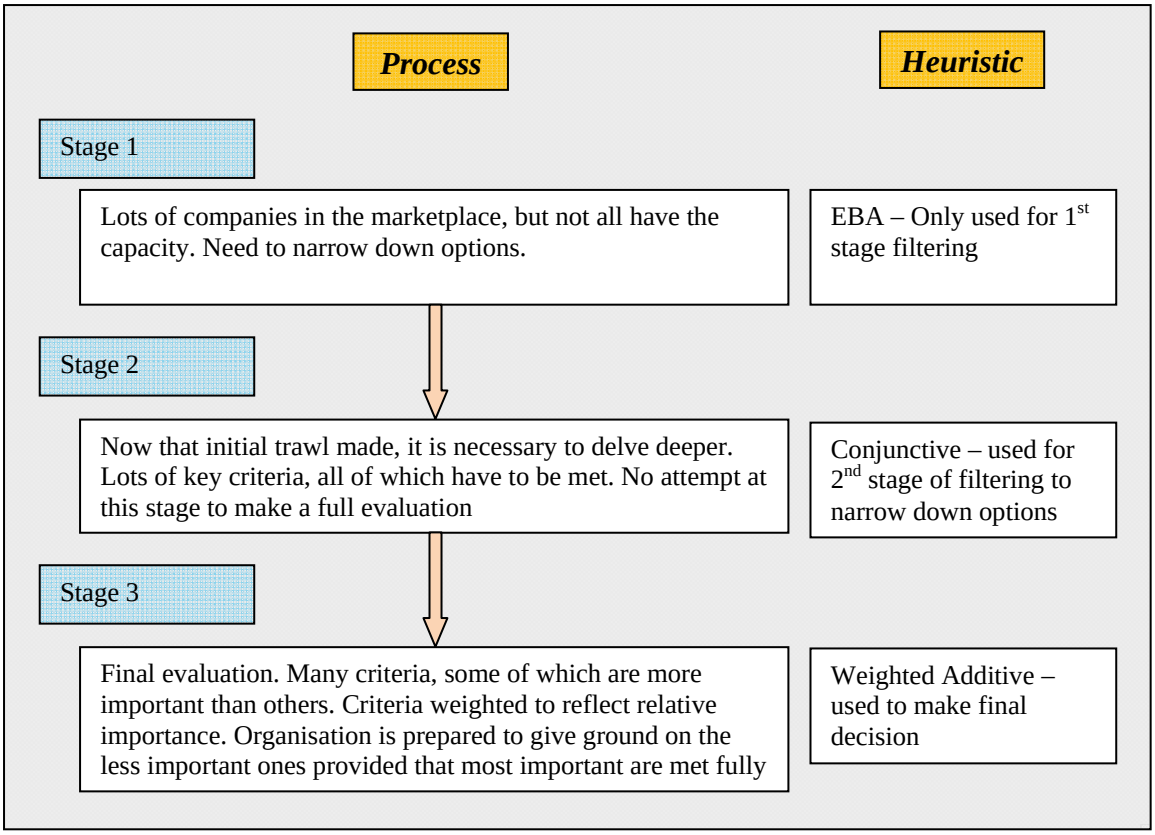
The decision was made to let a contract to procure a 'streetscene' contract. This would include highways design and maintenance, lighting maintenance, traffic signal maintenance, and street cleansing. The contract would have a ten-year duration and would cover the whole city. The total contract value was approximately £250m, and this put the contract well above the *de minimis* threshold required by the EU. Therefore, there was a legal requirement to follow the prescribed procedures and timescales, and the total procurement took eighteen months to complete.

Procurement process

- Scope and contract conditions advertised via OJEU notification
- Pre-Qualification Questionnaires (PQQ) sent out to interested parties
- PQQ responses received by the organisation under study
- PQQ responses evaluated in a shortlising process
- Successful bidders invited to submit a formal tender
- Tenders received by the organisation under study
- Tenders evaluated
- Preferred bidder selected, together with a reserve
- Contract awarded

When this example is analysed, it can be seen that there are three main stages. The following diagram offers a conceptual model of the procurement, and it illustrates that each of these stages is linked to a particular heuristic.

Fig 59: Conceptual model of procurement process – major procurement



Note: this is an oversimplification, which ignores the 'formal' process of inviting expressions of interest, inviting tender submissions etc. These steps take place between the stages shown here

The following pages explore each of these stages in detail, and provide supporting evidence to show that these heuristics also link with other heuristics, including some of the intuitive heuristics identified above.

5.3.3.2 Elimination By Aspects (EBA) heuristic

The EBA heuristic was used for eleven large-scale procurements by the following six business units:

Table 11: Business units that used the EBA heuristic for large procurements

Business Unit
Internal Audit
Corporate Finance
Corporate Procurement
Legal Services
Partnerships
Corporate Performance

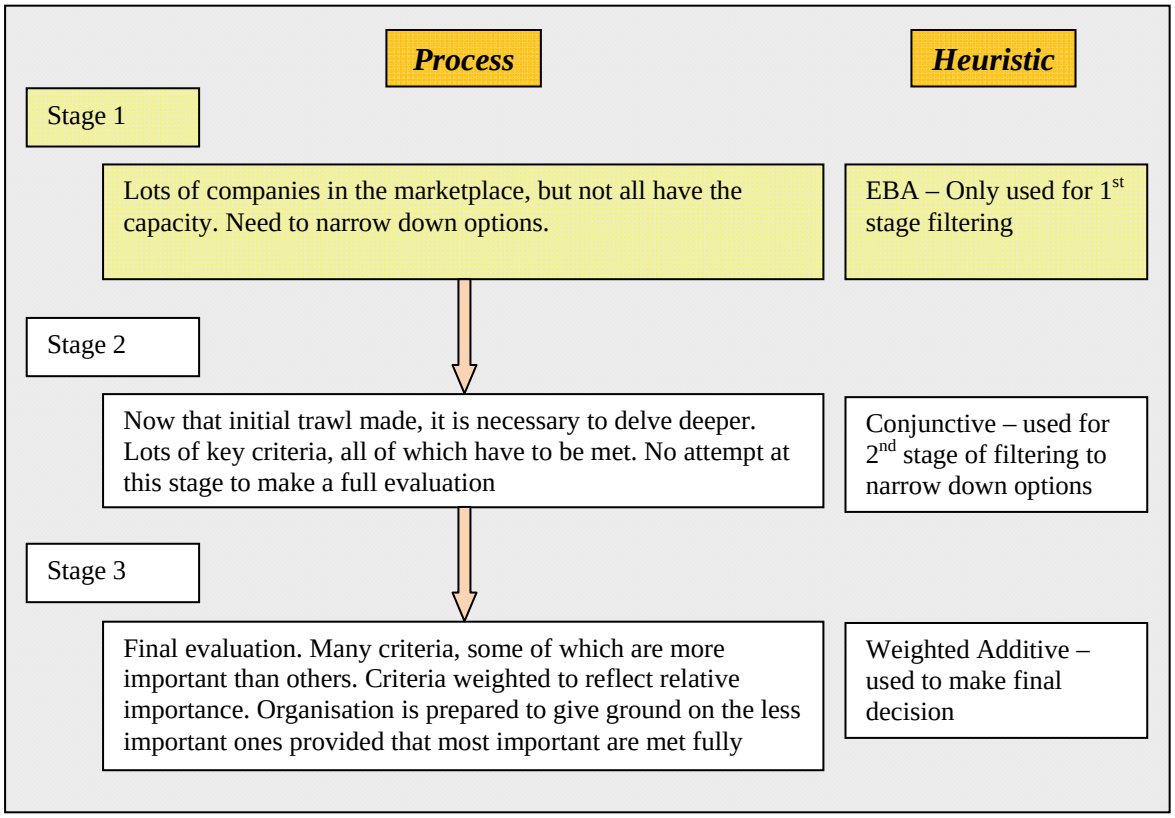
As Chapter One shows, each of these business units is part of the corporate centre. The reason for this is that corporate standing orders dictate that major procurements must be managed by the centre to ensure the correct legal and procedural requirements are followed. Hence, these business units offer advice and guidance to operational services across the rest of the organisation. More importantly for the purposes of this thesis, the management role of these services means that they take many of the key decisions, and not people in the service areas who will implement the contract. This is widely welcomed by operational managers, as the following typical quote demonstrates.

> *"The risks to the council are so great. If we tried to do the procurement ourselves we could be open to challenge from anyone who felt hard done to [...]. If we fouled up even slightly, we'd end up in court and the bidders would run rings round us. I'm glad the centre handles it"* (Adult Social Care).

These six business units, and in particular Corporate Procurement and Legal Services, take a leading role in large-scale procurements.

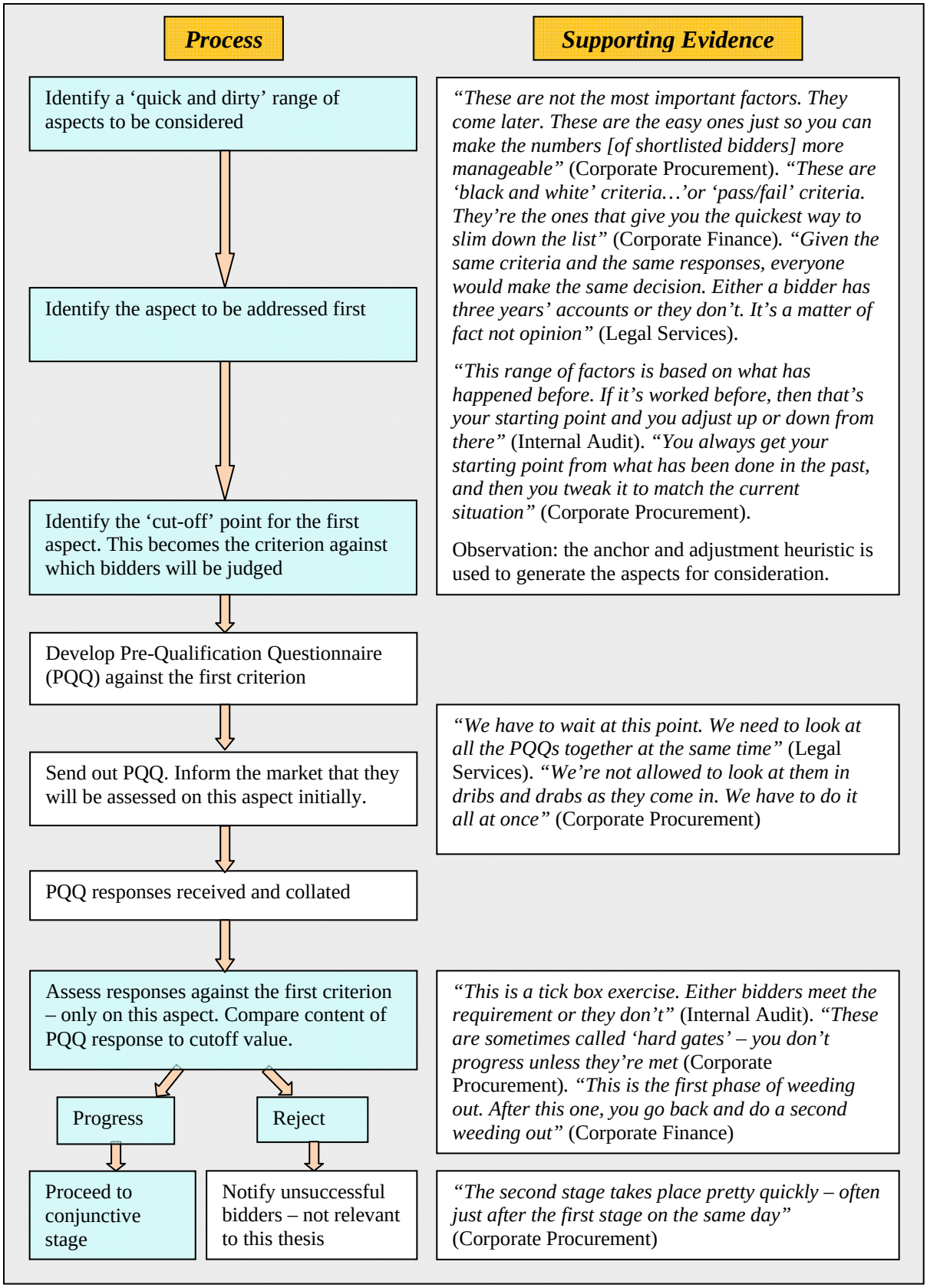
Within the above process, the position of the EBA heuristic can be illustrated in the following diagram. As with others in this thesis, this diagram is the result of respondent validation.

Fig 60: Position of the EBA heuristic within the procurement process



Stage 1 typically *"takes place over several days, or more likely, over several weeks"* (Legal Services). There is a clear process, and this is shown in the following diagram. The components of the EBA heuristic are highlighted, and it will be seen that there is a clear 'pause' in the middle of the heuristic while the Pre-Qualification Questionnaires (PQQ) are sent out and returned. This finding is important because previous research into choice-based heuristics has not identified a significant time difference between the development of heuristics and their implementation.

Fig 61: Use of the EBA heuristic within the procurement process



Several managers stated that the purpose of this stage of the procurement was the requirement to reduce the number of applications that need to be assessed in detail. This supports the literature, which offers the same rationale for the use of this heuristic (Elrod, Johnson and White, 2004; Shah and Oppenheimer, 2008). The following streetscene-related quote was typical:

> *"You don't physically have the time to go into detail with all bidders. You need a quick way to get the numbers to a more manageable level. When we got the PQQs back [for the Streetscene contract], we had 63 bidders who were interested. We couldn't look at them all, and so we had to do a 'quick and dirty' trawl to try to get the numbers down"* (Corporate Performance).

In the case of the streetscene contract, bidders were explicitly informed that a particular criterion would be deemed to be an 'exclusion' criterion and that it was vital to meet this to progress. As the PQQ documentation states:

> *"Non compliance with the exclusion requirement will disqualify the PQQ. The Exclusion Requirement is essential"* (Corporate documentation: Pre-Qualification Questionnaire p11).

The choice of which criterion is essential is determined by the nature of the contract, and a number of factors have been used as EBA cut-off criteria within the organisation. Capacity was used where contracts were so large or so diverse that it would be difficult to provide a common standard of service with a series of small contracts, such as adult social care. Strategic fit was an essential criterion where contract required a significant level of investment and had significant political implications, such as in the case of the development of a major shopping centre. In the streetscene example, the EBA 'cut off' criterion was a financial evaluation, as the following extract from corporate documentation illustrates:

> *"Candidates who [submit responses to] the PQQ will undergo an evaluation of their financial standing. This is to check that the organisation is in a sound financial state to participate in this procurement […] Any organisation which does not pass the financial evaluation will not be evaluated further"*. (Corporate documentation: Pre-Qualification Questionnaire p13).

The financial evaluation was in two parts:

> *"The first thing we did was look at the accounts. Did each company provide three years' accounts? If not, they were rejected outright. The second thing we asked was, 'What did the accounts reveal'? If the proposed contract would represent 40% or more of a company's turnover, this was a ground for rejection because it would have been too great a risk to [the organisation]"* (Corporate Finance).

PQQ responses were assessed by Corporate Finance, and an evaluation of the accounts was undertaken. Those bidders that did not meet the cut-off requirements were rejected at this stage. However, this approach was not welcomed by all parties. The Legal Services manager made the following observations:

> *"We've got something that says we need to see three years' financial accounts when we're tendering [...]. But if we go back a couple of years…if we'd seen the accounts of RBS or Northern Rock, we'd have said they were solid banks, but look what happened to them. Anyway, the 3-year guideline is just that – a guideline. But, it's become perceived wisdom. People are treating it as a rule, and are throwing out good companies just because they've not given us three years' worth of accounts [...]. We're seriously limiting our options because some guidance has become a hard and fast rule"* (Legal Services).

Nonetheless, the financial appraisal *"is the option we use most often, because it's objective"* (Corporate Procurement). Although this is a single stage in the EBA process, it can also be regarded as an iterative process where EBA was used twice – firstly to 'weed out' those companies without three years' accounts, and secondly to 'weed out' the remaining companies whose finances indicated an unacceptable level of risk. The other mandatory 'cutoffs' are outlined below in the following section relating to the conjunctive heuristic.

5.3.3.3 Conjunctive heuristic

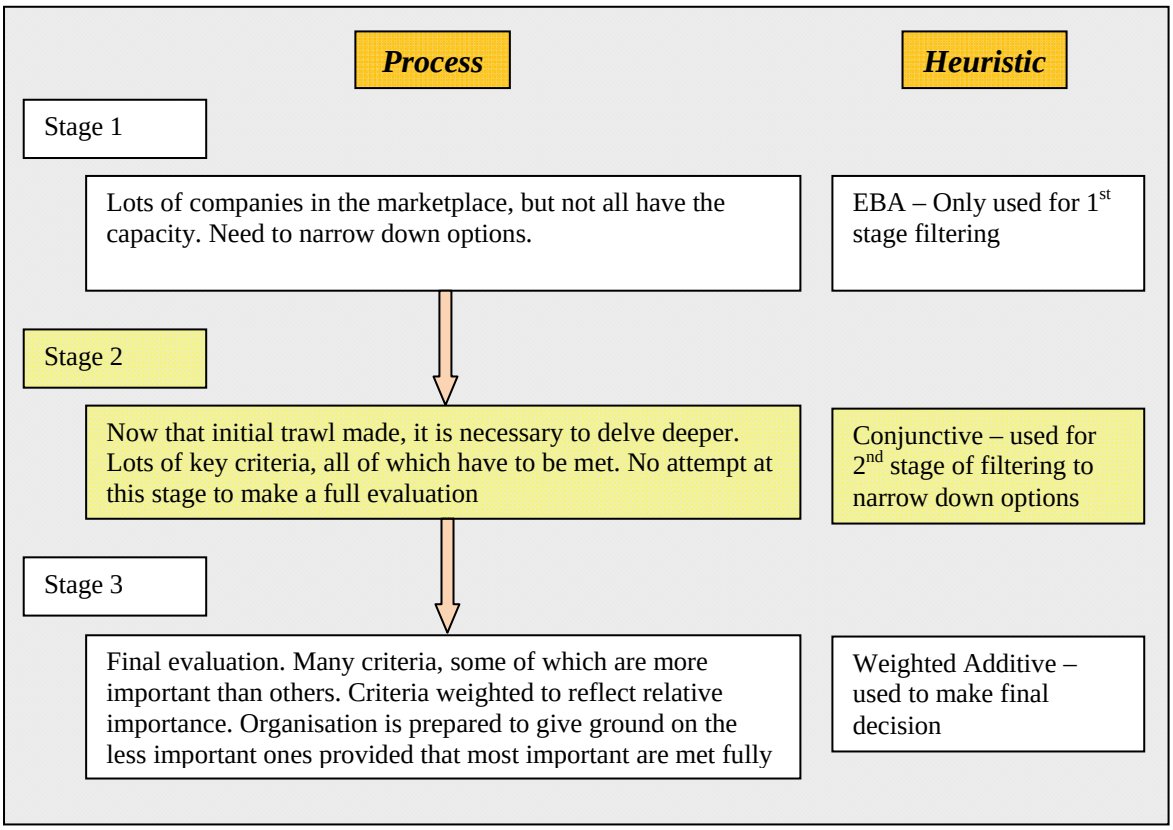
The conjunctive heuristic was used for eleven large-scale procurements by the following business units:

Table 12: Business units that used the conjunctive heuristic for large procurements

Business Unit
Internal Audit
Corporate Finance
Corporate Procurement
Legal Services
Partnerships
Corporate Performance

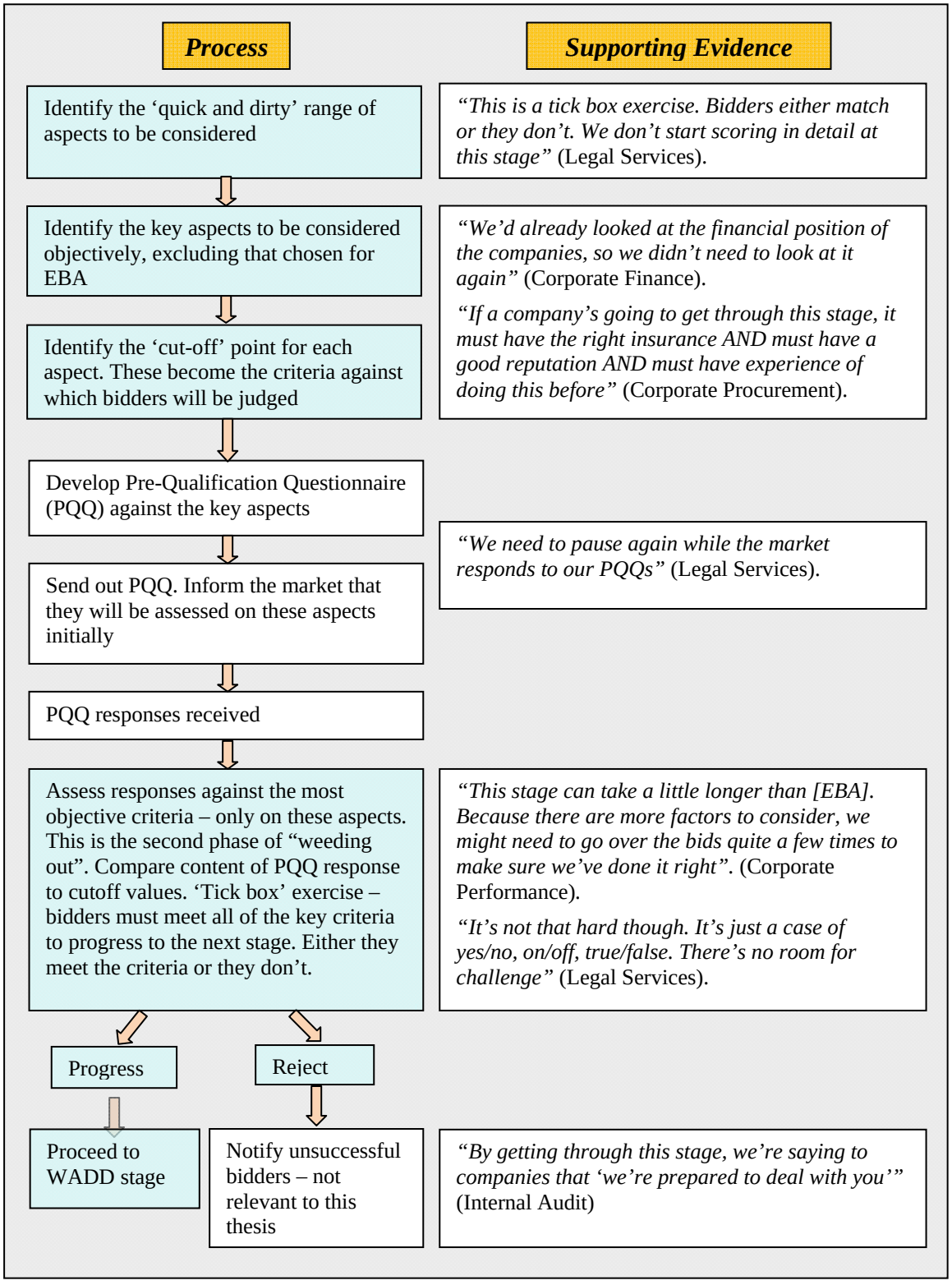
This list is identical to that for EBA. This is unsurprising since the same eleven procurements were involved, and since the two processes take place sequentially. Within the procurement process, the position of the conjunctive heuristic can be illustrated as follows.

Fig 62: Position of the conjunctive heuristic within the procurement process



As with EBA, a clearly defined process is followed, and this is shown in the following diagram, which is again the result of respondent validation.

Fig 63: Use of the conjunctive heuristic within the procurement process



Again, there is a clear 'pause' within the heuristic. Managers stressed that this diagram is, to some extent, misleading since it implies that the conjunctive process is separate from EBA. In practice, the identification of the 'quick and dirty' criteria for both EBA and conjunctive heuristics typically takes place at the same time. Furthermore, the diagram suggests that a

separate PQQ is issued, received and evaluated, but in reality, only one PQQ process takes place.

In the case of the streetscene contract, once the financial evaluation had been undertaken, evaluation began of the remaining mandatory information. In the case of the Streetscene Contract, HR, Legal Services and experts from within Highways and Street Cleansing undertook the bulk of this evaluation, as the following comment illustrates.

> *"The evaluation panel all sit down together in a room with loads of tea and biscuits. It's a long job. The first thing we do is a trawl of all the bids to see who we can get rid of with minimal effort. Then we go through the remainder again. I know we've already looked at them once for [EBA] but now we're looking for different things. It's a different process"* (Corporate Performance).

This was typical of all large-scale procurements. In each case, the heuristics were applied in a two-stage process, with conjunctive following EBA. As with EBA, managers suggested that this stage of the procurement was intended to reduce the number of applications that should be considered in more detail. The following quote makes the point:

> *"You don't want a load of nutters applying – a man and a van to cover the whole city – so setting the criteria well at the start will get rid of most of the time wasters. Most of them won't even bother applying"* (Corporate Procurement).

In the case of the streetscene contract, the effect on the reduction in the number of bids was clear:

> *"We'd started off with 63 bidders, and after the first weeding out [using EBA], we still had 32 companies who'd made it through. That's still far too many to deal with, and so we put all the PQQs through a second stage"* (Corporate Performance).

This study therefore supports the literature, which offers the same rationale for the use of this heuristic (Zhu and Givan, 2005). As with EBA, in the case of the streetscene contract, bidders were explicitly informed that following the first assessment, certain criteria would be deemed

to be 'cutoff' criteria and that it was vital to meet these criteria to progress. As the PQQ documentation states:

> *"PQQ responses will be checked to ensure that they satisfy all compliance criteria; any PQQ which does not satisfy all compliance criteria will be disqualified from participation in the Tender Process."* (Corporate documentation: Pre-Qualification Questionnaire p12 – author's emphasis).

Examples of such criteria were given in relation to the streetscene contract:

> *"Did the company have good references? Did they have the appropriate insurances? [...] Did they have experience of doing this kind of work before on this kind of scale? Did they have the capacity to deliver, or were they too small? Were the directors bankrupt or barred from running a company?"* (Corporate Performance). *"Failure against any of them meant that the company was out"* (Corporate Procurement).

It was recognised that there may be other criteria that could be important in some contracts, such as *"whether or not the key people have been CRB checked"* (Internal Audit) but it was agreed that the above examples are common across most contracts. Managers felt that they had little flexibility in their choice of cutoff criteria. The following comment was typical:

> *"There are only certain things that we use to exclude companies. These are all listed in the official guidance. We can't make any assumptions or to compensate good points for bad ones, and we aren't allowed to exclude companies on the basis of something we haven't told them"* (Internal Audit).

This was confirmed by government guidance, which states that there are only three grounds for rejection or selection at this stage, namely suitability (e.g. bankruptcy or criminal conviction), economic and financial standing (e.g. are companies financially sound?), and technical capacity and ability (e.g. can they do the job?) (OGC, 2008). As a result, managers *"just follow the rules"* (Corporate Finance), and this can lead to different versions of the heuristic being applied. It was highlighted in Chapter Four that there are several variants of

this heuristic, including minimum and maximum. Both were found in the present study. For example, in the streetscene contract:

> *"We looked at whether the companies provided at least three references. So effectively, there was a cutoff point of two references. We looked above the cutoff point of two. We looked at whether the company had five years' experience of this kind of work, so again we looked above the cutoff point. Anything below the cutoff point meant disqualification"* (Corporate Procurement – emphasis as in the original quotation)

This supports the maximum variant (Elrod, Johnson and White, 2004). However:

> *"We wanted to know if the directors were bankrupts. The cutoff point was zero. If anyone was above this, they were disqualified. We looked at court cases for breach of contract. Again we had a cutoff of zero, and they were disqualified if they were above this"* (Corporate Procurement – emphasis as in the original quotation).

This supports the minimum variant (Zhu and Givan, 2005). However, managers were not aware of the distinction:

> *"It's all unconscious. Do you want someone with lots of criminal convictions or someone with no convictions? Do you want someone with lots of experience or someone with no experience? It's just common sense"* (Corporate Procurement).

Up to this point, in the Streetscene contract 'quick and dirty' methods had been used to reduce the number of bids being assessed. However, the organisation was now in a position to invite the successful bidders to submit a formal tender. The WADD heuristic was used to make the final decision, and this is discussed below.

5.3.3.3 WADD heuristic

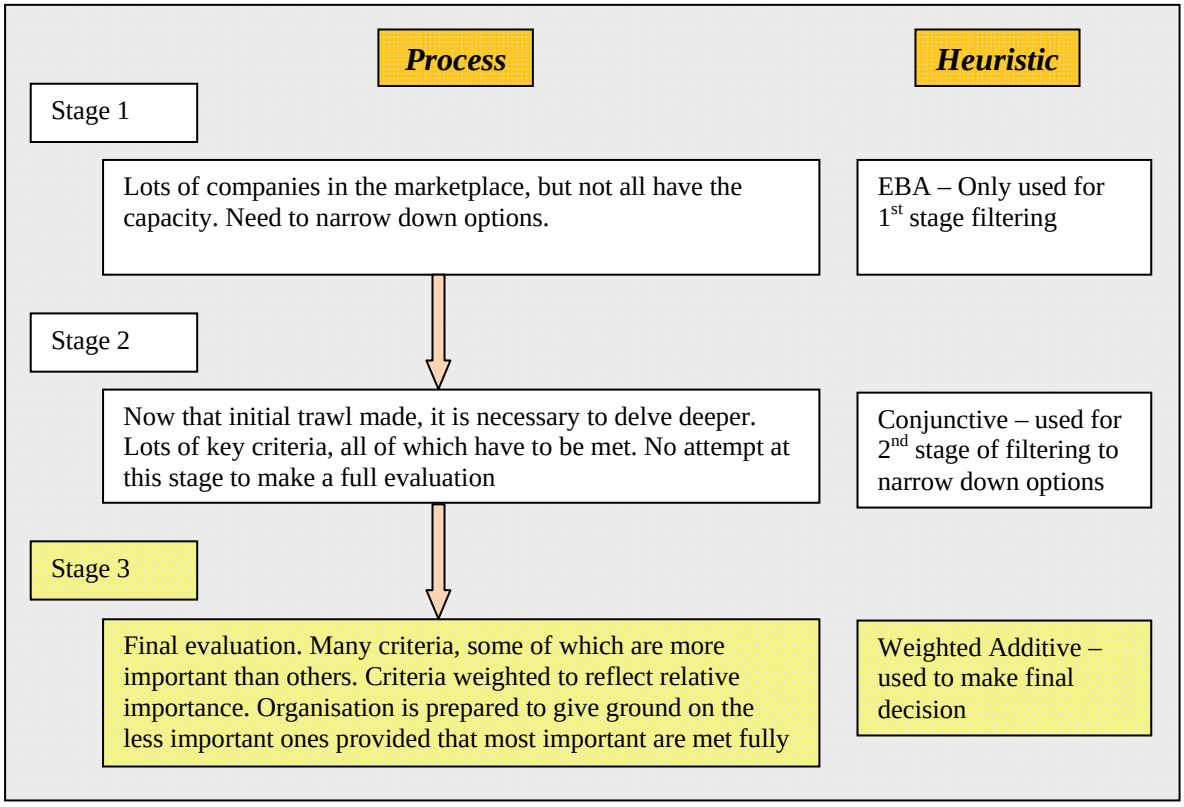
The WADD heuristic was used by the following business units:

Table 13: Business units that used the WADD heuristic for large procurements

Business Unit
Internal Audit
Corporate Finance
Corporate Procurement
Legal Services
Partnerships
Corporate Performance

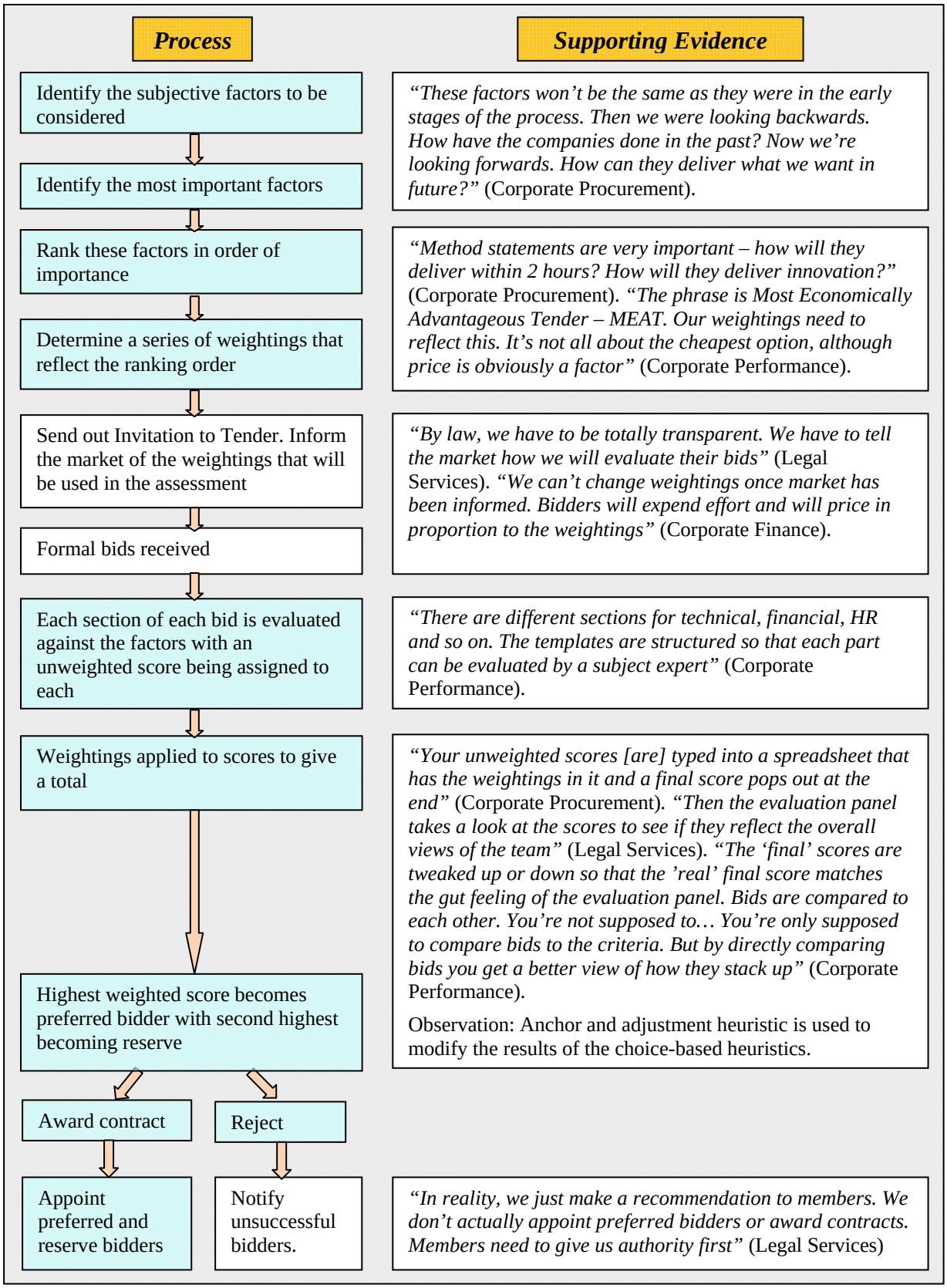
This list is identical to that for EBA and conjunctive because the same eleven procurements were involved, and the three processes take place sequentially. Within the procurement process, the position of the WADD heuristic can be illustrated as follows.

Fig 64: Position of the WADD heuristic within the procurement process



A clear process is followed, and this is shown in Fig 65. The stages of the WADD heuristic are highlighted and a ‘pause’ in the middle of the heuristic is again apparent.

Fig 65: Use of the WADD heuristic within the procurement process



This diagram was accepted by managers as being an accurate reflection of the process, but again there was a proviso because it may be somewhat misleading if taken at face value. It suggests that the subjective factors to be considered are only identified once EBA and conjunctive have taken place. In reality, however, both the factors and the weightings are identified at the start of the process along with the objective factors used in the earlier stages:

> *"When you're setting the criteria at the start, you need to know what you want. What does 'good' look like? You need to tell the market upfront"* (Internal Audit).

This is confirmed by the following extract from corporate documentation:

> *"Prior to the [placing of the OJEU notice], the evaluation criteria for selecting those to be invited to tender […] and the Contract award criteria must be determined"* (Corporate documentation: Contract Standing Orders p22)

However, WADD is a separate stage of the process and takes place weeks, or even months, after the earlier stages.

In the streetscene contract, noncompensatory heuristics had reduced the number of bidders from the original 63, and the decision was taken to move into the next phase.

> *"By this stage, we only had 11 companies who'd got through all the hurdles. That was still a bit large, but it wasn't unmanageable. We decided to invite them all to tender"* (Corporate Performance).

A range of documentation was issued as part of the Invitation to Tender (ITT), which provided bidders with details of the evaluation process and how the scoring of tenders would be undertaken. The following weightings were applied:

Table 14: Weightings within the Streetscene ITT document (extract)

Subject	Weighting
Business continuity and quality management	5%
Equal opportunities	20%
Details of 'key persons' and management	5%
Health and Safety	20%
Method Statement	50%
Total	**100%**

Source: Corporate documentation: Invitation to Tender p14-16.

The method statement outlines how services will be delivered 'on the ground":

> *"[It] sets out how a company plans to deliver the contract. How they plan to do it [...], how performance will be measured. Things like that"* (Corporate Finance). *"It looks at the practicalities. How much will it cost? How will they work alongside us and our other partners? What innovation will they bring? How will they physically do the work? How many people? What equipment?"* (Corporate Performance).

This was felt to be the most important part of the bid, and it therefore carried 50% of the total mark. But, *"if a company was perfect on this [section], which will never happen, they'd still only score 50%. So they need to be good on the other sections too if they want to get the contract"* (Corporate Procurement). Therefore, the weightings seek to balance financial and non-financial factors in order to achieve value for money (OGC, n.d. See also Dixon, 1998). However, some managers had misgivings. For example:

> *"There's a big misconception here. By applying numbers, everything magically becomes objective. But who puts the numbers on in the first place? And then people always round to the nearest 5 or 10. You never have a weighting of 19%. It's assumed to be right because numbers are on it. Then these numbers are applied to the bids you're trying to evaluate. It's all guesswork. How is my 25% different to your 26%? How does a 10% price difference automatically equate to a 10% quality difference? You're looking at two different things. So, are comparisons mathematically valid anyway?"* (Corporate Procurement).

> *"[Weightings] are determined at the start of the process. You have to let bidders know how their submissions will be evaluated. But then you might end up with six or seven tenders to evaluate – each of which is completely different. So you aren't comparing like with like. And then, the final bids might be significantly different to the original information you provided. Things change as a result of negotiation. So how can something set at the start be applied to something completely different at the end regardless of the unique features of each bid?"* (Legal Services).

Comments such as these challenge the *"gold standard"* idea in the literature (Gigerenzer and Todd, 1999: 26) and suggest that the process may be rather arbitrary not objective. Indeed, this is compounded when one considers how the criteria and weightings are derived:

> *"It's all a bit subjective. It's based on what's gone before. You start from an earlier example and then you make adjustments to make the process fit the new procurement"* (Corporate Performance).

In other words, the anchor and adjustment heuristic is used to derive the crucial aspects of the WADD heuristic. This was accepted by managers, who commented that it is *"easier to do that. Why reinvent the wheel?"* (Corporate Procurement). *"If something's worked before, you use that as the basis for your current procurement and just modify a few elements to take account of the new situation"* (Internal Audit). The anchor point was variously identified as the *"previous procurement"* (Internal Audit) or the *"last comparable procurement – either in terms of services or scale"* (Corporate Procurement). This close relationship between WADD and the anchor and adjustment heuristic has hitherto not been identified.

Within each section of in the ITT, there were individual questions which were themselves weighted, as the corporate documentation illustrates:

> [These questions] *"have been allocated a weighting which reflects the importance [...] of the information being assessed. The weighting allocation is from 1- 3. (1 being low; 2 being medium and 3 being high). The mark awarded to each question is multiplied by the weighting allocated to that question to produce a score. […]. All question scores for each candidate will be totalled to produce an overall score"* (Corporate documentation: Invitation to Tender p18).

The documentation then gives an example of the scoring method:

> *"A mark of 3/5 on a question with a high weighting of 3, will produce a score of 9 out of a maximum score of 15. The overall score will be used to rank candidates in order of highest to lowest score"* (Corporate documentation: Invitation to Tender p19).

Upon receipt, tenders are placed under seal. In other words, wax seals are placed on each tender to ensure confidentiality and security of the information. A specific time is set aside for tender opening, and all tenders are opened at the same time in the presence of legal services to minimise the risk of bias or collusion.

Tender documentation is designed so that it can be split into discrete sections, and therefore once the streetscene tenders had been opened the different sections were distributed to managers with expertise in the relevant aspects. Each manager evaluated their own part of the tender and individually allocated marks against the unweighted criteria, and a group consensus was achieved through discussion. The method statement was given the greatest scrutiny by the technical experts within Highways and Street Cleansing, and they also took the lead on health and safety-related matters. HR led on equal opportunities, whilst Internal Audit took the lead on assessing the details of 'key persons' and management. Corporate Finance had a smaller role, because their major involvement had already taken place earlier in the process (see EBA and conjunctive above). Legal Services had the smallest role, and this was primarily to ensure that both the organisation under study and the bidders themselves had acted lawfully. Corporate Procurement collated the scores, and weightings were applied in line with Table 14. The tender with the highest weighted score was deemed to be the preferred bidder and the tender in second place was designated as the reserve bidder.

Although weightings were applied consciously in the above example, research suggests that decision-makers sometimes make use of automatic processes to approximate the WADD heuristic without a deliberate calculation of weighted sums (Glöckner and Hodges, 2011; Hammond, Hamm, Grassia and Pearson, 1987). This was borne out in the present study, which found that weightings are not necessarily assigned formally, as in the following example, which refers to negotiations in respect of the building of a new shopping centre:

> *"We had a number of factors that were more important than other factors, and these formed the basis of our decisions. Price, for instance, and the amount of income we could make through ground rents. Time was another factor. How quickly could the development be done? We wanted to tie it into a particular year. Factors like management arrangements were less important to us, and so in our negotiations we were happy to make concessions on points like this. We didn't assign formal weightings, but they were uppermost in our thoughts as concepts rather than as real figures"* (Corporate Finance).

Such automatic strategies are likely to be used if a quick inspection of information is possible (Glöckner and Betsch, 2008), as in this example. This was permitted by corporate procedures because it was part of a negotiation process and not part of a formal tender evaluation process. The unconscious use of this heuristic is discussed further in Chapter Six.

5.3.4 Medium-scale procurements

5.3.3.1 Introduction to medium-scale procurements

Medium-scale procurements are regarded as operational decisions within the organisation under study. This section outlines the process by which two heuristics (conjunctive and WADD) were used in combination and it will be shown that EBA is not used in this case.

Table 15: Business units that used the conjunctive and WADD heuristics for medium-scale procurements

Business Unit
Culture
Housing Strategy
Community Safety
Neighbourhoods
Libraries
Youth and Play Service (IYPS)
Internal Audit
Corporate Finance
Corporate Procurement
Legal Services
Partnerships
Corporate Performance
Emergency Planning

The number of business units (13) is greater than for a large-scale procurement (6). This can be explained by the fact that there are fewer legal and regulatory constraints than with large-scale procurements, and consequently there is *"less of a need for such high levels of expertise"* (Culture). Thus *"more managers feel able to handle the process"* (Libraries). In addition, as noted above, corporate regulations dictate that the corporate centre must manage all large procurements. However, for smaller procurements, the centre has *"more of an advisory role than a dictating role"* (Corporate Procurement). A typical example of a medium-scale procurement is presented below.

Vignette 10: Procurement of flood defences and alleviation measures

Background

Responsibility for emergency preparedness is delegated to Emergency Planning. For the previous 18 months, one area of the city had proved to be prone to flood and storm damage. Emergency Planning was tasked with developing a permanent solution to this problem. As a result of detailed surveys it was agreed that this would require substantial work on the gullies and the drainage system; the re-surfacing of footways and carriageways; the replacement of some walls and the felling of up to five trees to prevent leaf fall blocking the grids in the future. These measures would cost around £25,000. In other words, this procurement was well under the *de minimis* level required by European legislation.

Procurement Process

Emergency Planning contacted a range of companies whom they felt would be able to deliver the service. In addition, an advert was placed in the relevant trade journals. A summary of the required work was provided along with other specified criteria against which the bids would be evaluated. In line with corporate standing orders, four written quotes were required. Initially, nine bids were received. This was considered to be normal for a procurement of this type, and the number of bids received was sufficiently low that it was not considered necessary to undertake a preliminary trawl (using the EBA heuristic), and therefore, a single 'quick and dirty' evaluation process would take place before seeking formal bids. This evaluation was undertaken using the conjunctive heuristic. Managers identified a series of mandatory requirements, and bidders had to meet all of these to progress to the next stage of the process. The mandatory requirements were:

- Professional Memberships
- Equal Opportunity policy
- Health and safety policy
- Environmental Policy
- Insurance
- Quality management processes and systems
- Experience
- References

Although it would be possible to produce a flow chart for this process, this would essentially be the same as that presented above, and therefore this has not been done.

Following the use of the conjunctive heuristic, the number of bidders in the consideration set was reduced from nine to six, and formal invitations to tender were sent to each of these six companies. The tender documentation stated that the following weightings would be applied:

Table 16: Evaluation criteria for flood defence procurement

Criteria for Assessment	Weighting %
Experience – *consider previous Environment Agency schemes last year, similar property work, variety of locations, small and large schemes, surface water flooding, number of schemes or years of continued working*	30
Expertise – *consider qualifications, industry recognition or advisory roles, knowledge of products and related flood/water or climate change/resilience issues*	25
Cost – *consider overall value for money and sensible breakdown of costs*	15
Capacity – *consider number of available qualified and experienced staff and supervisory arrangements, additional available support*	20
Additional Value- *consider local knowledge, additional support or provision e.g. provision of flood fairs, ongoing support beyond survey work etc*	10
Total	**100**

Source: Corporate documentation: Invitation to Tender [flood defences] p9.

Once the tenders had been returned, the same WADD process as in the previous example was followed. Again, it would be repetitious to include a flow chart, since this would be the same as Fig 65. Six tenders were received, and these were opened under seal. Each criterion was marked in an un-weighted fashion and these scores were collated by Corporate Procurement who applied the above weightings and awarded the contract to the company with the highest score.

This example has a number of interesting points. Firstly, to some extent, the contract was not advertised on the open market. Initially, companies were pre-selected by managers, and only companies which made use of the trade journals would otherwise have been aware of the procurement. This was not seen as a problem:

> *"No. That's standard practice for procurements of this type. You go for who you know…who you definitely want to put in a bid. Then you go to the trade journals and put in an advert. All the other companies who could do the work and who might be interested will read the advert"* (Corporate Procurement).

This explains why there were fewer bids than in the streetscene example although the scale of the work and, therefore, the capacity required was considerably smaller. Simply put, *"fewer people were aware of the procurement, and so fewer people put in a bid"* (Corporate Procurement). Secondly, the representative heuristic was used to help to determine the consideration set:

> *"You have to rely on your previous experience and you stereotype companies accordingly"* (Corporate Procurement).

> *"You stereotype. I made the assumption that because a company's been good in the past it will be good again for this procurement"* (Emergency Planning).

In other words, a choice-based heuristic (conjunctive) was used to modify the results of an intuitive heuristic (representative). However, this is not as clear-cut as it might first appear. The representative heuristic helped to generate part of the consideration set by proactively contacting particular companies, but this was, to a large extent, a self-selected sample because companies could choose whether or not to bid regardless of whether they were contacted directly or whether instead they responded to the advert. Interplay between heuristics is discussed further in Chapter Seven. A second example can also be presented because, although most of the process is similar to the previous case, there is one significant difference.

Vignette 11: Procurement of acrobats

Background

The Culture business unit is responsible for a range of high-profile programmes and events. One of these was a street-based event that saw a large pageant winding its way through the city centre, and there was a need to procure the services of acrobats for this event. The cost was expected to be approximately £20,000.

The manager contacted companies directly and did not seek to engage with the wider market:

> *"There aren't many companies who can provide acrobats, and there are even fewer who can provide what I wanted – acrobats plus all the other bits and pieces that went with [the event]. I knew who the companies were, and so there was no need to go out to a general advert"* (Culture).

Some weeks after this initial comment, the manager had reflected further upon his approach.

> *"I suppose that there could be a potential problem in me stereotyping companies in this way. I assumed my knowledge was complete. I assumed that I was aware of all the companies who could provide acrobats. I guess that there may be other companies who could provide acrobats but who I didn't know about, but that wasn't likely. Anyway, any other companies would be so small or so new that their capacity to deliver what I wanted would have to be in doubt"* (Culture).

In this example, the consideration set was generated entirely through the use of the representative heuristic, and it was not modified by a self-selection process as in the previous example. Therefore, this is much clearer evidence of a choice-based heuristic (conjunctive) being used to modify the results of an intuitive heuristic (representative), and so this example supports the literature (Kahneman, 2011; Sunstein, 2005a). Evidence such as this also emphasises the strength of the chosen methodology, since managers were able to reflect on their initial thoughts and comments, and provide further clarification and insights at a later date.

The rest of the 'acrobats' process is the same as the 'flood defence' process, and therefore it is not discussed further.

5.3.5 Small scale procurements

Managers in the organisation under study regard small-scale procurements as administrative decisions. Only three examples were identified, and at first sight, this figure seems extremely small. However, it must be remembered that this study is focused upon senior managers,

rather than on the organisation as a whole, and senior managers are rarely involved in procurements of this size. Hence, the number of situations identified (three) is broadly compatible with the rest of his study. A single example is representative of all:

Vignette 12: Stationery order

Background

It was necessary to restock an office with paper. The annual cost of this was about £2,500. Corporate standing orders stated that it was only necessary for managers to get three quotes and these could be either written or verbal depending on circumstances.

The manager concerned approached three suppliers directly:

> *"I knew which companies I wanted to speak to. I knew their reputation. I knew they could all deliver"* (Neighbourhoods).

She used the representative heuristic to generate her consideration set.

> *"It was a whacking great stereotyping operation. I stereotyped the companies and I stereotyped the product. It was all much of a muchness. Paper is paper. I knew before I went out for quotes that there'd be nothing much to choose between them"* (Neighbourhoods).

Quotations were received, and she made her decision based on a single factor:

> *"It was just a question of price. That was the only aspect I looked at when the quotes came in. Two of the three quotes came in above my budget, and so I eliminated those and I was just left with the one, so that's what I went for"* (Neighbourhoods).

In other words, the EBA heuristic was used. The manager even uses the words *"aspect"* and *"eliminated"* in her quotation. This was not a case of choosing the lowest price, as would have been the case under the 'take-the-best' heuristic (Gigerenzer, 2008):

> *"No. I didn't just go with the lowest quote. I had a fixed budget and two of the quotes were higher than that. So, it was just about affordability. I had to knock back the two I couldn't afford"* (Neighbourhoods)

Hence, this was an example of deliberately using EBA to eliminate two alternatives based on a single aspect (price). Therefore, although by coincidence, this left a single bidder, and therefore the result was the same for either heuristic, the two processes are entirely different.

5.3.6 Use of choice-based heuristics in isolation

5.3.6.1 Introduction

The previous pages demonstrate how the 'procurement heuristics' can be used in combination at different stages within a single decision. However, choice-based heuristics can also be applied individually, as was illustrated above with the use of EBA in small procurements. The following section expands upon this, and shows how the linear compensatory heuristic is used in recruitment and selection decisions.

5.3.6.2 Linear Compensatory heuristic

This heuristic was observed in 42 decisions, all of which were in recruitment situations such as shortlisting and job interviews. In each case, therefore, the heuristic was used for administrative decisions (Ansoff, 1968; Hicks, 1991). As described earlier in this chapter, other aspects of the recruitment process, such as preparing a job description and person specification, made use of other heuristics such as anchor and adjustment.

It is very revealing to compare the academic definition of the linear compensatory heuristic with the job interview procedure in the organisation under study:

Fig 66: Comparison of academic definition of linear compensatory heuristic with the corporate interview procedure

Academic definition of the heuristic:

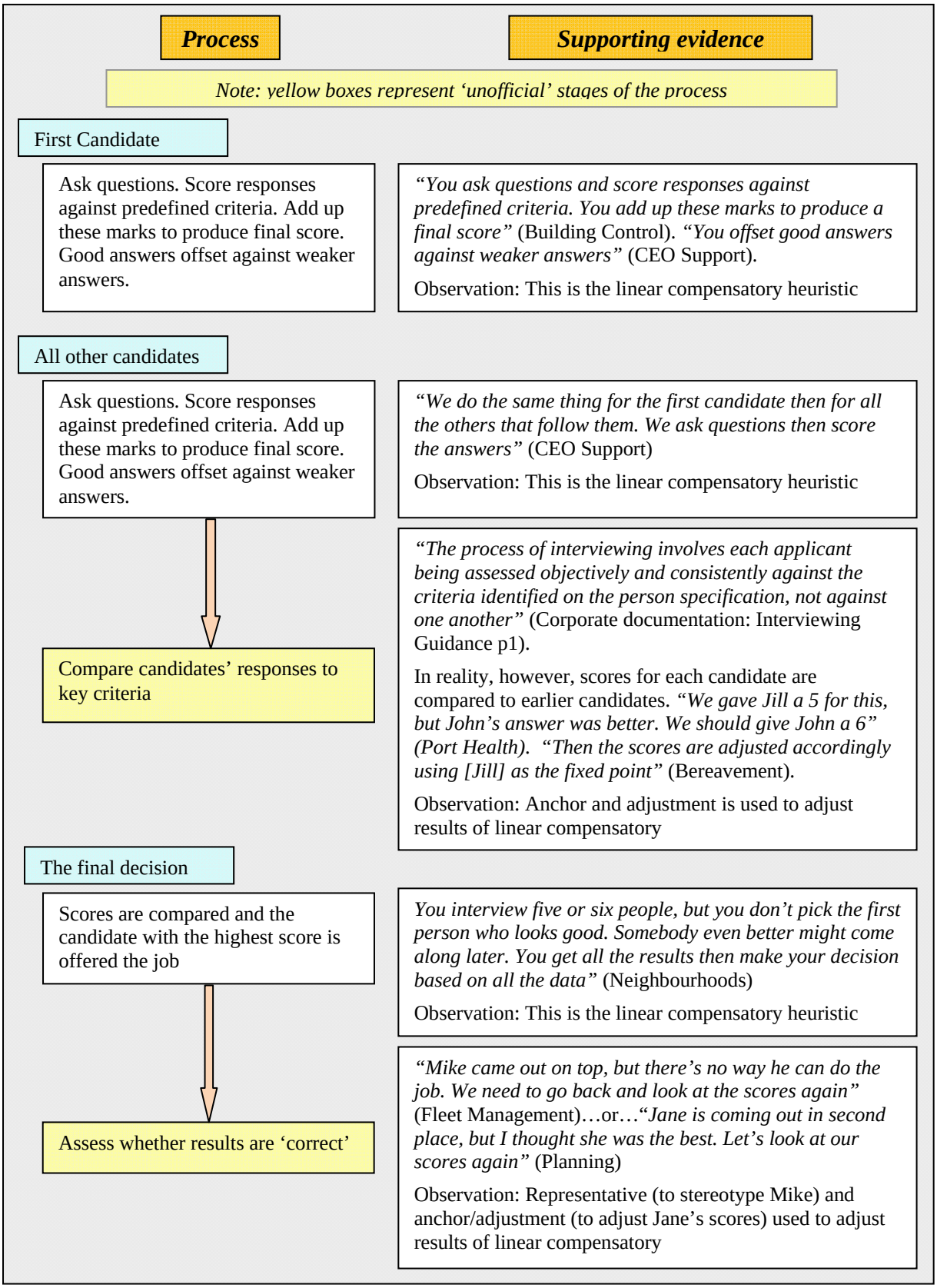
"All attributes of a given alternative are considered in a way that a desirable attribute may offset or compensate for an undesirable attribute. This is done for each alternative. The alternative with the greatest overall score is chosen" (Lee and Geistfeld, 1998: 230).

Corporate interview procedure:

"Each candidate will give stronger and weaker answers to different interview questions. The interviewer must balance these so that all responses are considered when determining an overall score. The good answers may compensate for the weaker answers, and therefore the selection should be made on the basis of the total score and not on the basis of how well a particular question was answered. The candidate with the highest overall score must be selected" (Corporate documentation: Corporate Recruitment Procedure p13 – emphasis as in the source document).

Essentially, if the word *'candidate'* replaces the word *'alternative'* in the academic definition, it describes the corporate recruitment procedure. Unsurprisingly, therefore, there were many instances found during this research, and the following pages sum up the experiences and feelings of those involved. Observational and interview data in relation to the interview process for a total of 42 posts was gathered from 32 business units, and in each case, the 'official' corporate procedure was followed to a point, but was 'modified' by managers using other heuristics, as the following diagram illustrates.

Fig 67: Use of the linear compensatory heuristic – job interviews



The high level of consensus in the empirical data should be stressed. The 'modification' of the official procedure applied across the organisation in exactly the same way, and was not confined to a small number of business units. It could therefore be speculated that organisational culture might be an influencing factor. However, no data was found to either confirm or deny this, and therefore this is presented as speculation only, and could fruitfully be an avenue for future research. Effectively, the results of a choice-based heuristic (linear compensatory) were modified by an intuitive heuristic (either anchor/adjustment or representative according to circumstance). This is contrary to the literature, and is discussed further in Chapter Seven.

Interestingly, seven managers regarded job interviews as a form of procurement. This, of course, makes linear compensatory another of the 'procurement heuristics' identified above. They took the view that the corporate process (i.e. the heuristic) is flawed. The following comments illustrate their reasoning:

> *"Basically, recruitment is a procurement exercise. You're basically procuring a service that costs maybe 30 or 40 grand a year. So why do we apply different rules?"* (Planning).

> *"With interviewing, you say things like 'I think they meet the criteria, but I can't say why'. You'd never get away with that with a normal procurement"* (Partnerships).

Nevertheless, even managers who feel that the process is flawed recognise that they must follow it, and made comments such as, *"I have to go along with it even though I think the process is full of holes"* (Planning).

5.3.7 Towards a resolution of academic debates

This study has provided a rich source of data that can be used to address some of the debates in the academic literature, and this section discusses how some of these debates are affected by this thesis.

Weighted and/or unweighted version of the heuristic

In each of the 42 decisions observed, managers simply added up the scores for the individual elements and offered the post to the person with the highest total (notwithstanding the modification of the results by intuitive heuristics). At no stage was an average value used. This therefore rules out the use of both the unweighted and weighted versions of the heuristic (both proposed by Laroche, Kim and Matsui, 2003).

Furthermore, there was no evidence of weighting being used in either the design or implementation of this heuristic. It is true that some criteria in the person specification are categorised as being 'key', and it could be argued that this is effectively a form of weighting because shortlisting and interviewing take place against the key (or 'weighted') criteria. However, once a consideration set had been established, all candidates were assessed using the process outlined above. The heuristic was not invoked until this consideration set had been identified and thus weighting plays no part in the heuristic.

Finally, the literature states that both the unweighted and weighted versions of the heuristic are used to produce a binary outcome (Parkinson and Reilly, 1979). However, in the present study, a decision was made by the selection of one option from a larger sample, and therefore it was not a binary outcome. As a result, it was found that the 'pure' version of the heuristic (Lee and Geistfeld, 1998) was used and not the unweighted or weighted versions.

Factors that influence the use of choice-based heuristics

In common with much of the literature (Brisoux and Laroche, 1981; Laroche and Toffoli, 1999), this study has found that choice-based heuristics are used primarily within a purchasing context – particularly if job interviews are considered to be a form of procurement, as suggested above. Two factors were proposed in Chapter Four that may influence which choice-based heuristics are used in a given situation; namely the number of attributes and the number of alternatives. This study has found that as the number of alternatives increases, decision-makers are more likely to use noncompensatory strategies (supporting authors such as Bettman and Park, 1980; Gilbride and Allenby, 2006). This was evidenced in both large-scale and medium-scale procurements, where noncompensatory heuristics (EBA and conjunctive) were used to reduce the number of bids to a more manageable number.

An important factor, however, is the fact that large procurements are governed by regulation. Even though these rules do not dictate which heuristic must be used, they effectively demand that noncompensatory heuristics are used first and compensatory heuristics are used second. Even if there were only a small number of bidders, same process would have to be followed:

> *"If we only got four bidders, then we might be able to bypass the first step [i.e. EBA] because the number of companies is already manageable at the start"* (Corporate Procurement). *"We'd start off at the second stage [i.e. conjunctive] and assess the bidders against all of the mandatory criteria"* (Corporate Finance). *"We'd still have to do that [...] because we have to follow the process we said we'd follow. We can't change it just because it no longer makes sense!"* (Internal Audit).

When the number of attributes is considered, the results of this study are contradictory, and this reflects the confusion in the literature. Some authors (such as Tversky, 1972) suggest that as the number of attributes increases decision-makers are likely to use noncompensatory heuristics. However, others (e.g. Russo and Dosher, 1983) suggest that compensatory heuristics are more likely; and still others (such as Olshavsky, 1979) have found no link. In the large-scale 'streetscene' procurement, there were eight mandatory attributes, and noncompensatory heuristics were used (EBA and conjunctive). In the medium-scale 'flood defences' procurement, there were again eight mandatory requirements, and once more a noncompensatory heuristic (conjunctive) was used. As far as can be determined, this figure (eight attributes) within both procurements is entirely coincidental. No requirement was found in the corporate documentation, and none of the senior managers was aware of such a requirement when asked. In the case of the above examples of the WADD heuristic, the number of criteria in was five in both procurements. Again, this may be coincidental for the same reasons.

However, in the case of job interviews, candidates are questioned against *"no more than eight criteria"* (Corporate documentation: Corporate Recruitment Procedure p14) – a fact confirmed by senior managers. In other words, once again there is a potential figure of eight attributes and yet this time a compensatory heuristic (linear compensatory) is used. Therefore this study is inconclusive in this regard.

Mathematical modelling of heuristics

Chapter Four shows that many algebraic models have been developed to illustrate heuristic processes (e.g. Dieckmann, Dippold and Dietrich, 2009; Schwenk and Reimer, 2008). Each heuristic has its own formula or formulae, including EBA (Gilbride and Allenby, 2006), conjunctive (Zhu and Givan, 2005), WADD (Nosofsky and Bergert, 2007), and linear compensatory (Lee and Geistfeld, 1998). However, although calculations were involved in several decisions, there was no evidence that such mathematical constructs were used in the organisation under study.

For instance, with the linear compensatory heuristic, managers totalled the scores for the interview candidates, but this was done mentally and a formula was not consciously used. The process is very similar to that described on page 74. In the case of the WADD heuristic, weightings were developed at the start of the process but *"we made them up on the fly. They were based on experience, not a predefined formula"* (Corporate Finance). The calculation was entered into Excel and was simple, such as: *'=Sum(A8:A15)*G1' (Corporate documentation: Streetscene procurement spreadsheet).* In this, the total score for column A was multiplied by the weighting in cell G1. Once the formula had been entered, managers gave the calculation no further thought. *"The machine did the maths, not us"* (Internal Audit). *"We trusted the calculations but we never used them ourselves"* (Legal Services). The decision was made by managers totalling the weighted scores and simply selecting whichever was the highest. An algebraic formula was not used.

The author showed each of the managers involved in the procurement process the formulae from the literature for the EBA, conjunctive, and WADD heuristics. Similarly, the formula for the linear compensatory heuristic was shown to managers from ten of the 32 business units who used the heuristic. In every case, managers stated that they did not use the formulae. Indeed, only one manager was aware that algebraic formulae existed at all – and even then, this was only in relation to the WADD heuristic. The following comments were typical:

> *"I suppose we could develop a mathematical formula or equation for the process, but what'd be the point? If would just be over-complicating a simple process [i.e. EBA]"* (Corporate Finance).

> *"No, we don't use [the conjunctive formula]. We just follow a procedure and apply a bit of common sense. We look for a way to reduce the number of bidders and keep our workload down"* (Legal Services).

> *"We don't follow a complex formula [i.e. the WADD formula]. We just work out the weightings based on what looks sensible"* (Corporate Procurement).

> *"Whoa! That's scary! [i.e. the linear compensatory formula] Is that really what I do? Makes me look a lot cleverer than I am!"* (Culture).

The one person who was aware of the WADD formula (who has a PhD in procurement) made the following suggestion in relation to this thesis:

> *"I really wouldn't put the formulae into your thesis. They don't describe what really happens. They don't describe what we really do. I never use the mathematical versions, and I don't know anyone who does. Not in real life. That's OK in the journals and text books, but real life isn't like that. You'd be misrepresenting the reality and you'd be better off telling it like it is and sticking to the facts"* (Corporate Procurement).

A Director made a similar observation:

> *"These formulae might describe the results of what we do, but they don't describe how we do it"* (Director of Finance).

These quotations, and the general ignorance of the formulae throughout the organisation, support the approach taken in Chapter Four, where formal mathematical models were not considered in detail. Therefore, this thesis represents a contribution to knowledge because it illustrates that the heuristics can be used in a 'non-mathematical' way, and that mathematics can be a *"burden to understanding how the process works"* (Corporate Procurement).

It can be speculated that perhaps the prevalence of mathematical approaches to decision-making within universities and academic texts is attributable to an emphasis on topics such as making decisions on investment appraisal. Such decisions did not feature as strongly in this study as they might in a study of a private sector business. Nonetheless, given that the use of algorithms is extensively taught in business schools (see for instance University of

Manchester, 2013), this study calls into question established teaching practices. Indeed, a recent call from the Chartered Management Institute asks business schools to teach 'real-world' management as opposed to theory (Wood, 2013). Consequently, students might be better served by learning about heuristics rather than by seeking to quantify decision-making.

5.4 Chapter summary

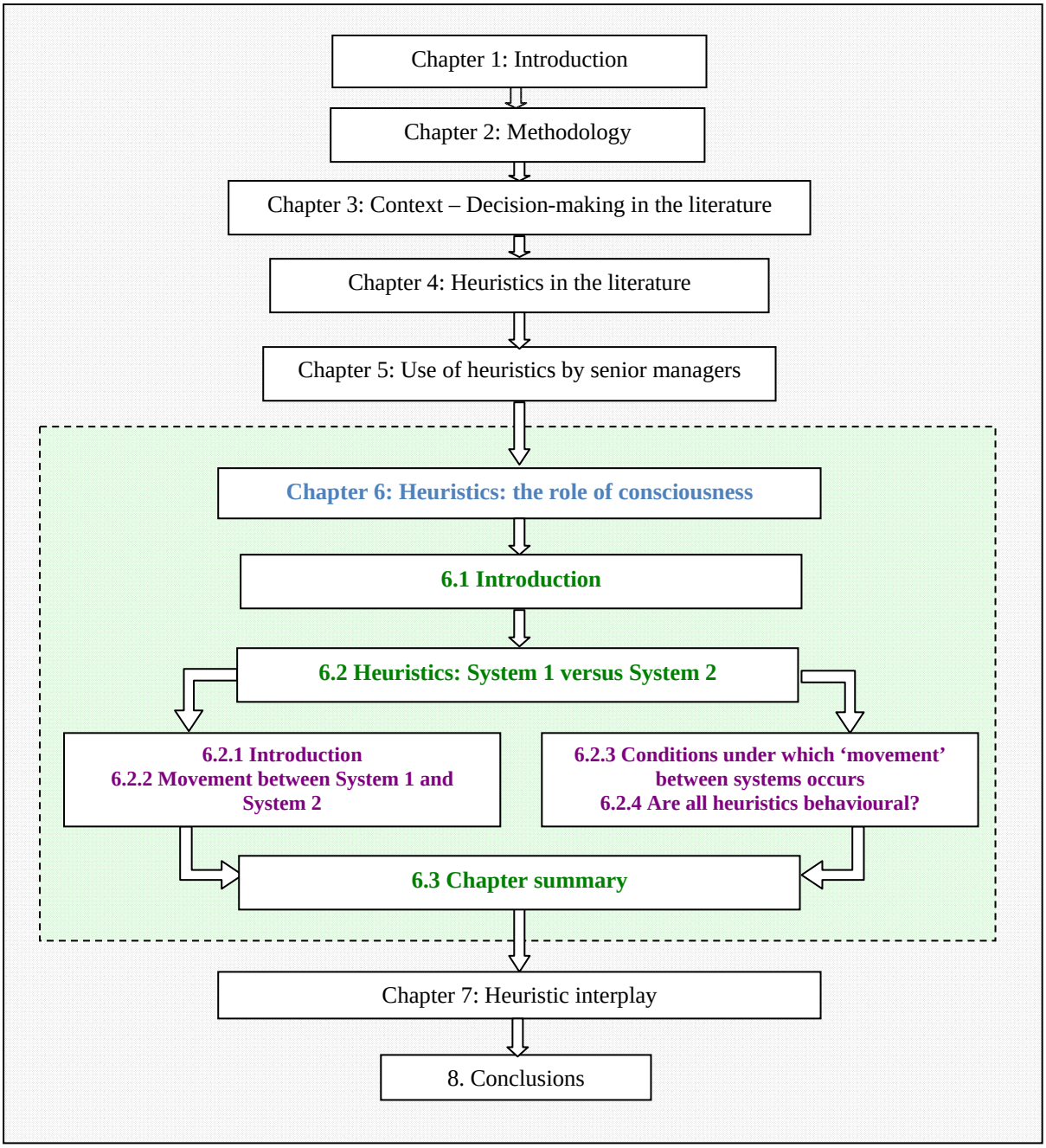
This chapter has discussed how each of the eight heuristics was used within the organisation under study. A significant finding was that heuristics were widely used in all parts of the organisation. The representative heuristic was used in every business unit, and the linear compensatory and anchor and adjustment heuristics were also commonly used. Other heuristics were only found in particular circumstances. For instance, the availability heuristic was only found in business units with an enforcement role, and the EBA heuristic was only found in procurement situations. This is suggestive of a possible link between heuristics and work environment. This is reinforced by the moral heuristic, which was only found in 'soft' business units and was opposed in 'hard' business units.

In addition, several of the academic debates have been furthered by this study. In many cases, this thesis has been able to form a view in favour of a particular theory but even where this study has remained inconclusive, new evidence has been provided that may ultimately lead to a resolution. However, a number of important findings emerged which are new to theory. For instance, a series of flow charts was produced that reflect the underlying processes of heuristic decision-making. For the first time, these make visible the component parts of each heuristic. In addition, although the fact that several heuristics can 'work together' sequentially in the same decision was already known, it has been confirmed by this study. However, the discovery that the individual heuristics do not operate in isolation but actually exhibit considerable interplay is significant, and this is discussed further in Chapter Seven.

Another key finding concerns the role of consciousness in heuristic decision-making. The idea that intuitive heuristics can be used consciously was as unexpected as the notion that choice-based heuristics can be used unconsciously, and yet compelling evidence of both was found. This is discussed further in the next chapter, Chapter Six.

CHAPTER 6: HEURISTICS: THE ROLE OF CONSCIOUSNESS

Fig 68: Context and structure of Chapter Six



6.1 Introduction

Chapter Five has shown that the heuristics identified in this study are applied both consciously and unconsciously. This chapter builds upon this and draws on the dual-system theory presented in Chapter Two to highlight its relationship to these heuristics. This discussion then shows that the 'real world' is more messy and unstructured than theory suggests and it calls into question the normative/behavioural distinction that is often made. It also questions the intuitive/choice-based distinction and argues that the dual-system theory is a more suitable framework to describe heuristic behaviour. When an analysis is conducted of the conscious/unconscious use of each heuristic, the following diagram emerges:

Fig 69: Degree of conscious application of each heuristic

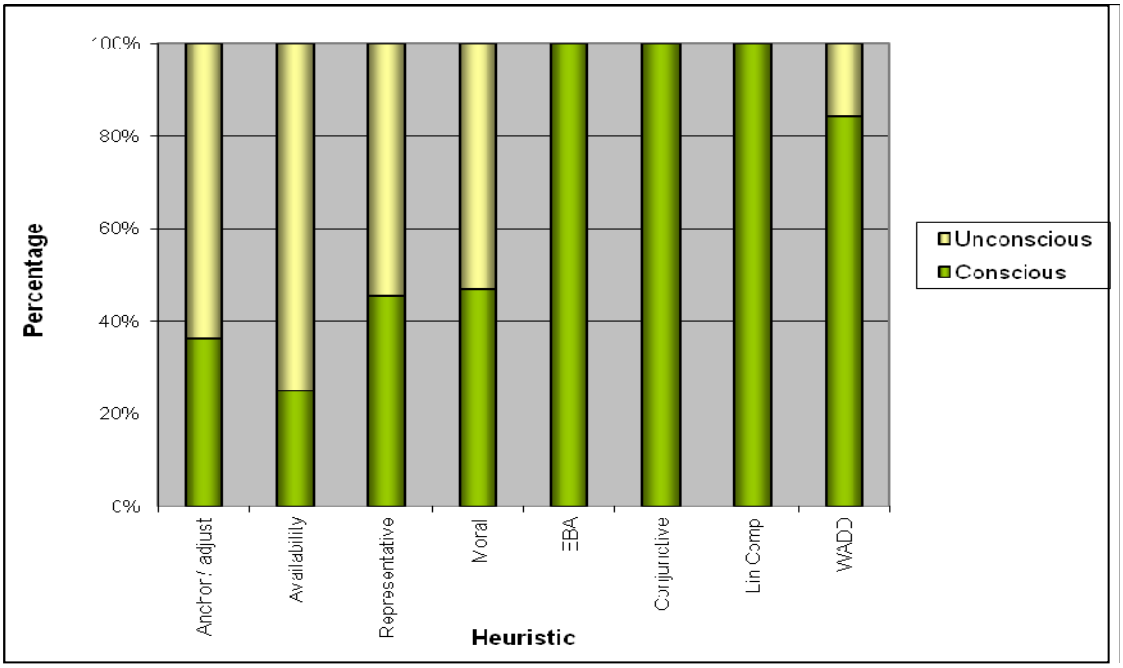


Fig 59 shows that the four intuitive heuristics can all be applied consciously. Indeed, with the representative heuristic, almost half of decisions (46%) were made consciously. This therefore calls into question the idea that these are 'intuitive'. How can they be 'intuitive' if they are applied in a conscious way? The diagram also shows that three of the choice-based heuristics were only used consciously, and this supports the literature. In the case of the linear compensatory heuristic there is strong evidence for a high level of unconscious heuristic interplay (see Chapter Seven), but no evidence was found that the linear compensatory was itself applied unconsciously. However, clear evidence was obtained that the WADD heuristic can be used unconsciously. These findings are explored below.

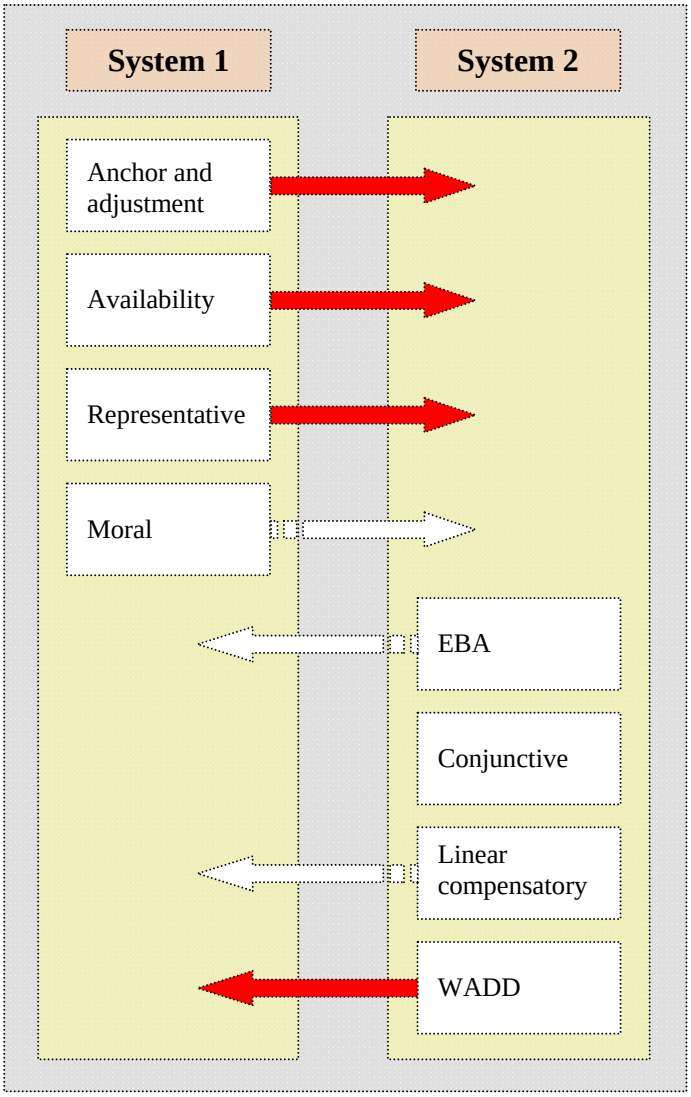
6.2 Heuristics: System 1 versus System 2

6.2.1 Introduction

It will be remembered that Chapter Three discussed various theories of cognition and showed that a 'dual system' approach could be used to conceptually integrate a range of other theories. Essentially, this approach suggests that people act in one of two ways according to circumstance. System 1 encompasses intuitive and unconscious thought whereas System 2 contains rational and conscious thought (Kahneman and Frederick, 2002; Kahneman, 2011). Various theories of decision-making were then discussed and these can be grouped into two categories. Normative decision-making is rational, logical, and conscious; whereas behavioural decision-making is unconscious and intuitive (Hill, 1979a; Hutchinson and Gigerenzer, 2005). The focus of this thesis – cognitive heuristics – is generally classed as a behavioural model (Buchanan and Huczynski, 2004; Douglas, 2005).

It might be assumed, therefore, that normative and behavioural models of decision-making can be mapped neatly onto the dual process theory of cognition, with behavioural theories being mapped onto System 1 and normative theories being mapped onto System 2. However, as will be shown in this chapter, the data from the present study suggests that this is not the case. Cognitive heuristics do not simply 'belong' in one or other of the categories. Instead, the following conceptual diagram better reflects the findings arising from the present study, and maps the eight heuristics from the study against the dual system approach.

Fig 70: Cognitive heuristics mapped against the dual-system theory of cognition



This illustration places the four intuitive heuristics within System 1 whereas the four choice-based heuristics sit within System 2. This is consistent with the discussions presented in Chapter Four. Even at this stage, it is therefore possible to see that this study calls into question the assumption that all heuristics are behavioural in nature – how can behavioural heuristics behave in a conscious and normative way? Furthermore, the diagram illustrates that the relationship of heuristics to the dual-system theory is not always as clear as may first appear and most of the heuristics move between the two systems, although no evidence of movement was found in relation to the conjunctive heuristic. This is not to suggest that individual heuristics are constantly fluctuating between the systems. Rather, the diagram illustrates that both systems can apply to particular heuristics in different circumstances. It will be noted that three of the arrows in the diagram are white and 'dotted'. In these cases, there was some evidence of movement in the study, although this was not conclusive. The

following pages consider each of these heuristics and identify the circumstances where this 'movement' takes place.

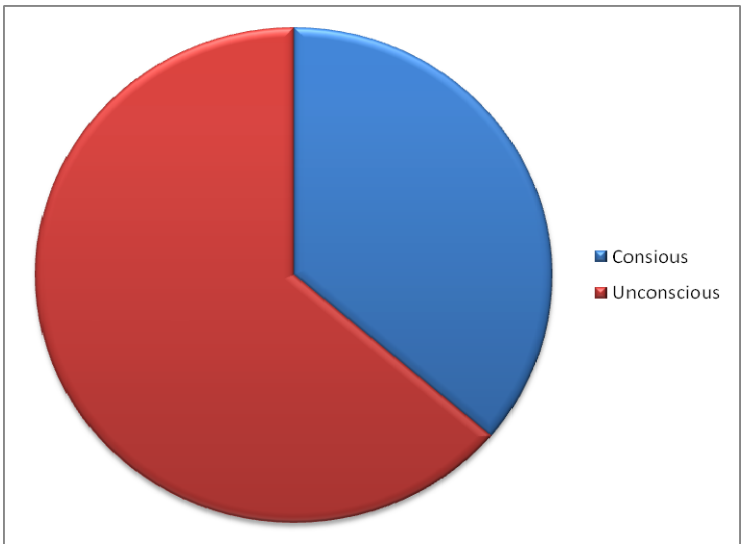
6.2.2 Movement between System 1 and System 2

Anchor and adjustment heuristic

Fig 70 suggests that the heuristic is primarily used unconsciously, and primarily resides in System 1, and this is borne out by the literature. As noted in Chapter Four, people unconsciously use it to estimate unknown quantities such as the number of African nations in the UN (LeBoeuf and Shafir, 2009) or the length of the Mississippi River (Simmons, LeBoeuf and Nelson, 2010). As shown in Chapter Five, this was also the case in the present study, where the heuristic was used unconsciously to estimate aspects as varied as financial savings targets or the number of headstones in a city's cemeteries. This therefore clearly places the heuristic in System 1.

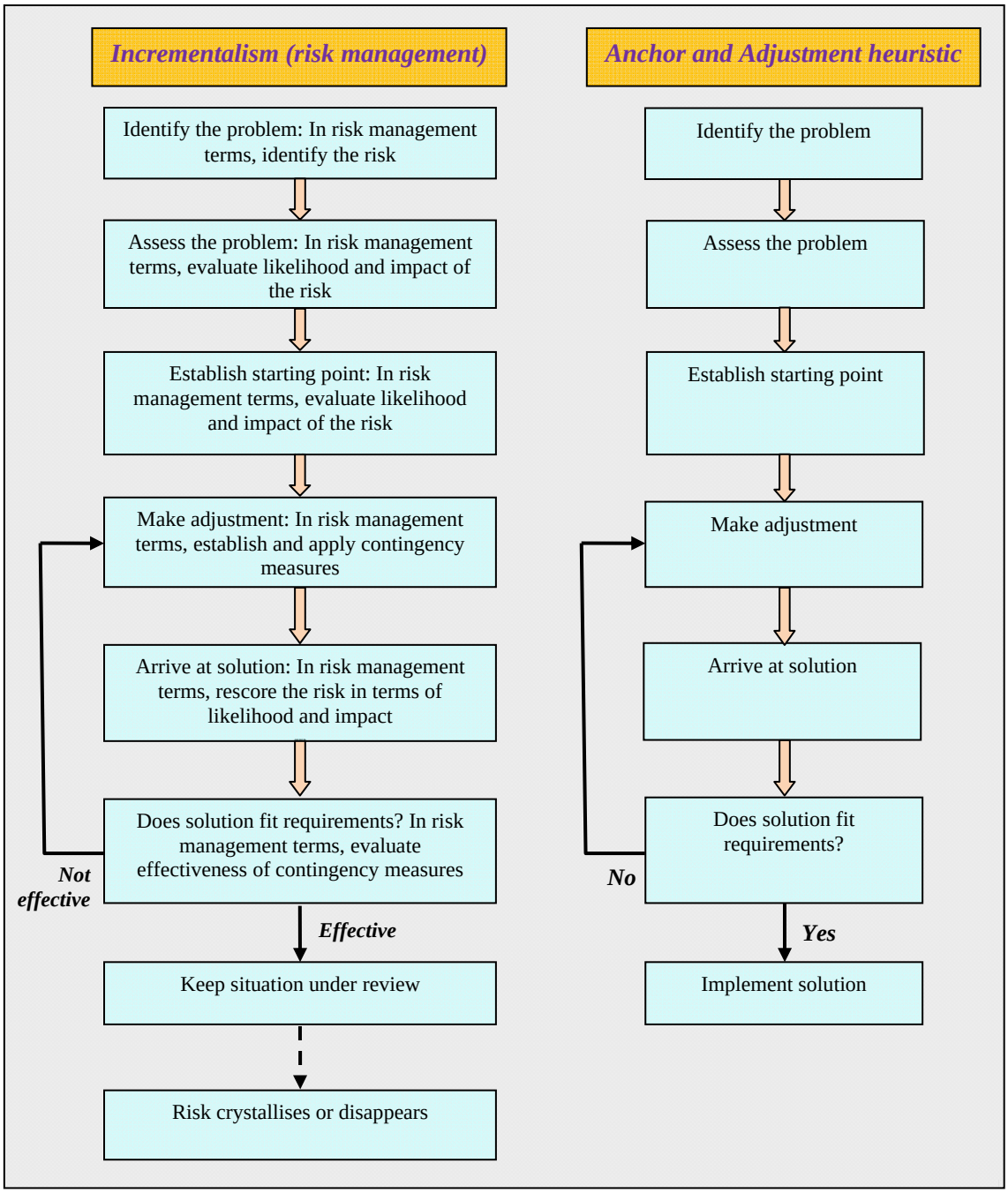
However, the heuristic was also used deliberately and consciously. For example, as noted in Chapter Five, when managers have a new job to fill and wish to create a new job description they typically look for one which is similar and deliberately use this as their anchor point, making adjustments from this until they reach the desired outcome. Similarly, when it is desired to develop a new contract or new IT system, managers generally "*start from something and modify this rather than starting with a blank piece of paper*" (Building Control). In other words, the heuristic can also exhibit System 2 behaviour. The following diagram shows the ratio of conscious and unconscious use of this heuristic in the present study.

Fig 71: Conscious and unconscious use of the anchor and adjustment heuristic



Unconscious use accounts for almost two-thirds of decisions (64% or 44 decisions), whereas conscious use is responsible for the remaining third (36% or 25 decisions). This therefore justifies the above placement of this heuristic. It also suggests that the line between normative and behavioural decision-making is somewhat blurred. This 'blurring' is emphasised further when the anchor and adjustment heuristic is compared to the incremental model of decision-making. It will be remembered that in Chapter Three, incrementalism was identified as a model that was almost normative in nature (Lindblom, 1959; 1977). Its processes were illustrated by an example from the present study (risk management) and a flow chart was produced to highlight the component parts. The following diagram re-presents the incremental flow chart and compares the process to the anchor and adjustment heuristic diagram presented in Chapter Five. In each case, the supporting comments given in earlier chapters have been omitted for reasons of clarity. When the two processes are presented side by side in this way, it is apparent that there are significant similarities:

Fig 72: Comparison of incrementalism with the anchor and adjustment heuristic



In each case, there is a problem that needs to be solved and there is a starting point from which the decision develops. The decision then develops incrementally in small stages, there is a feedback loop back to an earlier point in the process, and there may be several iterations of the process until the desired solution is reached. For example, with the incremental approach, risks might be managed in a single stage without the need for further measures, or they may require several iterations. Similarly, although the examples of the anchor and

adjustment heuristic quoted in Chapter Five only feature a single iteration, this is by no means universal, as the following quote from the Finance Director illustrates.

> *"It's all subconscious. When I'm setting fees or working out [budget] savings, my starting point is fixed and I just make adjustments up or down from that. Either they work or they don't. If they don't then I make more adjustments. I keep on going until I've got what I need. But I just do it automatically. I'm not aware that I'm doing it".*

On this evidence, the two approaches are different manifestations of the same process. In one, the steps are applied unconsciously (anchor and adjustment) but in the other the same steps are applied consciously (incrementalism). However, one is behavioural (anchor and adjustment) and the other is 'almost normative' (incrementalism). This study suggests that the only difference is the degree of conscious deliberation involved.

Availability heuristic

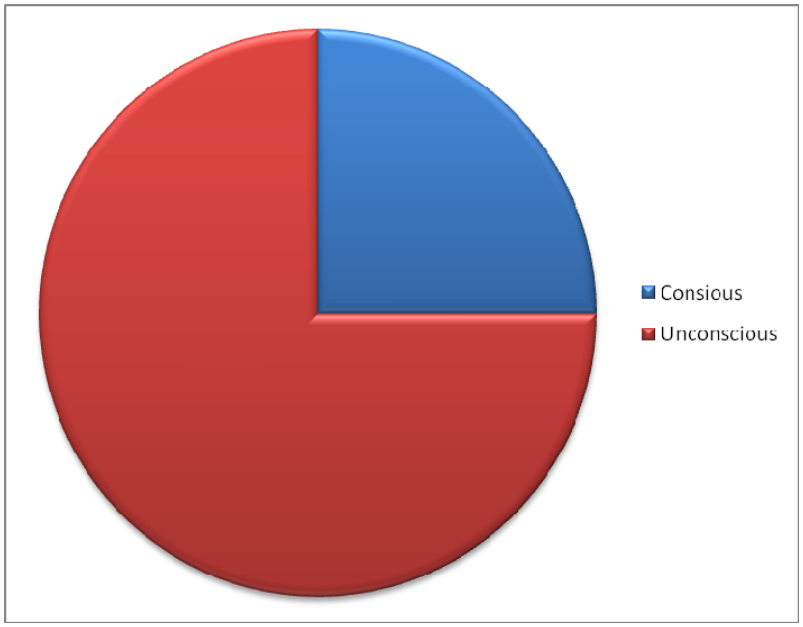
Fig 70 shows that the availability heuristic is normally located in System 1. This is supported by the literature which indicates that the heuristic is used intuitively and unconsciously to estimate a variety of factors such as the number of deaths from various causes (McKelvie, 1997) or the ratio of men to women in a list of names (Hertwig, Hoffrage and Martignon, 1999). This is also supported by the present study. This heuristic was used for 16 decisions and was applied in an unconscious way on 12 occasions (75%). It was frequently used when an incident triggered an emotional feeling in the decision-maker. For instance, where staff in an enforcement-based role had been physically attacked this led the manager to respond on the basis of that particular incident rather than taking a more measured approach involving the use of trend data. Even though managers were aware that this was happening, they felt as though this was inevitable given the nature of the situation. They pointed out that it was hard to consciously trigger an emotion, and that thoughts come to mind unbidden. When they tried to deliberately remember something, they were frequently unable to do so.

However, as noted in Chapter Five, this heuristic was also used consciously. For example, a fatality in another council's cemetery caused by a falling headstone weighed heavily upon the Bereavement Manager's thoughts. Because of the severity of the incident, it was ingrained in

his mind and he consciously used this when developing his maintenance strategy. His approach changed from a geographical, cemetery-by-cemetery approach to one based on the size, condition and risk of the memorials. Similarly, the case of 'Baby P' was consciously called to mind when strategic decisions were required in child protection situations, and the result was a change in mindset. Previously, the default position was that parents were to be trusted, but since Baby P the position is that the allegations are now deemed to be true unless proven otherwise.

The following diagram shows the ratio of conscious and unconscious use in the present study.

Fig 73: Conscious and unconscious use of the availability heuristic



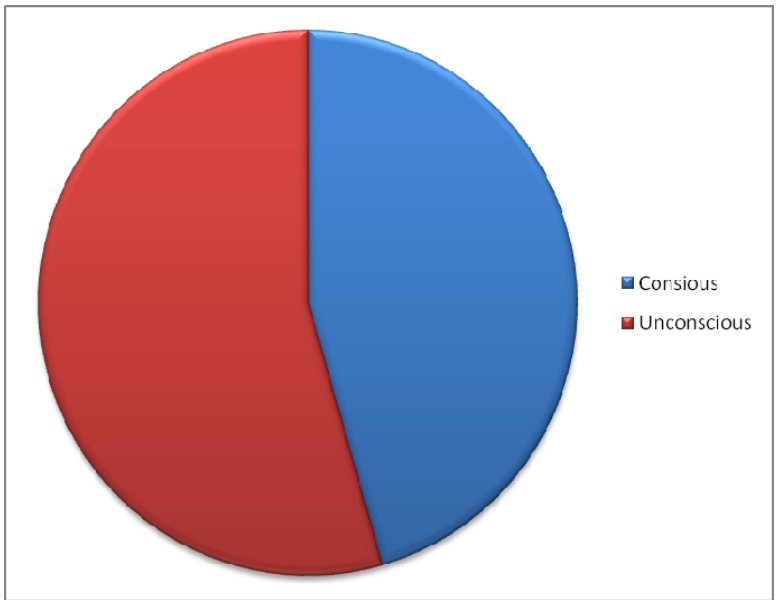
It is clear that three-quarters of decisions (or 12 decisions) used this heuristic unconsciously and the remaining 25% (4 decisions) used the heuristic consciously. This therefore supports the positioning of the heuristic in the above diagram.

Representative heuristic

Throughout the literature, the representative heuristic is classified as an intuitive heuristic that is used unconsciously, as in the cases of 'Linda' and 'Mrs Hill' presented in Chapter Four,

thereby placing it within System 1. The present study supports this placement (e.g. Fig 70) – but only just, as the following diagram illustrates.

Fig 74: Conscious and unconscious use of the representative heuristic

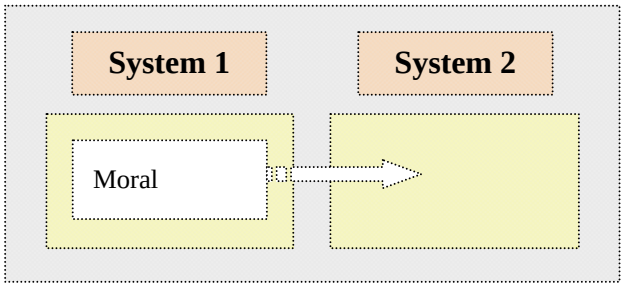


Of the 259 decisions identified as using this heuristic, only 141 (i.e. 54%) used it unconsciously. Examples were presented in Chapter Five, such as the employment of consultants who had previously been used, because they would 'do a good job', and the allocation of work on the basis of staff's perceived strengths and weaknesses. This approach was prevalent throughout the organisation and, small though the majority is, it nevertheless falls in favour of System 1 as being the most common position for this heuristic. However, a large minority of decisions (118 decisions, or 46%) used this heuristic consciously. Managers deliberately used stereotypes as the basis for their decisions. Examples quoted in Chapter Five include predicting crowd behaviour and the development of operational procedures. Managers may also make a conscious effort to recall a previous decision that they feel worked well, as in the case of the second decision in relation to the organ retention scandal outlined in Chapter Five. The conscious use of this heuristic means that it has a presence within System 2.

Moral heuristic

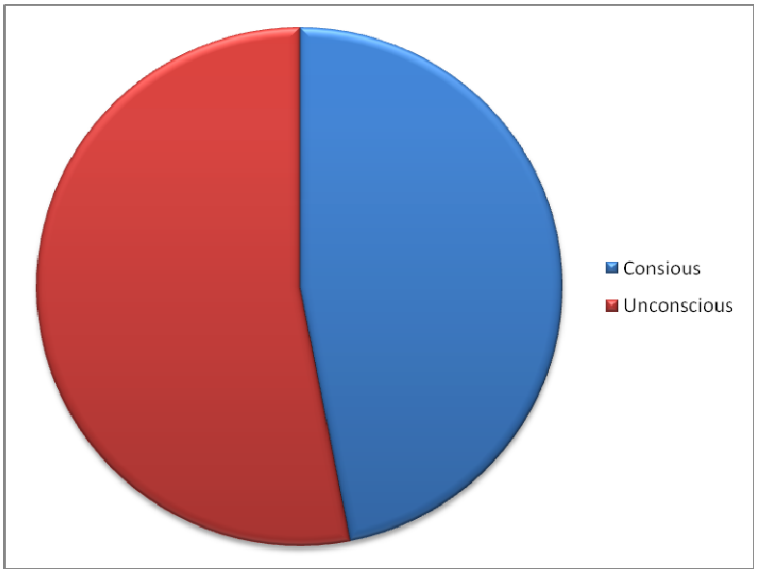
The placement of this heuristic in Fig 70 is restated below:

Fig 75: Moral heuristic mapped against the dual-system theory



System 1 has again been chosen as the 'normal' position for this heuristic. This is in line with the idea of this being an intuitive heuristic and is supported by the literature, which tends to explore people's unconscious reactions to hypothetical situations such as the 'trolley versus footbridge' example outlined in Chapter Four (Sunstein, 2005a; 2005b; Waldmann and Wiegmann, 2010). Once again, this is supported by data from the present study, as shown below.

Fig 76: Conscious and unconscious use of the moral heuristic



Of the 49 decisions where this heuristic was observed, unconscious use accounted for 26 cases (53%). These situations involved the need to make urgent decisions, such as placing a 15-year old girl with her father, who had previous convictions. This supports the 'placement' of this heuristic in System 1. This leaves the balance of 23 decisions (47%). At first glance,

these appear to be conscious decisions, and are taken where there is time to weigh up the pros and cons. Managers made these decisions after much reflection. Indeed, they were often treated as a last resort; for instance when deciding whether to recycle heat from cremations. This seems to be conclusive evidence for suggesting that they are System 2 decisions. Upon further investigation, however, the situation was less clear-cut. Unquestionably, managers made a conscious decision to do what they believed to be right, and this was emphasised several times in discussions with managers. However, the question was whether the *moral heuristic* was used consciously. Upon reflection, managers were not convinced that it was, and the following quotes were typical:

> *"No. You can consciously decide to do what you believe to be right. But…what do you believe to be right? Why do you believe it to be right? That's all unconscious"* (Adult Social Care).

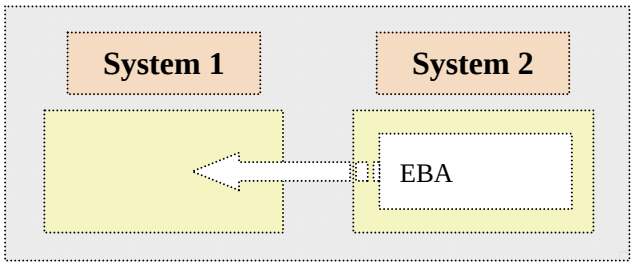
> *"I can analyse after the event why I feel something is right but it's harder to explain at the time of the decision"* (Bereavement).

Therefore, in the above diagram the arrow pointing to System 2 is dotted and not solid. Data from this study suggests that decision to invoke the moral heuristic can be a conscious one but the component steps are unconscious, and that managers are unaware of why they behave as they do. However, although suggestive, the data are not conclusive, and further research into this issue is recommended.

Elimination By Aspects (EBA) heuristic

In Fig 70, the EBA heuristic was mapped against the dual-system theory as follows:

Fig 77: EBA heuristic mapped against the dual-system theory



The literature argues that this heuristic is applied consciously. For example, Fader and McAlister (1990) suggest that when purchasing coffee, price might be the first consideration, with the result that all brands above a certain threshold are deliberately eliminated. This places the heuristic within System 2, and this is supported by the present study. The heuristic was only identified within a procurement context and in each of the 14 decisions studied, it was used consciously. Indeed, so conscious was its use that it was even enshrined within corporate policy. This appears to be conclusive. However, anecdotal evidence from managers suggests that this may not always be the case. Many managers felt they use the EBA heuristic unconsciously, although the fact that they are able to reflect on this usage might in itself indicate a level of consciousness. The following quotes were typical:

> *"A man is normally only attracted to a certain type of woman. To begin with, we only look at one aspect, such as blond hair or long legs. All women without these characteristics are unconsciously eliminated, and so you're only attracted to a smaller subset of women. You aren't aware that this is what you're doing, but you're still doing it"* (Planning).

> *"In the past, when I've been interviewed for a job, the manager has wanted someone who is outgoing [...] Everything else was secondary. So because I'm pretty introverted, that came across and I was automatically discounted before anything else was considered. I wasn't aware that this was happening at the time, and neither was the manager. We spoke about it a few months later, and that's when he rationalised what he'd done"* (Environmental Health).

It should be stressed that this evidence is anecdotal and instances such as these were not observed during the present study, and thus no direct evidence was found for decisions being made in this way. For this reason, a 'dotted' arrow was used in the above diagram Nonetheless, the evidence is compelling, and the author therefore recommends that further research be undertaken in this area to determine whether such unconscious application truly exists.

Conjunctive heuristic

Fig 70 was unequivocal about its placement of the conjunctive heuristic. It was shown as residing solely in System 2. This placement is consistent with the literature, which regards its use as conscious (see for instance Elrod, Johnson and White, 2004). This is supported by the present study. As noted in Chapter Five, the heuristic was used for 32 decisions, and on each occasion it was applied consciously. It will be remembered from Chapter Four that the definition of the conjunctive heuristic is: *"minimum cut-offs are established for each attribute. If an alternative does not exceed all the cut-offs for all attributes, it is rejected"* (Lee and Geistfeld, 1998: 230). Managers agreed that this must, by definition, be a conscious decision, as the following comments demonstrate:

> *"It must always be conscious. If it was unconscious then you'd most likely miss out some factors. [The academic] definition needs <u>all</u> factors to be addressed"* (Corporate Procurement – emphasis as in the original quote).

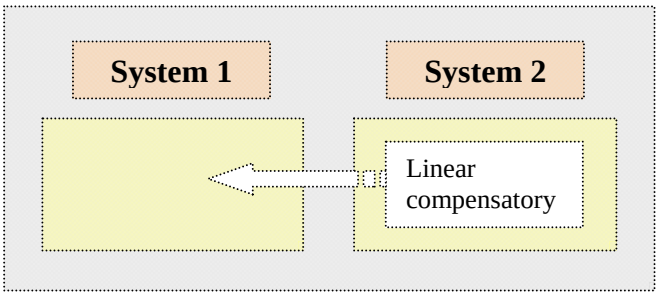
> *"The very act of setting a de-minimis value* [in a procurement] *is a conscious one"* (Internal Audit).

This study found no evidence of unconscious use and thus there is nothing to suggest that the conjunctive heuristic exhibits System 1 behaviour.

Linear Compensatory heuristic

Fig 70 places this heuristic in System 2 with a 'dotted' arrow to System 1, as shown below.

Fig 78: Linear compensatory heuristic mapped against the dual-system theory



The placement of the heuristic in System 2 is supported by the literature, which argues that it is used consciously (Johnson, 1996). The present study endorses this because in each of the 42 decisions where the heuristic was used, the application was conscious. Indeed, as Chapter Five shows, the corporate recruitment policy is effectively the linear compensatory heuristic, and managers are required to follow this process. As with EBA, however, the situation is not entirely clear-cut. Several managers were uncomfortable with the academic definition of this heuristic, and felt that their decisions were based on *some* attributes rather than *all* attributes, because not all attributes were relevant. As the Director of Regeneration commented:

> *"Somebody's skin colour or religion are definitely attributes. They describe who the person is and help to make them who they are. But you can't consider them. It's in the rules, and rightly so. But by definition, not <u>all</u> of the attributes are being assessed".*

The implication is that the attributes are filtered prior to invoking the heuristic.

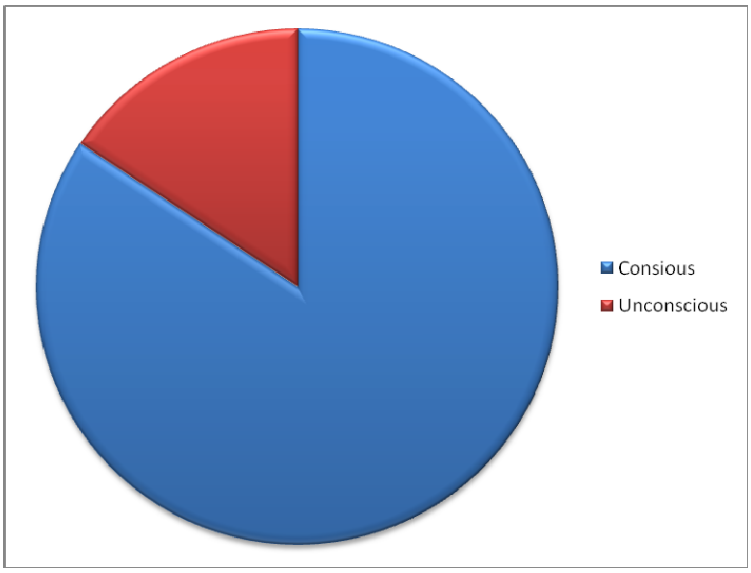
> *"Yes. You can't consider everything. You only consider what's relevant. But how do you decide what's relevant? It's all unconscious. You're not aware of doing it"* (Building Control).

This is discussed further in Chapter Seven, where heuristic interplay is explored. For the present, it is sufficient to state that in a similar way to the moral heuristic, the decision to invoke the linear compensatory heuristic can be conscious but may have unconscious sub components. Therefore, the arrow in the above diagram is dotted rather than solid.

Weighted Additive (WADD) heuristic

Fig 70 places this heuristic in System 2 but suggests there is also a relationship with System 1. The placement of this heuristic in System 2 is consistent with the literature, which regards it as being consciously applied (see for instance Cimarosti, 2009). The present study supports this, as the following diagram illustrates.

Fig 79: Conscious and unconscious use of the WADD heuristic



As can be seen, of the 32 procurement decisions that were studied, the vast majority (84%, or 27 decisions) involved the conscious use of the heuristic. Weightings were formally assigned to criteria and notified in writing to all interested parties. The organisation was then legally committed to these and documentation was deliberately written to illustrate the transparency of the process. However, in five decisions (i.e. 16%) the WADD heuristic was used unconsciously, such as in the example of the new shopping centre, where weightings were not formally assigned. The issue of quality also leads managers to adopt the heuristic unconsciously. Four managers expressed views similar to the following:

> *"When I'm procuring a new service, both price and quality are important. Price is a matter of fact, not a matter of opinion, and so it's easy to compare and easy to score. Quality is more of a problem. It's more subjective. I can't always say why something is good quality. It's instinctive and it's based on intangible factors that I can't evaluate in a formal way, and so I do it unconsciously. I just know whether it's good quality or not, but I can't explain why"* (Corporate Procurement).

Therefore, when quality is being assessed, an intuitive and unconscious approach is taken whereas when price is being considered a more conscious approach is adopted. In other words, within the same stage of the decision (in this case, the evaluation of bids) the heuristic behaves as though it moves into System 1 when quality is being assessed and moves back into

System 2 when price is being considered. Interestingly, however, the results of this unconscious evaluation are then fed back into the conscious decision-making process:

> *"The unconscious results are then used consciously, if that makes sense. I'll unconsciously weight different aspects to come up with an assessment of quality, and then I'll consciously record this assessment in the relevant template. This assessment is then consciously weighted – something like 40% for cost and 60% for quality is normal – and an overall score is consciously produced for the bid*" (Corporate Procurement).

The implication is that a genuinely fluid movement exists in this case. System 1 results for quality become System 2 results, and these are used in the final decision-making process.

Parallel literature

This discussion of movement between System 1 and System 2 has some parallels in the literature relating to knowledge drawn upon by managers in their practice and, in particular, the movement or translation from implicit/tacit knowledge to explicit knowledge and back again. Implicit knowledge is that which exists *"in people's heads or in their own files"* (Koenig, 2003: 355). It is therefore informal or unconscious (Day, 2005) and comes from sources such as cultural beliefs and customs, or is gained through observation (Nonaka and Takeuchi, 1995; Polany, 1958; 1969). Explicit knowledge is formal (Day, 2005) or codified (Sanchez and Reber, 2013) and comes from sources that are deliberately designed to express information, such as books and journals (Nonaka and Takeuchi, 1995; Polany, 1958; 1969). Kuhn (1977) argues that knowledge fluctuates between implicit and explicit states. For instance, suppose a scientist observes some phenomenon (implicit knowledge) and develops a hypothesis which is then tested. The hypothesis is refined and retested, and eventually the outcome is explicit knowledge in the form of a robust theory about how the world works. However, at some stage this explicit knowledge may be questioned. Errors or gaps in the hypothesis may be found, and new implicit knowledge is then produced which leads to a new hypothesis, and so the cycle begins again (Kuhn, 1977).

Nonaka and Takeuchi (1995) suggest that western management styles are based upon explicit knowledge and procedures and argue that more use should be made of implicit knowledge in decision-making. A more detailed discussion is beyond the scope of this thesis, but the foregoing is presented to highlight the wider relevance of this study.

Having established that this 'movement' exists and that individual heuristics can reside in either System 1 or System 2 according to circumstance, the following section seeks to answer the obvious question, 'when does this movement take place?'

6.2.3 Conditions under which 'movement' between systems occurs

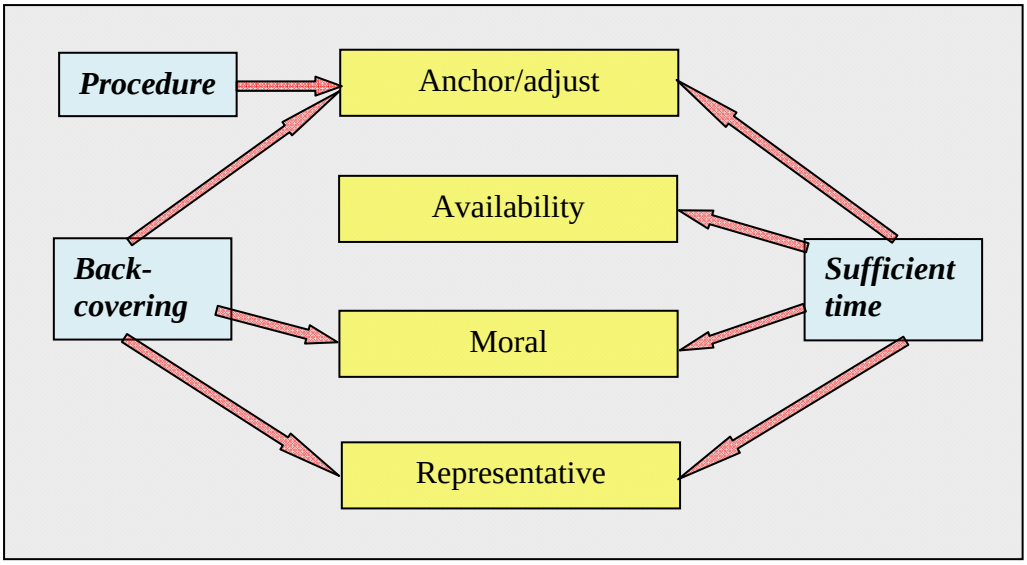
Introduction

The previous section shows that heuristics do not simply 'move' between the two systems. Indeed, for each of the seven heuristics above that display 'movement', there is a clear majority of occasions where the heuristic resides in one or other of the systems. Clearly, then, there must be a circumstance, or a combination of circumstances, that makes such movement possible on some occasions but not on others. The purpose of this section is to establish the nature of these circumstances. The section first considers movement from System 1 to System 2, and this is followed by an examination of movement in the opposite direction.

Movement from System 1 to System 2

This study has identified three situations where this movement takes place. The first of these is where procedure requires it, the second is when managers indulge in back-covering, and the last is where time is not of the essence. These are illustrated in Fig 80.

Fig 80: Factors influencing the movement of heuristics from System 1 to System 2



The first of these situations is when corporate **procedure** dictates that a particular process (i.e. a certain heuristic) is used. This only influenced the 'movement' of the anchor and adjustment heuristic. For example, the corporate risk management procedure prescribes that risks are assessed without controls, then controls are applied and the risk is reassessed. If necessary the process is repeated incrementally until the risk is mitigated or managed. Given that this thesis argues that incrementalism is merely a conscious application of the anchor and adjustment heuristic, the corporate procedure effectively mandates that this heuristic is used consciously.

The second situation involves '**back-covering**', and this was a significant factor influencing the 'movement' of the anchor and adjustment, moral, and representative heuristics. Managers were particularly concerned with the need to be held accountable. This was particularly true in business units where the potential consequences of an error were very serious. The following quotes were typical:

> *"With decisions involving safeguarding, I'm always aware that I'm open to scrutiny. If something goes wrong then I'll be hauled over the coals. I need to show that I took account of all the factors. Deliberately falling back on stereotypes is one way of doing it because then I can show a precedent. I can't just explain my decision on the basis that 'it felt right'. I need something to back it up, and so it needs to be done consciously"* (Adult Social Care).

> *"I need an audit trail. Where I'm making savings of millions of pounds, this will mean that some services have to be stopped, so I need to make the decision in a conscious way. I need to take the current budget as a starting point and slowly make adjustments until I get what I need. It needs to be conscious and it needs to be documented"* (Regeneration Director).

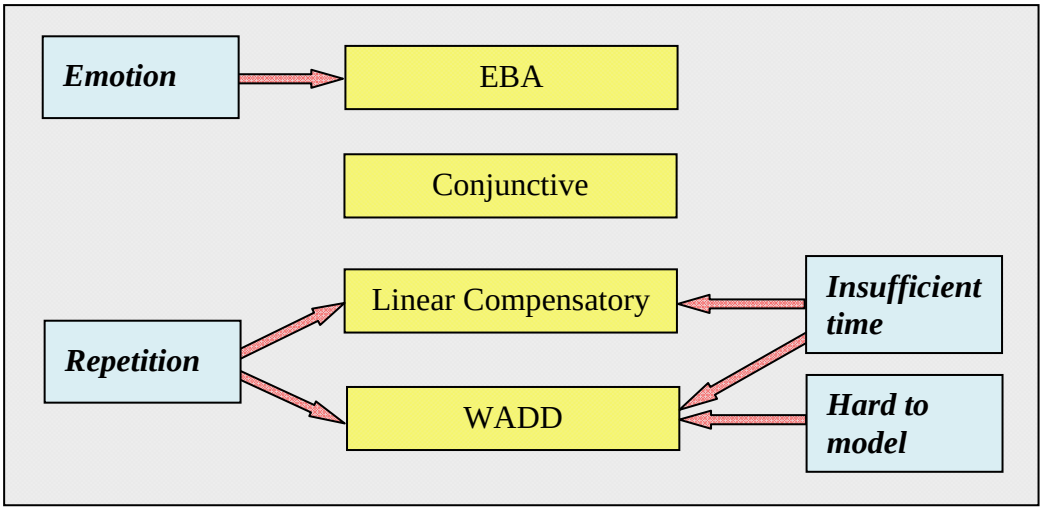
This need for accountability is not restricted to local government (Dixon, Ritchie and Siwale, 2006). However, within the UK public sector this issue has been exacerbated by the Freedom of Information Act (2000), because *"now everything we do is open to scrutiny"* (Business Management), and therefore *"people are less inclined to take unconscious decisions where the stakes are high"* (Parking).

The last factor is where managers have **sufficient time** to make the decision. This influenced the 'movement' of each of the four intuitive heuristics. As the Chief Executive states, *"although we never have enough time to make the <u>best</u> decision, sometimes we have enough time to do a decent job on it"*. This is echoed by the Building Control manager, who states *"you rarely have to make an instant decision and you can take a bit of time over things to try to get it right"*. A good example is budget setting, which takes place over several weeks and consciously uses the anchor and adjustment heuristic. This allows managers the time to make adjustments in several iterations until the desired savings target is reached. The representative heuristic can also be used consciously. In the second instance of the retained organs scandal, whilst the decision was strategically important, it was not particularly urgent; therefore, the manager was able to spend time searching for a precedent. Time is also an influencing factor in the conscious use of the moral heuristic. Chapter Five shows that the heuristic is often used as a last resort when other avenues have failed and where substantial time has been spent seeking a solution. Even where the heuristic is not a last resort, the luxury of time allows managers to more fully consider the competing arguments and hence arrive at a morally acceptable decision, as in the case of recycling heat from cremations. Finally, time is a key factor in the conscious use of the availability heuristic. This is, perhaps, counter-intuitive, because the very nature of this heuristic is that things are rapidly called to mind, but as noted above, cases such as Baby P are consciously recalled due to the seriousness of the case. Although the result may be the development of a new procedure, time is rarely important in such situations because the emphasis is more on 'getting it right' than 'doing it quickly'.

Movement from System 2 to System 1

Movement in this direction is less well-defined than in the opposite direction, but nonetheless conditions have been identified that allow heuristics to move from System 2 to System 1. These are emotion, repetition, where managers have insufficient time, and where outcomes are hard to model. These are illustrated below.

Fig 81: Factors influencing the movement of heuristics from System 2 to System 1



As noted above, none of these factors induced movement of the conjunctive heuristic, which was used consciously on every occasion. However, each of the other choice-based heuristics exhibited some degree of movement.

The first factor is **emotion**. This may influence the movement of the EBA heuristic, although, as noted above, for the present this should be regarded as an inference as no direct evidence was found. However, several managers were convinced that emotional influences are key to the unconscious use of this heuristic. For instance, when considering physical attraction to a certain type of female, the following statement was typical:

> *"When a man looks at a woman it's all about emotion. How does she make him feel when he sees her? If a girl has the characteristics the man finds desirable he'll pay attention to her. If she has different characteristics, the man won't notice her, at least not in a sexual way. Anyone who fails to fit his unconscious criteria for desirability is eliminated"* (Neighbourhoods).

Although the study of the attractiveness of one person to another is beyond the scope of the present study, it has been the focus of considerable research (see for instance Langlois and Roggman, 1990; Perrett, May and Yoshikawa, 1994). Emotion may also have been the key factor in the unconscious rejection of an introverted candidate. As the candidate stated, *"introversion made [the manager] uneasy, and because I was introverted, I made him feel uneasy. It was an emotional response"* (Environmental Health). (The manager concerned left the organisation before the author could speak to him, and therefore these comments have not been verified). Other managers felt this was common, and the following quote was typical:

> *"You eliminate people at interview on the basis of whether or not they'll fit into the team. They might be brilliant at everything else, but you get a feeling that they won't fit somehow. You get twitchy. You reject them based solely on one factor – your emotional response"* (Housing Strategy).

Therefore, there is anecdotal evidence for an emotional trigger in the unconscious use of the EBA heuristic, even though direct observational evidence was not found for decisions being made in this way.

Repetition influenced the movement of two choice-based heuristics. With the WADD heuristic, this was evidenced via the procurement process, and in the case of the linear compensatory heuristic, this was evidenced via the recruitment process. Some managers made the analogy with learning to drive. For instance:

> *"When you're learning [to drive] you have to concentrate and focus on every step. But when you've been doing it a while you get used to it. You instinctively know what to do, in what order, and when. You know what gear to use. You know when to start braking. Recruitment and procurement are the same. When you start it's conscious and when you've rehearsed it and practised it, it's unconscious. The process becomes ingrained through repetition and you come to a point where you don't even have to think about it. But it's the same process – the same steps in the same order"* (Corporate Procurement).

This comparison with learning to drive also occurs in the literature, although with a different focus. For instance, Kahneman (2011) uses the example of driving to illustrate the difference

between System 1 and System 2. Routine highway driving is used to illustrate the former and driving in a foreign country is used to illustrate the latter, because conditions are out of the ordinary and more attention is required to even make sure one drives on the correct side of the road. He notes that *"as you become skilled in a task, its demand for energy diminishes [...] The pattern of [brain] activity associated with an action changes as skill increases, with fewer brain regions involved"* (Kahneman, 2011: 35). However, although Kahneman illustrates the difference between the two systems, he does not make the link with familiarity inducing the movement of heuristics between the two systems.

A **shortage of time** influenced the movement of the linear compensatory and WADD heuristics. For example, procedure may require the use of a choice-based heuristic but in there may be insufficient time to consciously apply the heuristic. The following quote in relation to interviewing (i.e. the linear compensatory heuristic) was typical:

> *"We normally have to make our decision on the same day as the interviews, and so we need to assess maybe 10 people in half an hour at the end of the day based on our memories and our notes. So, although it's not an instant decision, we've still got time pressures. We don't have the time to fully weigh up all the aspects of all the candidates. We have to use short cuts and we end up unconsciously balancing strengths and weaknesses. We follow the same process, but we don't do it consciously"* (Business Management).

Another example concerns a major procurement (i.e. the WADD heuristic). In the Streetscene contract outlined in Chapter Five, there was an imperative to complete the procurement within a given timescale because politicians had set a firm and immovable 'end date'. Therefore:

> *"Our timescales were very tight. The only way to get the job done was to shortcut the process. There was no time to apply full weightings and do a detailed analysis. I suppose you could say we consciously did it unconsciously! We [...] were following the same process but we were making assumptions and not formally allocating weights to things that normally we would have done. We only did it that way because of the time pressures that had been imposed on us"* (Corporate Procurement).

In both of these examples, a shortage of time meant that normally consciously-applied heuristics were applied unconsciously. This is therefore the reverse of the situation with intuitive heuristics, where having ample time influenced movement in the opposite direction.

Difficulty in modelling outcomes was a factor in the movement of the WADD heuristic. Where a requirement was perceived as being factual (e.g. cost comparisons), the heuristic was used consciously, but where it was felt to be a matter of opinion (e.g. quality comparisons), the heuristic was used unconsciously. This was felt to be *"unavoidable"* (Partnerships & Contracts):

> *"How do you measure what 'good' quality looks like? You can try to put numbers on it, but at the end of the day it's always a judgment call. It's always subjective and it's always unconscious. All you can do is get your unconscious assessment and then use it as best you can. You might have a weighting of, say, 60% for quality, and then you'll consciously plug your scores into the formula and come up with your result"* (Internal Audit).

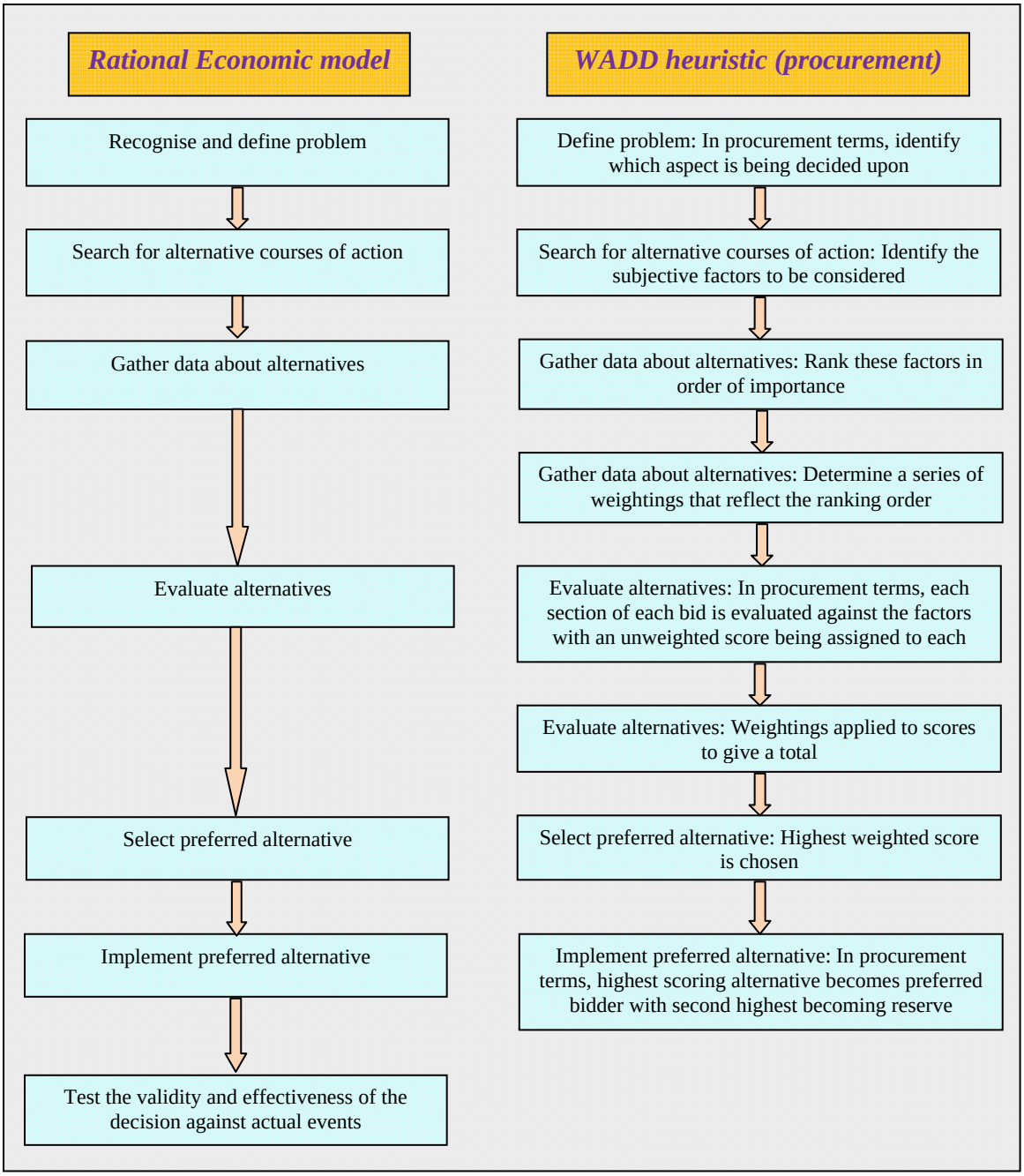
The foregoing illustrates that heuristics can 'move' between System 1 and System 2, although it must be re-emphasised that this 'movement' should not be considered as a constant fluctuation between the two systems; with the possible exception of the WADD heuristic in the evaluation of quality outlined above. This therefore casts doubt on the traditionally accepted normative/behavioural models of decision-making. From the traditional perspective a process is, for instance, either behavioural or it is not. The findings of this study show that the same process may actually be behavioural or normative according to circumstance. The following section casts further doubt on the traditional viewpoint by illustrating that one normative model and one behavioural heuristic are actually virtually identical in their essential characteristics.

6.2.4 Are all heuristics behavioural?

As noted above, Douglas (2005) and others have proposed that cognitive heuristics are behavioural decision-making models. As such, they are sometimes thought to be inherently prone to error (Kliger and Kudryavtsev, 2010; LeBoeuf and Shafir, 2009) and are therefore distinct from normative models which seek to limit error and provide 'correct' solutions (Gigerenzer, 2008; Hutchinson and Gigerenzer, 2005). However, it has been argued that choice-based heuristics are normative (Hauser, 2010; Tversky, 1972) or partially normative (Payne, Bettman and Johnson, 1993) in their processes, and this is reflected in rationality in the ordered use of attributes (Payne, Bettman and Johnson, 1993).

This study has shown that the two are not necessarily different. This was discussed above with the comparison of the anchor and adjustment heuristic to the incremental model, where a behavioural process (i.e. the anchor and adjustment heuristic) is actually the same as an 'almost-normative' model (i.e. incrementalism). This can be taken further by comparing the WADD heuristic to the Rational Economic model. In the following pages, the models are restated from above, but are placed side-by-side to emphasise the commonality between the models. It then becomes clear that there are significant similarities, as the following diagram illustrates:

Fig 82: Comparison of Rational Economic model with the WADD heuristic



Although two different processes are followed, even at first glance it is apparent that in each case a logical and structured series of steps leads to a decision. However, upon closer examination, this similarity is even more marked. In both models, a number of alternatives are identified, they are evaluated, and the final decision directly involves choosing the best alternative from this evaluation. In other words, both models are normative – even though one is a heuristic and is therefore supposedly behavioural.

6.3 Chapter summary

This thesis concludes that the normative/behavioural distinction does not describe how decisions are made in reality. This is supported by managers involved in the present study:

> *"People use terms like rational decision-making and everyone knows what the term means, but it doesn't describe how we make decisions. The difference between consciousness and unconsciousness is nearer the mark"* (Chief Executive).

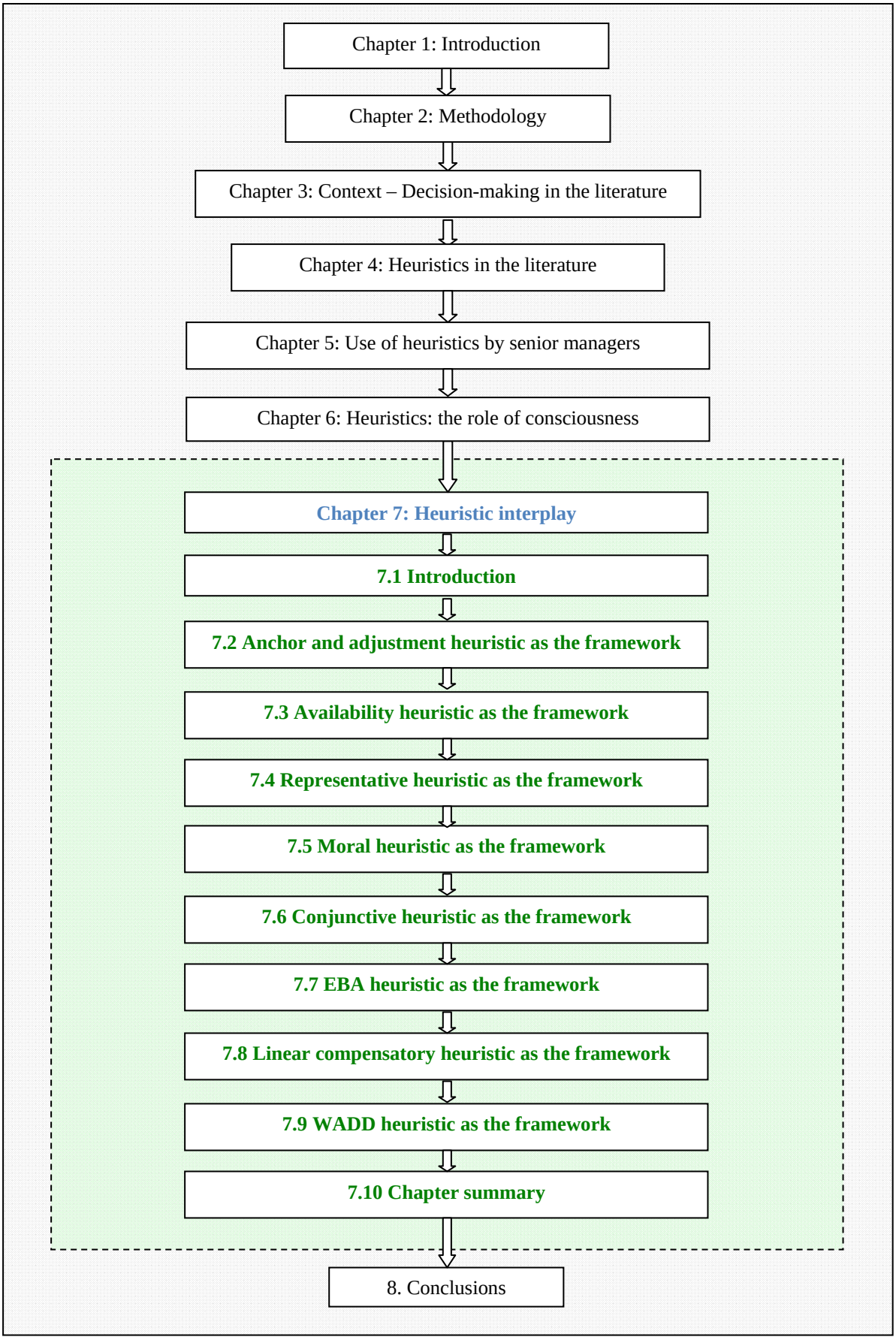
> *"The academic descriptions are artificial. They suggest that either decisions are logical or they're bad. A better description looks at consciousness. You can take the same steps either consciously or unconsciously, but they're still the same steps and they're still taken in the same order"* (Primary Schools).

This casting of doubt on the normative/behavioural categorisation has important implications for theory. For example, the usual assumption is that normative decision-making is 'correct' and 'error-free' whereas behavioural models are prone to error. In other words, these theories suggest that it is the *process* that leads to error. However, when viewed from the perspective of this thesis this assumption makes no sense. This thesis posits that normative models and behavioural heuristics are merely different manifestations of a single process – the same steps are taken in the same order. If this is indeed the *same* process, then either *the process* leads to error or it does not – it cannot do both. The degree of error must relate to how the process is *applied*. The difference in application is that one is conscious (normative) and one is unconscious (behavioural).

Therefore this study suggests that Kahneman and Frederick's (2002) dual system approach is a more appropriate framework, because then it is not necessary to locate heuristics rigidly within certain categories. Although intuitive heuristics normally align with System 1 the categorisation is flexible enough to explain the conscious applications of intuitive heuristics and the unconscious applications of choice based heuristics.

CHAPTER 7: HEURISTIC INTERPLAY

Fig 83: Context and structure of Chapter Seven

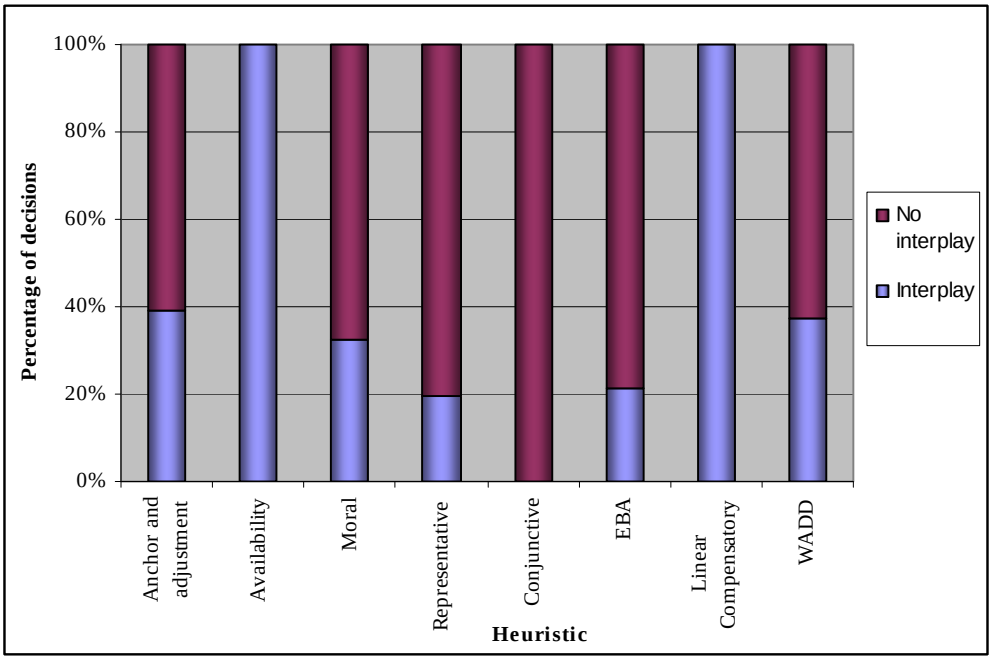


7.1 Introduction

Chapter Five presented a series of charts that mapped key heuristic decision-making processes and thereby identified the fundamental components of the eight heuristics studied in this thesis. As discussed above, previous research has tended to focus upon the study of individual heuristics in isolation (for instance Tversky and Kahneman, 1982; Greenberg and Baron, 2008; Simmons, LeBoeuf and Nelson, 2010). However, this process-mapping, and the adoption of a grounded theory methodology, has allowed the author to take a broad view of heuristic decision-making by studying what actually happens 'in the field'. It was found that the various heuristics are not distinct and separate from each other as the literature suggests; in fact, there is considerable interplay between them.

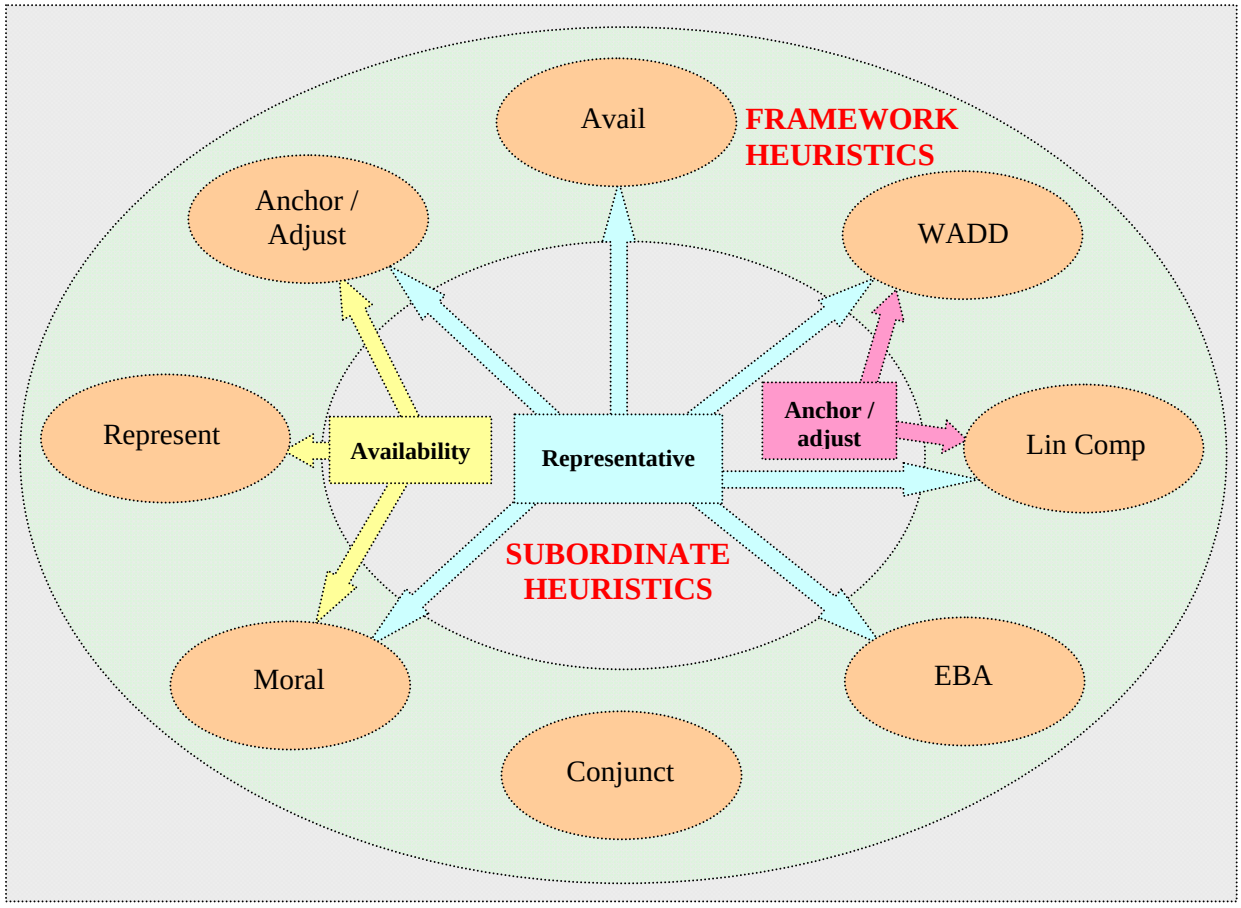
This interplay occurs where **one heuristic is a component of another**, and this effectively means that one heuristic acts as a framework, with other heuristics behaving as subcomponents within this. Although the majority of decisions that were studied involved the use of a single heuristic (346 decisions, or 67% of the total number), interplay was found in 167 decisions (33%), as the following diagram illustrates:

Fig 84: Summary of instances of heuristic interplay



This diagram reveals several interesting factors. Firstly, the conjunctive heuristic did not exhibit heuristic interplay at all. At the other extreme, both the availability heuristic and the linear compensatory heuristic exhibited interplay on every occasion. Each of the other heuristics displayed interplay on a significant minority of occasions. When the nature of the interplay is examined, the following picture emerges:

Fig 85: Nature of heuristic interplay

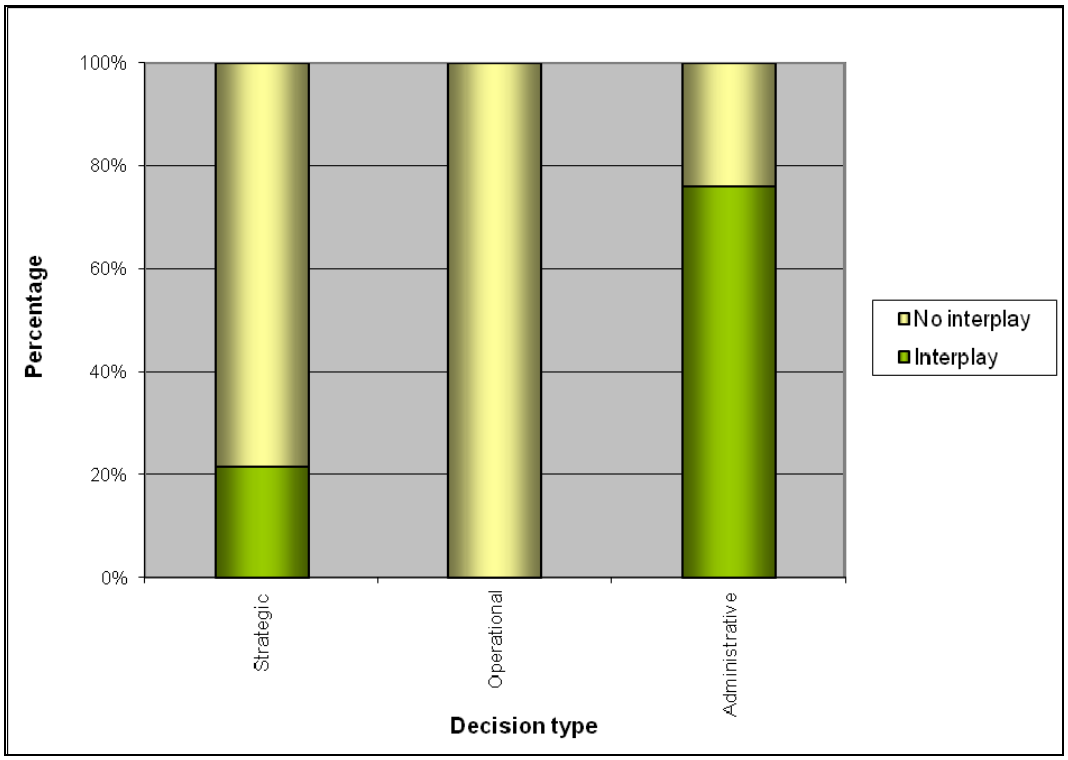


This diagram illustrates that apart from the conjunctive heuristic, each of the framework heuristics interacts with at least one of the 'classical' heuristics identified by Kahneman and Tversky. The subordinate heuristics feed into the framework heuristics. However, it must be stressed that this study does not claim that *all* interplay takes place under these conditions, or that these conditions *always* result in interplay, or that interplay is *always* a component of these heuristics. The following pages consider each of the 'framework' heuristics in turn, and discuss how the 'subordinate' heuristics are involved. Once more, the following diagrams are the result of respondent validation, and take account of comments and suggestions made by those involved.

7.2 Anchor and adjustment heuristic as the framework

This study identified 69 decisions where the anchor and adjustment heuristic was used. Of these, 37 were strategic decisions, 7 were operational decisions, and 25 were administrative decisions. Most of these instances (42 decisions, or 61%) can be regarded as 'classical' applications of the heuristic, in that this was the only heuristic that was used. However, in 27 (39%) cases it was found that other heuristics exhibited interplay with the anchor and adjustment heuristic. The following diagram provides a summary of this interplay.

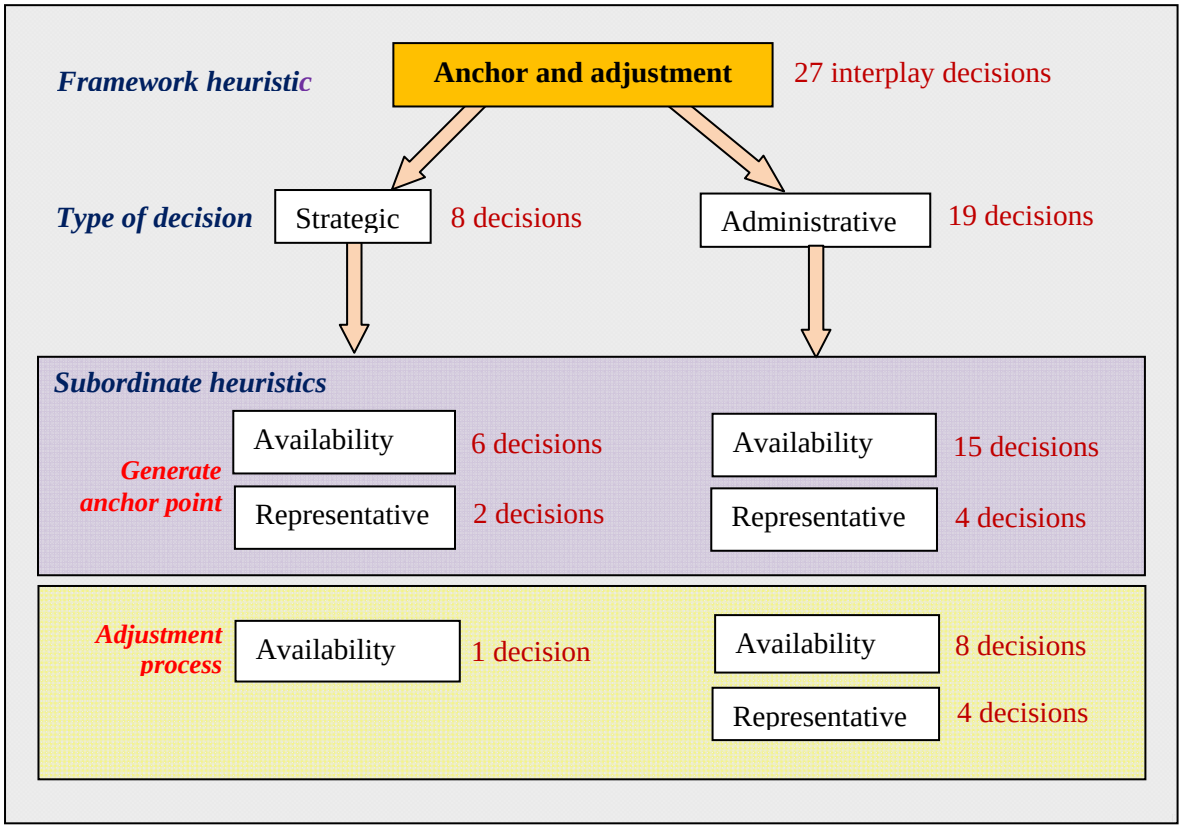
Fig 86: Summary of heuristic interplay with the anchor and adjustment heuristic



Eight strategic decisions (21% of 37 decisions) and 19 administrative decisions (76% of 25 decisions) displayed interplay. No interplay was identified for the seven operational decisions. Although explanations have been derived for the first two of these findings, frustratingly, it has not been possible to explain the last finding. When asked for their views, managers have merely made comments such as *"it might be because your sample is so small – you've only got seven cases"* (Business Management), or *"maybe this type of decision doesn't lend itself to interplay"* (Corporate Finance). In spite of considerable effort, it has not been possible to improve on these suggestions.

It is clear from the above diagram that interplay takes place in a significant minority of cases. Regardless of the type of decision, the method was always the same. This interplay occurs at two stages of the process. Interplay began with the generation of the anchor point, and in thirteen cases, further interplay occurred during the process of adjustment. The following conceptual diagram illustrates how the process takes place.

Fig 87: Interplay between the anchor and adjustment heuristic and other heuristics



There appears to be an arithmetical error in these figures, but this is not the case. Eleven decisions had interplay on two separate occasions. The following pages will help to clarify this.

Interplay between the anchor and adjustment heuristic and the availability heuristic

The estimation of the number of headstones in a city's cemeteries can be used as a typical example of the processes involved. It will be recalled that section 5.2.1.1 was supported by quotes from the manager concerned. However, some weeks after these conversations took place, the manager reflected upon how he had made the decision:

> *"I had to do the calculation not long after I'd started [in the job] and so it was important because I felt that I could be judged on it. As well as that, it was very time consuming and I spent ages on it gathering the base information, and it needed lots of concentration to make sure I did it right. So, because of the pressures of being new to the job and because of the amount of effort involved it [...] became ingrained in my mind, and it was the first thing that popped into my head when I had to get the figure again a few years later"* (Bereavement).

In other words, the original result became encoded in the manager's mind and was unconsciously used to set the **anchor point** for his decision.

> *"It was the first thing that came to mind. It was easy. I didn't consciously try to remember it, and it became the starting point for the new calculation"* (Bereavement).

By the manager's own account, the decision was based on *"the first thing that came to mind. It was easy"*. It will be remembered that in Chapter Four it was noted that the definition of the availability heuristic is basing a decision upon *"the ease with which one can bring [things] to mind"* (Folkes, 1988: 13). This is supported by other examples. For instance:

> *"When I'm designing training courses, a past example just pops into my head – one that's made an impression on me (good or bad) – and I use that as the basis of my next course"* (Family Support).

> *"I have to plan a programme of musical and cultural events for the coming year. Certain people spring to mind – major pop stars or the current flavour of the month. Whoever is currently famous. These become your 'must haves' – your anchor events. You sign these people up and then you adjust the rest of your programme around these"* (Culture).

In the first quote, an emotional response triggers the recall of the memory, and in the second quote, fame is the key factor in the identification of the headline acts. It was shown in Chapters Four and Five that both emotion and fame are typical of the availability heuristic (for instance Hertwig, Hoffrage and Martignon, 1999; Tversky and Kahneman, 1973; 1974).

The availability heuristic was also used in nine decisions to derive the **adjustment** value:

> *"The figure of 4,000 burials [per year] just popped into my mind. I didn't recall it consciously; it just came to me. I guess it was there because of repetition. The figure kept coming up. I used it in benchmarking. I used it in management reports. I used it when I was talking to the press. The sheer amount of repetition drilled the figure into my mind"* (Bereavement).

These comments echo Chapter Five (e.g. Fig 45), which discussed the role of repetition in encoding information in memory. Once the relevant figure was in the manager's mind it was consciously used in the adjustment process:

> *"It was all very quick and dirty. I had my starting point and I had my 4,000 burials [per year]. I knew how many years had passed so I just multiplied the number of years by 4,000 and that gave me my total adjustment. I added the starting figure to the adjustment figure and I got my final total. It's funny really; the calculation was a conscious one but it was based on an unconsciously derived starting value and an unconsciously derived adjustment value"* (Bereavement).

These thoughts were echoed in respect of the development of training courses:

> *"Once I've got my starting point I make adjustments. But these adjustments just pop into my head too. I remember something that worked well, or something that failed utterly when I tried it. These just come to mind. I will include them or else I'll take them out in my adjustment. It's all based on emotion. Previous events trigger an emotion, and that's how they come to mind"* (Family Support).

Although previous research has identified similar issues it has not established a link to other heuristics. For example, Epley and Gilovich (2006: 311) state that *"one way to make judgments under uncertainty is to anchor on information that comes to mind"*. This is rather vague, because things can 'come to mind' in a variety of ways; but the definition of the availability heuristic is such that this could be one possible explanation. Rather more explicit are the following statements:

> *"Anchoring effects […] are produced […] by enhanced accessibility of anchor-consistent information*" (Epley and Gilovich, 2006: 312).

> *"Most Americans […] do not know when George Washington was elected president of the United States, but can quickly generate an estimate by adjusting from the date of the Declaration of Independence in 1776 – a date known to be close to the correct answer"* (Epley and Gilovich, 2006: 312)

In each of these cases, the use of the availability heuristic is implied, but the link is not made. *"Enhanced accessibility of […] information"* can be reworded as *'the ease in which information can be brought to mind'* (i.e. the definition of the availability heuristic). The George Washington illustration appears to be based on the availability heuristic in all but name, because a date is brought easily to mind, and then the anchor and adjustment heuristic is used to 'tweak' the answer. In a similar vein is the following quote:

> *"People's judgments are often biased by the first pieces of information that come to mind […] This bias seems to occur because people start with the first number that comes to mind, and then […] they adjust away from that value"* (Epley and Gilovich, 2005b: 207)

"The first pieces of information that come to mind" is a clear reference to the availability heuristic, but once again, the link between the two heuristics is not made.

Interplay between the anchor and adjustment heuristic and the representative heuristic

This interplay was evident in six cases. Two of these were strategic decisions (5% of 37 decisions) and four were administrative decisions (21% of 25 decisions). On each of these occasions, the representative heuristic was used in the generation of the **anchor point**. For example, as described in Chapter Five, when managers are creating a new job description, they try to find an existing job description that is broadly similar and then make adjustments to fit the needs of the current job.

> *"The whole basis of the decision is stereotyping. You assume that the job is similar to the new one you want to create, and so the job description is similar. Only then can you make the modifications to get it exactly the way you want it"* (Sport & Recreation).

> *"You have to make a big assumption before you start. The assumption is that trends and patterns this year will be similar to those when the 'base job description' was written [...] If you now have different trends and patterns, then your starting point will be way off beam"* (Legal Services).

In both of these examples, the anchor points (anchor and adjustment) are based on stereotyped job roles (representative), although the nature of the stereotype is different in each case, with the first being related to the job description and the second being related to the context of the job description. The representative heuristic also underpinned the **adjustment** process on two occasions. The first was the estimation of headstones example quoted above: The average figure of 4,000 burials per year was assumed to apply equally to all years. The manager concerned felt that this was a stereotype:

> *"I assumed that the figure of 4,000 burials was the average. It was definitely a stereotype. I assumed that the historic value of 4,000 [burials] was representative of more recent trends and that there were no large peaks or troughs"* (Bereavement).

Once again, the process was unconscious:

> *"At the time, I didn't give any thought to it. It's only now that I'm thinking about it again that I realise that I was stereotyping and assuming that nothing had happened to make the figure invalid"* (Bereavement).

In this example, the interplay is complex. As shown above, within the overall framework of the anchor and adjustment heuristic the figure of 4,000 was derived via the availability heuristic and was then applied via a combination of the availability heuristic and the representative heuristic.

> *"Thinking about it now, it wasn't straightforward and I was making a lot of assumptions on the basis of stereotyping and on how quickly the figure came to mind"* (Bereavement).

The second occasion concerned dealings with politicians, and again demonstrates the use of both the availability heuristic and the representative heuristic.

> *"Some politicians spring to mind because of what they've done to you in the past. You remember their effect, and you automatically adjust your original idea so that you'll get your plans through. You're not aware that you're doing this. It's all unconscious [...] This can be a very quick decision, like instantly allocating an officer to a task (you often find yourself thinking of someone and then changing your mind without consciously knowing why – but it's because you stereotypically assume that they're more acceptable to the politicians), or it can be something that's given more thought, like rejigging your litter picking programme in a way that you know that the politicians will approve of"* (Waste).

In this case, there are three heuristics working together: anchor and adjustment heuristic is the framework (set a starting point and make adjustments), and the availability heuristic and representative heuristic are the components (recall a politician to mind based on the effect they produce in the decision-maker, and make stereotypical assumptions of what politicians will like). Tamir and Mitchell (2013) suggest that the anchor and adjustment heuristic is often used in conjunction with stereotyping, but as before, the link to the representative heuristic is not made.

Other issues

Although managers felt that this interplay exists, it is not the only way in which the adjustment process takes place. The following comment was typical:

> *"No, that's not the only way to make adjustments. Most of the time, it's just trial and error. Either you've done enough to make your budget saving or you haven't. If you haven't you go away and try again, and you keep going until you get there"* (Corporate Finance).

This observation is borne out by the figures from this study, which show that the adjustment process was 'free of interplay' on 56 occasions (81%) whereas interplay was only evident on 13 occasions (19%). However, where managers felt that interplay was present, they were certain that this phenomenon was real and these conclusions are correct. For example:

> *"Yes. The figure of 4,000 [burials] came first. Then it was used in a stereotyped way. The two are completely separate and the one came before the other, so the order is clear too"* (Bereavement).

> *"You've got it bob on. You start with a fixed point that just comes to mind, and then you make adjustments back and to on the basis of things that come to mind and using stereotypes. Spot on"* (Waste).

Thus, the framework for these decisions is the anchor and adjustment heuristic and other heuristics are operating within this framework.

Situations where this interplay occurs

As noted in Chapter Four, previous research has suggested that anchor points can be self-generated or they can come from elsewhere (Epley and Gilovich, 2001; 2006). In this study, interplay with the availability heuristic only occurred where anchor points were self-generated, and interplay was not found where anchors were externally generated. This thesis does not claim a relationship, since there may be other factors involved, but the evidence is compelling. Managers felt that the source of the anchor point was crucial. For example:

> *"Sometimes my starting point is fixed, like when I'm trying to make budget savings. Then I start from my current budget and no particular thought is required. It's just trial and error. But when I have to determine my own starting point, I guess I'm more open to emotional influences"* (Bereavement).

Other managers echoed this viewpoint, and the following quote in respect of the development of a new job description was typical:

> *"That's right. It depends on how you get your starting point. Sometimes it's given to you. Corporately, all managers above [a particular grade] must have certain things in their job descriptions. That's corporate policy, and so you don't have any room for manoeuvre. But, with others you have to work it out for yourself. You need to set your own starting point. I suppose you could work through your files until you find one that looks similar, but that's not what happens. You do it automatically. A job just pops into your head and that's the one you act on. That's the one you use as the basis for your adjustment"* (Family Support).

A similar situation was evident in the planning of events:

> *"The key [artists] – the ones you simply have to have to have in your programme – they just come into your head without thinking. They are the fixed points and you build the rest of your programme up around these. You adjust the programme to and fro to fit around these fixed points. You identify them yourself. They're not given to you"* (Culture).

In these examples, acting on the basis of something that has been called to mind is, of course, a manifestation of the availability heuristic. Matters were somewhat different in the case of interplay with the representative heuristic. In these situations, managers suggested that experience was the key factor, as the following typical quote illustrates:

> *"You learn from what you've done before. Every savings round is similar to every other savings round, and so you can make use of the similarity when deciding how to do your adjustments. I've found that when I'm trying to make budget savings it's better to work in small stages. You can always take a little more off, but it's not easy to add more on if you overdo it by making a big adjustment. So I try to work in blocks of 10k to begin with. It's just experience"* (Sport & Recreation)

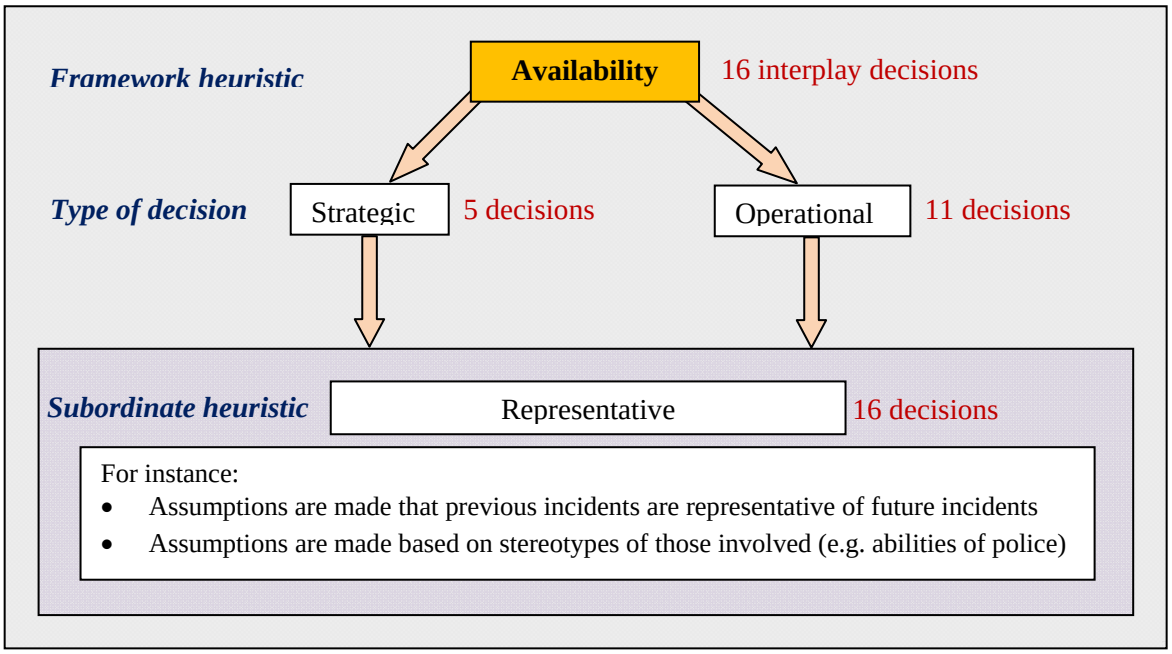
Interestingly, interplay between the anchor and adjustment and representative heuristics was only identified where managers had more than ten years' experience. This is suggestive of a possible relationship and supports the above quotes. However, it must be stressed that for the

present this is speculation and that further work will be required before a more definitive statement can be made.

7.3 Availability heuristic as the framework

As stated in Chapter Four, this heuristic is defined as making of decisions on the basis of how easily information is called to mind (Hasher and Zacks, 1984; Tversky and Kahneman, 1973). The availability heuristic was used in 16 decisions. In each case (100% of decisions), interplay was found with the representative heuristic. The following diagram illustrates the key processes.

Fig 88: Interplay between the availability heuristic and other heuristics



This diagram reflects the fact that in Chapter Five, the availability heuristic was identified as being the key mechanism for calling things to mind, and the decisions are based on this. However, evidence was found that there is unconscious interplay with other heuristics *once the data has been called to mind.* For example, consider the situation whereby staff are allocated to key areas for enforcement purposes (Figs 43-45). An incident is called to mind and the manager acts to prevent a repeat in the future. Among other things, this may mean that several people are sent to a particular location, or that only men are sent, or that a police

presence is required. However, managers feel that stereotyping is a fundamental part of the process. The following comment was typical:

> *"You stereotype a whole street. You remember a single bad incident and that colours your whole attitude to the street. Even though the original incident may have come about through a unique set of circumstances you assume that they will occur again [...] You assume that because something's happened once in the street it will happen again"* (Community Safety).

This assumption can be so strong and so ingrained that even when managers are presented with statistical evidence to the contrary they maintain that their decision is correct.

> *"Sometimes people will try to throw statistics at you and say that you're wrong and that the odds of a repeat incident are remote. Lightning doesn't strike twice, and all that. They back it up with numbers and charts, but you can't take the chance. You have to stereotype. Your staff's lives could be at risk – and that's no exaggeration…I've had people stabbed. You assume the bad incident <u>will</u> happen again and you prepare for it accordingly"* (Parking).

Quotes such as these indicate the use of the representative heuristic. However, managers were clear that the representative heuristic is not used to call information to mind:

> *"Things just come to mind without me trying. Stereotyping's got nothing to do with it. But, once the incident is in my mind, that's when I use stereotyping"* (Parking).

Managers felt that the link between the two heuristics was always present:

> *"Something just comes to mind when you're talking about 'life and limb' situations. You've got no time to work things through and so unconsciously you use stereotyping to make your decision"* (Neighbourhoods).

At first glance, it might be thought that this is an example of a hierarchical process, but this is not the case. Chapter Five demonstrates that in a hierarchy each heuristic is applied

sequentially and each heuristic results in a 'sub-decision' before the next is instigated. In the case of the availability heuristic, however, *"a single decision is taken as a result of the combination [of heuristics] and not in separate stages"* (Parking).

This study found no evidence that other heuristics are involved in the calling of information to mind, although within the literature the availability heuristic has been linked to the simulation heuristic (Kahneman and Tversky, 1982), which argues that decision-makers construct different scenarios to simulate likely events and responses (Kahneman and Tversky, 1982). However, in the present study the simulation heuristic was not found in the data and there was no evidence for the construction of scenarios by managers. McKelvie (1997) touches on the possibility that stereotyping exists in relation to the availability heuristic, but unlike the present study, does not make the link to interplay with the representative heuristic.

Situations where this interplay occurs

The fact that interplay with the representative heuristic was found on every occasion where the availability heuristic was used is suggestive of a direct link between the heuristics, as several managers observed:

> *"There's definitely a link. Stereotyping always follows when you make a decision on the basis of something that just comes to mind. Once it's come to mind you make the stereotypical assumption that if it's happened once it will happen again"* (Community Safety).

> *"It's a one-to-one relationship. It happens every time. You act on something that comes to mind. How you act is based on a stereotype that the same thing will happen again"* (Parking).

On reflection, some managers went even further and argued that this was not a case of interplay because the two processes are actually one and the same:

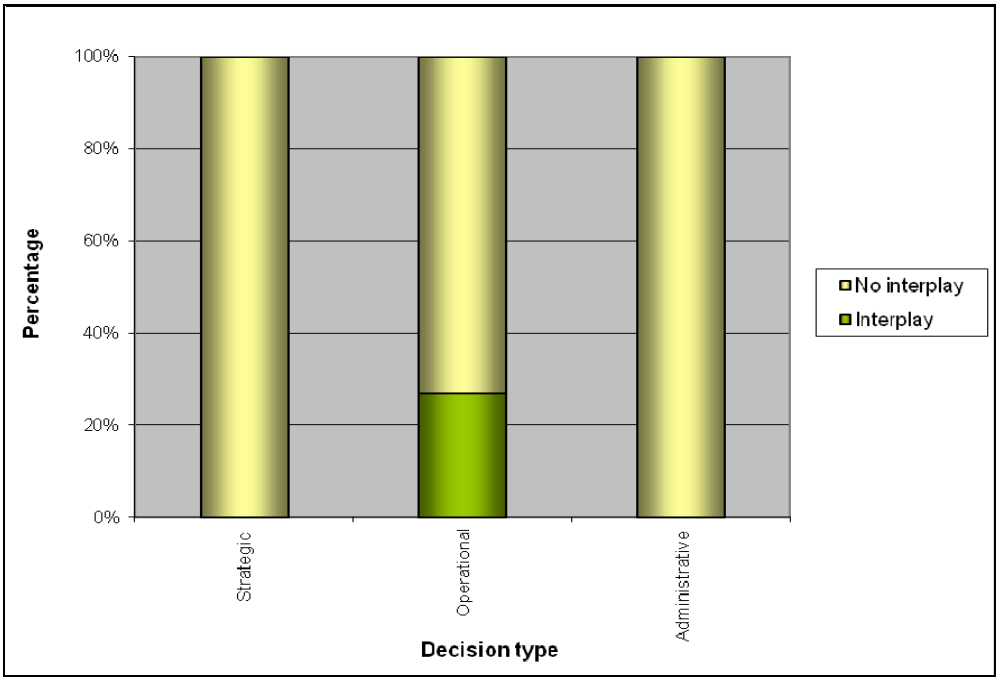
> *"You're not looking at two different processes here. It's the same process. The start of the process is the incident popping into your mind, and then stereotyping is how you act on the incident once it's got into your head"* (Schools Safeguarding).

Managers therefore feel that the heuristics are the same, or at least are linked. However, this thesis does not claim a relationship, in spite of the fact that managers feel that this is the case, because there may be other factors at play. However, once more the findings are suggestive and would fruitfully form the basis of further research.

7.4 Representative heuristic as the framework

As noted in Chapter Four, this heuristic involves making decisions based on similarity (Atkinson et al., 1996; Tversky and Kahneman, 1972). Chapter Five illustrated that this study identified 259 decisions where this heuristic was used. Of these, 17 were strategic decisions, 190 were operational decisions, and 52 were administrative decisions. There was interplay with other heuristics on 51 occasions (20% of decisions). The following diagram provides a summary of these instances.

Fig 89: Summary of heuristic interplay with the representative heuristic



These figures show that interplay was only observed in operational decisions. As with the anchor and adjustment heuristic, managers were unable to explain this. It was suggested that the sample might be too small, although both 17 (strategic decisions) and 52 (administrative

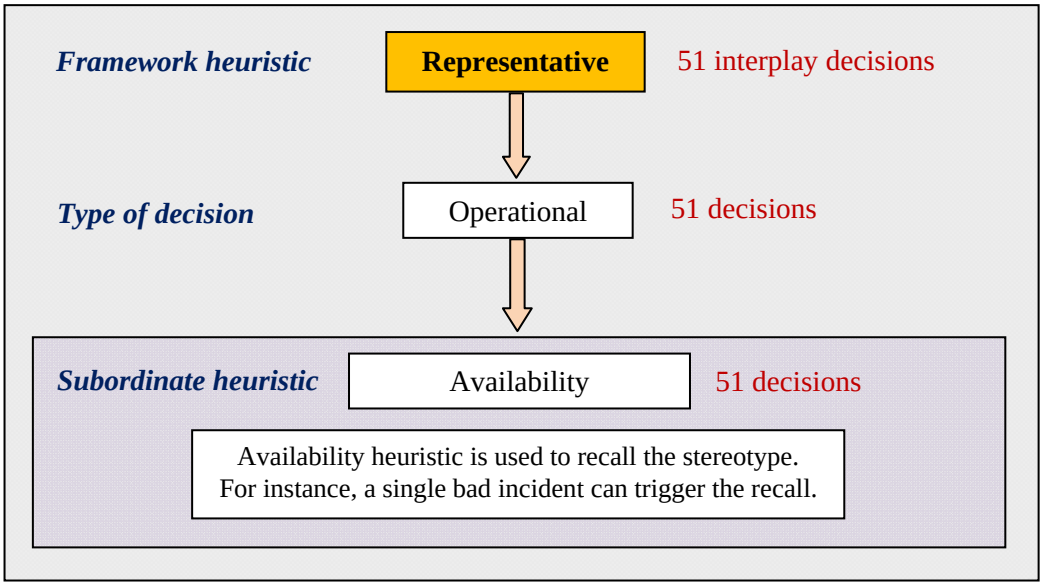
decisions) are both higher samples than for many of the other heuristics where it was possible to draw conclusions. In the absence of empirical data, any 'explanations' on the part of the author would therefore be mere speculation, and this has been avoided to maintain methodological consistency. Because of the large sample (51 decisions), the author felt that is was worthwhile to analyse this further against the subcategories identified in Chapter Five, and the following results were obtained:

Table 17: Analysis of interplay with the representative heuristic

Subcategory	Total decisions in study	Decisions demonstrating interplay	
	No	No	%
Day-to-day management decisions	82	24	29%
Development of operating procedures	20	5	25%
Delegation	38	11	29%
Promotion of staff	50	11	22%
Total operational decisions where interplay was found	190	51	27%

This analysis shows that interplay was common to all types of operational decision identified in the present study and that the level of interplay was fairly similar across all subcategories. Fig 90 illustrates the processes involved.

Fig 90: Interplay between the representative heuristic and other heuristics



This diagram illustrates that interplay only occurred with the availability heuristic. Managers felt they could explain this, and these explanations are given in the following pages.

Interplay between the representative heuristic and the availability heuristic

This study has found that the availability heuristic can be used to call a stereotype to mind. This can be seen, for example, in the 'birdcage' example cited throughout this thesis, where it was very clear that the availability heuristic, and not something else, was the trigger for the decision, as the manager herself confirmed. As she stated, *"I acted on the first thing that came to mind"* (Schools Safeguarding). But, as described in Chapter Five, 'she acted' essentially by using the representative heuristic. Her stereotype of paedophilic behaviour was the essential component of the decision. This example suggests that there are two heuristics in action, with availability operating as a subcomponent within a representative framework. This idea was also borne out in other decisions. For example:

> *"When you're writing procedure notes, you base them on what's happened in the past. Your experience builds up what's likely to happen and that becomes your stereotype of what the process should look like. But, why are you writing the procedure note in the first place? It's usually in response to some event. Something's gone wrong and you need a procedure to stop it happening again. So, you have this picture in your head of what the process 'should' look like, or how it 'should' work but the trigger is the original bad incident"* (Transportation).

Quotes such as this do not necessarily require the use of the representative heuristic. Some managers felt that a link *"probably exists"* (Housing Strategy). For example, in relation to stereotyping the abilities of staff when allocating work (see Fig 50) one manager stated that:

> *"I remember the bad instances…the bad work that [Fred] has done. They come to mind without me trying, and I guess that's what sets off the stereotype"* (Planning).

However, several managers were more certain about the relationship, arguing that *"it's real"* (Building Control) and *"it definitely exists"* (Environmental Health). The following quote was typical:

> *"The incident comes first. It just springs to mind, and your actions…your procedures…are based on that. Your view of a 'good' process or a 'correct' process is in response to that incident, and so there's a clear link and a very clear order"* (Parking).

Similarly, the manager involved in the 'birdcage case' had given considerable post hoc thought to her decision, as noted above (Fig 48) and felt strongly that her stereotypical view of paedophilic behaviour was unconsciously invoked by that particular incident:

> *"There's definitely a link. Stereotypes lay dormant in my mind and they sit there doing nothing until they're triggered by something. A single bad incident can trigger an emotion, and then that causes the stereotype to come to mind and then I make the decision based on the stereotype. Thinking about it now, that's exactly what happened with the birdcage"* (Schools Safeguarding).

In this example, the availability heuristic is used to call a stereotype to mind. The stereotype of the paedophile produces an emotional effect in the mind of the manager, and this emotion was the trigger for the recall of the stereotype.

However, some managers argued that not all procedures are written in response to an incident. For instance, *"sometimes there are legal reasons. You must have a procedure to cover clinical waste for instance"* (Bereavement) *"or a particular quality standard might need you to have a procedure"* (Business Management). Indeed, such instances were found throughout the organisation and in these cases there was no evidence for a link between heuristics. This is considered further below.

Why is there only interplay with the availability heuristic?

As stated above, the representative heuristic only exhibited interplay with the availability heuristic. Several managers sought to explain this, and all gave remarkably similar accounts. Essentially, they argued that this is the only possibility. The following comments are representative of all:

> *"You're talking about similarity here. When you're looking at similarity, something either is or is not. So it can't link to anything else. It comes to mind and then either it is similar or it isn't"* (Adult Social Care).

> *"Because you're looking at how similar two things are, you don't have a fixed starting point that you adjust from [ruling out links to the anchor and adjustment heuristic]. Once your stereotype is in your head, then either it is similar to your situation or it isn't. You've got a binary effect...is it similar - yes or no?"* (Corporate Procurement)

It should be noted, however, that the representative heuristic *was* found to exhibit interplay with heuristics other than availability, but these act as framework heuristics in their own right, any such interplay is discussed in the appropriate sections in this chapter.

Situations where this interplay occurs

As several authors have observed, if the current situation is similar to a previous situation, the decision-maker is likely to use a heuristic to respond in a similar way if the first situation was successfully resolved, or to learn from previous failings if the first decision was unsuccessful (Gigerenzer, 2008; Johnson and Russo, 1984; Moore and Lehmann, 1980). This phenomenon was also found in the organisation under study, as the following quotes illustrate:

> *"When you have a situation that you've met before, you tend to think back to how you resolved it back then. The previous situation just comes to mind. You don't need to trawl through your memories. It just pops up"* (Neighbourhoods).

> *"When you're confronted by a situation that looks new [...] something triggers the recall of a past event or a stereotype in your mind and you act on that stereotype. You don't keep searching for another one. You act on the first one that comes to mind. That's what I did with the birdcage guy"* (Schools Safeguarding).

Again, however, the literature fails to consider how these thoughts come to mind, and as seen above, the present study suggests that the availability heuristic is the mechanism in question.

7.5 Moral heuristic as the framework

Chapter Four showed that there is no single definition of 'the' moral heuristic, with the literature instead focusing on a range of smaller heuristics (Cosmides and Tooby, 2006; Sunstein, 2005a). Chapter Five proposed a new definition, based on the empirical data in this study, namely '*taking the decision on the basis of what the decision-maker believes to be morally right*'. As noted in the same chapter, 49 decisions were identified where the moral heuristic was used. Of these, 17 were strategic decisions, and 32 were operational decisions. On 16 occasions (33% of decisions) interplay with other heuristics was identified. The following diagram provides a summary of this interplay

Fig 91: Summary of heuristic interplay with the moral heuristic

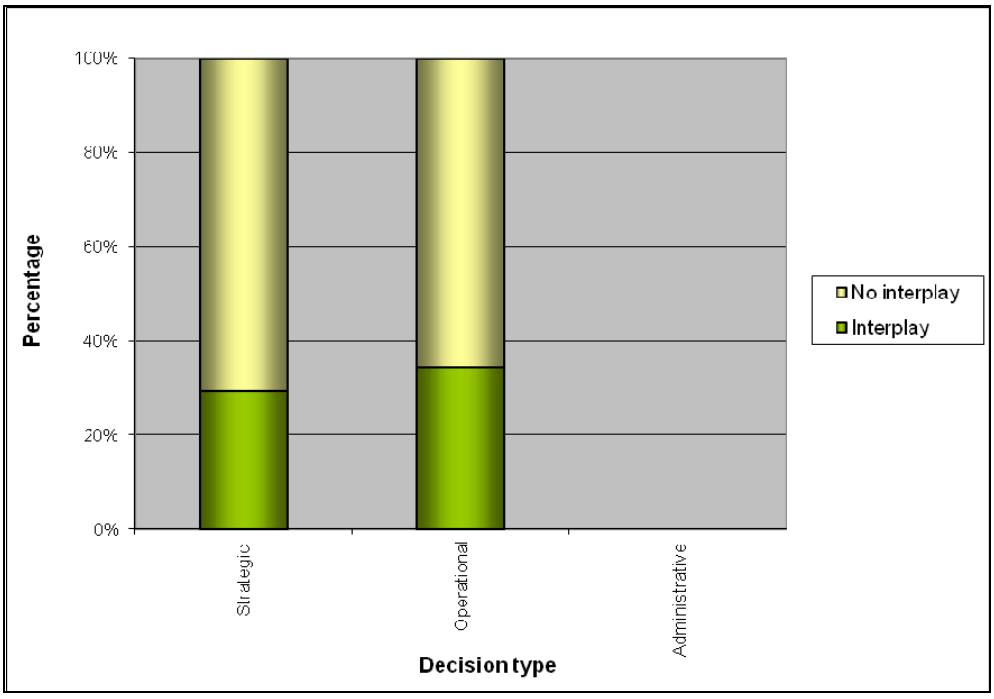
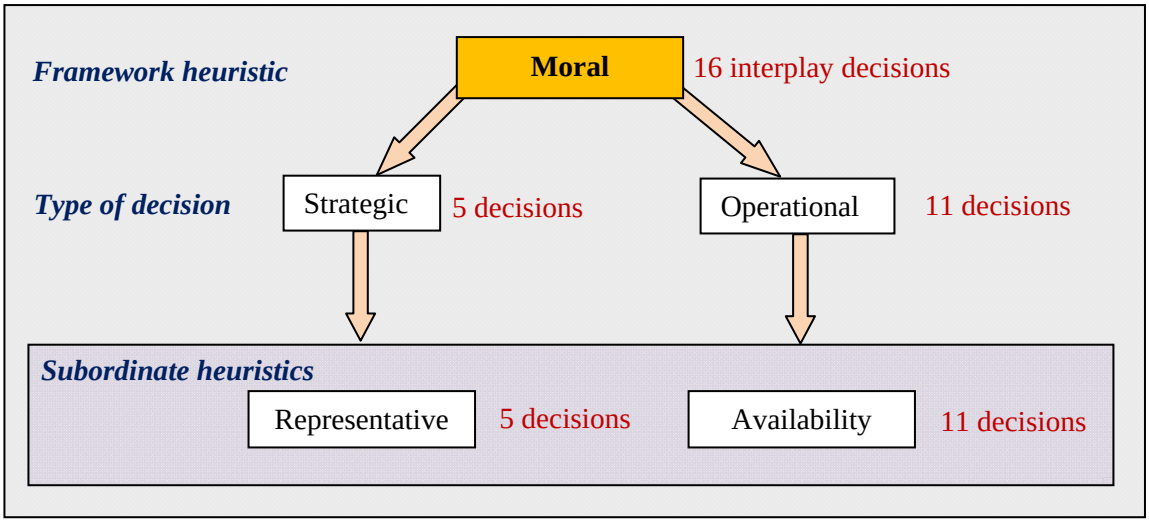


Fig 91 shows that five strategic decisions (29% of 17 decisions) and 11 operational decisions (34% of 32 decisions) exhibited interplay. It will be remembered that no administrative decisions were observed that used the moral heuristic. The nature of this interplay is shown in the following diagram.

Fig 92: Interplay between the moral heuristic and other heuristics



The interplay in operational decisions was found only with the availability heuristic and the interplay in strategic decision was only found with the representative heuristic. The following discussion expands on these findings.

Interplay between the moral heuristic and the availability heuristic

This interplay was found in 11 cases, all of which were operational decisions that were taken *"in the heat of the moment"* (Primary Schools). Although the particular decisions varied across the organisation, the underlying process was always the same. For example, it will be remembered that Fig 54 illustrates the generic process for the moral heuristic, and suggests the availability heuristic can be used to call to mind the manager's moral principles. Managers were in agreement with this, and the following quotes were typical:

> *"Your moral principles just come to mind. You don't know how it happens – it just does"* (Bereavement).

> *"Your emotions trigger your moral principles. They just pop into your head, and then you act on your principles. You do what you believe to be right"* (Secondary Schools).

As before, these comments strongly suggest that the availability heuristic is being used, since the decision-makers take the decision on the basis of things that come to mind. Managers

were satisfied that the process is two-stage, and that the moral heuristic provides the overall framework, as the following illustrative quote demonstrates:

> *"The first thing that happens is that the idea jumps into your head. You get the idea and then you act on it. But how you act on it is by applying your moral principles"* (Adult Social Care).

Two obvious questions are raised. The first is 'how do ideas jump into people's heads?', and the second is 'why is interplay with the availability heuristic only found in operational decisions?' Both of these questions are addressed below.

Interplay between the moral heuristic and the representative heuristic

This interplay was found in five cases, all of which were strategic decisions taken *"when managers have time to think"* (Bereavement). Once again, the key stage was in calling to mind decision-makers' moral principles. Essentially, the manager *"recognises a similarity between the current situation and a moral principle"* (YOS). For example, it was common for managers in 'caring roles' to have moral principles along the lines of 'do no harm' (Sunstein, 2005a). In their daily work staff are placed in situations where the potential for harm is real and therefore experience, in the form of the representative heuristic, can be used to call to mind a moral principle, as the following examples demonstrate.

> *"I know what I believe to be morally right and proper. Sometimes I have a real-life situation that I can compare to my version of morality. I can ask myself, 'what would I like the outcome or result to be if this was my child?' I can compare what I'd like to the specific options I have in front of me"* (Secondary Schools).

> *"I stereotype. The situation is rarely black and white, and so I have to make generalisations and assumptions. I stereotype the current situation. I take a broad brush approach rather than a detailed approach. I can then compare this generalised situation to my own beliefs"* (Primary Schools).

Stereotyping is, of course, a manifestation of the representative heuristic, as described in Chapters Four and Five. As before, this link to other heuristics has not been established in the literature, and such interplay has only been hinted at. For instance, Jung (1968: 28) states that there is a *"conflict between aesthetics and morals […] the good is not always the beautiful and the beautiful [is] not necessarily the good"*. This implies that there may be a link between the representative heuristic and the moral heuristic through stereotyping of both good and beautiful. However, Jung does not explore this further and the possible linkage has not been picked up by more recent studies.

Once more, an obvious question is raised, namely 'why is interplay with the representative heuristic only found in strategic decisions?' This question is addressed below.

Situations where this interplay occurs

At first glance, the fact that operational decisions only exhibited interplay with the availability heuristic and strategic decisions only displayed interplay with the representative heuristic strongly suggests that the type of decision is an important factor. Indeed, much of the empirical evidence is suggestive of such a link, as managers confirmed:

> *"Operational decisions in my area are urgent. I need to make a decision now, and I don't have time to reflect. So I act on the first thing that pops into my head"* (YOS).

> *"In my line of work, operational decisions tend to evoke strong emotions, and I think that it's these emotions that bring my moral principles to the fore. A strong emotion triggers my moral principle, and because it's just come into my head I can act on it without thinking"* (Primary Schools).

These comments are strongly suggestive of interplay with the availability heuristic. However, it is unclear whether the key factor is the nature of the decision or the speed at which the decision is made:

> *"It's different when comparing moral principles around the environment to moral principles around saving a child's life. Maybe they are both morally important to you, and maybe they are both operational*

> *decisions, but you need an instant decision when a child is at risk. You've got no time to reflect and so something just pops into your head and triggers your moral principles and then you act on it"* (YOS).

These explanations do not explain why interplay in strategic decisions only involves the representative heuristic. When managers reflected on their decision-making processes, some felt that time was a crucial factor:

> *"With strategic decisions, you've got more time to reflect. More time to weigh up the options. So, you can consciously search for a precedent, and when you find one, you can marry it up with your moral principles to see if it fits"* (Secondary Schools).

> *"You need time to compare your current situation to the stereotypes that your morality dictates. Maybe you feel that such-and-such a situation is always morally wrong and that the present situation slots right into that, but you need the time to work it all out"* (YOS).

Again, however, others thought that the nature of the decision was the key factor:

> *"Anyone from any work background might need to make a moral decision in their personal lives, but in the workplace certain decisions gravitate to certain work areas. But these are not the same thing. Your workplace might attract certain types of situation and so you might need to take certain kinds of decision, but it's the kind of decision that's the important thing"* (Adult Safeguarding).

> *"It's all about the decision. Sometimes you're trying to reconcile two or more opposing viewpoints. Whatever you do, there's no right answer and you'll end up upsetting someone. So you take the time and work things through in your own mind, and then you end up taking a stereotypical decision that just feels right to you. It's the right thing to do. But it's the decision itself that leads you there. If the decision was different, you'd take a different route"* (Bereavement).

The foregoing illustrates that it is not possible at this stage to provide a definitive identification of the situations that facilitate this interplay. This study suggests that there is a relationship between decision type and heuristics, and that time and the nature of the decision appear to account for this. However, this thesis does not seek to claim a link. Indeed, it may be that neither of these explanations is correct and that some other, so far unexpected, factor is involved. Further research is therefore recommended.

7.6 Conjunctive heuristic as the framework

This heuristic can be defined as: *"minimum cut-offs are established for each attribute. If an alternative does not exceed all the cut-offs for all attributes, it is rejected"* (Lee and Geistfeld, 1998: 230) and it was found on 32 occasions. However, no evidence was found of interplay involving the conjunctive heuristic. One manager thought she knew the reason for this. She suggested that

> *"Where there's only a single factor to consider, it's more prone to adjustment and influence from other issues, but where you've got many factors, like you have here [i.e. with the conjunctive heuristic] then all of them have to be true and so it's less likely that any adjustment will affect the outcome"* (Internal Audit).

Chapter Five showed that there are links between the conjunctive and representative heuristics. For instance, in the 'flood defences' and 'acrobats' examples presented above, the consideration set was developed based on the managers' own experience and using their own stereotypes, and then the conjunctive heuristic was used as the 'main' framework to make the decision. However, this is hierarchical in nature and not a case of interplay. The initial selection was made using the representative heuristic and the results were then 'managed' as a separate stage in the process. The conjunctive heuristic was used once the initial selection made. This view was supported by the Corporate Procurement Manager:

> *"You've got two mini-decisions and two stages. First of all you make your shortlist [with the representative heuristic] – that's one decision – and then you apply your rules and regulations [with the conjunctive*

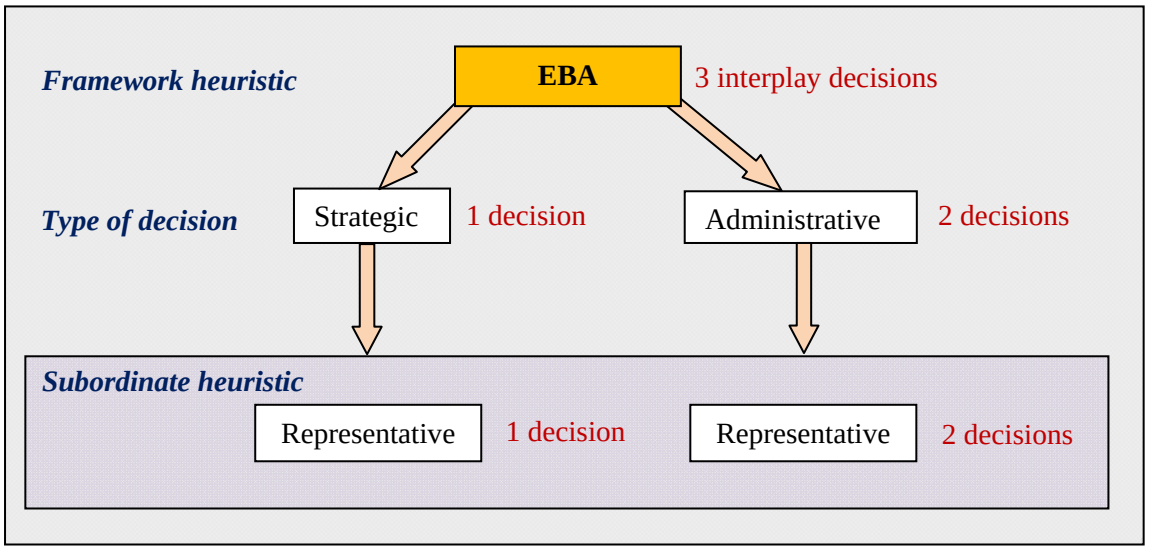
heuristic] to choose from this shortlist. Two stages. One after the other" (Corporate Procurement).

Although the above discussion deals with hierarchy and not interplay, it is included here to show that links can exist between intuitive and choice-based heuristics. The reader is referred to Chapter Five for a further discussion of this phenomenon.

7.7 EBA heuristic as the framework

The reader will recall that this heuristic can be defined as occurring when: *"the most important attribute is selected, and all alternatives not exceeding the cut-off with regard to this attribute are eliminated. The attribute that is second in importance is then selected and the elimination process continues until only one alternative remains"* (Lee and Geistfeld, 1998: 230). This heuristic was used in 14 decisions, as noted in Chapter Five. Each of these occurred in a procurement environment, with 11 relating to large-scale procurements and the remaining three relating to small-scale procurements. In Chapter Five it was shown that EBA was used in a hierarchical way. However, this heuristic exhibited interplay on three occasions; one of which was in a large-scale procurement (1 out of 11 decisions, or 9%) with the other two (2 out of 3 decisions, or 67%) taking place within small-scale procurements. The following diagram illustrates this.

Fig 93: Interplay between the EBA heuristic and other heuristics



In each case, the interplay arose during the evaluation stage *"when you are assessing the responses that the companies give you"* (Corporate Finance). As managers put it, the overall framework was EBA *"because the main decision is whether or not to eliminate companies based on only one key aspect"* (Corporate Procurement), *"but you actually use stereotypes to help you to make the assessment"* (Corporate Finance). The use of stereotyping in this way was accepted to be against corporate policy and *"might even be illegal"* (Internal Audit). It will therefore be appreciated that the remainder of the comments in this section are deliberately unattributed, at the request of those involved.

Managers justified the use of stereotyping in the following way.

> *"You rarely get the answers neatly laid out in precisely the format you need, and so you need to stereotype to fill in the gaps"*.

> *"Certain companies, or parts of companies, have a 'quality' reputation, and so you make the stereotypical assumption that the whole organisation is high quality based on the reputation of a single part, and then that forms part of your evaluation"*.

Some managers thought there were two types of stereotyping, and this therefore means that there are two variants of the EBA heuristic:

> *"You've got all the companies or bids <u>with</u> a certain factor – say ISO9001 – and then you've got all those <u>without</u> a certain factor – say that x is your factor and you're interested in all brands other than x. In the first [instance] your stereotype is that if they've got the standard then they must be good, and [...] in the second case you've got a reverse stereotype. Maybe you exclude companies with an annual turnover of more than £x million because you stereotype them as being too big and so they'll be uninterested in your small contract"*.

Although the sample size was only three, both variants occurred in this study. The first was found in discussions with managers and in corporate documentation. The following quotes were typical.

> *"I shortlisted [company z] because I knew they were good [...]. I've worked with them before and so I knew they'd be good again".*

> *"I was only looking at one thing – could the company prove to me that they could deliver an innovative service? That sounds OK, but how do you measure innovation? I put some numbers against it, but really it was all subjective. There were ten or so companies who'd had a decent stab at it, and I shortlisted the ones [...] I knew would be good at innovating and doing things in a totally new way".*

Similarly, some of the documentation used phrases that were strongly suggestive of stereotyping. Again, the following examples have been deliberately anonymised at the request of those involved:

> *"The Project Team feels that the council will obtain value for money from this bid, and this is supported by [another council] who has only positive things to say about this company. On this basis, we recommend that they be included in the shortlisted companies"* (Internal report to the Project Board responsible for a major contract).

Perhaps even more 'blatant' was the following:

> *"These three councils have collectively spent more than £500 million on [company z] and they feel that they're getting a great deal and they'd choose [company z] again in an instant. With a reputation like that, we can't go wrong! We have to shortlist them"* (internal email from a divisional manager to a director).

The second variant was observed in relation to a particular contract. A senior manager made the statement in a meeting that *"over my dead body will [company x] work on [this contract]"*. After the meeting, the manager explained his comments in confidence on the condition he would not be identifiable.

> *"[The company] has got a terrible reputation. I've spoken to my equivalents in other councils, and they all agree. They start off a job and then don't finish it properly. They lose interest in it and start chasing*

> *after the next big contract, or else they bodge the work because they reckon it will cost the council too much to chase them through the courts if they try to sue them. They're cowboys. They're getting a bad name, and I wouldn't touch them with a barge pole".*

The manager felt that what had happened was a variant of the *"all brands other than x"* situation presented above.

> *"It's the same thing [...]. I will consider everyone else...everyone who isn't [company x]".*

The fact that these two versions were both found in a sample of three decisions supports Hauser (2010), who argues that both variants exist, but does not make any link to interplay with the representative heuristic.

Situations where this interplay occurs

This interplay only occurred when companies were known to the decision-maker.

> "*Of course that's true. If I don't know them then it's harder for me to stereotype them. If I do know them, then I can use my own stereotype based on experience or on reputation"* (Legal Services).

Furthermore, the reputation of the company may determine which variant is used

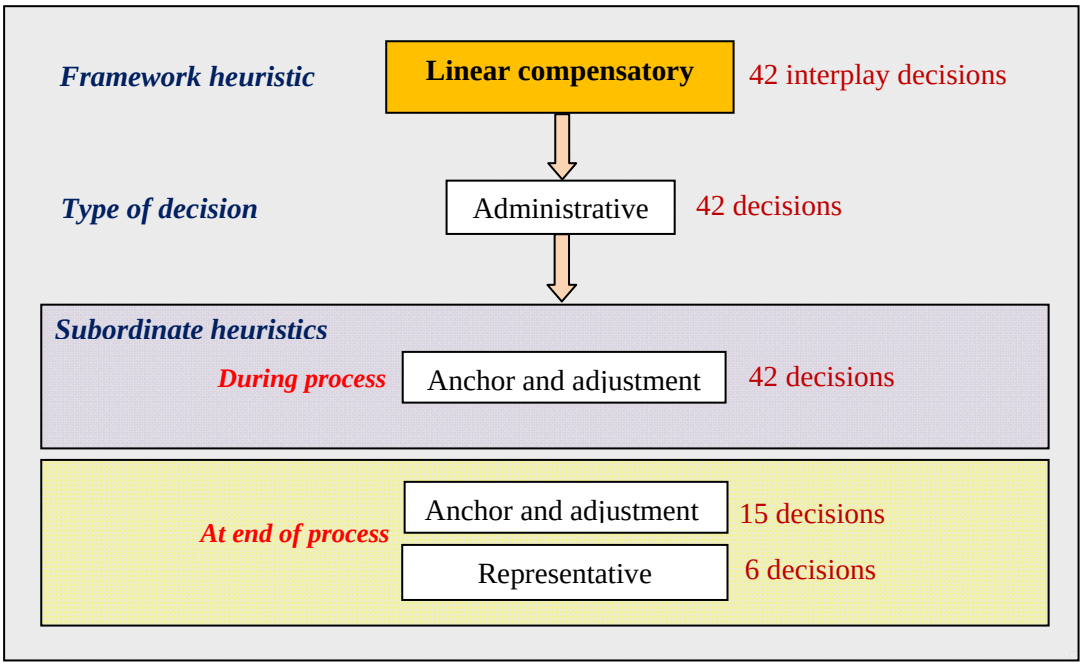
> *"A company with a good reputation will result in the first version* [i.e. everything <u>with</u> a certain factor]. *They'll match the key aspect you're looking for and so they'll be selected. If it's a bit iffy, they'll get the benefit of the doubt. But, if they've got a bad reputation, then it will be the second one* [i.e. everything <u>without</u> a certain factor]. *You'll choose anyone except them no matter how well they fit the key aspect"* (Corporate Procurement).

Once more, these findings are suggestive but no attempt is made to claim a relationship.

7.8 Linear compensatory heuristic as the framework

In Chapter Four, this heuristic was defined as: *"all attributes of a given alternative are considered in a way that a desirable attribute may offset or compensate for an undesirable attribute [and the alternative is scored]. This is done for each alternative. The alternative with the greatest overall score is chosen"* (Lee and Geistfeld, 1998: 230). It will be recalled that in Chapter Five it was argued that this definition is virtually identical to the corporate recruitment policy in the organisation under study. Indeed, each of the 42 occurrences of this heuristic was found in a recruitment environment. Once again, interplay with other heuristics was evident, but where the linear compensatory heuristic was the framework, interplay was a little more complex than it seemed at first glance, as the following diagram illustrates.

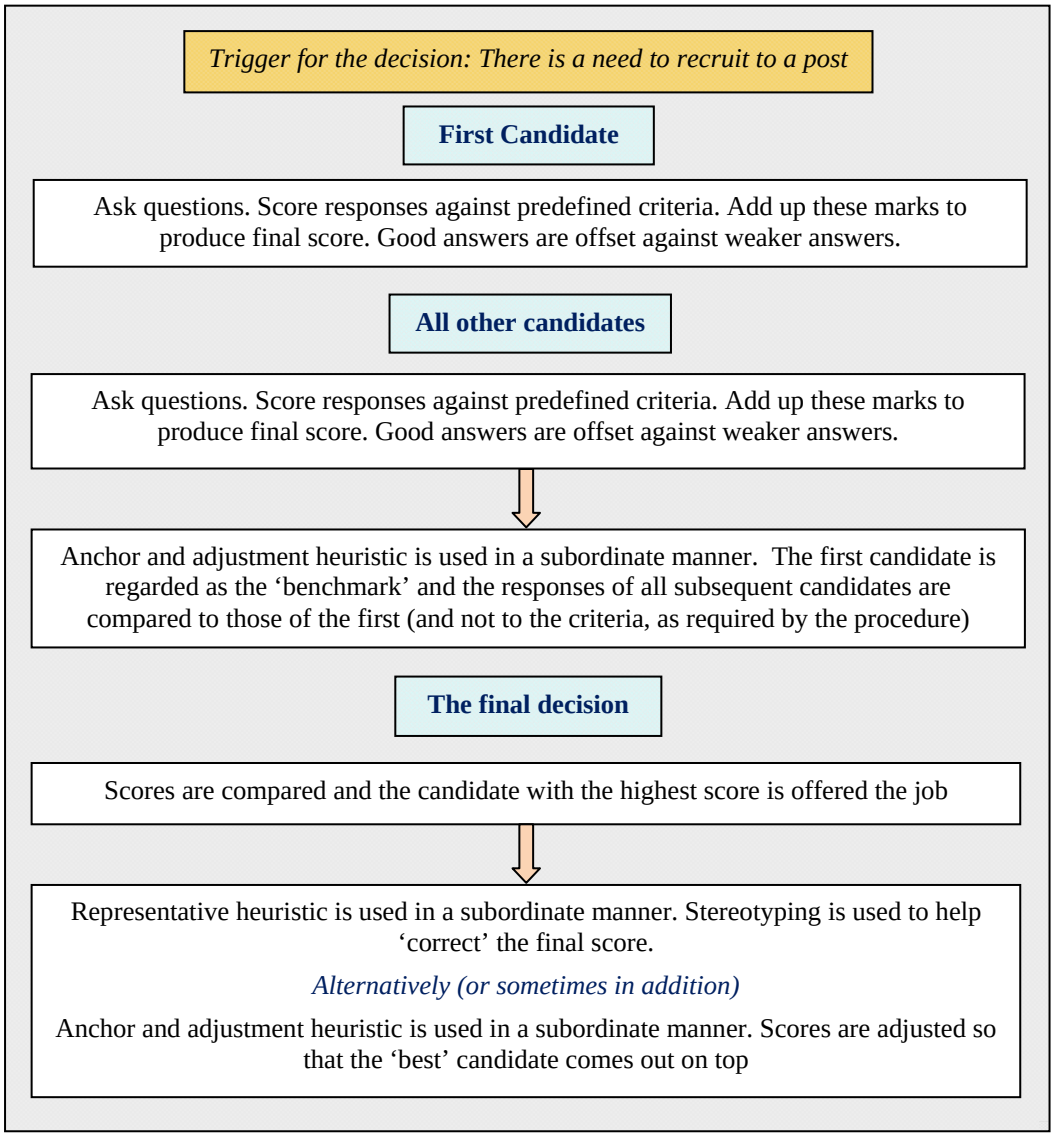
Fig 94: Summary of heuristic interplay with the linear compensatory heuristic



Interplay was found on every occasion, and this always involved the availability heuristic. What is less clear is the meaning of phrases such as *'during the process'* and *'at the end of the process'*. These can be explained by thinking about the interview process. It begins with the first candidate, managers derive a score to reflect the candidate's performance, the next candidate arrives, and managers derive a score, and so on. This is what is meant by *'during the process'* – whilst the interview process is underway, managers are scoring candidates' performance, the anchor and adjustment heuristic is used on every occasion. Eventually, the interviews end, and it is necessary to come to a decision. This is what is meant by *'at the end*

of the process' – all interviews have concluded, and either the anchor and adjustment heuristic or the representative heuristic (or sometimes both) is used to 'correct' the raw scores. The following diagram illustrates the process.

Fig 95: Interplay between the linear compensatory heuristic and other heuristics



Although the corporate recruitment policy effectively states that managers must follow the linear compensatory heuristic, evidence from across the organisation makes it clear that this is not what happens in reality. The linear compensatory heuristic is used as a framework within which the decision is made, but the reality is that the anchor and adjustment heuristic and the representative heuristic are both used to modify the results of the linear compensatory heuristic. The following pages consider each of the stages in turn, but evidence to support the

following claims has already been presented in section 5.3.6, and therefore it would be repetitious to provide extensive evidence in what follows.

Interplay with the anchor and adjustment heuristic during the process

This interplay was found in each of the 42 decisions (100%). All managers took the same approach, which is exemplified by the following quotes, which are anonymised at the request of those involved:

> *"According to the procedure, you're supposed to compare candidates to the criteria. That's what you do for the first candidate, but after that you find yourself comparing candidates to candidates and not comparing them to the criteria".*

> *"You have to compare people to people. It's the only way to do it. Such-a-body will come in and they might score an 8, and then the next person comes in but isn't as good. Obviously they need to score less than 8. You have a fixed point of 8 and then you adjust the score up or down depending on how good the person was".*

This last quote, in particular, makes it very clear that the anchor and adjustment heuristic is being used, because the manager talks about a 'fixed point' and 'adjusting' the scores from this point. This process was found throughout the organisation. In all cases the linear compensatory heuristic was used as the framework but there was significant interplay with the anchor and adjustment heuristic, which was used to compare candidates to candidates and thereby derive a suitable score.

Interplay with the anchor and adjustment heuristic at the end of the process

In 15 out of the 42 decisions (36%), the anchor and adjustment heuristic was also used at the end of the process once all the candidates had been individually scored. In each of these cases, the reason given by managers was to *"correct"* the results (Safeguarding Review). The following explanations were typical:

> *"You normally have a long day...or maybe more than one day, and so you can make mistakes with your individual scoring. You need to take a step back at the end and make sure your individual scores reflect what actually happened".*

> *"Sometimes you find that your scores don't say the right thing. You just know who came across the best, but when you look at the scores they've come out in second or third place, and so you revisit the scores and amend them. Their current score is the starting point and then you make small changes here and there until the score comes out in first place".*

Again, where these adjustments were made, the process was identical throughout the organisation and there was clear evidence of interplay with the anchor and adjustment heuristic. On some occasions, there was also evidence that the representative heuristic was used to 'correct' the final score, as the following discussion illustrates.

Interplay with the representative heuristic at the end of the process

In six out of the 42 decisions (14%), the representative heuristic was also used at the end of the process, once all the candidates had been individually scored. In each case, managers felt that they were using their experience *"to correct the final scores"* (Family Support). The quotes that follow are again unattributed.

Some managers made their decisions based on their experience of the people in question. A typical comment was:

> *"Maybe the scores have put Mary out on top, but you know from experience that Mary can't do the job, so you adjust her score".*

This manager later identified her thought process:

> *"There's a couple of things going on here. I have a view of Mary. A stereotype. I make assumptions about her skills and about her competence. I make assumptions about the needs of the job, and I look at*

> *how similar they are to my stereotype of Mary, and from that I make the assumption that she can't do the job..."*

So far this is a clear application of the representative heuristic, with the manager using terms such as 'stereotype' and making decisions on the basis of similarity. The manager continued thus:

> *"...So what I do is adjust the scores. I get Mary's score and, starting from there, I make a couple of changes to lower her mark so that she's no longer coming out on top".*

In other words, the physical changing of the scores was done via the application of the anchor and adjustment heuristic. Similar quotes were made by all six managers involved. On two occasions, professional backgrounds or qualifications were also stereotyped, as the following quote confirms:

> *"I sometimes give people the benefit of the doubt if they have the professional qualifications that I'm looking for. You need to be qualified if you're going to be [an Environmental Health Officer (EHO)]. You need the proper qualifications when public health is potentially at risk. So, even though someone else might have a slightly better score, if the scores are close I will go back and change them".*

Once again, discussions with this manager revealed that the representative heuristic was being used in combination with the anchor and adjustment heuristic.

> *"I'm making the assumption – using a stereotype if you like – that someone who's passed their exams knows what they're doing and knows the law. If you're an EHO you might be dealing with a mass food poisoning or whatever, and my assumption is that a sound theoretical knowledge is what you need. If the scores are miles apart, then I will go with what the scores are telling me, but if the scores are close, then I'll give the qualified EHO the benefit of the doubt. I go back to their score and then make a couple of small adjustments so that they're now the highest scorer".*

Summary of interplay with the linear compensatory heuristic

The foregoing presents a rather 'messy' picture. Whereas the literature suggests that the linear compensatory heuristic is 'clean' and structured (Elrod, Johnson and White, 2004; Lee and Geistfeld, 1998), the reality in the organisation under study is somewhat different. Although the linear compensatory framework was followed in broad terms, it was found repeatedly that candidates were compared to other candidates and not to the criteria as was required in the procedure. The scores allocated to one candidate became anchor points against which subsequent candidates were measured. If somebody performed better or worse than the first candidate, this was reflected in the score, which was adjusted so it was higher or lower than the first candidate. When the final scores were being tallied, interplay was again found, with managers 'revisiting' earlier scores and then making changes on the basis of either the representative heuristic or the anchor and adjustment heuristic, or sometimes both.

Once more, the type of decision appears to be a factor in interplay with anchor and adjustment heuristic during the process. Managers felt this was an integral part of the process. Again, the following quotes are unattributed.

> *"When I'm scoring the first person I don't really know what 'good' looks like. So I normally avoid giving them 10 out of 10 at that stage. What happens if I give them a '10' and then someone better comes along later? Later on I can use my first score as a benchmark and I can say that Jane was better than Bill or whatever, and so I can adjust the scoring accordingly"*.

> *"At the end I might go back and adjust the first mark up or down. By then, I've got a better idea how all the candidates have shaped up and so I can correct the mark so that I treat the first candidate more fairly"*.

It is interesting how this adjustment is perceived to be improving fairness.

Situations where this interplay occurs

Interplay with other heuristics during the process appears to be an integral part of the way in which interview scores are ranked. It was found in each case. As one commented, *"It happens every time. It's built into the process"*. Managers supported the notion of a permanent relationship:

> *"The fact that it's not written down doesn't mean it doesn't happen. It's an important part of the process"*.

Interplay at the end of the process only occurs when managers are not happy with the result of the scores. This applies to interplay with both the anchor and adjustment and the representative heuristics. One manager summed this up simply: *"if our scores are right, there's no need to change them!"*

When considering interplay with the representative interplay, interplay was also dependent on whether or not the interviewer had prior knowledge of the 'winning' candidate.

> *"I've seen [Fred] do similar work in the past and so I've got something to compare this new job to. If I'm interviewing an outsider…someone I don't know...then I've not got this knowledge and so I can't use a stereotype to help me"* (Planning).

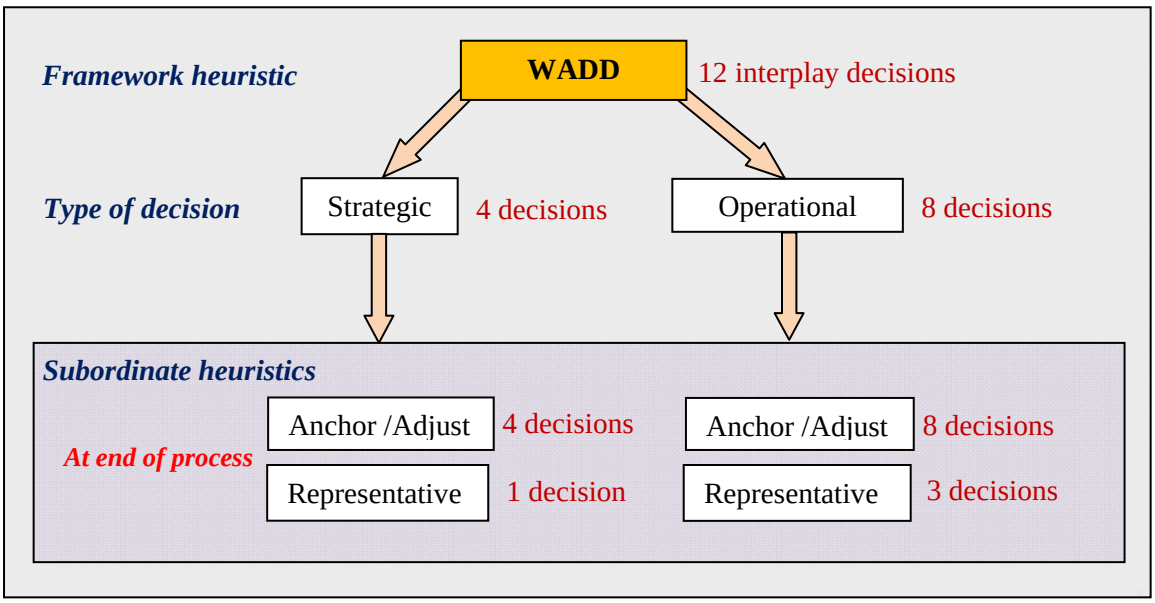
> *"Numbers can only tell you so much. They can't tell you everything. If you've seen someone work well in a particular kind of job, it's safe to assume that they'll be good in a new, similar, job. So you adjust the score based on familiarity"* (Business Management).

Clearly, therefore, intuitive and choice-based heuristics were used in combination. The choice-based heuristic (linear compensatory) provided the framework for the decision, but the results were amended by intuitive heuristics.

7.9 WADD heuristic as the framework

With this heuristic, managers allocate scores to each attribute and then apply weightings to each attribute that reflect their relative importance to the decision-maker, and the weighted 'scores' are then summed to derive the final value (Payne, Bettman and Johnson, 1993; Shah and Oppenheimer, 2008). This heuristic was found on 32 occasions, all of which were in procurement situations. Eleven related to large-scale procurements and 21 related to medium-scale procurements. The WADD heuristic demonstrated interplay on 12 occasions. Four of these occurred with large-scale procurements (4 out of 11 decisions, or 36%) and eight occurred with medium-scale procurements (8 out of 21 decisions, or 38%). The following diagram illustrates the heuristics involved:

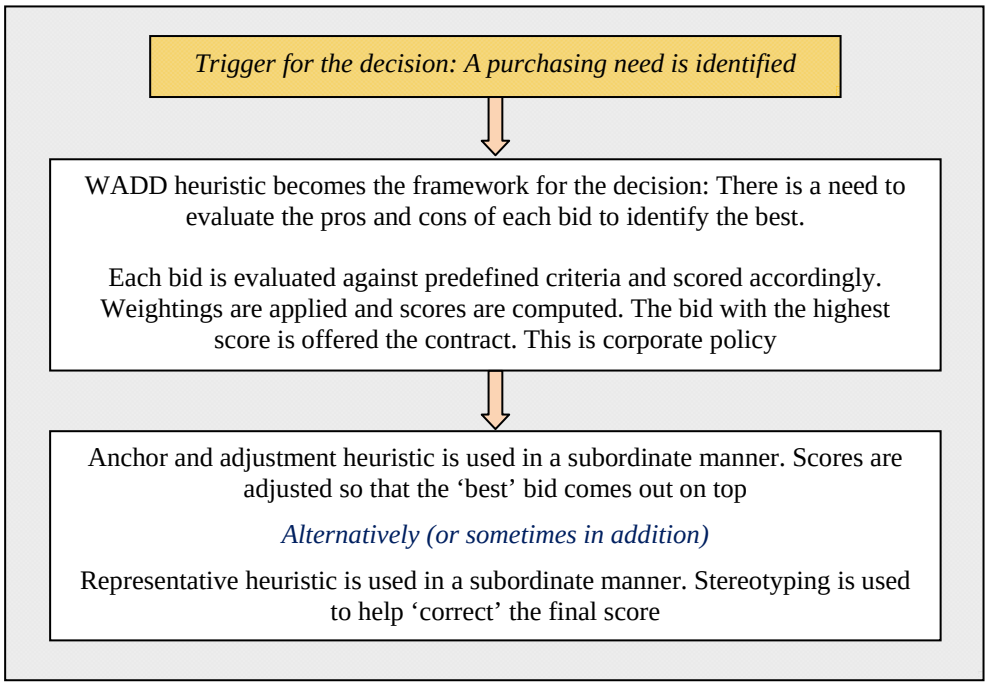
Fig 96: Summary of heuristic interplay with the WADD heuristic



There are some parallels between this diagram and Figure 95, and indeed there are some similarities between the WADD procurement process and the linear compensatory recruitment process. Managers feel that this resemblance is *"because the two processes are similar. You've got broadly the same things happening for broadly the same reasons"* (Corporate Procurement). In each case, candidates/bids are evaluated sequentially. The scores of the candidates/bids are assessed at the end and a process is applied (i.e. the framework heuristic) to produce a final score. These scores are reviewed by managers and, on some occasions, individual candidates/bids are re-evaluated and the scores are thereby amended. Whilst 'in-process' interplay was not observed for the WADD heuristic (unlike the linear

compensatory heuristic), there was clear evidence of interplay 'at the end of the process'. The following diagram illustrates the general process.

Fig 97: Interplay between the WADD heuristic and other heuristics



The following pages explore the interplay in more depth and, as before, comments are unattributed at the request of those involved.

Interplay with the anchor and adjustment heuristic at the end of the process

As noted in Chapter Five, as with job interviews, it was found that what managers were 'supposed' to do (i.e. the corporate process) differed from what they 'actually' do (i.e. compare bids to other bids and not to the specified criteria). The Streetscene contract was typical example. The requirement in this case was that companies would only be considered for contract award if they scored a minimum of 85 points in the evaluation. However, when the scores were calculated, none of the five shortlisted companies reached this score on the basis of the WADD results alone. The anchor and adjustment heuristic was used to compare bidders to other bidders.

> *"[Company A] scored 75. This became the fixed point and other bidders' scores were compared to this and then adjusted up and down accordingly".*

> *"We knew that [Company B] was better than [Company A] by a fair margin, and so we adjusted their scores to that they ended up with more than 85. It was fair enough, because they really were that much better".*

Thus, the contract was awarded to Company B because they were *"better than Company A"*. Managers were aware of the problems with this approach.

> *"It was an attempt to apply objectivity to what's essentially a subjective process. By comparing like with like we tried to be objective, but at the end of the day, it's still our opinion. It's not a matter of fact".*

More fundamentally, perhaps:

> *"Nobody questioned whether the score of 75 was realistic. It was the first one and it was treated as Gospel. All the others were compared to this benchmark, but nobody asked if 75 was a suitable reflection of [Company A's] bid".*

Managers were also clear about why the anchor and adjustment heuristic was not used 'during the process' as was the case for the linear compensatory heuristic:

> *"With job interviews, it's straightforward. You've got everything in front of you and so you can make adjustments as you go along. With procurement, it's more difficult. Everyone is evaluating their own bits. Finance are looking after the money, Legal are looking after the law, the technical staff are looking after the operational details. Nobody gets to see the big picture until the end. And on top of that, you've got your weightings. The score you see on screen isn't normally the score you end up with. So, all you can do is wait until the end of the process".*

It is clear that the anchor and adjustment heuristic is used within the wider framework of the WADD heuristic. The corporate process mandates the use of WADD, but this study has found that managers often *"adjust"* or *"correct"* the final score to reflect their view of *"reality"*. As

these examples are very similar, both for large-scale and medium-scale procurements, it would be repetitious to provide further illustrations at this point. See sections 5.3.3 and 5.3.4 for a fuller discussion of the issues.

Interplay with the representative heuristic at the end of the process

The representative heuristic was used to modify, or "*correct*" the results of the WADD heuristic, and on each of the four occasions where this phenomenon was identified, the reasons managers gave are similar to those given for the EBA heuristic and the linear compensatory heuristic. For instance:

> *"In the [last procurement] [Company X] came out on top, but I know that they can't do the job. They're c**p! They've got the 'merdeas touch' – everything they touch turns to s**t!"* [Note: 'merde' is, of course, the French for s**t] *"There was no way I was going to let them anywhere near my contract, and so I adjusted their score downwards to make sure they weren't top"*.

In subsequent discussions with the author, the manager explained his comments, and it was clear that the representative heuristic was key to his decision:

> *"It was an assumption [...] I know from experience that a job of this size is way beyond [them]. It's not just me; my colleagues in other councils say so too. So my assumption, my stereotype if you like, was that they would foul up on the new contract too"*.

The anchor and adjustment heuristic was then used to physically change the score:

> *"I made my decision based on my assumptions, and then I had to [change the scores]. I couldn't have them coming first, and I didn't really want them coming second either. First, second, and third were pretty close together, and so I looked at where I wanted them to finish and used the third-placed company as my fixed point. I then tweaked [Company X's] score until it was just below the third placed company"*.

In other words, the representative heuristic came first and this was followed by the anchor and adjustment heuristic, and again, therefore, the results of a choice-based heuristic (WADD) were modified by the use of intuitive heuristics (representative and anchor and adjustment).

Situations where this interplay occurs

As with the linear compensatory heuristic, interplay with anchor and adjustment only occurred when managers were not happy with the final scores. The following comments were typical:

> *"This situation only happens when I'm not happy with the outcome – if something was wrong with my numbers. When I agree with the decision that the numbers give me then there's no problem, and I use the numbers to back me up"*.

> *"It's pretty similar to job interviews. You know who the best bidder is. You know who's impressed you the most, and so you need to make sure the scores reflect that. There's no problem if they do; it's when they don't that you need to go back and make the adjustments"*.

Interplay with the representative heuristic also occurred in situations similar to those with the linear compensatory heuristic. Again it only occurred when managers were not happy with the final scores, and when managers had personal knowledge of the 'winning' bidder, either by experience or by reputation.

> *"This happens when bids are not similar...then you fall back on stereotypes. You might compare the bids against the company's reputation, or against their past performance. You make the assumption that past performance or reputation is an indicator of future performance, but [...] you can't know for sure"*.

In the case of EBA and WADD, the data are limited to the procurement process, and this limits the opportunity to fully explore conditions, since decisions only took place in this environment.

7.10 Chapter summary

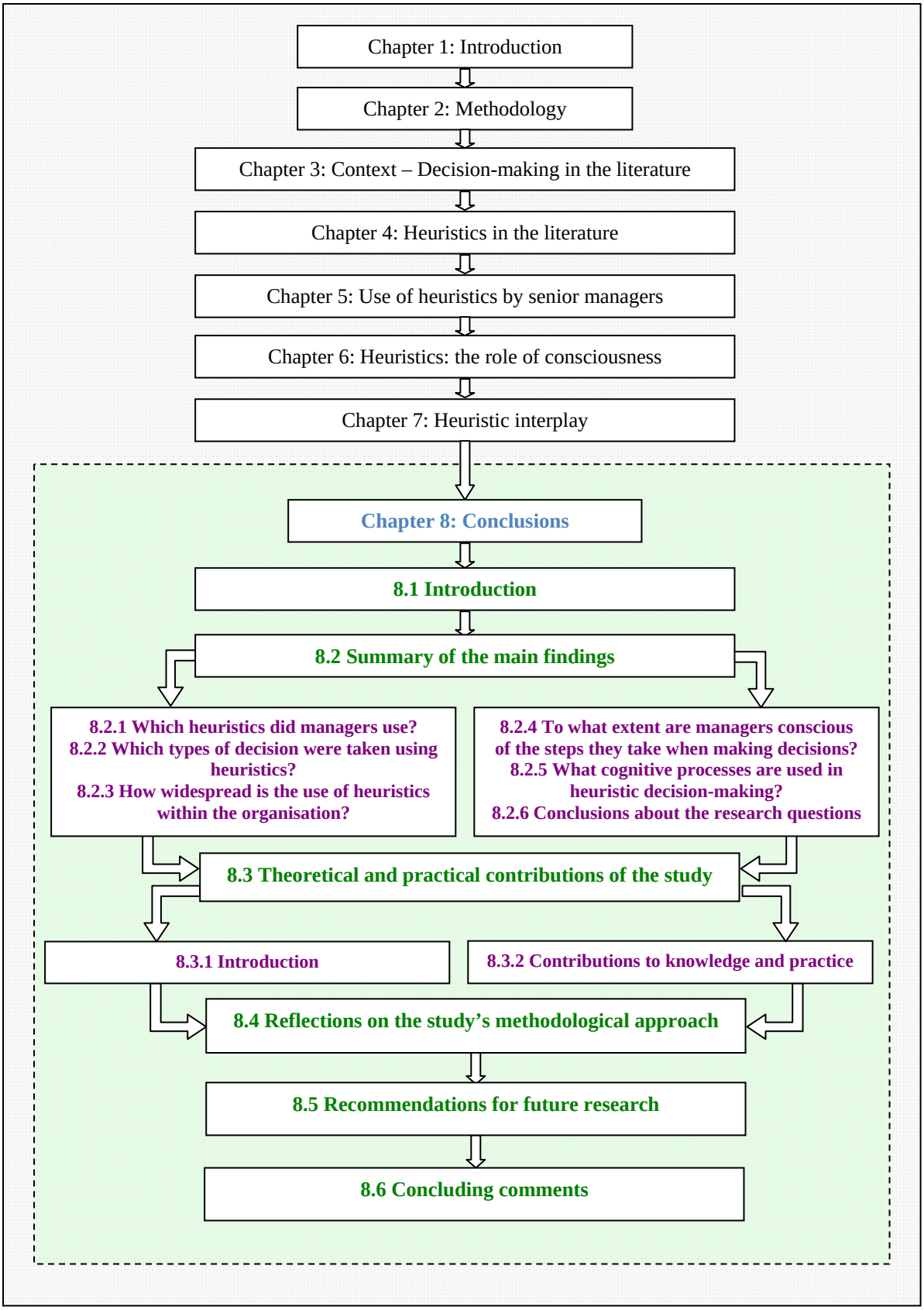
To a very limited extent, previous research has suggested that there may by interplay between intuitive and choice-based heuristics. For example, Lee and Marlowe (2003: 65) state that when *"facing new financial needs, [people] start their search process from the institution where they have the checking accounts"*. This is suggestive of the use of the anchor and adjustment heuristic because they have a defined starting point and then they seek to make changes from this. If their current institution cannot meet their needs, then they may look elsewhere, but this is not the first action. However, this connection is not made by the authors. Similarly, research into the role of product familiarity upon decision-making (Raju and Reilly, 1980) does not consider the role of the representative heuristic (e.g. stereotyping) in conjunction with choice-based heuristics. This research can be contrasted to the present study, which clearly establishes such interplay.

As indicated in Chapters Four and Five, there is very limited research into the interplay between intuitive and choice-based heuristics. What little there is suggests that choice-based heuristics are sometimes used to modify the outcome of intuitive heuristics (for instance Kahneman, 2011; Sunstein, 2005a). This is supported by the present study. For instance, Chapter Five showed that when developing a consideration set companies can be selected largely on the basis of the representative heuristic, and the conjunctive heuristic is then used to 'modify' the set and make a final decision (see for instance the 'flood defences' and 'acrobats' examples presented above). However, this study has also found that this interplay can operate in the opposite direction, with the outcomes of choice-based heuristics being modified by intuitive heuristics, as with the above examples of the linear compensatory (e.g. recruitment) and WADD (e.g. procurement) heuristics. In spite of an exhaustive literature search, the author has been unable to locate previous research to this effect, and this therefore represents a contribution to knowledge.

The next chapter, chapter Eight, is the conclusions chapter. It brings together the key findings from this study and demonstrates how these address the research questions posed in Chapter One.

CHAPTER 8: CONCLUSIONS

Fig 98: Context and structure of Chapter Eight



8.1 Introduction

The central aim of this study was to reveal the processes by which cognitive heuristics are used by senior managers to make decisions in a large UK local authority. To address this issue, several supporting research objectives were stated in Chapter One. These were:

1. Which heuristics did managers use?
2. Which types of decision were taken using heuristics?
3. How widespread is the use of heuristics within the organisation?
4. To what extent are managers conscious of the steps they take when making decisions?
5. What cognitive processes are used in heuristic decision-making?

This chapter summarises how and where these matters were addressed. It begins by summarising the key findings of the study, and discussing its major contributions to theory and practice. This is followed by short sections critically reflecting on the study's methodological approach and making suggestions for further research.

The next section outlines the main findings of this study. It does this by considering each of the research objectives, and it shows how and where each was addressed. The implications of these findings are then explored in the subsequent section, which shows that they are significant and represent substantial contributions to knowledge.

8.2 Summary of the main findings

8.2.1 Which heuristics did managers use?

At first glance, this was a straightforward question to answer. The author 'merely' had to observe what was happening and the heuristics would emerge. However, the reality was more complex because sometimes a decision could be made in several different ways. Examples of this were given in Chapter Five, such as the retained organs scandal, where both the moral and representative heuristics were used to make an identical decision. Thus, it was necessary to identify the underlying processes, and this involved interviews, detailed observations, interaction with the literature, and extensive respondent validation. This process was explained in depth in Chapter Two.

Within the 513 decisions explored in this thesis, eight heuristics were observed whose behaviour was such that contributions to knowledge could be identified. These are shown below:

Table 18: No of occasions each heuristic was used

Heuristic	No of occasions
Anchor and adjustment	69
Availability	16
Representative	259
Moral	49
Elimination By Aspects (EBA)	14
Conjunctive	32
Weighted Additive (WADD)	42
Linear Compensatory	32

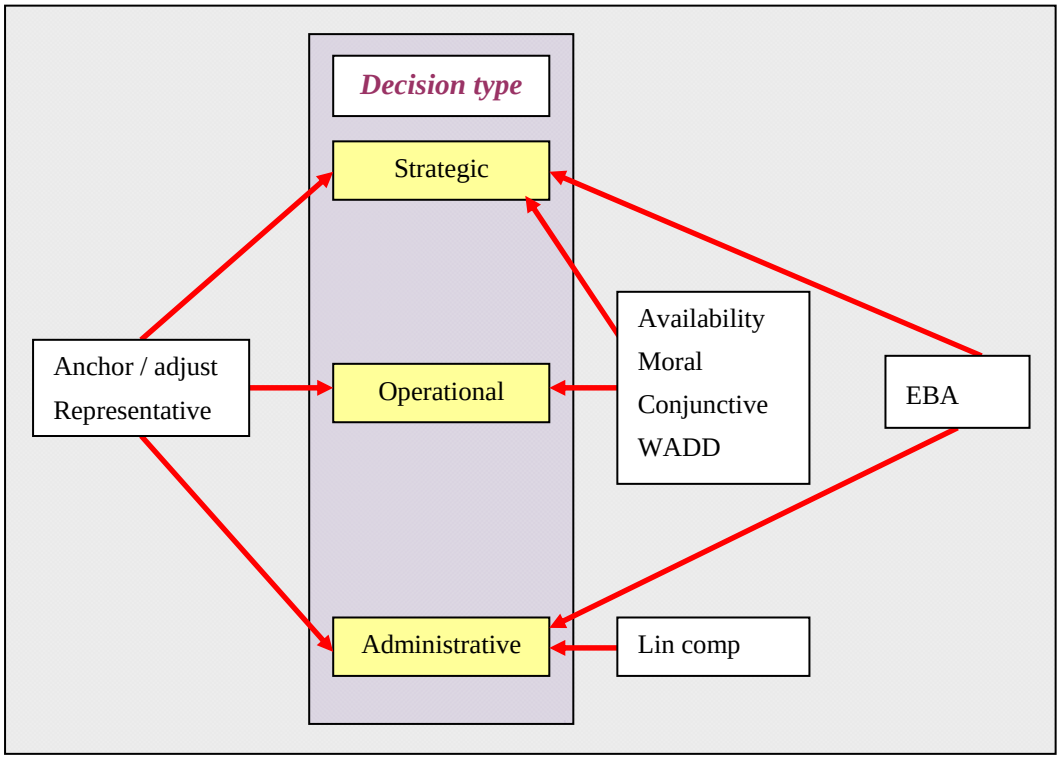
The representative heuristic was observed in the greatest number of decisions (259), with EBA being observed in the fewest decisions (14). A key finding from this study, although not one that adds directly to knowledge, is that the existence of each of these heuristics is confirmed. However, in Chapter Five, a new definition of the moral heuristic was proposed, namely *"taking the decision on the basis of what the decision-maker believes to be morally right"*. This definition followed extensive respondent validation and aligns with the empirical data. Indeed, this new definition also encompasses the existing literature. Hence, this thesis argues that there is 'the' moral heuristic and not 'a' moral heuristic. These findings were explored in depth in Chapter Five, and the identification of these eight heuristics provides the answer to this research question.

8.2.2 Which types of decision were taken using heuristics?

This was another relatively straightforward question to answer. Chapter Three showed that there are several different typologies of decisions. Ansoff's (1968) typology was chosen as the framework for this study because it is commonly understood within the organisation under study, and is widely used by senior managers (see for instance Chapters Three and Five). Moreover, as Chapter Three demonstrated, managers use the terminology in the same way as

the literature. The following diagram shows the types of decision for which each of the eight heuristics was used.

Fig 99: Types of decision per heuristic

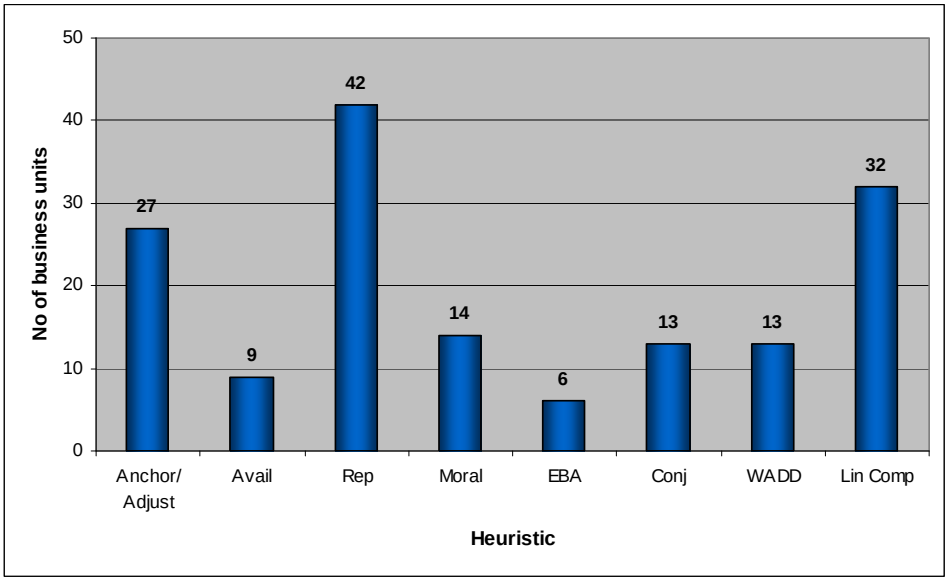


As this diagram shows, of the eight heuristics examined in this study, seven were used for strategic decisions, six were used for operational decisions, and four were used for administrative decisions. Only the linear compensatory heuristic was used in a single category of decision (administrative). Of the other heuristics, five were used in two categories of decision, and two were used in all three categories of decision. This diagram therefore answers the research question, and these issues were discussed in more depth in Chapter Five.

8.2.3 How widespread is the use of heuristics within the organisation?

At first glance, this was another straightforward question to answer, but it was important to establish which heuristics were *actually* in use, rather than those that *appeared* to be in use. As outlined in Chapter One, this study was conducted within 42 business units, as shown in the following diagram.

Fig 100: Use of heuristics by business unit



This chart shows that heuristics were widely used. The representative heuristic was used in each of the 42 business units, and the anchor and adjustment and linear compensatory heuristics were also widely observed. At the other end of the scale, the EBA and availability heuristics were used in fewer than ten business units, whilst the other heuristics were used in roughly one-third of business units. However, these figures mask the fact that in most cases, there was a clear pattern to the contexts in which the different heuristics were used, as the following table makes clear.

Table 19: Contexts in which heuristics were used

Heuristic	Context
Anchor/adjust	Across organisation (no clear pattern of business units or contexts)
Availability	Enforcement
Representative	Every business unit (no clear pattern of contexts)
Moral	'Soft' business units (but opposed by 'hard' business units)
EBA	Procurement
Conjunctive	Procurement
WADD	Procurement
Lin Comp	Recruitment

In other words, the heuristics displayed definite patterns of behaviour. The representative heuristic was used in each business unit in a range of contexts, and there was no clear pattern

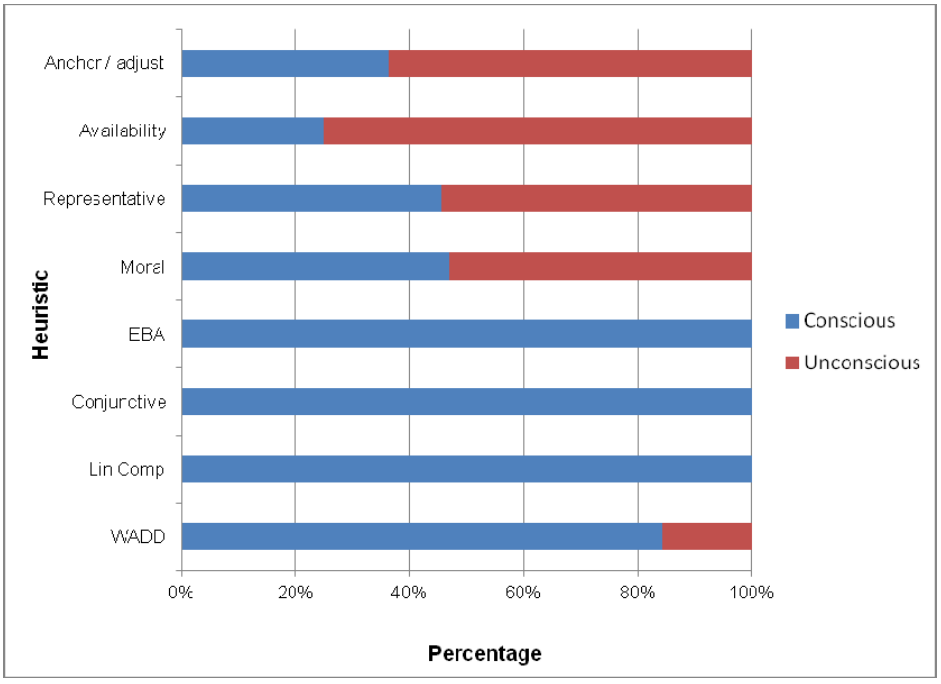
of use. The anchor and adjustment heuristic was also widely used and, although its use in budget setting was common, the heuristic was not limited to this context. However, the other six heuristics behaved in a way that was strongly suggestive of particular contexts. The availability heuristic was only found in enforcement situations; the linear compensatory heuristic was only found in recruitment situations; the EBA, conjunctive, and WADD heuristics were only found in a procurement environment; and the moral heuristic was only found in 'soft' business units whereas they were opposed by 'hard' business units.

8.2.4 To what extent are managers conscious of the steps they take when making decisions?

With conscious decisions, it was usually easy to know which heuristic was being used. For instance, as Chapter Five demonstrates, heuristics such as linear compensatory and WADD are enshrined in corporate procedure and managers consciously followed these procedures. Unconscious decision-making was more problematic. Although it was generally possible to identify an unconsciously-made decision, it was more difficult to determine the underlying mechanisms. Managers made comments such as *"I've no idea how I made this decision. I just made it"* (Planning).

This problem was overcome with managers providing a *post-hoc* account of their decision-making processes, and through questioning and discussion it was possible to identify the processes involved. Fig 101 lists the eight heuristics in this study and provides a summary of conscious/unconscious use in each case.

Fig 101: Degree of conscious application of each heuristic



The diagram shows that all four intuitive heuristics can be applied consciously. In the case of anchor and adjustment, this arose where a conscious incremental approach was used to aid the management of business risks. In the case of the availability heuristic, managers deliberately called a precedent to mind, as in the case of 'Baby P'. With the representative heuristic, almost half of decisions (46%) were made consciously, with stereotypes being deliberately invoked in the case of event planning or when previous decisions had been felt to be good. As described in Chapter Four, theory suggests that these are intuitive heuristics that are used rapidly and unconsciously (e.g. Gigerenzer, 2008). However, these findings call into question the whole concept of 'intuitive' heuristics. How can they be 'intuitive' if they are applied consciously? The moral heuristic was less clear-cut. Morality was often consciously invoked as a 'last resort' when previous attempts to make a decision had failed, as in the first instance of the retained organs scandal, but it is unclear whether or not the moral *heuristic* is used consciously.

Three of the choice-based heuristics were only used consciously, and this supports the literature (e.g. Gilbride and Allenby, 2006). However, anecdotal evidence suggested that two of these (EBA and linear compensatory) can also be used unconsciously, which is new to theory. In the case of EBA, managers gave examples from their own experience, but no direct evidence was obtained from the study to support this. In the case of the linear compensatory heuristic, in recruitment decisions there is strong empirical evidence for a high level of

unconscious heuristic interplay within the overall framework of the linear compensatory heuristic, but no evidence was found that the linear compensatory was *itself* applied unconsciously. There was no suggestion that the conjunctive heuristic was used consciously. However, clear evidence was obtained that shows that the WADD heuristic can be used unconsciously, as in the case of the development of a new shopping centre, where the WADD framework was used but where weightings were not formally assigned. These findings were explored in Chapter Six.

8.2.5 What cognitive processes are used in heuristic decision-making?

This thesis has developed flow charts for each of the eight heuristics in this study. For each heuristic, the trigger for the decision is identified, and charts show the cognitive processes used by managers from the start of the process to the point at which the decision is made. Each stage is supported by empirical evidence, and the order of the component stages and the charts themselves are the result of respondent validation. Consequently, the author is satisfied that they accurately reflect the thought processes of those involved. These flow charts were identified in Chapter Five.

The flow charts also enable a number of significant conclusions to be drawn. Firstly, whereas the literature generally treats each heuristic as a discrete phenomenon, interplay between heuristics is common within the organisation under study. Interplay between heuristics was discussed in detail Chapter Seven. Secondly, in the case of choice-based heuristics there is a ‘gap’ in the middle of the process. This occurs during procurements one the initial criteria have been issued to prospective bidders. Effectively, the heuristic is ‘paused’ until responses have been received, at which point it resumes. Although this finding does not contradict the literature, since the literature is silent on this issue, it is a phenomenon that has not previously been identified. Secondly, although many arithmetic expressions have been developed to model the use of heuristics, none of these were used within the organisation under study. Indeed, only one manager was aware of the existence of these algorithms. As Chapter Five shows, this is a significant finding that has practical implications for teaching methods in business schools.

8.2.6 Conclusions about the research questions

As the foregoing demonstrates, each research question was addressed. The main objective of the research has also been met; namely the identification of the ways in which senior managers use cognitive heuristics to make decisions. In each case, findings are supported by extensive empirical evidence and are closely linked to the literature. In many cases, the findings from this study support the literature, but in some cases they challenge established understandings in the literature or add to knowledge. These are therefore contributions to knowledge and they are summarised in the following section.

8.3 Theoretical and practical contributions of the study

8.3.1 Introduction

This section supports and challenges current understanding, conceptually and methodologically, with respect to heuristics and decision-making. Moreover, it considers the practical implications of the study and what this means for management. As the theoretical and practical ramifications of the research are addressed, this section draws out the key contributions that this thesis makes to this important field of study.

Many of the findings of this study support established understanding. At the most basic level, the existence of these eight heuristics was confirmed and, in general, academic theory accurately describes how they are used in real-world situations. For example, within this study the anchor and adjustment heuristic was used to estimate values as varied as financial savings targets or the number of headstones in a city's cemeteries; and this closely aligns with uses identified in the literature, such as the estimation of the number of African nations in the UN (LeBoeuf and Shafir, 2009) or the length of the Mississippi River (Simmons, LeBoeuf and Nelson, 2010). Chapters Four and Five discussed these issues further. However, this study has also shown that heuristics operate in more complex ways than previously suspected. There are significant differences between the literature and practices within the organisation under study and, thus, this thesis makes a number of important contributions to theoretical knowledge. The following section summarises each contribution, outlines the evidence for it, and explains how each adds to management practice or knowledge.

8.3.2 Contributions to knowledge and practice

Contribution 1: Algorithms are not used by managers to make decisions

Many algebraic models have been developed to illustrate the working of heuristics (see for instance Dieckmann, Dippold and Dietrich, 2009; Elrod, Johnson and White, 2004; Schwenk and Reimer, 2008). Each heuristic has its own formula or formulae – including EBA (Gilbride and Allenby, 2006), conjunctive (Zhu and Givan, 2005), linear compensatory (Lee and Geistfeld, 1998) and WADD (Nosofsky and Bergert, 2007). However, no evidence whatsoever was found that such mathematical constructs were used in the organisation under study. Indeed, as shown in Chapter Five, only one manager (who has a PhD in procurement) was even aware that such formulae existed at all – and this was only in relation to the WADD heuristic – and even he was adamant that they are not used in practice.

This is an important finding in the light of the considerable literature on decision science. The relevance of these algorithms was questioned by many participants. The one manager who was aware of the formulae argued that the same decision can often be made in several ways, and although the mathematics might lead to the same answer as the 'real' answer, this does not advance academic understanding of the underlying process. Other managers were even more critical and asked why algorithms were taught at all if they are not used in practice. Therefore, this thesis clearly illustrates that heuristics are actually used in a 'non-mathematical' way – at least in the organisation under study – and indeed that mathematics can be a "*burden to understanding how the process works*" (Corporate Procurement). Given that the use of algorithms is widely taught in business schools (see for instance University of Manchester, 2013), and that senior managers are calling for university teaching to be based on real-life business practices (Wilton, 2013; see also Rowland and Hall, 2010), this study questions the way in which decision-making is taught. It implies that students and business would, perhaps, be better served by learning about heuristics rather than by seeking to quantify decision-making in mathematical terms.

Contribution 2: Heuristics are not discrete and independent entities. There is considerable interplay between them

The literature generally examines each heuristic in isolation. Typically, research explores a single heuristic and seeks to understand its behaviour or its effects. Even in the few instances

where two or more heuristics are studied in a single paper, there is no discussion of interaction between them. However, Chapter Seven of this thesis showed that there is actually considerable interplay between the different heuristics. One heuristic acts as the main framework, and others behave as components within this framework. A typical example is the representative heuristic, where interplay was found with the availability heuristic. For instance, in the 'birdcage case', a stereotype (representative heuristic) was brought to mind via the availability heuristic. Such behaviour was prevalent in the present study. Indeed, interplay was found for seven of the eight heuristics that were studied. Both the availability heuristic and the linear compensatory heuristic exhibited such interaction on every occasion, and the other heuristics displayed interplay on a significant minority of occasions.

This thesis supports the limited amount of literature which suggests that choice-based heuristics are sometimes used to modify the outcome of intuitive heuristics (for instance Kahneman, 2011; Sunstein, 2005a). For instance, in the 'flood defences' and 'acrobats' examples presented in Chapter Five, when developing a consideration set companies can be selected largely on the basis of the representative heuristic, and the conjunctive heuristic is then used to 'modify' the set and make a final decision. However, this study has also found that this interplay can operate in the opposite direction, with the outcomes of choice-based heuristics being modified by intuitive heuristics. For example, in the organisation under study, the recruitment process is actually a formalised version of the linear compensatory heuristic. A choice is made by the process, but it was found repeatedly that the results are amended by the representative or the anchor and adjustment heuristic – or sometimes both. This was discussed further in Chapters Five and Seven. It is therefore clear that, far from being isolated incidents, interplay is commonplace and is therefore worthy of further study. In spite of an exhaustive literature search, the author has been unable to locate previous research to this effect, and this therefore represents a contribution to knowledge.

Contribution 3: Heuristic processes do not necessarily 'flow' in an uninterrupted way from start to finish

Whilst the literature does not expressly claim that heuristics flow in an uninterrupted fashion, neither does it discuss any interruptions to the process. The literature is silent on this point. However, this study has found that in a procurement context there is a significant 'pause' in

the process of implementing some choice-based heuristics. It was found that EBA, conjunctive, and WADD all have this pause in the middle of the process. In the case of EBA, the pause takes place whilst wait for the market to prepare their bids. With the conjunctive heuristic, the gap occurs once pre-qualification questionnaires have been issued to companies, because they have to be given time to prepare their responses. With the WADD heuristic, companies are given time to prepare detailed bids. Within the procurement process, both the pause and its minimum timescales are prescribed by law. Bidders have to be given time to ask questions, gather information and prepare bids, and the pause also allows all bidders to receive the same information.

Analysis has shown that these are definitely pauses within the overall heuristic and not two separate processes. For example, the WADD heuristic specifies that assessment and evaluation criteria are derived and then implemented (Shah and Oppenheimer, 2008). In the organisation under study, the assessment criteria and evaluation procedures are determined prior to the pause and are then acted upon after the pause. The overall WADD framework is maintained – the only difference being this pause in the middle. Whilst this pause is not new to the procurement literature (Murray, 2011), a link has not been previously made to the heuristics literature, and this therefore represents a contribution to knowledge.

Contribution 4: A new definition of the moral heuristic is proposed

Chapter Five shows that within the organisation under study there are a number of moral heuristics in use, such as *"put the needs of the children first"* (Schools Safeguarding; Secondary Schools), *"do not do anything that risks the safety of staff"* (YOS), and *"treat people as you would like to be treated yourself"* (Bereavement). These are broadly similar to moral heuristics in the literature, identified in Chapter Four, such as *"avoid and punish betrayals of trust"* (Koehler and Gershoff, 2005: 556) and *"always keep your promise"* (Bartsch and Wright, 2005: 546). These are essentially 'mini' heuristics because they refer to very specific situations or contexts. However, within the literature, the other intuitive heuristics have 'generalised' definitions. For instance, the definition of the availability heuristic does not identify *everything* that is recalled to mind; only that decisions are made on the basis of how readily things come to mind. The author therefore sought to develop a 'general definition' for moral heuristics. Thus, in Chapter Five, a new version of the moral heuristic was proposed, namely *taking the decision on the basis of what the decision-maker*

believes to be morally right". This definition followed extensive respondent validation and analysis has shown that it successfully encompasses the empirical data in this study and the heuristics in the literature.

A key implication of this definition is that this thesis argues that there is *'the'* moral heuristic and not *'a'* moral heuristic, and that the 'mini' moral heuristics are merely specific applications of this higher, more conceptual version. This new definition means that the moral heuristic can, for the first time, be viewed more conceptually like the 'other' intuitive heuristics and it removes the need for the numerous 'mini' moral heuristics in the literature. The author encourages future researchers to empirically test this new definition, and the idea of '*the*' moral heuristic, and to refine the definition in light of their findings.

Contribution 5: The underlying processes of heuristic decision-making can be described by simple flow charts

To date, only limited efforts have been made to develop flow charts that illustrate the way in which heuristics work. These revolve around the work of the 'fast and frugal' school of thought (Cosmides and Tooby, 2006; Gigerenzer, 2008) and seek to understand the behaviour of heuristics in terms of simple 'rules'. They are interested in the unconscious 'rules' for starting a search for a solution to a problem, how the search is conducted, and then stopping the search once a solution has been found (See for instance Gigerenzer and Todd, 1999; Hertwig, Hoffrage and Martignon, 1999). The present study has taken a different approach, and has sought to model each heuristic in terms of different 'building blocks'. At its simplest, this study answers the questions *"what steps are taken, by whom, and in what order?"* Once again, the author has been unable to locate previous research that analyses heuristics in this way.

The result was a series of simple flow charts, each stage of which are supported by empirical evidence and which have been 'validated' *post hoc* by those involved in the process. Each flow chart has minimal feedback loops (where they are present at all), and each fits onto a single side of A4. These were presented in Chapter Five, and for the first time, these allow the underlying processes of heuristic decision-making to be identified (Chapters Five and Six). This visual depiction aids understanding because the individual component stages are clearly identified and can be explained without the need for complex description. These flow charts

could also have applications in the field of artificial intelligence, since the underlying processes have now been revealed and this may aid Joelle Pineau and others who are seeking to replicate human thought processes in machines. Importantly, the development of these flow charts has also allowed other knowledge to be discovered, such as the strong links between incrementalism and the anchor and adjustment heuristic, which is outlined in the following section.

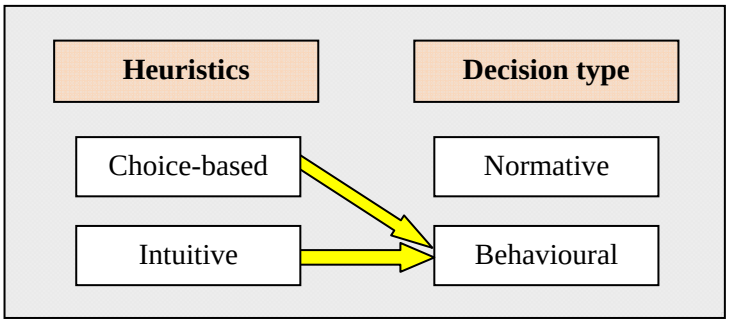
Contribution 6: There may be a relationship between specific heuristics and work environment

The development of flow charts has shown that there appears to be a link between some of the heuristics and the work environment in which they are found. The availability heuristic was only found in procurement situations, and the moral heuristic was only found in 'soft' business units whereas it was opposed in 'hard' areas. Although no literature was found that supports a link between 'hard' and 'soft' work environments and the moral heuristic, an analogy might be made to 'hard' and 'soft' problems or systems (Checkland and Poulter, 2006; Clayton and Radcliffe, 1996; Wilson, 1990). This was discussed in Chapter Five (section 5.2.4). Similarly, the fact that three choice-based heuristics were found in a procurement environment supports the literature (Laroche, Kim and Matsui, 2003; Yee et al., 2007). These findings are suggestive of a hitherto unidentified link between work environment and heuristics, and thus are new to theory. This is an important finding in view of the increasing research into the contingent nature of management practice (for instance Waring, Currie and Bishop, 2013). Further analysis and discussion was presented in Chapter Five (section 5.2.2).

Contribution 7: The underlying processes of heuristic decision-making are better described by dual-system theories than by the normative/behavioural framework

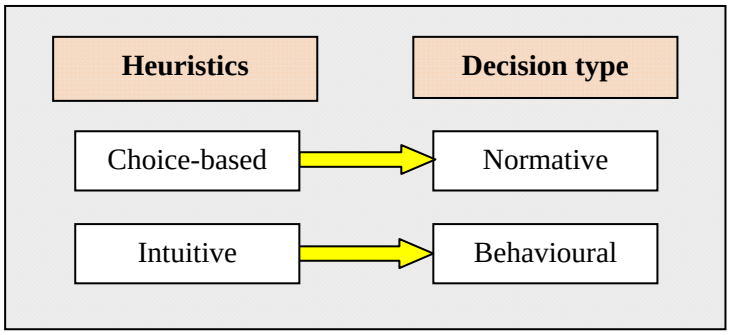
As described in Chapter Three, there are 'traditionally' two schools of thought in relation to decision-making. Normative models are logical and rational in their approaches whereas behavioural models use part of the available information, make assumptions, and take shortcuts in order to reach a decision. Heuristics are generally considered to be behavioural models (Douglas, 2005). This is shown in the following diagram.

Fig 102: Traditional assessment of heuristics against decision models



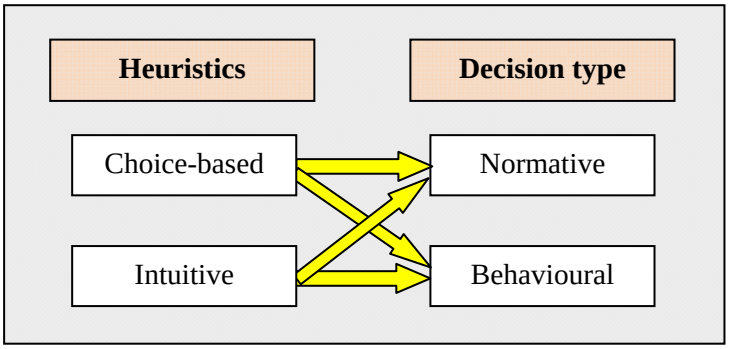
However, this thesis calls this approach into question; most particularly in Chapter Six. It questions whether heuristics are actually behavioural models, and demonstrates that many are actually normative in nature. For instance, the choice-based heuristics are logical and structured, and align closely to normative models. This leads to the following diagram

Fig 103: Revised assessment of heuristics against decision models



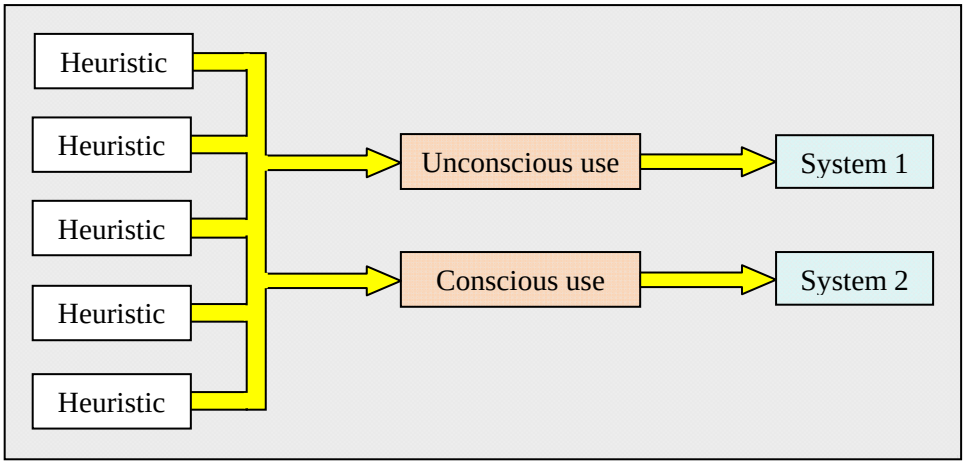
However, this study has found that the reality in the organisation under study is messier. Intuitive heuristics can be applied consciously and deliberatively (i.e. normatively), and choice-based heuristics can be applied unconsciously and rapidly (i.e. intuitively). Therefore, traditional theories break down, as the following diagram illustrates

Fig 104: 'Real-world' assessment of heuristics against decision models



This study suggests that Kahneman and Frederick's (2002) dual system approach is a more appropriate framework for understanding of heuristics, because the normative/behavioural classification and the intuitive/choice-based classification are unhelpful and do not explain the reality. This thesis therefore proposes that System 1 describes the unconscious use of all heuristics and System 2 describes the conscious use of all heuristics.

Fig 105: 'Real-world' assessment of heuristics against the dual-system theory



This thesis has shown that the processes underpinning the 'behavioural' anchor and adjustment heuristic and the 'normative' incremental model of decision-making are identical. In each case there is a fixed starting point; the decision develops via an adjustment process that proceeds incrementally in small stages; and there is also a feedback loop back to an earlier point in the process. This further strengthens that argument that 'normative' and 'behavioural' are merely labels that have been assigned over time and they do not reflect the reality within the organisation under study.

8.4 Reflections on the study's methodological approach

Grounded theories are not generalisable (Corbin and Strauss, 2008). How then should such theories be evaluated? Glaser (1978; 1992) specifies four criteria for assessing the quality of a grounded theory. These are fit, workability, relevance and modifiability. Scott (2007) argues that if these four criteria are present, then by definition, this is proof that the grounded theory

methodology has been rigorously applied. The following table outlines these criteria and discusses the extent to which they have been met.

Table 20: Evaluation of this thesis against Glaser's (1978; 1992) criteria

Criterion	Definition	Discussion
Fit		
	"Fit is another word for validity. Does the concept adequately express the pattern in the data which it purports to conceptualise?" (Glaser 1998:18).	Fit is similar to Kuhn's (1977) concept of accuracy – the theory should be consistent with the data. Fit is determined by how closely the theoretical concepts relate to the incidents or phenomenon being studied (Glaser, 1978). This, in turn, is related to the thoroughness by which the constant comparison process was undertaken (Glaser, 1978; Scott, 2007), and this means that *"fit is continually sharpened by constant comparisons"* (Glaser, 1998: 18). Glaser (1978) argues that if grounded theory procedures are properly followed then this criterion is automatically met since the categories of the grounded theory are generated systematically and directly from the research data. As described in Chapter Two, the author is confident that the correct procedures have been rigorously adhered to and is therefore satisfied that this category has been met.
Workability		
	"Workability means do the concepts and the way they are related into hypotheses sufficiently account for how the main concern of participants in a substantive area is continually resolved?" (Glaser 1998: 18).	A workable theory explains the diverse range of behaviours with respect to the major concerns of the people under investigation. (Glaser, 1992). The present study addresses this issue by researching a large number of business units with a wide variety of functions, and by actively seeking disconfirming data. A good example of this concerns the moral heuristic. When evidence suggested that it was widely used within 'soft' business units, 'hard' business units were deliberately approached in an attempt to obtain a different view (which, in fact, proved to be the case). Substantial respondent validation ensured that the developing theory accurately reflected the underlying processes rather than relying solely on observational data that could potentially be misinterpreted. The comprehensive way in which this thesis organised the literature and integrated it with the empirical data is further compelling evidence of workability because it demonstrates workability with academic theory as well as with those directly involved in the study. Thus, the author is confident that workability has been achieved.

Criterion	Definition	Discussion
Relevance		
	"Relevance makes the research important because it deals with the main concerns of the participants involved. To study something that interests no-one really or just a few academics […] is probably to focus on non-relevance or even trivia for the participants" (Glaser 1998:18).	Relevance to participants is vital (Pauleen, Corbitt and Yoong, 2007; Shaw, 2003). This is echoed by Kvale and Brinkmann (2009), who argue that *"transferability of knowledge"* is the essential criterion (Kvale and Brinkmann, 2009: 171). Relevance was ensured by the close involvement of managers. For instance, extensive respondent validation ensured that *actual* decision-making processes were accounted for, rather than the author's interpretation of these. Also, respondents often volunteered issues that were important to them, and suggested that these should be explored. For instance, managers in Bereavement and Social Care sought to emphasise the emotionally difficult situations they met, and the impact that this had on their decision-making. Furthermore, the literature and empirical data were fundamentally interwoven. Thus the final theories were highly relevant to both theory and practice, and hence produced new knowledge that is potentially applicable and relevant beyond the organisation under study. By itself, the foregoing confirms that this thesis has relevance. However, Glaser (1992) argues that since the thesis has both fit and workability, then by definition it also has relevance (Glaser, 1992).
Modifiability		
	"Modifiability is very significant. The [grounded] theory is not being verified as in verification studies, and [is] thus never right or wrong […] It just gets modified by new data […]. New data never provides a disproof, just an analytic challenge" (Glaser, 1998: 19).	Geiger and Turley (2003) argue that no matter how good a grounded theory is, it will only maintain its relevance if it is constantly adapted in light of changing circumstances. Modification is woven into the grounded theory methodology through the process of constant comparison, and this occurred from the very start of the study. As more data was gathered, ideas changed and the theory evolved. For instance, for more than a year, the study considered each heuristic to be separate. Gradually, data was obtained that suggested that the situation was not as clear-cut as it appeared. The anchor and adjustment heuristic appeared to have links to the availability heuristic, but what form did these links take? Were they widespread? Did other heuristics exhibit this behaviour? Slowly, these questions began to be addressed, and the developing theory was modified time and again to take account of new data, and eventually the notion of interplay emerged. Therefore, the author is confident that the criterion of modifiability has been met.

Hence, this thesis demonstrates fit, workability, relevance and modifiability. Therefore, according to Glaser's (1978; 1992) criteria, the theory is also valid. On this basis, the contributions to knowledge also have validity, since they have been derived in a methodologically consistent way. The following section presents a personal reflection and explores the author's role in the study.

Reflexive assessment

Qualitative studies such as the present project are inherently complex (Cunliffe, 2003; Watt, 2007). The literature offers guidance, but qualitative research's emphasis on emergence and interpretation (Watt, 2007) offers no single right way that guarantees success. This is exacerbated in a grounded theory study, since emergence is at the heart of the methodology (Glaser and Strauss, 1967; Glaser, 1978). Thus, each study project is unique and it is therefore up to the individual researcher to determine what works best (Stake, 1995; Watt, 2007). Reflexivity allows authors to look back upon their work and assess how knowledge and reality are constructed (Cunliffe, 2003). In essence, reflexivity enables researchers to "*become aware of what allows them to see, as well as what may inhibit their seeing*" (Watt, 2007: 82), and thereby understand the ways in which their own assumptions and behaviour may impact upon the inquiry (Glesne, 1999; Merriam, 1998; Russell and Kelly, 2002).

Chapter Two explained how the author's own opinions and preconceptions were managed. By writing this present section in the first person (Cunliffe, 2002; 2003; Wanat, 2008), I will build upon this to outline some of my thoughts to illustrate to the reader how my own role may have influenced the research. The section will also demonstrate how I have become a better researcher as a result of undertaking this study.

When I began this study, the grounded theory methodology was completely alien to me. My whole career up to that point had been predicated on 'fact'. Initially training as an accountant, my experience showed me that either things '*were*' or they '*were not*'. Either the accounts balanced or they didn't. That's how the world was – black and white. There was no room for grey. As my career developed into the realm of computer programming, these views were reinforced. Either the computer code worked or it didn't. Again, there was no grey area. Therefore, the idea that reality might be subjective was an anathema to me. The need for me to adopt a qualitative approach to the research was therefore accepted with some hesitation.

Although I forced myself to scrupulously follow the Glaserian methodology, I did so with reluctance, and my initial analysis was not exactly carried out with alacrity. It was something I had to do, and not something I believed in. Undoubtedly, this meant that I was initially somewhat blind to the possibilities inherent within my data, and therefore this may have delayed the development of my concepts and categories.

However, as my analysis progressed, patterns gradually revealed themselves within the data. On one occasion, I was looking at risk management and two different people seemed to have alternate views of the same situation, and each of these views appeared to make perfect sense from their own perspective. The business unit manager felt that one particular risk was critical to his business, but from his director's perspective, the risk was little more than an annoyance – she had more important things to worry about. Over time, this happened more and more. Two people could view an identical situation in different ways. There was no doubt about it: from the perspective of my study, reality was subjective after all. When this realisation dawned upon me, my data made more sense and from that point I threw myself wholeheartedly into the methodology, and my research gained both breadth and depth in a way that I had not anticipated. Indeed, if I had to pick a single factor, I would say that this is my single biggest learning outcome from the study. I have gained a deep appreciation of the importance and richness of qualitative research, and I have undoubtedly become a better researcher as a result.

My position and role within the organisation may also have impacted upon the research. As Chapter Two describes, I began my research by looking at the Parking and Bereavement business units, because I was familiar with the work they did and I had personal friendships with the senior managers. Whilst this enabled me to deliberately select business units that were significantly diverse (and so provide an increased range of data), it is possible that if I had chosen different starting points, this may have led the study in a different direction. Over time, this became less of an issue because I was able to research in nearly all business units. It should also be noted that the choice of 'where to look at next' was frequently suggested by the participants themselves, and was therefore independent of my own ideas. Similarly, whilst my role in the organisation had many advantages (e.g. I naturally found myself in a wide range of service areas through my 'day job'), if I had happened to work in a different business unit, this may have led the research in a different direction. I would have had access to different people and different data, and this may possibly have resulted in different findings. As before,

though, this became less of an issue as the study developed because I was able to explore most of the organisation.

Finally, it is possible that my very presence may have impacted upon the research. Chapter Two demonstrates that the grounded theory methodology was key in my attempts to minimise participant bias, because multiple sources of data were used to confirm or disconfirm a particular statement. However, although I made every effort to avoid bias on my own part, it is possible that unintentional bias may have crept in – perhaps in my mode of dress during interviews (Robson, 2002), the sequence in which I addressed subject matter in a conversation (Jankowicz, 2005), or even in the tone of voice I used during interviews (Edenborough, 2002). Once again, the methodology came to my aid. As Pandit (1996) observes, the process of grounded theory research is extremely time-consuming, and this long duration combined with the constant comparison process meant that over time any bias that may have been present became less and less significant. No data had a 'special position' within the study – everything had an equal status (Glaser, 1998) – and the sheer volume, variety, and richness of data generated for this study meant that it was increasingly likely that any bias that did exist in one situation would have been compensated for by other data.

Thus, as Chapter Two describes, my biases and preconceptions were brought 'out into the open' throughout the study by means of self-interviews and more formal interviews by my peers. Moreover, the constant comparison process, coupled with the long duration of the study, meant that potentially limited (or even biased) data was offset by the constant comparison process at the heart of Glaserian grounded theory. In conclusion, therefore, although I was part of the process I was trying to observe, I believe that, on balance, my role did not unduly influence the analytical process.

8.5 Recommendations for future research

Reflecting on this study, there are some methodological areas that offer potential for further research. Firstly, in spite of the large number of business units participating in this study (89% of the organisation), it was not possible to research all areas. Perhaps important findings could be discovered by exploring other business units because situations might be

found that require the use of different heuristics, or maybe the heuristics identified in this thesis would be applied differently. Secondly, it may be beneficial to research the same organisation again, but at a different time. As outlined in Chapter One, throughout this study the organisational situation was highly volatile. Research undertaken during a period of greater stability may produce different results, since there may be more time for managers to consider the implications of their decisions, and hence make these decisions in a different way. However, it can be argued that this very volatility worked in the study's favour. Decisions were being taken that might not ordinarily have been taken, such as those to close public libraries and cease provision of key aspects of social services. This situation therefore allowed unusual events to be observed and provided an increased richness of information in a greater variety of contexts than may otherwise have been possible. Against this, however, research took place at a time where the need to make significant financial savings resulted in more than 1,000 staff accepting voluntary redundancy and leaving the organisation during the period of this study. This meant that in several cases, promising evidence could not be followed up with the key people.

The key contributions from this study have the potential to fundamentally redefine the literature on heuristics. Firstly, the interplay identified above is new to theory and it demonstrates that heuristic behaviour is more complex than has previously been thought. Thus, it may be desirable to explore the extent to which this interplay is generalisable to other contexts. For instance, it is possible that practices in different organisations may vary from those presented in this thesis. Similarly, a new study may reveal patterns of interplay between heuristics that were not uncovered in this thesis. The other contributions to knowledge would also benefit from further research. For example, how valid is the new definition of the moral heuristic in a wider context? Does this new definition aid conceptualisation and allow new discoveries to be made?

Different questions might be asked in relation to the non-use of algorithms. If it could be established that this was a generalisable finding, it might change teaching practices in business schools. If algorithms are not widely used in practice, teaching could focus on other, more relevant factors, or new methods could be sought to teach the use of algorithms in ways that would increase their practical use. Similarly, the 'gap' in the middle of the choice-based heuristics would benefit from additional research, and depending on what was found, teaching methods could be modified to explain this. The practical implications of this 'gap' could also

be explored to allow managers to improve their use of this period of relative calm. Finally, new research might fruitfully test the process charts that were developed in this study. Although they describe how heuristics are used within this single organisation, do they apply in other organisations? Can the process-charting approach be extended to other heuristics?

Another potential avenue for further research is the dual-system approach which was the framework for this study. The findings presented in Chapter Six question one of the most widely accepted tenets of decision theory – the normative and behavioural schools of thought. To what extent do others agree with this explanation? Some of the insights offered by this approach may also benefit from further research. For instance, if the anchor and adjustment heuristic and the incremental model are actually identical, as this thesis suggests, this raises the intriguing possibility that other recognised models of decision-making can actually be better understood in terms of heuristics. This also has implications for those involved in the field of artificial intelligence, since this may provide an alternative way to explore the components of decision-making and relate categories together in new and innovative ways.

As noted above, modifiability is a fundamental consideration of grounded theory studies, and it is therefore important that the findings presented in this thesis are expanded by further research. The author therefore invites other researchers to test these theories against different local authorities, different types of organisation, and against the course of time.

8.6 Concluding comments

This thesis illustrates the importance of understanding the reality of management decision-making within UK local government. However, it also has a much broader relevance because the public sector, in common with much of the world, is currently experiencing times of great austerity and has to do a lot more with a lot less. It is therefore an important topic for all contemporary organisations and their diverse stakeholders, and this thesis provides new understanding and guidance in a unique way.

This thesis makes a number of significant contributions to knowledge. Firstly, it is demonstrated that algorithms are not used in decision-making by managers in the organisation under study. This disputes the relevance of the formulae and calls into question the way in which decision-making is taught in business schools. As section 8.3.2 shows, this is a very striking conclusion that contradicts 'orthodox' practice. Secondly, this study has revealed that whereas the academic literature treats heuristics as discrete entities, there is in fact considerable interplay between them. The third contribution to knowledge is the discovery that heuristics do not necessarily flow unbroken from start to finish. In fact, there may be a 'pause' or a 'gap' in the middle of the process. The fourth contribution to knowledge is the development of a new definition of the moral heuristic, which allows researchers to view this heuristic at a higher, more conceptual level than has hitherto been possible. The fifth contribution to knowledge is the identification of a possible link between work environment and individual heuristics. The penultimate contribution to knowledge is the original flow charts that this thesis has developed. For the first time, these allow the underlying processes of heuristic decision-making to be identified. The final contribution to knowledge is that thesis extends the work of Daniel Kahneman by demonstrating that the role of the unconscious in decision-making is even more complex than previously thought. For instance, intuitive heuristics can be used consciously and choice-based heuristics can be used unconsciously. Furthermore, it is argued that the underlying processes of 'classical' theory are better explained by the degree of consciousness involved when making a decision, and not by the commonly accepted normative/behavioural distinction made by Herbert Simon and others.

Consequently, this thesis is significant and highly relevant, both practically and academically, and it represents an important contribution to the decision-making literature.

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