

CUSTOMER EQUITY MANAGEMENT: THE IMPACT OF STRATEGY DRIVERS AND CUSTOMER DATA MANAGEMENT ON CUSTOMER EQUITY OUTCOMES

ANTHONY A CARR

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Abstract

Customer Equity Management: The Impact of Strategy Drivers and Customer Data Management on Customer Equity Outcomes

This research examines Customer Equity (CE) and how it is managed in Australian accommodation hotels. Termed Customer Equity Management (CEM), this is the driving force for valuing and evaluating the worth of a customer to the firm. The shift toward CEM has been driven by several substantial and long-lasting changes in the market place. At the forefront specifically is (i) the increasing pressure to be more accountable to shareholders, (ii) the relative ease of data availability and huge investments in customer relationship management technologies and data warehouses, (iii) major advances in customer lifetime value (CLV) principles and practices and (iv) the ability of managers to synthesise the data and, therefore, be effective in managing these key assets. However, in a rush to create systems and processes capable of supporting these customer-level marketing efforts, there came a call from the literature for these systems to be more unified and systematised to effect the techniques. In response to this call, this program of research set out to forge this contextual gap in the literature between management of the customer asset and measurement of the firm's equity gained from that asset.

The main aims of this research are to investigate the nature and antecedents of customer equity from an organisation's perspective, utilising the case study approach. The research proposes to explore the way firms manage their customer asset. This will involve both quantitative and qualitative research. A quantitative survey of the accommodation hotels as Phase One is to be followed by interviews and an examination of available documents (document analysis) from selected hotels as Phase Two. These two studies are the main approaches to investigation, analysis and reporting. The objectives of this research are twofold. First, is to examine the different approaches to managing customer equity through the firm's available data (Kumar, Venkatesan and Reinartz, 2006). For aggregation-level data, it is return on acquisition, return on retention and add-on selling. For disaggregation-level data, it is purchase frequency, contribution margin and marketing costs, (Kumar and George,

2007). Second, is to examine the key strategy drivers CE managers use which lead to maximisation of customer equity, (Kumar and Petersen, 2005; Kumar et al., 2006).

The call for more CEM research within a business to consumer setting, that contains both aggregate as well as disaggregate level customer data was signalled by Bell, Deighton, Reinartz, Rust and Swartz, (2002); Hogan, Lemon and Rust, (2002); and Kumar and George (2007). In this research, it is anticipated the findings will capture insights into hotels that derive their income sources in a contractual business to business and non-contractual business to consumer settings. Consequently, the thesis focuses on both customer equity measurement and customer equity management issues facing accommodation hotel managers in Australia. In view of this, the research answers the following broad research question:

How important is the management of the strategy drivers of consumption and customer data in contributing to the value of the customer asset?

In gearing towards specific intention, a review of the literature in CRM/CLV has not canvassed how particular CE strategies and customer data orientations are managed together, and furthermore, how both of these principles impact on customer equity outcomes. This research addresses this very departure through a conceptual framework formulated. To complement the conceptual framework, the methodology adopted was case studies.

Case studies were adopted as the most appropriate approach to traverse the issues in customer equity management in the Australian accommodation hotels. Complementary, was an Australia wide quantitative survey formulated as Phase One which addressed the ‘what’ aspects in three research questions in the research design. Specifically, Phase One was an investigative, exploratory quantitative survey in non-parametric research design that used Classification and Regression Tree (CART) models and Multivariate Adaptive Regression Splines (MARS) models in approach to analysis. One major finding revealed a consequence approach to CEM with customer acquisition more favourable than customer retention as a strategy in use by CE managers. Whilst the Chain and Resort hotels in the study are utilising the CE strategies and data types more fully than the Independent hotels, none are maximising their use at this time.

Phase One research was then followed by Phase Two: interviews and document analysis in eight separate and distinct accommodation hotels in Brisbane, Brisbane environs and Perth in Western Australia. As Phase Two in the case study methodology adopted the same three research questions, this part now addressed the ‘how’ and ‘why’ aspects of CE also in an exploratory, critical way. This involved investigation and analysis of the hotels as comparative cases. The cases were conducted statistically for analytical generalisation in the *typical* case as opposed to revelatory, unique or longitudinal, with results expected to be *confirmatory* findings, presumed replications of the same phenomenon. This is in contrast to cases that would show a success or failure, or theoretically diverse cases such that a flagship hotel chain and discount chain might reveal.

Phase Two was then extended to a cross-case analysis of the multiple-embedded cases. To assist, the use of the machine learning tool Leximancer version 4.0 aided both systematic organisation of the information collected and comparative analysis of the cases to be made. An expectation in Phase One results was that of informing Phase Two and that which would aid in analysis and synthesis of the results. The outcomes from both Phase One and Phase Two of the research reinforced the theoretical (unification) framework on CEM developed from the literature review and confirmed the theory on how to maximise CE data management which emanated out of the Kumar and George (2007), hybrid model of CEM. In addition, were two models produced during the research for practice managers which show a pathway to effective CEM. The first is a Value, Volume, Repeat Stay and Loyalty (VVRL) matrix model of practice, and second is a General Model of CE practice.

The research overall, makes a significant contribution to CE theory, CE management practice and research methodology. Firstly with theory in Phase One research, the survey design and constructs formed were created new, not adopted or adapted from any other survey, or constructs that were developed by any writers in the field of CE. Consequently, the VVRL matrix produced as a result could be guiding and facilitative in CEM. Secondly, is the extent the VVRL matrix model(s)

produced, helped inform the interviews and together (the survey and interviews) aid holistic integration of the constructs developed as strategy confirmed. Thirdly, practice management is the extent to which the study findings in both Phase One and Phase Two studies assist managers in the immediate and near future. The findings bear relevance to the ‘what is happening now’ principle, a criticality espoused by CE managers in this study. Lastly, is the potential for this research in its contribution to research methodology. Few studies in the social sciences have delved into the machinations of marketing management with CART and MARS models, in either parametric or non-parametric design, such that the domain of medicine and occupational therapy in the physical sciences occupy to date.

In this thesis, there were several limitations inherent in the process. First, there were limitations with regard to sampling. A non-causal approach in survey sampling is not as deterministic as that of causal sampling frameworks which may give the appearance of less accuracy and research robustness. With regard to methodology, examining only one sector – accommodation hotels provides for a concentrated approach to the research but limits the generalisability of the results, in this program of research to analytical generalizability.

The first direction for future research in CEM is the opportunity to replicate either or both phases of this research to determine the extent to which the findings can be generalised. For example, further in-depth studies in both qualitative and quantitative design into managers experiences with the CE strategies and customer data types in use are warranted in order to more fully understand how CEM practices can be integrated in ways that enhance CE outcomes achieved. This in turn may provide knowledge into how both equity in a customer and customers as assets can be achieved and managed uniformly in a systems approach to CEM. Case study methodology is an under-utilised area in CEM research. Consequently the findings in Phase One and Phase Two demonstrates its potential to uncover and discover new insights away from traditional interpretivist approaches, that which incorporates the *realism* paradigm in qualitative research.

This program of research in systems review, has investigated CEM in a systematic, analytical way in an Australian business context. When viewed holistically, it is an emerging paradigm. With its wavering, inconsistent adoption evident in Australia to date as confirmed in the results in this study, there are signs of its influence as an efficient managerial tool, but one that is not used effectively at present. In countenance, the models developed in this thesis are examined interactively with a view that they need to be adopted in unison and in an integrated way to be very effective. The research concludes with a revised conceptual framework of CEM in synthesis.

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List of Terms (Abbreviations)

BF	Basis Functions
CA	Customer Acquisition
CART	Classification and Regression Trees
CE	Customer Equity
CEM	Customer Equity Management
CLV	Customer Lifetime Value
CR	Customer Retention
CRM	Customer Relationship Management
DV	Dependent Variable
GDS	Global Distribution Systems
HCa	High Cost acquisition
HCr	High Cost retention
HDt	High Data and Techniques
HSi	High Strategy Involvement
IVs	Independent Variables
LCa	Low Cost acquisition

LCr	Low Cost retention
LDt	Low Data and Techniques
LSi	Low Strategy Involvement
MARS	Multivariate Adaptive Regression Splines
ORA	Optimal Resource Allocation
RMS	Revenue Management Systems
RQ	Research Question
SPSS	Statistical Package for Social Sciences
VI	Variable Importance
VVRL	Value, Volume, Repeat Stay and Loyalty Strategies

Glossary

Abductive. A research strategy that involves the social world of the social actors being investigated. It is interested in participants' construction of reality, their way of conceptualising and giving meaning to their social world, their tacit knowledge. This can only be discovered from the accounts which the social actors provide. Hence, the researcher has to enter their world in order to discover the motives and reasons that accompany social activities. The task is then to redescribe these notions and actions and code them, (Blaikie, 2000).

Add-on-Pricing. In this research a mechanism for hotels to charge for previously included products or services on offer such as free laundry service, internet Wi-Fi service or valet parking.

Advanced Customer Equity. In customer asset management, this is the strongest level of CRM levels the firm has with its customers, along with the highest CLV measurement values attained in those customers.

Agent Based Pricing. Sometimes called Commission-Based Pricing. The agent model of pricing is similar to the *merchant model*, where the Online Travel Agents (OTAs) or third-party websites facilitate to sell their rooms at rates specified by the hotels, who then charge commission for this service. In this model, the OTAs have direct access to a hotel's inventory of rooms. The OTAs do not purchase the rooms

until they are sold. In this model, the hotel collects from the guest and then remits commission to the OTA. (Rex et al., 2011 p183; Rao and Smith, 2005). See also the Merchant Model.

Average Daily Rates. Average Daily Rates (ADR) are the occupancy rates in the hotel recorded for a set period of time, e.g. annually. Hence, a fall in occupancy corresponds with a rise. A fall or rise in occupancy links directly to the hotel's Revenue per Available Room (RevPar) system and may or may not affect the hotel's occupancy measurements (Rex et al., 2011).

Axial Coding. The second of a two-stage process of coding in qualitative data analysis – the stage that is used to find relationships between categories and subcategories that puts the data back together in a new way. The first stage is *open coding*.

Balanced Score-Card. A methodology or process first developed by Kaplan and Norton (1992) as a way for managers to articulate operations in their business that drives performance.

Baseline Customer Equity. In asset Management, this is the weakest level of CRM the firm has with its customers, along with the lowest CLV measurement values attained in those customers.

Brand. Brands are regarded as holding certain *attributes* such as 'fast', 'well built', 'durable', 'expensive', 'high resale value' and more. However, customers do not buy attributes, they buy *benefits*. So the attribute 'expensive' might translate into the emotional benefit. Likewise, the attribute 'well built' might translate into the functional and emotional benefit that, 'In the event of an accident, I feel safe in this car'. A brand also says something about the buyers' *values*. Thus, Mercedes buyers value high performance, safety and prestige. A brand marketer must identify the specific groups of car buyers whose values coincide with the delivered benefit package. Lastly, a brand is said to project a *personality*. Motivation researchers ask, 'If this brand were a person, what kind of person would it be?' Here, consumers might visualise a Mercedes motor car as being a wealthy, middle-aged business executive. The brand will attract people whose actual or desired self-images match the brand's image, (Kotler, Brown et al., 2004: 407).

Brand Equity. If a brand is a name, sign, symbol, design or combination of these intended to identify goods or services of one seller or group of sellers and to differentiate them from those of competitors, then *brand equity* is the value of a brand, based on the extent to which it has high brand name awareness, perceived quality, brand associations, customer loyalty and other assets, such as patents, trademarks and channel relationships, (Aaker, 1991). Another widely adopted view by Keller (2002:7) describes brand equity as the 'differential effect that brand knowledge has on consumer or customer response to the marketing of that brand'. In both models, a brand can be considered a memory node in a network that links the

brand to a set of associations. A more powerful brand is more vivid and has a more favourable and easily recalled set of associations, which increases its overall value.

Bundling. Most often referred as Product-Bundle pricing, which is combining several products/services and offering the bundle at a reduced price. Research in this area is growing as Heeler, Nguyen and Buff (2007) show.

Capacity Management. Whether discussing seats on a jet aircraft, tables in a restaurant, or rooms in a hotel, all service businesses have capacity constraints: limited capacity when demand is high and surplus capacity when demand is low. Unlike product manufacturing businesses that manage supply and demand by altering production quantities of their goods, service businesses cannot. This constraint is further compounded by the fact service businesses cannot inventory their offerings and ‘carry-over’ a loss of revenue on one trading day to another trading day, or financial year in the accounting cycle. This means that when a room in a hotel is not sold today, the loss in revenue is not restored by filling that room the next day. Services are therefore perishable; consumed only at the time of purchase.

CART. See Classification and Regression Trees

Categories of Data. Data is coded into as many categories of analysis as possible; as data emerge, this fits into an existing category.

Category of Service. Is a term that has long-standing status in the literature, used to discuss service offerings by firms and competitor firms.

Classification and Regression Trees (CART). Classification and Regression Trees or CART by Breiman, Friedman, Olshen and Stone (1984) was the seminal algorithm that catapulted data mining into prominence in the 1980s. CART’s visual output can be readily understood by non-statisticians because of its ability to clarify and provide insights about key variables and variable interactions within classification and regression analyses. CART procedures are robust, non-parametric and nonlinear alternatives to logistic and linear regression models. The procedure is accurate (usually 5-15% more accurate than comparable statistical procedures; it has well developed automated procedures to handle missing data; it is resistant to outlier predictor variables and ‘multicollinearity’. It also has effective in-built procedures to ensure data models do not overfit the data and the procedure is invariant with respect to monotone variable transformations. Simply put, CART is a modern, commonsense, and largely assumption free procedure that can effectively develop accurate classification and regression models in small, medium and large datasets.

Coding. A central activity in qualitative data analysis such that it can facilitate description of the data, but is also used for analysis and theory generation. Coding should keep track of the comparison group in which the incident occurs. (Glaser and Strauss, 1967:105-6). See also open and axial coding.

Coding Paradigm. An aspect of Axial coding which involves thinking about possible causal conditions, contexts, intervening conditions, action/interaction

strategies used to respond to a phenomenon in its context and the possible consequences of action/interaction not occurring, (Blaikie, 2000).

Commission Based Pricing. See Agent based.

Core Category. A consequence of coding paradigm – where a core category is selected and a descriptive narrative constructed about it, (Strauss and Corbin, 1990).

Cross-Selling. The action or practice of selling among, or between established clients, markets, traders, etc., or the action or practice of selling an additional product or service to an existing customer. The objectives of cross-selling can be either to increase the income derived from the client or clients, or to protect the relationship with the client or customer. The approach to the process of cross-selling can be varied.

Customer Equity. First identified as a measure of the marketing asset by Blattberg and Deighton (1996), who define a firm's customer equity as the sum of the lifetime values of the firm's customers. Customer equity models are characterised by models of the lifetime value of individual customers. Early thinking on customer equity arose from the direct to consumer marketing paradigm, in which longitudinal data about customers and their reactions to marketing efforts (typically promotional mailings) were present. More recently, a different approach has emerged that expands the industries and marketing actions to which customer equity may be applied. This approach combines the internal company information, customer survey data, purchase information from panel data, or data from a survey.

Customer Equity Management. A relatively new approach to marketing - one that seeks to maximise customer equity by managing the customer asset, (Hogan, Lemon and Rust, 2002).

Customer Equity Outcome. Customer Equity strategies, which are converted into actions or tactics by CE managers, lead to a result or outcome that has an impact, positive or negative, on the firm's value, (Rust et al., 2004).

Customer Equity Outcomes Success. The result of an implemented marketing action by CE managers that has a positive impact on the firm's value, usually expressed in financial terms such as return on investment (ROI), increased sales and market share, profit and/or shareholder value increases.

Customer Equity Scorecard. A proposed model that includes recognised drivers and components of customer equity as measures that could be included in the firm's financial accounts and presented to investors and shareholders as meaningful disclosure of customer-related information, (Sidhu and Roberts, 2008: 682).

Customer Equity Strategy Drivers. A type of marketing strategy, used independently in the main, which is designed to obtain 'equity' (not just a financial outcome) in the firm's customers, through established and new measurement and maximising principles into CE management practice.

Customer Lifetime Value (CLV). The amount by which revenues from a given customer over time exceed the costs of attracting, selling to and serving that customer, (Kotler, 2007). Alternatively, CLV is an objective measure of the future profitability of a customer to the firm, (Berger and Nasr, 1998).

Customer Relationship Management (CRM) is a widely implemented model for managing a company's interactions with customers, clients and sales prospects. It involves using technology to organise, automate and synchronise business processes—principally sales activities, but also those for marketing, customer service and technical support. The overall goals are to find, attract and win new clients; nurture and retain those the company already has; entice former clients back into the fold; and reduce the costs of marketing and client service. CRM describes a company-wide business strategy including customer-interface departments as well as other departments. Measuring and valuing customer relationships is critical to implementing this strategy.

Customer Wallet. See Size-of-Wallet and/or Share-of-Wallet.

Decision Processes. A powerful analytical tool used for sequential decision making under uncertainty. Markov decision processes generalise standard Markov models in that a decision process is embedded in the model and multiple decisions are made over time. Used mainly in industrial and manufacturing applications, they have been used by marketing analysts to determine the causes of customers' defect rate to competitor brands, (brand switching models). Comparisons of marketing decision making have been compared to standard Markov-based simulation models in looking at lessening the defect rate among high risk 'defectors', and used in ways to retain customers before defection occurs, using both methods. Both models help with finding solutions that are optimal for company sustainability. The computation time for solving the in-house modelling needs to be weighed-up against those problems solved through the Markov model.

Expected Lifetime of a Customer. The expected lifetime of a customer is directly related to the churn rate. Specifically, if churn or retention is exponentially distributed, then it can be shown that expected lifetime is $1/\text{churn rate}$. For example, if annual churn rate is 20%, then expected lifetime is $1/0.2 = 5$ years.

Genetic Algorithm. A CLV approach in which multiple optimisations occur within the model. Where there is a need to simultaneously maximise customer response and minimise costs is an example of this approach.

Global Distribution Systems (GDS). A GDS is a major sales channel for direct retail bookings through major travel websites. For example Micros Fidelio (Australia). They are set-up as a system where hotels can accept real-time bookings from consumer travel websites, including *Expedia*, *Travelocity*, *Trip Adviser*, *Zuji*, *Orbitz* and more. In the system set-up, they have a direct link to airline ticketing to travel agents such as Flight Centre, and the system looks after money transfers. In

many cases, systems transfers are through American Express, or either with the international travel agency Carlson Wagonlit.

Hotel Distribution Channels. Hotels have a variety of internet distribution channels to help them sell rooms. Hotels differ in their use and terminology, referring to them as Online Travel Agents (OTA's) or third-party websites.

Hotel Forecasting Methods. Comprise two dichotomous methods in the main with the first set 'the pick-up method' and 'regression analysis' and second set 'the booking curve' method and 'combination forecasts' approach. With arrivals forecasting one of the key inputs for a successful hotel revenue management system, these approaches remain under researched methods for ascertaining the best, most accurate method, (Weatherboard and Kimes, 2003).

Intermediate Customer Equity. In asset Management, this is the mid range level of CRM the firm has with its customers, along with the medium CLV measurement values attained in those customers.

Leximancer. A text analytics tool that can be used to analyse the content of collections of textual documents and to display the extracted information visually. The information is displayed by means of a conceptual map that provides a bird's eye view of the material, representing the main concepts contained within the text as well as information about how they are related.

Loyalty Strategy. Used as a strategy variable in this research, which combines several CE strategy elements from the Hotels survey to discuss and evaluate strong and weak levels of customer loyalty categories that signal CLV/CE worth to the business. It fits in a framework of analysis with three other strategy variables – Value, Volume and Repeat Stay strategies.

Marketing Productivity. Marketing activities are conducted to build shareholder value. Consequently, an 'investment' in marketing is an investment in a marketing asset (a brand): which the asset contributes to profits in the short-run and potentially in the long run. In this context, the spotlight is not on products or services, pricing or customer relationships, but on marketing expenditures and how these expenditures influence marketplace performance. The business model tracks marketing expenditures from both a financial and non-financial aspect to measure the desired outcomes. An important distinction for this research is on non-financial aspects - the 'effectiveness' (strategy) as opposed to the 'efficiency' (tactical) aspects of (marketing) actions. Consequently, examination here is predominantly on the effectiveness of the firm's brands and their implications, notwithstanding the significant advances produced from efficiency models.

MARS. See Multivariate Adaptive Regression Splines (MARS) for Regression Analysis.

Merchant Model (of Pricing). In the merchant model, hotels typically agree to sell their rooms to the Online Travel Agents (OTAs) or third-party websites at wholesale rates with the OTAs then marking them up at contract specified margins to sell to

individual travellers. In this model, the OTAs have direct access to a hotel's inventory of rooms the merchant OTA collects from the guest and then remits the wholesale price to the hotel, (Rex et al., 2011 p183; Rao and Smith, 2005). See also the Agent Model.

Multivariate Adaptive Regression Splines (MARS) for Regression Analysis.

MARS is a flexible modelling tool that automates the building of linear regression and binary classification (binary logistic regression) models. It excels at finding optimal variable transformations and interactions within data, MARS also has effective automatic ways of handling missing data, the procedure can handle many independent variables within the model simultaneously (and effectively handles multi-collinearity automatically), and like all these data mining procedures, it is resistant to model over-fitting. The MARS output also reassembles the output produced by traditional linear regression. If linear regression and binary logistic regression models are the main analysis requirements, users need to try this analytical procedure as an alternative to conventional linear regression.

Net Present Value. The present value of the future profit stream expected over a given time horizon of transacting with the customer (Kotler, 1994), now challenged by Real Options Analysis, (Haenlein, Kaplan and Schoder, 2006).

NVivo (Version 9). A text management and mining tool for large projects that enables researchers to conduct in depth analysis, discover patterns, visualise the data and share the findings.

Open Coding. The first of a two-stage process of coding in qualitative data analysis – the stage that involves breaking the data down into categories and sub-categories (an observation, a sentence, a paragraph) and giving each discrete incident, idea or even a name that stands for or represents a phenomenon (Strauss and Corbin 1990:63). The second stage is *axial coding*.

Optimal Resource Allocation. Proportionate resource allocation (e.g. for customer acquisition versus customer retention strategies), usually result in non-optimal allocations to effect those strategies. Optimising these decisions may provide much greater benefits to firms when making changes in investment levels (e.g. advertising expense for customer acquisition or financing a loyalty program for customer retention) without also improving all associative resource allocation decisions. Resource allocation decisions which are usually 'top-down' are thus replaced by an integrated approach to marketing decisions, (Murali et al., 1992).

Performance. To obtain deeply held views of respondents on how they regard their involvement with the brands themselves, extends to the effects this has on the firm's performance, is a key aim of this research. To go beyond finding out these views and advance understanding of brand equity considerations that *test* for an association between brand equity and performance is outside the scope of this research. Research to date has centred on modelling the influence of brand equity on buyer response, for example on advertising to deduce the competitive advantage associated

with brand equity, (Brown and Stayman, 1992). A model that incorporates brand equity and its effects on a firm's performance would require more explicit representations of:

- how brand equity *influences* firm performance,
- the expressed *views* of respondents in this qualitative study, and
- the influence a firm's *expenditures* have on brand equity itself.

Ranking. Hotels define a competitive set of hotels to their own, which are similar in shape, size, their service offerings, operational structures and geographical location. An independent third party firm, such as Smith Travel Research (STR), aggregates this information and reports performance measurements in comparison with the hotel's competitive set. Colloquially it's known as the hotel's RevPar ranking.

Real Options Analysis. An approach to CLV which explicitly values the option to abandon unprofitable customers (Haenlein, et al., 2006).

Recency, Frequency & Monetary Value (RFM). RFM is a relative scale method that uses a weighted measure of recency, frequency and monetary value to determine the loyalty of a customer. Past customer value (PCV) is an absolute measure of discounted historical profits used to predict the value of a customer in the current time period.

Repeat Stay Strategy. Used in this research as a strategy variable which combines several CE strategy elements from the Hotels survey to discuss and evaluate strong and weak levels of customer retention categories that signal CLV/CE worth to the business. It fits in a framework of analysis with three other strategy variables - Value, Volume and Loyalty strategies.

Revenue Management System. Revenue Management (RM) Systems emerged as technical drivers of performance from socio-technical systems theory where people, process and tools (of analysis) would come together and operate within an integrated system, (Trist and Bamford, 1951; Emery, 1959). Focus has, however, remained and flourished in technical measurement. In recent times, in the hotel industry, RM Systems have again taken centre stage in socio-technical systems theory: technical drivers have been suggested be established with social drivers, (Queenan, et al., 2009: 175).

The technical drivers are:

- Segmentation, pricing, forecasting and capacity allocation all within an Information Technology (IT) system.

The social drivers are:

- Organisational focus, aligned incentives, organisational structure, education and training.

Revenue Per Available Room. A system of hotel performance measurement based on Revenue Per Available Room (RevPar), which incorporates the Average Daily Rate (ADR) and hotel utilisation in its calculation.

RevPar. See Revenue Per Available Room.

Room Rate Parity. Because the ability to offer low prices is the chief advantage of Online Travel Agents (OTAs), many hotels have promoted price parity as one strategy to attract customers.

Share-of-Wallet. A measure of the percentage of another firm's budget spent from the total available for a particular category. Share of category is the term used in the literature, whereas share of wallet is used in lieu because of its popularity with practitioners. See also Category of Service.

Size-of-Wallet. Internal-to-the-firm only transaction level customer data for CLV valuations.

Smith Travel Research. (STR). Is an accommodation hotel research firm based in the USA. In 2008, STR combined its non-North American operations with the two international leaders in industry, benchmarking and research arenas, Deloitte's Hotel Benchmark and The Bench, to form STR Global. STR continues serving the North-American market which they have been supporting since its foundation in 1985 and STR Global brings the benefits of the well-known STAR reports to a global audience. STR and STR Global, track supply and demand data for the hotel industry and provide valuable market share analysis for all major international hotel chains and brands. With tens of thousands of hotels, representing over 5 million hotel rooms, participating in hotel performance surveys, STR boast as the world's foremost source of historical hotel performance trends that offers a definitive global hotel database and development pipeline.

STAR Program. A program designed by Smith Travel Research (STR), for analysing accommodation stays within a competitive set. Called Smith Travel Accommodations Report (STAR), it is fee based and reports daily, weekly or monthly as clients' needs dictate.

Upselling (sometimes '**up-selling**'). A sales technique whereby a seller induces the customer to purchase more expensive items, upgrades, or other add-ons in an attempt to make a more profitable sale. Upselling usually involves marketing more profitable services or products, but can also be simply exposing the customer to other options that were perhaps not considered previously. Upselling implies selling something that is more profitable, or otherwise preferable for the seller instead of, or in addition to, the original sale. A different technique is cross-selling in which a seller tries to sell something else.

Value Strategy. Used in this research as a strategy variable which combines several CE strategy elements from the Hotels survey to discuss and evaluate high and low levels of customer value categories that signal CLV/CE worth to the business. It fits

in a framework of analysis with three other strategy variables - Volume, Repeat Stay and Loyalty strategies.

Volume Strategy. Used in this research as a strategy variable which combines several CE strategy elements from the Hotels survey to discuss and evaluate high and low level of customer volume categories that signal CLV/CE worth to the business. It fits in a framework of analysis with three other strategy variables - Value, Repeat Stay and Loyalty strategies.

Word-of-Mouth Advertising. Traditionally the term word-of-mouth (WOM) was used to describe interactions (mostly verbal) among customers. However, the increasing diversity of C2C interactions, especially in electronic environments, has broadened the scope to a multidimensional view of C2C interactions, (Libai, et al., 2010).

Statement of Original Authorship

The work contained in this thesis has not been previously submitted to meet requirements for an award at this, or any other higher education institution. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made.

Signature: QUT Verified Signature

Date: Friday, 16th August, 2013

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Chapter 1: CUSTOMER EQUITY MANAGEMENT

‘An investment in knowledge pays the best interest.’

Benjamin Franklin, (1705-1790).

1.0 Introduction

As highlighted by the Marketing Science Institute (2002, 2004, 2006), in their research priorities programs, there is an ever-present need for managers to justify marketing expenditures to the firm. This can only be done when firms establish a direct link between marketing metrics and future customer value and firm performance (Gupta, Hanssens, Hardie and Kahn, 2006). The purpose of these metrics is two-fold. Firstly, marketing metrics serve to increase marketing’s accountability within the firm and to justify the spending by managers of the firm’s resources (Rust, Lemon and Zeithaml, 2004). Secondly, marketing metrics can help managers identify the drivers of customer and firm value that build linkages between marketing strategy and financial outcomes, (Gupta and Zeithaml, 2006). When managers are able to identify the drivers of consumption, they can then maximise customer value (Kumar and George 2007).

An increase in the number of marketing metrics has occurred in recent times. First, this is due to a number of factors including database technology firms use in-house marketing techniques such as data mining, the advent of new channels of distribution for products and services through the firm’s intranet and more broadly, the internet (Ambler, Kokkinaki and Puntoni, 2004). Second, the drivers of customer and firm value through, for example word-of-mouth and advocacy (referral behaviour), have been examined by Libai, Bolton, Bugel, Ruyter, Gotz, Risselada and Stephen (2010). Lastly, creative drivers which include the principles of product/service bundling (Heeler, Ngyuen and Buff, 2007), along with cross-selling (Wagner, Wedel, De Rosa and Mazzon, 2003), and up-selling (Günes, Aksin, Ormeci and Ozden, 2010). The latter two are both intended to increase customer loyalty.

However, even with an abundance of marketing metrics to choose from (Farris, Bendle, Pfeifer and Reibstein, 2006; Petersen, McAlister, Reibstein, Winer, Kumar

and Atkinson, 2009) and with 50 plus to discuss, the challenge managers have is not whether to use marketing metrics, but instead how to determine which metrics are the most important for the firm. With no ‘silver lining’ on which ones to choose, too many are confusing and provide ‘clutter’ to the marketing metrics dashboard (Ambler, Kokkinaki and Puntoni, 2004). Thus, the most appropriate metrics are those that are effective in measuring marketing activity and those that are effective in helping managers utilise their marketing strategies. Together, they can assist in predicting a customer’s future value and the firm’s future financial performance.

Understandably, this program of research sets out to forge this contextual gap in the literature between management of the customer asset and measurement of the firm’s equity gained from that asset. The Customer Equity (CE) literature has not canvassed how particular strategies and customer data orientations can be unified and be managed together and, furthermore, how both of these principles impact on customer equity outcomes. This research addresses this gap.

The remaining sections of this chapter are structured as follows. section 1.1 discusses the background to the research showing the shift to customer-centricity in service firms. Section 1.2 details the rationale more fully, identifying two streams of research in the measurement and management of CE this research intends to pursue. section 1.3 addresses aims and objectives showing the context for the research with justification of the case study approach discussion in section 1.4. The research questions follow next in section 1.5 with philosophical overview in section 1.6. Next is brief mention of the research design and methodology in section 1.7. Contributions to marketing theory and practice are in section 1.8 with a brief outline of each chapter in section 1.9. The conclusion in section 1.10 completes the chapter.

1.1 Background to the Research

In the last decade, marketing managers have started to organise their marketing efforts focusing on customers more than products. Consequently, the term customer-centric marketing (Rust, Lemon and Zeithaml, 2004) is now more common in use. In customer-centric firms, the product-centric concept of brand equity is gradually being supplanted by the customer focused concept of customer equity (Hogan,

Lemon and Rust, 2002; Keller, 2001). In the process, marketing expenditures that were once regarded as short-term expenses are now being viewed as investments that create long term value to the firm. This fundamental shift in perspective gives rise to the many accepted paradigms and business practices of how to manage customers as assets more effectively. Hogan, Lemon and Rust (2002) have coined this term Customer Equity Management (CEM) which has been adopted for this research.

The shift toward CEM has been driven by a number of substantial and long-lasting changes in the market place. First, there is increasing pressure on managers to become more accountable to shareholders (Marketing Science Institute, 2000-2004-2006). Second, the relative ease of data availability, whether this is of the customer form, segment or firm-level, and also the huge investments in customer relationship management technologies and data warehouses, has also had an impact (Bell, Auh and Smalley, 2005). Third, the ability of managers to synthesise the data and therefore be effective in managing these key assets is also a critical issue (Bell, Deighton, Reinartz, Rust and Swartz, 2002). Fourth, new and emerging technologies have enabled firms to customise products (for example Dell computers and Nike sport shoes, increase customer service through technological and other communications and even price products in ways that were not possible a few years ago). In a rush to create systems and processes capable of supporting customer-level marketing efforts, there is also a call from the literature for these systems to be more unified and systematised to effect the techniques (Blattberg, Getz and Thomas, 2001; Gupta and Lehmann, 2003; Rust, Lemon and Zeithaml, 2004, 2006).

1.2 Rationale and Justification for the Research Undertaking

As a result, questions in recent literature have been raised as to how better to measure and manage the customer asset. With regard to measurement, customers unlike products, are intangible assets and calculating a precise value to each and every component that goes into making-up this asset is difficult to establish fully (Gupta and Lehmann, 2003). Assessing customers financially is only part of the equation and where most of the literature is focused (Rust, Lemon and Zeithaml, 2004), but customer equity (CE) research is regarded as advancing the well-known area of customer lifetime value (CLV). Consequently, the management of customer

equity is where the literature is suggesting much work needs to be done (Bell et al., 2002; Hogan, Lemon and Rust, 2002; Kumar and George, 2007). The program of research in this thesis therefore intends using two streams of research evident in the literature.

Under one major stream of research for measuring customer equity (Berger and Nasr, 1998; Blattberg, Getz and Thomas, 2001; Gupta and Lehmann, 2003; Rust, Lemon and Zeithaml, 2004; Rust, Lemon and Zeithaml, 2006), firms use segment or firm-level data to compute the *average lifetime value* of a customer, which is then multiplied by the number of customers, to arrive at the customer equity. Consequently, individual lifetime value is not available for all customers in this top-down management approach, which is referred to as an aggregate-level approach (Kumar and Petersen, 2005).

Under a second stream that has emerged (Kumar and George, 2007; Venkatesan and Kumar, 2004), each customer's value to the firm is computed individually for all existing customers. Consequently, customer equity is then calculated by summing the lifetime values of all the customers. Where customer equity is derived from individual-level customer lifetime values in a bottom-up approach, it is referred to as a disaggregate-level approach.

This research intends to examine both streams noted above with a view to advancing the field of CEM research. Whilst much in-depth research has been undertaken in the area of customer equity through the propositions of aggregate and disaggregate frameworks, there remains confusion and complexity about the specific contribution and managerial applications of each approach, and strategies contained therein. Inherent in the two respective types of customer data (aggregate and disaggregate) is an assumption about expected outcomes and 'maximisation' efforts. To date, selection appears to be made by data availability that focuses on measuring and maximising customer equity through *targeting customers*, rather than by the objectives approach (Kumar and Petersen, 2005; Kumar, Venkatesan and Reinartz, 2006). For example, an objectives approach to CE data management requires a constant revisit to the objectives of the strategy, the firm's current resources and

other constraints, market demand and revenue estimates, determinants of costs, volume and profit relationships, and then utilisation of the appropriate data collection techniques to target the right customers (Kumar and George, 2007).

The marketing strategies that drive consumption (from here-on called the strategy drivers), are used for this research. They include the following strategies: (i) customer acquisition and (ii) customer retention (Blattberg and Deighton, 1996; Rust, Lemon and Zeithaml, 2004; Thomas 2001); (iii) resource allocation and costs, (Bowman and Narayandus, 2004; Cobb-Walgren, Ruble and Donthu, 1995; Simester, Hauser, Wernerfelt and Rust, 2000; Venkatesan and Kumar, 2004) and (iv) customer segmentation (Kumar, Venkatesan and Reinartz, 2006; Reinartz and Kumar, 2002; 2003). Besides strategies, there are two customer data types that require examination. They are (v) aggregate customer data and (vi) disaggregate customer data. All of these strategy drivers and data types have been shown to contribute to CE outcomes success, but at this time are managed separately and discretely and not in any unified way (Kumar and George, 2007). There has been no attempt to synthesise these disparate elements in order to achieve greater outcomes success for the firm. To test the efficacy of a synthesised approach to CE outcomes, it intended to explore these six strategies with CE managers who have responsibilities for obtaining equity outcomes through the firm's customers.

1.2.1 Justification for the research undertaking

The case study approach is regarded as the preferred approach when 'how' or 'why' questions are being posed as is the situation in this research program, particularly when the investigator has little control over the events and when the focus is on a contemporary phenomenon with some real-life context (Yin, 2003a; 2006). In this case, it is holistic real-life events of CEM practice. The research also has the advantage of an exploratory survey for the purposes of finding out the 'what' aspects of the research. In all, there are expectations of significantly advancing the field of CEM in Australia. There were several other points of justification for undertaking the program of research as follows.

Justification is made on the basis of building on the significant advances already made in the area of CRM and CLV in service firms. Consequently, the

models and concepts developed in this research program have been designed to test for ways to obtain value from the firm's customers through advanced models in CE Management. There is also justification based on the extent of customer equity and customer management research efforts. Whilst this research is not a replication study, most notable to date is customer equity research in service firms. There are very few empirical studies in customer equity management, with none found in Australia. This research intends to address this void.

Firms operating in the services sector differ greatly in their offering to their customers. Activities or benefits for sale are intangible, that is, the customer cannot see, touch or feel the goods in advance of purchase, are inseparable from the consumer in that production and consumption occur simultaneously, are perishable in that they are consumed immediately and cannot be inventoried, and above all, are experiential and do not result in ownership of anything (Kotler, Brown, Adam, Burton and Armstrong, 2007). As services differ substantially from manufactured goods, they require a distinctive approach to marketing strategy and other management functions. The distinctiveness of the service sector offering, the marketing strategies used in managing customer equity and the database management practices, add to the challenge CE managers have in producing outcomes for the firm. This research intends to meet this challenge.

In justifying the context for this research in the services sector, accommodation hotels were chosen for their commonality of purpose, as well as their complexity with regard to their size, type, structure, location differences and business outcomes. With accommodation hotels, segmentation variables are likely to show, for example domestic and international travel considerations, executive, business class and economy travellers, city versus suburban hotels, special demand events, such as olympic games and seasonal fluctuations, which impact on all hotel types. The brand name of a specific service provider could also be influential.

The call for more CEM research within a business to consumer setting, that contains both aggregate as well as disaggregate level customer data was signalled by Bell et al., (2002); Hogan, Lemon and Rust, (2002); and Kumar and George (2007).

In this research, it is anticipated the findings will capture insights into hotels that derive their income sources in a contractual business to business and non-contractual business to consumer setting.

1.3 Aims and Objectives

The main aims of this research are to investigate the nature and antecedents of customer equity from an organisation's perspective, utilising the case study approach. The research proposes to explore the way firms manage their customer asset. This will involve both quantitative and qualitative research. A quantitative survey of the accommodation hotels as Phase One is to be followed by interviews, and an examination of available documents (document analysis) from selected hotels as Phase Two. These two studies are the main approaches to investigation, analysis and reporting.

The objectives of this research are to:

1. Examine the different approaches to managing customer equity through the firm's available data (Kumar, 2006). For aggregation-level data, it is return on acquisition, return on retention and add-on selling. For disaggregation-level data, it is purchase frequency, contribution margin and marketing costs, (Kumar and George, 2007); and
2. Examine the key strategy drivers CE managers use which lead to maximisation of customer equity, (Kumar and Petersen, 2005; Kumar et al., 2006).

Research Context

Prior research indicates specific areas of interest for measuring CE and its drivers in the airlines, car rental firms, restaurants and cosmetic companies, (Blattberg and Deighton, 1996); in CRM software vendors, (Reinartz and Kumar, 2000); in the electronic stores, facial tissues, grocery and rental car companies, (Rust, Lemon and Zeithaml, 2004); and in retail stores, (Reinartz and Kumar, 2003). Within this broad approach to CEM research, accommodation hotels were chosen for their diversity of service offerings and the likelihood of a differential range of CE strategies and data management techniques in use within their specific organisational structures. Further justification for this choice of context will be presented next.

1.4 Research Questions

The research in this thesis focuses on both customer equity measurement and customer equity management issues facing accommodation hotel managers in Australia. In view of this, the research answers the broad research question:

How important is the management of the strategy drivers of consumption and customer data in contributing to the value of the customer asset?

1.4.1 Valuing Customers as Assets of the Firm

Valuing customers has traditionally fallen into two broad streams of research. Firstly, customers provide value in a measurement oriented CLV context in CEM, originally developed by Berger and Nasr (1998); Blattberg, Getz and Thomas (2001); Gupta and Lehmann (2003) and Schmittlein, Morrison and Columbo (1987). Secondly, customers fall into management and marketing oriented CRM frameworks in CEM which date back to Anderson and Narus (1990); Dwyer, Schurr and Oh (1987); MacNeil (1980) and Morgan and Hunt (1994). More recently, valuing customers as assets of the firm have been modelled by Gupta, Lehmann and Stuart (2004) and Wiesel and Villanueva (2008). As valuing customers as an asset is an under-researched area in CEM, this was deemed appropriate to include in this research program. On balance, it is the contrast between the two facets – the measurement and management aspects of CE which is a focus in this research.

1.4.2 Defining Customer Equity Management for this Research

Researchers in CEM tend to describe customer equity in measurement terms, whether articulated under CLV or CRM banners. Attempts to blend these diffuse elements are framed under the term CE with no clear definition that underpins this foundation (Gupta and Lehmann, 2003; Persson and Ryals, 2010; Wiesel and Villanueva, 2008). As the theoretical and conceptual differences between CLV and CRM in CE research appear irreconcilable, a more inclusive definition needs to be articulated for this research program. Consequently, the following definition devised to underpin the research in this thesis is as follows:

Customer Equity Management (CEM) is viewed as both the measurement of a customer's equity and the management of that same customer as an asset of the firm.

In addressing the overarching question within the definition of CEM devised, the following three research questions will guide the research. They are divided into an (a) and (b) section in each case so as to distinguish between a quantitative and qualitative analysis. RQ1a, RQ2a and RQ3a are quantitative, whereas RQ1b, RQ2b and RQ3b are qualitative.

- RQ1a To what extent do the four identified strategy drivers of consumption (customer acquisition, customer retention, company resources and targeting/segmenting customers) contribute to customer equity (CE) outcomes?
- RQ1b How and why do the four identified strategy drivers of consumption (customer acquisition, customer retention, company resources and targeting/segmenting customers) contribute to customer equity (CE) outcomes?
- RQ2a To what extent are the customer equity data (both aggregate and disaggregate) managed?
- RQ2b How are the customer equity data (both aggregate and disaggregate) managed?
- RQ3a To what extent does the interaction of the strategies and data management techniques impact on CE outcomes achieved?
- RQ3b How does the interaction of the strategies and data management techniques impact on CE outcomes achieved?

1.5 Overview of the Research Design and Methods

The case study approach is well grounded conceptually, theoretically and empirically in social science research and therefore is expected to support the research and analytical methods selected. The research includes a two phase study approach as summarised in Table 1.1. In looking at Table 1.1, Phase One is a quantitative study designed for exploratory examination purposes that would reveal current breadth and depth of CEM activities. Phase Two is a qualitative study focusing on interviewing hotel managers of selected hotels, with each one a case study.

Phase One addresses RQ1a, RQ2a and RQ3a using quantitative methods to specifically explore the “to what extent” aspects of CE used and managed in the

hotels. As the objective of Phase One is exploratory more than explanatory, a non-probability judgmental sampling design was adopted, which permits selecting a subgroup of the population on the basis of available information that can be judged as representative of the total population (Davis and Cosenza, 1985). The research design was conducted through a mail survey.

Phase Two addresses RQ1b, RQ2b and RQ3b using qualitative methods to specifically explore ‘how’ and ‘why’ CE is utilised and managed in a number of separate case studies in the chain, independent and resort hotels. In the first stage, convergent interviewing (Perry, Riege and Brown, 1999), with a constant comparison of incidents method (Strauss and Corbin, 1990) was used. With regard to cross-case comparisons, analysis of hotel documents was used.

The decision to develop theory through the case study approach is based on the nature of the study (Yin, 2006). For this research into accommodation hotels, the decision to develop theory through case studies is because ‘how’ and ‘why’ questions suit this approach and need answering. This qualitative program has in common a holistic approach to the research subject area, (Groat and Wang, 2002) and is supported by the object of the study which is the ‘case’. As defined by Gillam (2001), Miles and Huberman (1994), Stake (1995) the ‘case’ should be:

- a complex and functioning unit;
- investigated in its natural context with a multitude of methods; and
- contemporary.

This case study research program intends to meet these requirements.

Table 1.1 *The Case Study Approach in this Research Program*

Overarching Research Question →		How important is the management of the strategy drivers of consumption and customer data in contributing to the value of the customer asset?		
Study	Objectives of the Study	Research Question	Research Design	Case Study Method
1	<p>To examine the key strategy drivers CE managers use which lead to maximisation of customer equity.</p> <p>To examine the different approaches to managing customer equity through the firm's available data.</p>	<p>RQ1a. To what extent do the four identified strategy drivers of consumption contribute to customer equity (CE) outcomes?</p> <p>RQ2a. To what extent are the customer equity data (both aggregate and disaggregate) managed?</p> <p>RQ3a. To what extent does the interaction of the strategies and data management techniques impact on CE outcomes achieved?</p>	<p>Quantitative</p> <p>Data base sampling method (non-probability)</p>	<p>Descriptive statistics in non-parametric design.</p> <p>Classification & Regression Tree (CART) models;</p> <p>Multivariate Adaptive Regression Splines (MARS) models.</p>
2	<p>To draw together the findings from the survey in Phase One to inform the framework and approach to the interviews in Phase Two.</p> <p>When completed, this aids the cross-case discussions.</p>	<p>RQ1b. How and why do the four identified strategy drivers of consumption contribute to customer equity (CE) outcomes?</p> <p>RQ2b. How are the customer equity data (both aggregate and disaggregate) managed?</p> <p>RQ3b. How does the interaction of the strategies and data management techniques impact on CE outcomes achieved?</p>	<p>Qualitative</p> <p>Multiple cases - embedded</p> <p>Theorising from process data</p>	<p>Stage One: Interviewing with constant comparison coding</p> <p>Stage Two: Pattern matching, explanation building in cross-case analysis</p>

1.6 Contributions to Marketing Theory and Practice

The research to be undertaken represents a unique opportunity to examine first-hand how organisations measure and manage their customer asset. In a theoretical sense, the research will:

- integrate the principles of customer relationship management and marketing and customer lifetime value into customer equity management;
- showcase a framework for managing customer equity based on the nature and antecedents of customer equity management;
- provide real-life insights into the ‘how’ and ‘why’ of customer equity management in a service context; and
- overall, make a significant methodological contribution to customer equity management through non-parametric analysis methods of the survey data in Phase One, which will follow through to interviews in Phase Two.

With regard to practicing managers of customer equity, the research will:

- highlight the key strategy drivers in use to guide customer equity management practice;
- highlight how practicing managers utilise the available data (aggregate and disaggregate customer data types) to benefit customer equity management practice;
- produce a model to guide management practice; and
- indicate the effectiveness of the synthesised model produced.

1.7 Thesis Structure and Outline

In this comprehensive program of research are seven chapters that address the research questions as stated. The chapters are summarised briefly as follows.

Chapter 1 outlines the study program in CEM research. It includes the rationale, aims and objectives, justification, research questions and expected contributions to marketing theory and practice.

Chapter 2 discusses the literature review and conceptual framework for the research. It is a review of the research on CEM and its associated literature on CRM and CLV which results in discussion of Kumar and George’s (2007) hybrid model for analysis. The purpose is to formulate a conceptual framework with research propositions against the strategies and customer data management types for analysis using non-parametric statistics.

Chapter 3 describes the case study research methodology in detail and design for both Phase One and Phase Two under this umbrella. Phase One takes the form of an exploratory non-parametric research design approach using survey data to hotel managers Australia wide. The approach for Phase Two involves qualitative interviews with cross-case discussions examined through the text mining and machine learning system, Leximancer version 4.0.

Chapter 4 reports the findings from the survey in Phase One in the chain, independent and resort hotels using the CART and MARS statistical approaches.

Chapter 5 is discussion of the survey findings in Phase One. Discussion centres on the four drivers of customer equity and the two kinds of customer data to manage customers' equity (aggregate and disaggregate) in systems review.

Chapter 6 is discussion of the findings in Phase Two. Interviews in each of the chain, independent and resort hotels are followed by cross-case analysis (Document Analysis) through Leximancer.

Chapter 7 concludes the thesis. It highlights three major contributions. First is with regard to CEM theory that links to the research questions. The second contribution is for the benefit of CEM practice and for practice managers themselves. Third is in relation to methodology, applications and implications for marketing research scholars.

1.8 Conclusion

The aims and objectives of this chapter were to provide an overview of the research to be undertaken in this thesis. A brief background to the research in CE management, along with identifying the research problem and gaps in the literature with justification were provided. The research questions and theoretical framework devised are assisted by a two-phase approach to the research. The contributions to marketing theory and practice were summarised, with the structure of the thesis chapters the last section covered. The next chapter provides a review of the relevant literature for the program of research in this thesis.

Chapter 2: LITERATURE REVIEW

‘There is nothing so practical as a good theory.’

Kurt Lewin (1948)

2.0 Introduction

Chapter One introduced the overall program of research undertaken in this thesis. The research investigates the measurement and management of customer equity (CE) in the Australian accommodation hotels. The purpose of chapter two is to review the literature in these two complementary but distinct fields of research. They are complementary in that they both lead to CE outcomes, but distinct in the type of outcome(s) achieved. The review identifies important constructs that inform the development of a model to be examined in Phase One. In addition, the review builds the theoretical foundations for the research propositions for subsequent analysis in the discussion of the survey in Phase One and case studies in Phase Two.

The structure of chapter two is as follows. Section 2.1 outlines theory development in this thesis. Next, section 2.2 identifies the research issues in conceptualising and theorising CEM with regard to *consumers* (by contrast to customers) as a basis for achieving customer equity from strategies directed toward them and identifies some of the research approaches undertaken. Section 2.3 discusses main stream CEM research: reviewing exemplars in the CE literature against the strategy drivers and customer data types as variables selected for this research. Section 2.4 reviews the literature in relation to the strategy drivers of CE in an organisational/systems context. Section 2.5 complements section 2.4 by reviewing the literature that relates to the customer data management types where in combination lead to CE outcomes achieved. Section 2.6 is a review of the interaction effects of the strategy drivers and customer data types. Section 2.7 presents a conceptual framework of how managers operating in a unified, systems way with planning, manage their customers’ equity. Section 2.8 concludes this chapter.

2.1 Theory Development in this Thesis

Customer Relationship Management

It was in the 1980s where the inception of a major directional change in both marketing theory and practice occurred. Considered by Webster (1991, p.1) to represent a ‘fundamental reshaping of the field’, a paradigm shift by Kotler (1991); Parvatiar, Sheth and Brown-Whittington Jr (1992), the turn was towards relationship marketing. In its infancy, relationship marketing encompassed relational contracting (MacNeil, 1980); relational marketing (Dwyer, Schurr and Oh, 1987), and working partnerships which addressed distribution firms and manufacturing firms (Anderson and Narus, 1990).

Work on the ‘service encounter’ or the moment of interaction between the customer and the firm was researched by Bitner, Booms and Tetreault (1990). They used the Critical Incident Technique as a method for analysing the service encounter. In Bitner’s (1990) study, they researched the underlying sources of satisfaction and dissatisfaction in service encounters in three industries – hotels, restaurants and airlines. Given the historical lack of customer purchase history data, researchers predominantly focused on the retention construct (Crosby and Stephens, 1987).

How to measure the service orientation was addressed by Hogan, Joyce, Hogan and Busch (1984), and was later advanced by Parasuraman, Zeithaml and Berry (1985), in their work on Multiple Item Scales for measuring Consumer Perception Quality – SERVQUAL. Frameworks in CRM have advanced significantly since then, with interest in customer-firm relationships and the increasing availability of longitudinal customer data bases (Reinartz and Kumar, 2003).

Relationship Marketing is part of the developing ‘network paradigm’, which recognises that global competition occurs increasingly between networks of firms (Thorelli, 1986:47). It was Achrol (1991: 78) who forecast the use of ‘true marketing companies’ within networks of functionally specialised organisations based on cooperation and collaboration. Market or customer driven strategy (as opposed to product driven), was researched by Day (1990). With a focus on addressing successful co-marketing alliances, this was researched by Bucklin and Sengupta

(1993). Following, saw development of the commitment and trust theory of relationship marketing by Morgan and Hunt (1994).

Customer Lifetime Value (CLV)

An important stream on descriptive modelling of the customer base, with the object of measuring and understanding existing customer characteristics was addressed by Mulheran (1999). It is this stream that motivates modelling in this thesis through the drivers of customer equity and how these drivers are re-shaping corporate strategy, as researched by Rust, Zeithaml and Lemon (2000). Bolton (1998), developed a dynamic model of the duration of the customer's relationship with a continuous service provider. Pfeifer and Carraway (2000) suggest Markov chains to model the dynamics of customer relationships. Schmittlein, Morrison and Colombo, (1987) model the probability that a customer's relationship continues with a firm.

Subsequent research builds on the descriptive models and tries to not only measure but also improve customer equity through optimisation. Ho, Park and Zhou (2006) extend the model of Schmittlein, Morrison and Colombo (1987) to include satisfaction and optimise investment on customer satisfaction. Rust, Lemon, and Zeithaml (2004) find the optimal marketing interventions by calculating their impact on CLV. This is done by estimating a Markov switching matrix to model customer behaviour for different marketing interventions. Venkatesan and Kumar (2004) predict CLV and use it to optimise resource allocation for marketing contacts with the customer. Ching, Ng, Wong and Altman (2004) consider a dynamic (as opposed to static) budget allocation model for optimisation of the promotional budget. Kumar and George (2007) model the maximisation effects of CLV utilising both aggregate and disaggregate customer data types. Profitability of long-life customers in a non-contractual setting in a US catalogue retailer was addressed by Reinartz and Kumar (2000).

These are some of the main contributions from a historical perspective in the 1980s, 1990s, through to present day that have influenced the approaches to, and direction of this research into Customer Equity Management (CEM). Specifically the main contribution of this thesis is to propose an analytical model that

endogenously considers the effects of managing CRM and CLV activities together in a unified, integrative model that provides for an understanding of change in managerial policy structures when managed this way.

2.1.1 Philosophical Orientation to the Research

The research in this thesis is guided by the realism paradigm that more appropriately reflects an understanding of the common reality of an economic system in which many people operate independently (Perry, Riege and Brown, 1999). That is, realists believe that there is a 'real' world to discover even if it is only imperfectly and probabilistically apprehensible (Godfrey and Hill, 1996; Guba and Lincoln, 1994). In this light, perception is not reality as constructivists and critical theorists might aver. In this research, realism is a 'window on the reality' through which a picture of reality can be triangulated with other perceptions. Where constructivist and critical theorists consider there are many realities, the realism paradigm considers there is only one reality, although several perceptions of that reality must be triangulated to obtain a better picture of it (Perry et al., 1999).

The realism paradigm supports the case study methodology with an interpretivist approach to analysis of the issues by qualitative and quantitative methods particularly where surveys use structural equation modelling (Perry et al., 1999; Hunt, 1990). In this study, Phase One, a quantitative survey in multiple regression in non-parametric design, that is, research propositions for finding strengths, associations and trends, does not fit well within the realism paradigm as the variables used are chiefly verifiable quantitatively. Consequently, the survey fits in more with the traditionalist, positivist approaches when using surveys in parametric design, that is, when using hypotheses for finding causality.

Within the realism paradigm the research can be distinguished as having three domains of reality, (i) mechanisms, (ii) events and (iii) experiences (Bhaskar, 1978). Thus, the realism ontology accepts that there is a real domain consisting of processes that generate events in which generative mechanisms exist with a tendency to produce patterns of observable events under contingent conditions. The actual domain in which the patterns or events occur, whether they are observed or not and the empirical domain in which the experiences may be obtained by direct

observation, completes the ontological assumptions of realism (Perry et al., 1999). In other words, the ontological assumptions of realism comprise the real domain (mechanisms), actual domain (events), and empirical domain (experiences).

The discovery of these observable and unobservable structures and mechanisms that underlie the events and experiences is the goal of realism research (Tsoukas, 1989). Given the complexities that are apparent in this research program, the knowledge gained from the research is considered real but fallible (Perry et al., 1999; Yin, 2006).

2.2 Orientation to the Literature on Customer Equity Involving Consumers

As the research in this thesis has an industry focus (accommodation hotels), it is necessary to acknowledge the literature on consumer based brand equity as part of the focus on CEM. The reason is that consumers are playing an increasingly important role in the way the hotels achieve their CE outcomes. Whilst out of the scope of this research to address, there is a realisation by managers and researchers of the need to broaden the scope of consequences of customer relationships with the firm beyond business to business and business to customer, to that of customer to customer interactions, (Libai, Bolton, Bugel, DeRuyter, Gotz, Risselada and Stephen, 2010).

In their critical analysis of CEM, Kumar (2006); Kumar and George (2007) and Kumar and Petersen (2005) were instrumental in alerting managers and researchers to ways of embracing customer actions well beyond the traditional transactions processing to interactions with customers. Following this call for greater interaction with a customer in a hotel example, is to go well beyond the selling of a room to a customer (the basic contact/transaction method), to that of selling a whole meaningful experience that is pleasurable and memorable; one that can be repeated by associating with the hotel in a longer-term customer-firm relationship (the advanced interactive method). This type of thinking saw the emergence of some studies that have enlarged Kumar and others work in this area.

Of note is work on word-of-mouth interactions by Villaneuva, Yoo and Hanssens (2008) who link this activity to customer acquisition activities by service providers. Their study of an internet firm that provided free Web hosting to registered users during a 70-week observation period, reveals marketing induced customers add more short-term value, by contrast to word-of-mouth customers who add nearly twice as much long-term value to the firm. Garnefeld, Helm and Eggert (2011) also look at word-of-mouth and communicators' loyalty with a cellular telecommunications service provider. In a satisfaction scenario looking at behavioural, affective and experience factors, the results show a positive relationship between word-of-mouth and loyalty, reflecting the word-of-mouth communicator's product expertise and experience. Similarly, Berger and Schwartz (2011) look at the psychological drivers of immediate and ongoing word-of-mouth situations analysing 300 products with everyday conversations in a large controlled laboratory experiment across various cities. The results indicate that properly cued (gestured, prompted), publicly visible and interesting products get more immediate word-of-mouth, but that these relationships vary over different time horizons.

The study by Libai et al., (2010) is one example of advancing the topic on consumer brand equity management. The study broadens the scope of word-of-mouth research that involves customer-to-customer interactions with a service provider. The authors delve into specific areas on customer-to-customer dimensions future research can explore, given the growth in social media networks which are showing signs of influence to business in the way customers are aligning themselves with service providers now and in the future.

What has emerged out of these studies is a new wave of customer interactions and interface with service providers called *customer engagement*. As a relatively new and advanced perspective on the non-transactional side of the relationship a firm has with its customers is a conceptual model of customer engagement developed by Verhoef, Reinartz and Krafft, (2010) based on antecedents identified. The concept of customer engagement behaviours (CEB) developed by Van Doorn, Lemon, Mittal, Nass, Pick, Pirner and Verhoef (2010: 254), explicitly state that:

'Customer engagement behaviours go beyond transactions and may be specifically defined as a customer's behavioural manifestations that may have a brand or firm focus, beyond purchase, resulting from motivational drivers.'

This modelling of customer engagement activities is also identified by Kumar, Aksoy, Donkers, Venkatesan, Wiesel and Tillmans (2010), who progress the area of customers engagement value (CEV) with a firm. This model of Value is a conceptual framework not tested empirically and has four key areas:

1. customer lifetime value, (the customers' purchase behaviour);
2. referral value, (as it relates to incentivised referral of a new customer);
3. customers' influencer value, (how customers' influence other customers which increases acquisition, retention, and share-of-wallet through word-of-mouth of existing customers as well as prospects); and
4. customer knowledge value, (the value added to the firm by feedback from the customer).

Noticeable in Kumar's et al., (2010) study and Van Doorn's et al., (2010) study are how the conceptualisation of customer engagement differ. Kumar et al., (2010) view customer engagement from the lens of CLV measurement, whereas Van Doorn's et al., 2010 view is from CRM, particularly behavioural and psychographic segmentation perspectives. Both raise their issues as fertile grounds for further research. Brodie, Hollebeek, Juric and Ilc (2011) consolidate these diverging views on engagement by delving into different literature streams on customer engagement, examining it, not only from the viewpoint of the marketing discipline, but also from the viewpoints of sociological, political, psychological and organisational behaviour literature. Five fundamental propositions are derived from this analysis used to develop a general definition of customer engagement and distinguish the concept from other relational concepts including 'participation' and 'involvement' (Brodie et al., 2011).

In this research program on CEM, how the management of the customer asset and measurement of the equity in that asset is achieved, is the primary focus. Research on word-of-mouth, share-of-wallet and customer engagement strategies form part of highly advanced disaggregate level customer data activities. Therefore, in this research they attach to the *loyalty* side of the Customer Acquisition and

Customer Retention equation. How these specialised elements are measured and managed as individual strategies is beyond the scope of this research, but how they contribute holistically to effect CE outcomes achieved is a focus. This research therefore seeks to understand how managers manage these activities in conjunction with their customers' data which includes basic transactions to more advanced customer interactions.

A firm's relationships with its customers which go beyond 'participation' and 'involvement' to that of 'engagement' as such is arguably brand loyalty and emotional attachment to the brand association (Libai et al., 2010), requiring high level or advanced individual customer data which this research intends to investigate. How managers manage their CE currently with agency contacts and in-house media promotions is also a focal part of this research. How the managers align this current activity with new and different mediums and interface in today's multichannel or multimedia environments is a focal research extension. The interdisciplinary nature of this research in CEM which will embrace identifiable CE strategies and customer data types intends to show their links to organisational value propositions (CE outcomes achieved) as a key research aim in this thesis.

2.3 Literature Review on Customer Equity Management

In describing each strategy driver and customer data sets as variables selected for this research, the review draws on exemplars in the CE literature along with more generalised research undertakings that appear to represent the best of what can be achieved within each approach. The review takes into account the relative merits of each approach both in terms of breadth and depth (research focus) and anchor points (whether conceptual, theoretical or empirical). Interaction of the strategy drivers and customer data is reviewed showing authors' attempts to link the associations of customer equity measurement with customer asset management. Finally, the review shows indicatively when certain strategy drivers and data sets are favoured and how these would contribute to 'maximising' CE outcomes success.

Table 2.1 is an overview of the exemplary literature sources used in this research program. It shows the CE strategies and data types along with more recent

efforts to combine measurement of CE with that of management of the customer as a firm or company asset. This dual goal of simultaneously measuring and managing CE in dynamic environments adds to the complexity, but also adds a richness to the field of CEM. Table 2.1 shows this richness in the range of studies recorded. A way to understand this richness is to name their conceptual, theoretical or empirical work as anchors in the development of their *research underpinnings* as shown on the far right of Table 2.1.

The term research underpinnings was labelled for two reasons. First, to facilitate the research program in the sense that while different forms of research produce different forms of theory that are neither intrinsically better nor worse, they may, however, have different strengths and weaknesses (Langley, 1999). The terms listed as associations, trends, patterns and prediction are the underpinnings of the research in each case, that which is in emphasis. Second, it implies a kind of ‘closing the gap’ with regard to the anchor(s) and clear difference among the range of studies identified.

From all of these author contributions comes an understanding and appreciation of their work and from this review a pathway to the development of the conceptual framework in this program of research. For more details on this part of the literature review see Appendix A. For example, Table A1 in Appendix A shows the listing in Table 2.1 more comprehensively, detailing the nature of the work undertaken by the main authors in CE research. Again, each study mentioned details whether it is conceptual, theoretical or empirical as a basis for their research. This more comprehensive detail is illustrative of how the four CE strategies and two customer data types were modelled as a unified approach for examination.

Table 2.1 Literature Review on CEM with Exemplar Author Contributions

Strategies & Data	Research Focus	Exemplars	Anchor	Underpinnings
1. Customer Acquisition	CRM and CLV measurement studies	Blattberg and Deighton, 1996; Gupta, Lehmann and Stuart, 2004. (C) Rust, Ambler, Carpenter, Kumar and Srivastara, 2004; (T) Thomas, 2001; Bolton, Lemon and Verhoef, 2004. (T)	Conceptual	Associations
			Theoretical	Trends, Patterns
2. Customer Retention	CRM and CLV measurement studies	Gupta, Hanssens, Hardie, Kahn, 2006; Bolton, 1998; Du, Kamakura and Mela, 2007; Gladly and Croux, 2009. Berger and Schwartz, 2011. (E)	Empirical	Prediction
3. Budget Resources for CA and CR	Resource Allocation Frameworks and Decisions	Barney, 1991. Slotegraaf, Moorman and Inman, 2003. (C) Murali, Sinha, Zolters, 1992. (T) Bowman and Narayandas, 2004; Venkatesan and Kumar, 2004; (E) Kumar, Venkatesan and Reinartz, 2006. (E)	Conceptual	Linkages
			Theoretical	Impacts
			Empirical	Comparison
4. Segmenting Customers in CEM	Firm level, Segment level and Advanced level Segmentation approaches	Reinartz, and Kumar, 2003; Kumar, 2006. (C) Kumar and Petersen, 2005; Schmittlein, Morrison and Columbo, 1987. (T) Rust, Lemon and Zeithaml, 2006; Bell, Auh and Smalley, 2005. (E)	Conceptual	Elements
			Theoretical	Trends, Patterns
			Empirical	Prediction
5. Customer Data to effect CE Outcomes	Aggregate frameworks	Berger and Nasr, 1998; Gupta and Lehmann, 2003. (T) Blattberg, Getz and Thomas, 2001; Reinartz, Thomas and Kumar, 2005; (E) Rust, Lemon and Zeithaml, 2004. (E)	Theoretical	Trends, Patterns
			Empirical	Prediction/ Meanings
	Disaggregate frameworks	Kumar and George, 2007. (C) Verhoef and Donkers, 2001. (E)	Conceptual	Elements
			Empirical	Prediction
6. Interaction of the strategies and Data on CE outcomes	Measurement of CE and management of the customer asset	Persson and Ryals, 2010. (C) Rust and Chung, 2006; Villanueva and Hanssens, 2007; (T) Homburg, Droll and Totzek, 2008 (E) Bruhn, Georgi and Hadwich, 2008 (E)	Conceptual	Associations
			Theoretical	Assessment
			Empirical	Prediction
			Empirical	Prediction

Legend: C = Conceptual: T = Theoretical: E = Empirical

Source: developed for this research

2.4 Strategies that Drive Customer Equity

In this research program, the focus lies in organisational/systems aspects of CE strategy and customer data management principles that lead to CE outcomes. The CE managers themselves, whilst a key contributor to outcomes achieved, are not the focus. The strategy drivers examined and discussed in turn are: (i) customer acquisition, (ii) customer retention, (iii) company resources, and (iv) customer segmentation principles/targeting customers. This is followed by the data types (v) and interaction effects of the strategies and data on CE outcomes (vi).

Each strategy driver and the data management techniques, have shown to successfully contribute to customer equity (CE) and customer lifetime value (CLV) outcomes for the firm. In particular, this has been demonstrated through both the firm's strategy implementation actions and customers' purchasing contributions. The CE outcomes achieved are the result of an implemented marketing action by CE managers that has a positive or negative impact on the firm's value, usually expressed in financial terms such as return on investment, increased sales and market share, profit and/or increases in shareholder value, (Rust, Lemon and Zeithaml, 2004).

(i) Customer Acquisition models to effect CE outcomes

The first specific application of CLV to firm value (CE outcomes) is customer acquisition and retention. In this approach, customer equity is viewed as arising from customer acquisition and retention expenditures (Blattberg and Deighton, 1996). For a firm that calculates acquisition and retention expenditures together, the literature is remiss on the impact of these expenditures, that is, what proportion should be spent on advertising, for example, to acquire a customer by contrast to direct selling that which nurtures customer retention (Berger and Nasr-Bechwati, 2001). An assumption by Kotler (2000), is that it is much harder to acquire a customer than retain one and is possibly one of the reasons why the two concepts have not been separated out in the literature or in practice.

Acquisition and retention strategies are, however, starting to be distinguished as separate entities and treated outside the traditional domain of direct marketing

contacts with studies in the airlines, car rental firms, restaurants and cosmetic companies (Blattberg and Deighton, 1996); in CRM software vendors (Reinartz and Kumar, 2003); in the airlines, electronic stores, facial tissues, grocery and rental car companies (Rust, Lemon and Zeithaml, 2004); and in retail stores (Reinartz and Kumar, 2000). Keller's (2001) study in a non-contractual setting shows acquisition sequencing in the fast moving goods area, (movie purchases, potato chips, ice cream and like associations) with positive results.

One popular acquisition approach to modelling customer equity has been the direct marketing/customer relationship management (CRM) approach (Rust and Chung, 2006; Venkatesan and Kumar, 2004). In this approach, the firm builds a customer database to record each customer's purchases along with marketing activities that have been targeted at the specific customers. The advantage of this approach is that actual customer behaviour is being analysed. The disadvantages of this approach are (a) many firms do not have appropriate databases, (b) the databases rarely include the customer's choices of competing brands, (c) the set of marketing expenditures that can be analysed is typically limited to direct mailings and other contacts, and (d) this approach does not tell *why* the customer chooses to buy from the firm (Rust, Lemon and Zeithaml, 2006).

In a situation where specific expenditures need to be evaluated, firms can use an Optimal Resource Allocation (ORA) approach for acquisition purposes, for example brand advertising or direct selling. In this way those resources do not impact on resources required for customer retention such as financing a loyalty program. In deciding which approach to use, whether CRM or ORA, an analytical tool such as the Markov brand switching matrix, is preferred because it uses either survey (aggregate) data to explain basic switching behaviour, or customer level (disaggregate) level data to explain more detailed switching behaviour and for obtaining important information when the firm faces serious competition (White, 1993).

These are some of the acquisition strategies firms can follow. They signal a break away from acquisition and retention models addressed together. All are

suitable under various conditions. Based on the above arguments the following is proposed:

- P1. Given the firm's customer data availability (aggregate or disaggregate), the customer acquisition strategy that leads to positive customer equity outcomes is the brand switching model.

(ii) *Customer Retention models to effect CE outcomes*

Most approaches to customer lifetime value and customer equity begin with the firm's existing customer base and then analyse customer retention (Bolton, 1998; Gupta, Lehmann and Stuart, 2004; Rust, Zahorik and Keiningham, 1994). Firms that go further, improve these strategy drivers that help maximise CE. One assumption is that once customers leave, they are 'lost for good' (Jackson, 1985:3). The problem with this original customer retention based model is that it is focused on only one discrete area, industry manufacturing. Later studies have modelled the possibility of customers 'alive until they die' (Schmittlein, Morrison and Columbo, 1987:1), the 'always a share' principle (Berger and Nasr, 1998: 19; Dwyer, 1997:15) and more recently 'share of wallet' (Du, Kamakura and Mela, 2007: 96) and 'word of mouth' advocacy (Berger and Schwartz, 2011: 870; Libai et al., 2010: 277). The possibility of the customer switching back to the original brand, as they do in many product purchases, particularly consumer packaged goods, has been addressed by Rust, Lemon and Zeithaml (2006). Blattberg, Getz and Thomas' (2001) approach is to balance retention spending based on returns and managing add-on selling.

Blattberg and Deighton (1996) were the first to address the question of how much to spend on customer acquisition and customer retention. However, they do not argue for separating out acquisition from spending, which is critical to address the issue of balancing resources. Rust, Lemon and Zeithaml (2004) also address both acquisition and retention, but their model does not provide for separate or distinct investments in the acquisition of new customers and the retention of existing customers. They argue a 'trade-off' analysis between these competing needs. The reason why it is so difficult for firms to separate acquisition spending from retention spending is because they represent different proportions of the total budget (Reinartz,

Thomas and Kumar, 2005). This is illustrated from the return on investment (ROI) analysis in their paper which in summary states the following, (pp73-75):

- *Acquisition Spending.* Under the assumption that retention spending is optimal and contacts are optimally allocated, the misallocation (deviation from the optimal acquisition expenditure) is asymmetric; underspending on acquisition is worse than overspending on acquisition by the same amount. For example, overspending the optimal acquisition budget by 25% results in an ROI of -2.83, whereas underspending by 25% results in an ROI of -3.03. A similar insight is drawn from retention spending.
- *Retention Spending.* Under the assumption that acquisition spending is optimal and contacts are optimally allocated, overspending on retention is better than underspending on acquisition by the same amount.

Ching, Ng, Wong and Altman (2004) consider a dynamic (as opposed to static) budget allocation model for optimisation of the promotional budget. Berger and Nasr-Bechwati (2001) provide a framework to determine optimal acquisition spending and optimal retention spending separately in a Budget Decision model. In this model, they assume a budget amount and then suggest the use of decision calculus in which managers' judgements and/or estimates serve as some of the inputs to formal modelling. Their model, however, whilst deterministic, is not tested empirically. The inability to separate marketing expenditures between customer acquisition and retention appears greater in business to business settings than in business to consumer settings as mass communications are a major part of the marketing expenditure (Reinartz, Thomas and Kumar, 2005). A limiting factor for both acquisition and retention is the availability of appropriate customer data that enable tests between the two to be conducted, (Petersen, McAlister, Reibstein, Winer, Kumar, and Atkinson, 2009). Thus it is proposed that:

- P2. Under conditions where the firm's data is limited, the customer retention strategy that leads to positive customer equity outcomes is the Budget Decision model of CE outcomes.

(iii) *Company Resources to effect CE outcomes*

In most cases, firms are constrained by human, physical and financial resources with budget limitations not adequate to allocate to all their customers. Ideally, firms

should be investing only in customers who are profitable. However, many companies continue to spend resources on a large number of unprofitable customers (Venkatesan and Kumar, 2004). They either invest in customers who are easy to acquire, but not necessarily profitable, or try to increase the retention rate of all their customers, thereby leading to wastage of limited resources. One reason for this is that these firms have not identified who are their most profitable customers and how the resources should be spent on them to achieve the profitability desired.

Optimal Resource Allocation (ORA) mentioned earlier is a model or framework that identifies the way in which a firm can utilise its limited resources appropriately. Previous research on ORA has been addressed specifically. For example, studies within acquisition and retention (Blattberg and Deighton, 1996), promotional expenditures (Berger and Nasr, 1998), and marketing actions when future brand switching is considered (Rust, Lemon and Zeithaml, 2004) are key. By using the more recent customer lifetime value frameworks, researchers have now developed models that allow customer-level or disaggregate level actions. For example, Venkatesan and Kumar (2004) identify within an ORA framework, the metrics predicted, such as purchase frequency, contribution margin and marketing costs, shown to be successful in a business to business setting. In this model, a manager can determine the frequency of each available marketing and communication strategy such that the net present value objective is maximised. An optimisation technique can be used to accurately arrive at the differential allocation of strategic resources to individual customers across a variety of integrated marketing strategies (Venkatesan and Kumar 2004).

Where customer level or disaggregate level actions are not available, Blattberg, Getz and Thomas (2001) model an approach to CE outcomes based on segment level marketing with aggregate level actions. In this case, the ORA framework focuses on a different set of metrics to predict the effects on acquisition, retention and add-on selling returns. Add-on selling, which represents a cost to the firm, is where the customer has an affinity with the firm and develops some form of relationship to the firm's products.

Where firm level actions apply, by contrast to segment or customer level actions, Rust, Lemon and Zeithaml (2004), suggest an ORA framework that addresses value equity (price competitiveness and quality), brand equity (awareness, attitude and corporate ethics) and relationship equity (customer loyalty, affinity programs, special treatment programs, community building programs).

These studies illustrate that it is possible to increase the profit and return on marketing actions, that is, effect CE outcomes utilising an optimal resource allocation model or framework across different channels of communication for customers based on CLV. More recently, studies addressing an ORA framework in customer prioritisation activities show promising but inconclusive results to date (Homburg, Droll and Totzek, 2008). Given the three levels of activities discussed – firm, segment and customer it is proposed that:

- P3. The resource strategy that leads to positive customer equity outcomes is the optimal resource allocation model of CE outcomes.

(iv) Customer Segmentation and Targeting Customers to effect CE outcomes.

In customer relationship management, differential treatment of customers is the key to managing customer relationships profitably, (Kumar, 2006). Although customer level marketing actions produce a desired outcome of CLV computation, it is also necessary to address specific segments of customers based on CLV and develop strategies for each segment. The first mentioned segmentation approach is customer profiling. To segment properly, firms need to know the customer demographic and exchange variables that differentiate one group from another. These variables will then explain why certain groups are more profitable than others (Reinartz and Kumar, 2000). Some of the key variables that affect the lifetime duration of customers in Reinartz and Kumar's (2003) later study were the amount of purchase, degree of cross-buying, degree of focused buying, average inter purchase time and more. Of importance was that each of these variables had a different impact on the customer lifetime duration, with an assumption about the customer's lifetime value. For CE managers, this type of profiling helps understand the characteristics of their best customers, how they want to do business with the firm, what is the most effective means of communication for their best customers and how frequently their best customers buy from them (Kumar, Venkatesan and Reinartz, 2006). Profiling is,

however, encumbent upon the availability of disaggregated customer data and specialised use of the strategy.

A second model of segmenting customers is an acquisition and retention model (Thomas, Reinartz and Kumar, 2004). As previous discussion indicates, acquisition and retention are regarded as two independent activities in the main. Thomas (2001) shows that firms need to link acquisition efforts to retention, so as to avoid overspending on acquisition or retention. Thomas, Reinartz and Kumar (2004) show that firms in the pharmaceutical industry can maximise profitability by balancing acquisition and retention. The authors highlight further that firms need to realise that acquisition and retention costs of profitable customers can be high or low. They compared the profits generated by customers in a mail-order company and the costs and effort required to acquire and retain them. The study uses disaggregated data. The results are shown in Table 2.2 as follows.

Table 2.2 Targeted Segments based on Acquisition and Retention Costs

High retention costs	High-Maintenance customers 25% of customers 15% of profits	Royal customers 28% of customers 25% of profits
	Casual customers 32% of customers 20% of profits	Low-Maintenance customers 15% of customers 40% of profits
Low	Low	High

Source: Thomas, Reinartz and Kumar, (2004)

What Table 2.2 shows is that 32% of all customers easy to acquire and retain were casual customers, but they accounted for only 20% of profits. The largest contribution of profits (40%) came from the smallest group (15% of customers), the customers who are expensive to acquire, but cheap to retain (low-maintenance customers). Customers who were expensive to acquire and retain (royal customers) contributed 25% of total profits. Customers who are cheap to acquire, but expensive

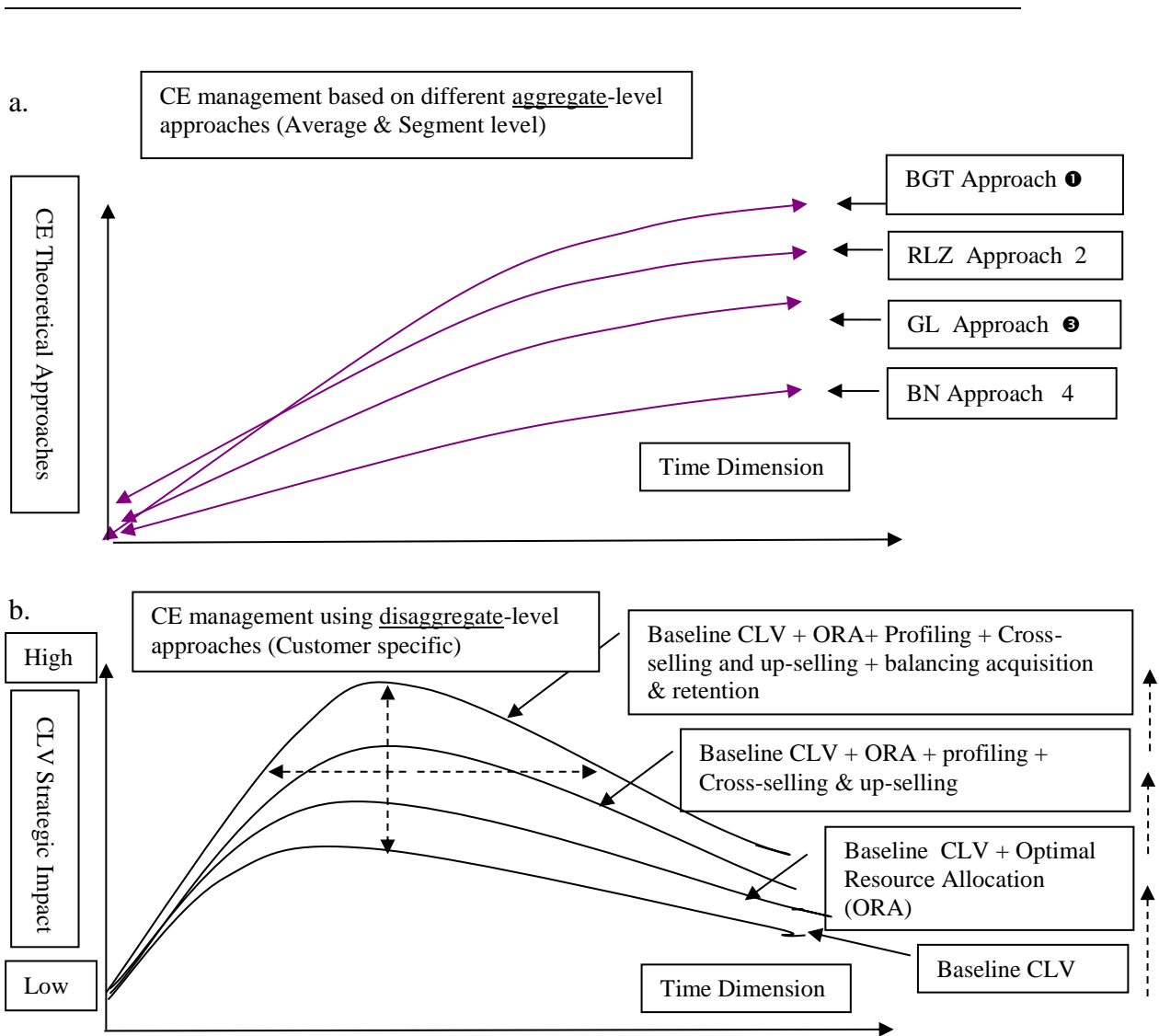
to retain (high-maintenance customers) contributed only 15% of the total profits. This illustrates that profitable customers are present in all four cells: retention costs (high/low) versus acquisition cost (high/low). Thus, to maximise financial performance, firms need to carefully select customers (based on profiling) from each of the four cells rather than going after only those which are inexpensive to acquire and retain (Homburg, Droll and Totzek, 2008; Kumar, 2006).

These are some of the segmentation schemes firms can follow. They show a variable approach to customer segmentation/targeting. They are suitable given the firm's objectives and outcome needs. Given this background, the following is proposed:

- P4. Under conditions where disaggregated customer data is available, the customer profiling segmentation/targeting strategy will lead to positive CE outcomes.

2.5 Customer Equity Data Management to Effect CE Outcomes

There are two main customer data approaches to managing customer equity. The first is with use of aggregate customer data and the second is with use of disaggregate customer data. Figure 2.1 is a schematic representation of how customer equity can be improved by effective management practices. The differences in theoretical approach to measuring customer equity are identified in the top diagram (a) by the curved arrows, with strategic impact in the bottom diagram (b) based on the possible impact of management practices. Figure 2.1 is not based on any empirical results, but is representative of the approaches explored in the program of research in this thesis. For reader reference, the various author contributions in Figure 2.1 are abbreviated from lowest to highest as follows: Berger and Nasr (BN), Gupta and Lehmann (GL), Rust, Lemon and Zeithaml (RLZ) and Blattberg, Getz and Thomas (BGT), approaches.



Source: Adapted from Kumar and George, 2007

Figure 2.1. Known and Aspirational levels in CE Management above Baseline CLV Measurement

Aggregate Level Approaches

In the Berger and Nasr (1998) approach to Customer Equity Management (CEM) in Figure 2.1 diagram (a), their main focus is on measuring more than maximising customer lifetime value. Whilst focusing on sales and spending patterns, contribution margin and retention rates, Berger and Nasr do not focus on identifying and improving any specific drivers of customer equity. As they use a finite projection period to measure CLV, they have coined this term *Baseline equity*. Customer equity in the Gupta and Lehmann (2003) approach is based on the customer lifetime value over an infinite projection period. Whilst the growth rate in margins is similar to that of Berger and Nasr, the way customer equity is computed in the Gupta and Lehmann

(2003) approach may produce quite different results. The magnitude depends on the growth rate and retention rate used in the computation.

By contrast, the Blattberg, Getz and Thomas (2001) and Rust, Lemon and Zeithaml (2004) approaches take into account the impact of customer equity management practices. Both approaches identify specific strategies to improve customer equity. For the former study, these strategies are return on acquisition and retention, and return on add-on selling. For the latter study, they are drivers of customer equity to improve value equity, brand equity and relationship equity. Customer equity in these approaches use the responses from a sample of all customers in the market, in survey research (segment level CLV). The additional information obtained from the survey helps the firm to take into account the purchase potential and brand-switching probability of its prospects, (Kumar and George, 2007).

Disaggregate Level Approaches

In Figure 2.1 diagram (b) at the disaggregate level, managing customer equity involves managing a customer's lifecycle through customer specific strategies. *Baseline* CLV, the Berger and Nasr (1998) approach as mentioned previously, corresponds to the customer lifetime value at the present level of marketing effort (Kumar and George, 2007; Persson and Ryals, 2010). However, identification of effective channels of communication and optimal allocation of marketing communication resources across the channels, the Gupta and Lehmann, (2003) approach, will improve the customer lifetime value to a higher level (Venkatesan and Kumar, 2004). The optimal resource allocation can also be done at a segment level by first segmenting customers based on profitability and longevity (Reinartz and Kumar, 2003) and then optimally allocating resources for each segment (Kumar and George, 2007). In addition, if the firm targets a customer with the right products at the right time and approach, (Rust, Lemon and Zeithaml, 2004), it can potentially result in cross-selling and up-selling which can take CLV to even higher levels (Kumar, Venkatesan and Reinartz, 2006). The CLV can be further improved in the Blattberg, Getz and Thomas (2001) approach, if a firm balances acquisition and retention resources (Reinartz and Kumar, 2003; Thomas, Reinartz and Kumar, 2004).

To do this would involve managing acquisition prospects with high potential, through their lifecycle from initial products through to strategies such as optimisation of marketing communication, up-selling and cross-selling.

What is evident from the various aggregate and disaggregate level approaches to manage CEM is that they differ from one another on several criteria: (i) expected benefits, (ii) data requirements, (iii) costs involved, (iv) ease of implementation, (v) time for implementation and (vi) metrics to track (Kumar and George, 2007). For example, since the aggregate level approach is based on firm or segment level performance measures, the data requirement and number of metrics that need to be tracked are small. However, an aggregate level approach in general, performs poorly in terms of time to implement and expected benefits. By contrast, a disaggregate level approach has a higher data requirement and more metrics to track. At the disaggregate level, this offers more benefits and is easier and faster to implement, especially on a small or select group of customers (Kumar and George, 2007). Authors who have conducted studies utilising aggregate approaches (e.g. Berger and Nasr, 1998; Blattberg and Deighton 1996; Blattberg, Getz and Thomas 2001; Gupta and Lehmann, 2003; Rust, Lemon and Zeithaml, 2004), outweigh those who have conducted studies utilising disaggregate approaches (e.g. Kumar and George, 2007; Venkatesan and Kumar, 2004; Verhoef and Donkers, 2001).

By and large, disaggregate level data is regarded as better than aggregate level data in CE management research to achieve the firm's outcomes which are to be profitable, have better than average returns on investment (ROI) expended, and/or to increase shareholder value. Few CE research studies to date have advanced beyond the notion of quantitative measures to judge the performance of their marketing efforts. However, this is changing. In view of the outcomes to be achieved, moving away from *Baseline equity* (aggregate level data approaches) is difficult for most firms as other decisions impact on profitability, ROI and shareholder value including which acquisition or retention strategies to use, resources available and customer segmentation variables to choose from, as previously mentioned, and performance expectations. To increase performance and expected outcomes, requires, for example, the ability and/or willingness for firms to improve the strategy drivers,

especially if using aggregate data only (Kumar and George, 2007). For this research in the accommodation hotels, where the data management techniques are shown to favour either aggregate, disaggregate or a combination of data in use, this is anticipated to be influenced by the CE strategies in use. From all of the foregoing, the following is proposed:

P5. Under conditions where a firm's disaggregate data availability is optimal, managing acquisition prospects through the customer's lifetime value (CLV) principle will lead to positive CE outcomes.

2.6 Interaction of the CE Strategies and Data Sets on CE Outcomes Achieved

Firms face different scenarios according to the availability and use of transaction data, customer data and retention data such as the share of wallet information (Du, Kamakura and Mela, 2007), in business-to-business, or business-to-consumer situations. Because of the limitations of various approaches discussed in Figure 2.1, a single approach cannot be applied to all scenarios. This makes it imperative to develop an integrated approach that can be used in different scenarios. One such approach to CEM is that developed by Kumar and George (2007) shown in Figure 2.2. For reader reference, the various author contributions in Figure 2.2 are similarly abbreviated as follows: Blattberg, Getz and Thomas (BGT), Kumar and George (KG), Rust, Lemon and Zeithaml (2004) and Venkatesan and Kumar (VK) approaches.

Figure 2.2 highlights an integrated or hybrid approach that will help firms in the hotel industry select the best method, given a specific situation. For example, if a hotel in this research program has transaction as well as firm-customer interaction data and want to maximise customer equity, the firm would compute individual CLV and implement customer-specific strategies to maximise customer equity of the existing customers, (Venkatesan and Kumar, 2004). Since customer equity typically includes the lifetime values of a firm's potential customers, the firm also needs to maximise the CLV of potential customers, (Kumar and George, 2007). If, for example, the hotel has share-of-wallet' information (in a business to customer, or business to business setting), it can use the profile information obtained from the analysis of existing customers to acquire the right prospects and then improve the

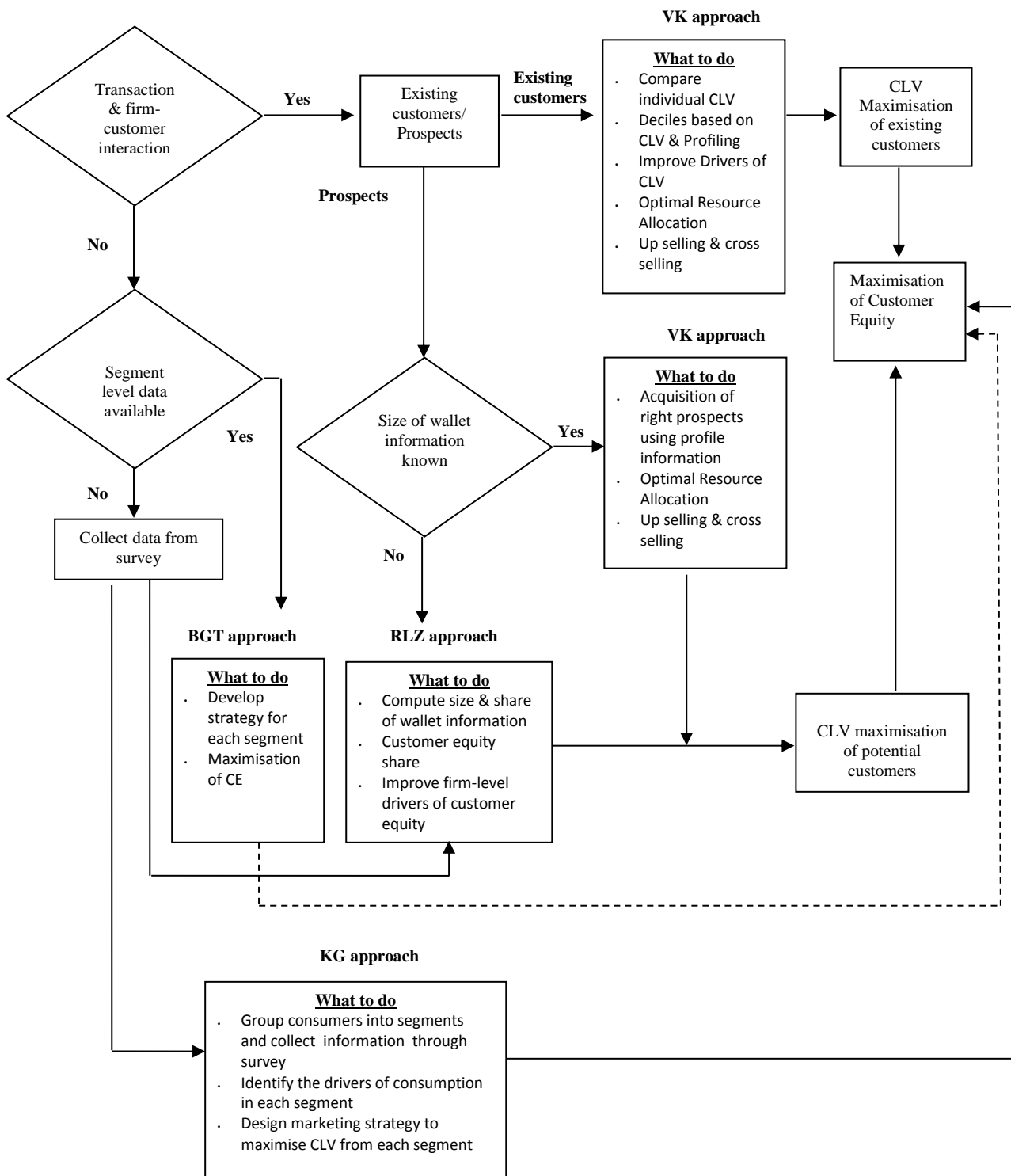
strategy drivers to maximise CLV from potential customers. In scenarios where the hotel does not have the size-of-wallet information of its prospects, it can collect survey data and use the Rust, Lemon and Zeithaml, (2004) approach to enhance customer equity. If a hotel does not have transaction data at the individual customer level, but has segment level or firm level information such as acquisition rates, contribution margin and marketing costs for acquisition, retention, and add-on-selling, it can use the Blattberg, Getz and Thomas, (2001) approach as shown in Figure 2.2.

However, there are cases where the firm has very limited information about its end consumers. Kumar and George (2007) describe a situation in the selling of soft drinks and other low ticket fast moving goods items through their model in Figure 2.2. and show how to calculate and manage customer equity. Whilst both aggregate and disaggregate customer data is likely to be present in the accommodation hotels, the decisions managers make that send them down either of the two pathways would differ in the respect to their conceptual managerial practices in terms of accounting for existing customers and prospects, as well as for the projection or time periods to assess the firm's results/outcomes (Kumar, 2006). Regardless of the pathway managers take, retention is inherent in the model. Moreover, it is regarded that maximising customer equity can be a source of competitive advantage, especially if the data requirements for selection of the approach are driven by the firm's objectives and by the data that is available and used (Kumar and George, 2007).

Overall, this model shown overleaf is illustrative of the way firms can use the CE strategies and data sets preferably interactively to achieve CE outcomes.

P6a Under conditions where aggregated customer data is available, employing the Blattberg, Getz and Thomas, (2001) and Kumar and George, (2007) approaches to managing customer equity will lead to positive CE outcomes.

P6b Under conditions where disaggregated customer data is available, employing the Venkatesan and Kumar (2004) approaches to managing customer equity will lead to positive CE outcomes.



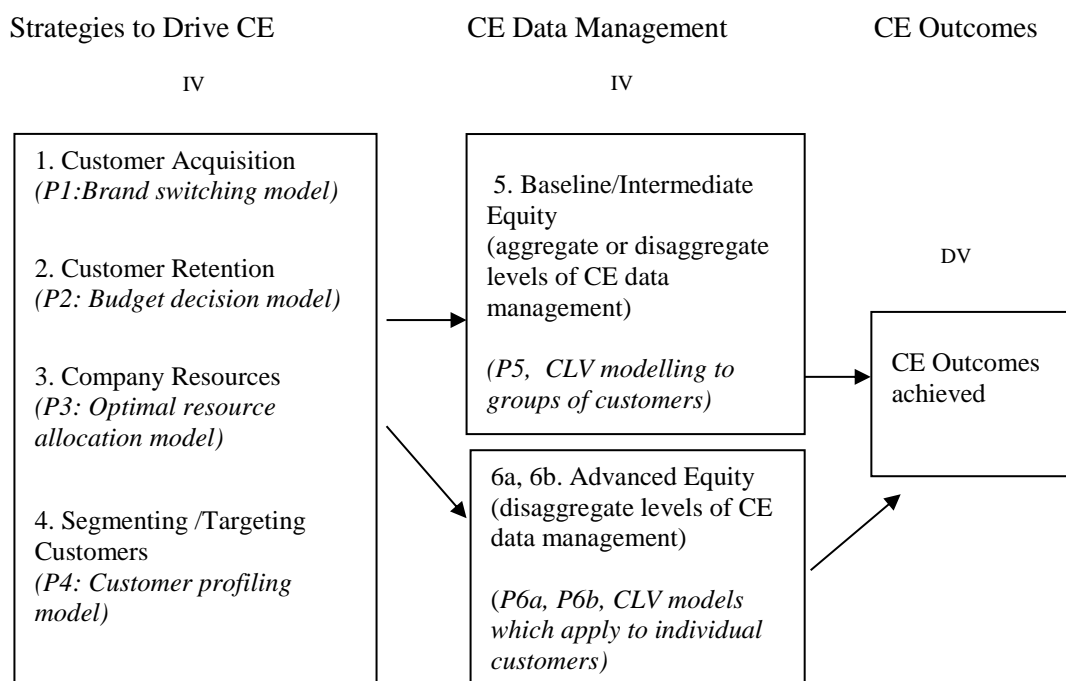
Source: Kumar and George, 2007

Figure 2.2. A Hybrid Approach for Measuring Customer Equity

2.7 Conceptual Framework of CE Management

From all of the foregoing, it is possible to formulate a framework for the research program based on the propositions identified, (see Figure 2.3). This framework proposes that the strategy drivers and customer data types will contribute to more effective CE outcomes for a firm, given the customer data requirements of each firm and if managed more uniformly and integratively as indicated. The blend of both quantitative (financial data management) aspects with the qualitative (strategic driver) aspects show the possibilities in theory.

In parametric studies, the independent variable x and dependent variable y implies that ‘ x causes y ’. In this study program with a non-causal covariation design, ‘ x is related to y ’. Consequently, relationships are not causal and therefore no mediating variables were used in assisting this determination. Figure 2.3 is therefore illustrated not unlike an experimental design, where the related ‘independent variables’ are customer acquisition and customer retention, company resources and customer segmentation/targeting customers and the customer data. The ‘dependent variable’ is the CE outcomes achieved.



Source: Developed for this research

Figure 2.3. A Conceptual Framework for Managing Customer Equity

Figure 2.3 is presented as a conceptual framework. The propositions have not been chosen for testing causal relationships to conceive statistical generalisation. What is planned through the case study approach is exploration and examination of CEM practices through survey questionnaire as Phase One and interviews as Phase Two, culminating in cross-case comparisons and synthesis. In the methodology adopted, triangulation through these processes is expected to achieve analytical generalisation, (Yin, 2003a; Yin, 2009).

2.8 Conclusion

This literature review has focused on four strategy drivers of consumption by Kumar (2006) and Rust, Lemon and Zeithaml (2004) and the modelling of CE data management techniques to effect CE management outcomes (Bell, Deighton, Reinartz, Rust and Swartz, 2002; Kumar and George, 2007). The review highlights the complexities that firms face with regard to the array and choice of strategies and the two kinds of customer data management techniques to choose from. Propositions have been put forward resulting in a conceptual framework for managing customer equity as illustrated in Figure 2.3. The chapter reviewed a range of literature which identified gaps in the approaches to CEM knowledge. It also defined critical terms to be included in the conceptual framework and built the theoretical foundations for examining the propositions within a case study research method. The method is in a presumed replicable, confirmatory logic program context. The next chapter details the methodology and research design.

Chapter 3: METHODOLOGY AND RESEARCH DESIGN

‘Things turn out best for those who make the best of the way things turn out.’

Jack Buck (1999)

3.0 Introduction

Based on the conceptual framework developed in chapter two, the purpose of this chapter is to describe in detail the methodology adopted to achieve the aims and objectives of this research. As stated in chapter one, this thesis employs the comparative case study approach to the Australian accommodation hotels sector. The design encompasses Chain, Independent and Resort hotels only. To assist in the investigations, a two phase process within the case study approach was developed to answer the research questions. First is Phase One: an Australia-wide investigative survey in the accommodation hotels. Second, is Phase Two: interviews and document analysis in eight competitor hotels, nestled within the three categories Chain, Independent and Resort.

The chapter is structured as follows. Section 3.1 gives an overview of the case study approach as applied in this research program. Section 3.2 outlines in detail the process of Phase One - the quantitative study. Next, section 3.3 outlines the process of Phase Two - detailing the interview approaches and hotel documentation (document analysis). Section 3.4 concludes the chapter.

3.1 Overview of Case Study Methodology in the Accommodation Hotels Context

A case can be defined as an analysis of a person, event, activity or process set within a cultural perspective (Creswell, 1998). The definition adopted in this research is the comparative case study. The design in this case study program investigates CE management from the managers’ perspectives in order to determine the strategic impact of the strategies and data types on CE outcomes achieved. Preceded by an Australia-wide survey to a large sample of hotel accommodation managers, a semi-structured interview process with key hotel informants will be undertaken, comparing the results from each hotel in a multiple case study design. In terms of

the boundaries set, it is the way hotels' customers are managed in systems review that is to be investigated. For example, managerial behaviour, managerial performance or customers perceptions of their experiences with the hotels are out of the scope of this research. With Phase One a nationwide survey, Phase Two is confined to investigating the case hotels in two Australian cities, Brisbane and environs, Queensland, and Perth, Western Australia.

The case study approach has a long standing history in business research, namely manufacturing and services as addressed by Eisenhardt, (1989) and Parke (1993); in strategic management (Godfrey and Hill, 1995) and in organisational behaviour studies (Donnellan, 1995). Case studies are the preferred approach when 'how' or 'why' questions are being posed as mentioned earlier in section 1.4 in chapter one. In this respect, a case study has particularly useful characteristics in its ability to probe deeply, analyse intensively and identify variables, processes and relationships as evidence in the findings (Hunt, 1990). The case study approach was used as a rigorously analytical method in two areas: (i) in a study of network systems and (ii) in international business-to-business marketing (Johnston, Leach and Liu, 1999). By participating in case study research investigating customer equity management, hotel managers involved may be more inclined to adopt and adapt their own version of reality given their specific industry contexts as part of their professional training.

Case study research consists of a detailed investigation that attempts to provide an analysis of the context and processes of a phenomenon under study (Yin, 2006). Yin (1994) argues that case study research can be used for research questions that are confirmatory or explanatory in nature. Yin (2006), then later argues that case studies are especially useful when the phenomenon of interest cannot be easily understood outside its natural environment, or cannot be quantified. Adams and White (1994) and Perry (2001) both note that the case study research method is used for rigorously analytical purposes and not for merely *descriptive* use that led many US PhD thesis examiners to comment in the negative about case study research projects.

In more detail, case research as it applies in the accommodation hotels study is defined in a way that synthesises components of the CE literature as shown in the conceptual framework in chapter two. In particular, case research is:

- An investigation of a contemporary, dynamic phenomena and its emerging body of knowledge (Chetty 1996; Eisenhardt, 1989; Yin, 1994);
- Within the phenomenon's real-life context where the boundaries between the phenomenon and context under investigation are unclear (Chetty, 1996; Stake, 2000; Yin; 1994);
- When explanation of causal links are too complex for survey or experimental methods (Eisenhardt, 1989; McGuire, 1997) so that single, clear outcomes are not possible (McGuire, 1997); and
- Using interviews, observation and other multiple sources of data (Bonoma, 1985; Perry, 1998; Robson, 1993).

All of these points make the case studies in the accommodation hotels an ideal context for investigation of what is possible and plausible. The next section discusses the research paradigm adopted.

3.1.1 The Research Paradigm adopted in this Research

With regard to adopting an appropriate research paradigm, this research appears from the outset to use that of a constructivist or naturalistic perspective as researched by Guba and Lincoln (1994), because of the narrative which is the main product of the research. However, it is suggested that the *realism* paradigm as researched by Bhaskar (1978) and Perry, Riege and Brown (1999) appears to be the most appropriate approach to adopt, as realists believe that there is a 'real' world to discover.

As identified in chapter two, section 2.1.1 in case study methodology, the realism paradigm adopted is supportive of and most appropriate for use in Phase Two research, where interviews are to be conducted. This is complementary to and contrasts with the survey in Phase One research which operates under positivism. To expand the view of realism and positivism and their role(s) in research, Perry et al., (1999), identify the four scientific paradigms or world view with discussion on each, on the horizontal axis as shown in Table 3.1. These are namely realism, positivism,

critical theory and constructivism. Then on the vertical axis they name the three philosophical assumptions, namely ontology, epistemology and methodology.

Focusing here on the realism paradigm for this research, Perry et al., (1999), essentially argue that ontology is ‘reality’, but only imperfectly and probabilistically apprehensible and so triangulation from many sources is required to know it. Epistemology in ‘realism’ is the relationship between that reality and the researcher within an objectivist framework. Methodology is the technique used by the researcher to discover that reality. See Table 3.1.

Table 3.1 *Enquiry Paradigms for use in this Case Study Research*

Item	Realism	Positivism	Critical Theory	Constructivism
Ontology (Reality)	Critical realism: Reality is real but only imperfectly and probabilistically apprehensible and thus triangulation from many sources is required to try to know it	Naïve realism: Reality is real and apprehensible	Historical realism: Virtual reality shaped by social, economical, ethical, political, cultural, and gender values crystallised over time	Critical relativism: Multiple local and specific ‘constructed’ realities
Epistemology (Relationship between researcher and that reality)	Modified Objectivist: Findings probably true	Objective: Finding the truth	Subjective: Value- mediated findings	Subjectivist: Creating findings
Methodology (Technique used to discover that reality)	Case studies/ convergent interviewing: Triangulation, interpretation of research issues by qualitative and quantitative methods such as SEM	Experiments/ surveys: verification of hypothesis: primarily quantitative methods	Dialogic/ dialectical: Researcher is a ‘transformative intellectual’ who changes the social world within which participants live	Hermeneutical/ dialectical: Researcher is a ‘passionate participant’ within the world being investigated

Source: Perry, Reige and Brown, 1999

Consequently, the aim is to achieve understanding of organisational phenomena in the hotels, not solely through formal propositions analysed in (positivist) quantitative research, but through the real-life experiences in a real setting with all its richness and complexity (Lincoln and Guba, 1985). It is the contextual detail in the narrative, that is the ‘thick descriptions’ (Geertz, 1973) that

allow the reader to judge the transferability of the ideas to other situations (Langley, 1999). The variety and richness of the incidents described and the linkages between them (the cases), should convey a high degree of authenticity that cannot be achieved solely with large sample surveys, (Coyne, 1997). Therefore, within case study methodology, positivism in Phase One and the realism paradigm in Phase Two appear to be especially appropriate for research into the issues of CEM in the Australian accommodation hotels.

Several additional points support the realism paradigm in Phase Two research in this case study research program. First, is that which addresses theory construction and theory building, rather than theory testing and theory verification (Donnellan, 1995; Lincoln and Guba, 1985 and Tsoukas, 1989). Given that case research is about an under-researched, complex phenomenon within its environment, the research area can be called pre-paradigmatic (Borch and Arthur, 1995; Perry, Reige and Brown, 1999). Therefore, the choice of a research paradigm that supports theory development in CEM is required, rather than the alternative positivism, constructivism and critical theory paradigms. To that end in the *realist* paradigm position, it is explanatory knowledge which is sought (Easton, 1998), from a real world situation or events that is/are independent of researchers, (Borch and Arthur, 1995; Perry, Alizadeh and Reige, 1997). In other words, the research problem addressed in CEM research should be in the form of ‘how’ and ‘why’ questions, rather than a ‘what’ or ‘how much?’ problem (Yin, 2003a, 2006).

In the early stages of theory development, where, for example hotel managers’ use of CE may not be well comprehended and the relationships between the strategies and data types are not known, quantitative research can be useful, but may lead to inconclusive findings (Parke, 1993). In contrast, theory is built in the case studies and through related qualitative research (such as interviews with CE managers), by making comparisons, looking for similarities and differences in the collected data and for future questions to be examined (Neuman, 1994). That is, where in Phase One the data is being tested more for the purposes of generalisability to a population sample, in Phase Two the data and findings are more for the purposes of confirmation or disconfirmation.

The second reason as Gilmore and Carson (1996) note is that the primary objective of case study and related qualitative research in the realism paradigm, is to understand the phenomenon under research and interpret the respondents' experiences and beliefs in their own terms. The Gilmore and Carson study is in a services context. As Neuman (1994) notes further, a qualitative, exploratory method makes the research effort more flexible and allows data and theory to interact.

The third reason for adopting the realism paradigm in Phase Two research concerns the required classification into categories (Perry et al., 1999). As theory building in this case study research in CEM progresses, the role of describing, classifying and comparing the complexity of several hotels as planned and managerial experiences need to be addressed (Bonoma, 1985; Gilmore and Carson, 1996). The goal of this case study research then is to isolate and define the categories of Chain, Independent and Resort hotels and then determine the relationships between them.

3.1.2 Research Design in the Hotels Study

There are three steps to designing the case studies in this research program: the rationale, the type and theory development (Yin, 2006). The first is in consideration of the design and the strategies which apply. As identified in Table 3.2, there are four types of case study designs, holistic single through to multiple embedded. The strategies and data techniques have been chosen to convey that some case information collected may require statistical inference in analysis and others not. Consequently, this is not a 'quasi' experimental design applied to case studies.

Table 3.2 *Decisions regarding the use of Single or Multiple Case Studies*

1. Holistic Case – single emphasis	2. Holistic Case – embedded sub-cases
3. Multiple Cases – single emphasis	4. Multiple Cases – embedded sub-cases

Source: Adapted from Yin, 2006.

It is, however, an approach similar to the way a laboratory technician selects a topic for a new experiment. Multiple cases = multiple experiments (Yin, 2003a). The unit of analysis are the CEM practices of the hotels in the study.

This leads to the second step which is the decision to undertake multiple case studies - embedded, as shown in quadrant 4 in Table 3.1 (Yin, 2006; Yin, 2009). In the consideration of choosing multiple case studies for this research, quadrants 1, 2 and 3 were considered to have insufficient scope to draw any real conclusions that could be regarded as significant to advance theory and practice in CE management. Multiple cases-embedded by contrast would be of sufficient strength to be representative and provide replications of each other as deliberate and contrasting comparisons, but not as hypothesised variations. The basic rationale for Type 4 adoption was therefore on the basis that multiple cases, with embedded sub-cases would:

1. Fit appropriately with the theoretical framework as outlined in the literature review (chapter two);
2. Be typical or representative cases with expectations of confirmatory findings (as opposed to revelatory, extreme or unique, critical or longitudinal) given the number of cases examined;
3. Assist definitively with replication design both *literal* and *theoretical* (Yin, 2009);
4. Be accommodative for any rival explanations as asserted by Langley, (1999). In this case it would be with the chain, independent and resort hotels; and
5. With the assistance of a very comprehensive record of evidence, address the research questions (chapter one).

The third step then involved how to use theory development in the selection of the cases. Yin (2006) argues in generality for and against theory development in case studies as shown in Table 3.2. Arguments *For* theory development were adopted as the most pertinent for this research, based on the researcher's emerging knowledge and experience in this area.

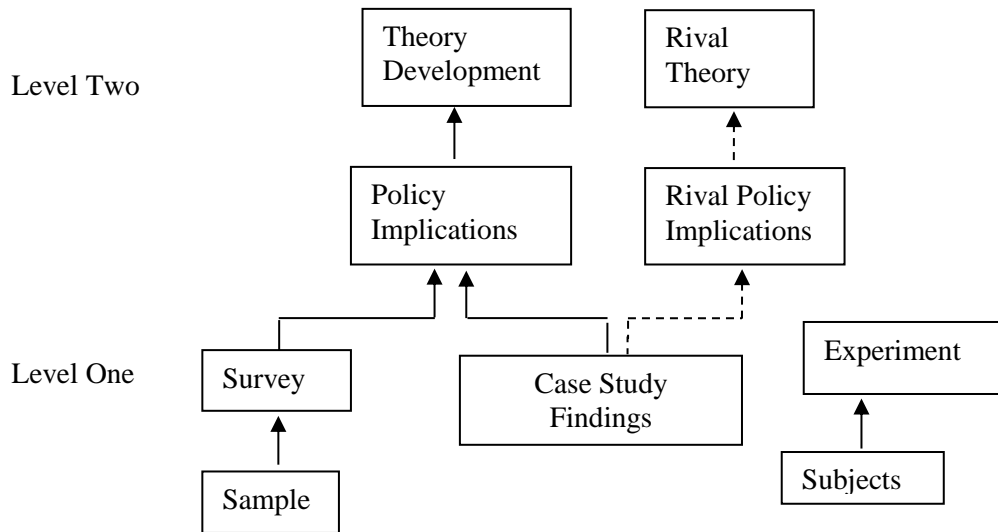
Table 3.3 *Theory Development in Case Studies*

For	Against
<ul style="list-style-type: none"> • Literature review supports the claim in this example that CE strategies and customer data, needs to be managed better. • Attempts can be made to build, extend or challenge this perspective. • A propositional or hypothesis testing approach could be used. • Researchers with less experience with case studies would be advised to adopt some theoretical perspectives. 	<ul style="list-style-type: none"> • Limits ability to make discoveries (i.e. to discover how and why manager’s individual skills/abilities contribute to the overall success of a CE management program). • Requires a lot of experience to conduct without theoretical foundation. • Without prior experience, researchers would have difficulty convincing others that the case study findings have any value to the field.

Source: Constructed from Yin, 2006.

In settling on the case study design elements for this research, an additional design element was in generalising the findings from the cases to CEM theory. Yin (2003a) identifies a model indicative of this principle as shown in Figure 3.2 subsequently adopted for this research. In looking at Figure 3.2, there are several key points to make. The first is to avoid thinking that the case studies are used as a kind of ‘population sample’ or ‘small sample size’ in the study. The aim is to generalise analytically, not statistically for achieving causal outcomes.

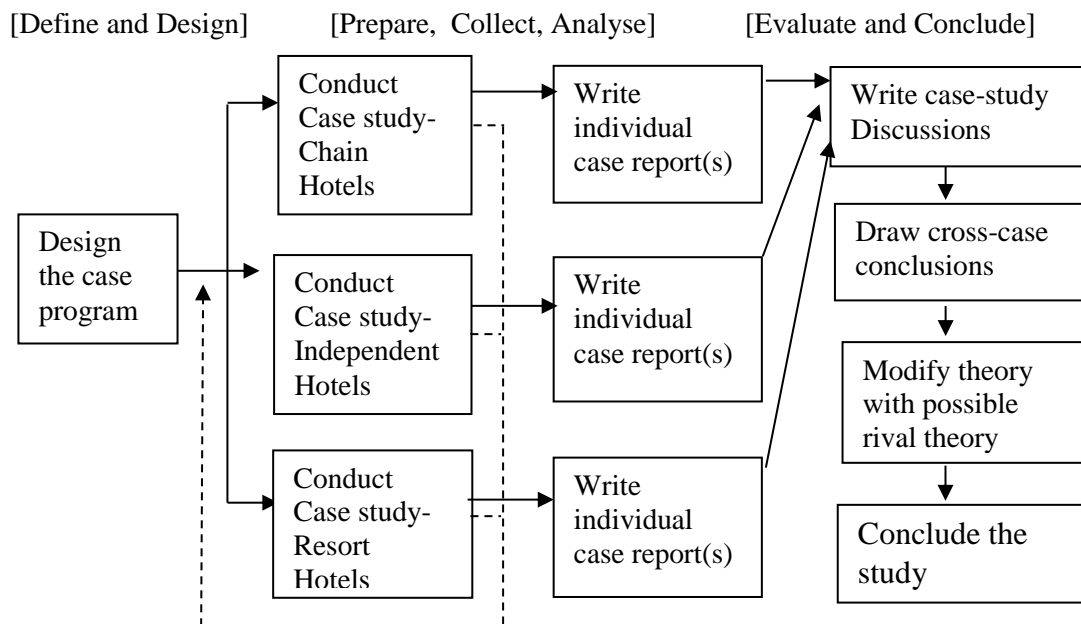
A further aim was to achieve level two inferences as shown in Figure 3.2. Where managerial policy in CE management is concerned, this could be significant for theory development. If two or more cases are shown to support the same theory, replication may be claimed. The empirical results may be considered more potent if two or more cases support the same theory, but do not support an equally plausible rival theory (Langley, 1999; Yin, 2003a).



Source: Yin, 2003a.

Figure 3.1 Generalising from Case Study to Theory

From all of the foregoing, the following case study design was proposed for Phase Two, with the model to include data collection in the Australian accommodation hotels, categorised into Chain, Independent and Resort hotels as Figure 3.3 shows.



Source: Adapted from Yin, 2003a.

Figure 3.2 Case Study Method for this Research

As an example, an interview with a hotel manager with responsibility for CE in that hotel, would be followed by the write-up of that case immediately following,

with recognition from the manager in email postscript follow-up. This would occur for each case study conducted. After that, case comparisons with cross-case discussion can be made.

Having addressed the theoretical perspectives in systematic research design, a third requirement in case research is to develop a criteria to ensure methodological rigour of the case studies (Yin, 2009; 2011). To address methodological rigour, this is detailed next under the banner of Phase One and Phase Two research.

3.2 Phase One: Quantitative Research Methods

With the case study research program, the objectives of Phase One are to:

1. Undertake an exploratory study of the perceptions hotel managers have regarding their customers' equity; and
2. Gain insights into the extent CE is managed in the hotels.

Recall the research questions for Phase One as follows:

- RQ1a. To what extent do the four identified strategy drivers of consumption (customer acquisition, customer retention, company resources and targeting/segmenting customers) contribute to customer equity (CE) outcomes?
- RQ2a. To what extent are the customer equity data (both aggregate and disaggregate) managed?
- RQ3a. To what extent does the interaction of the strategies and data management techniques impact on CE outcomes achieved?

3.2.1 Survey Questionnaire

In formulating the survey, a seven section framework was devised comprising variables to be divided into: (i) customer acquisition, (ii) customer retention, (iii) company resources, (iv) customer segmentation/targeting principles, (v) customer data management, (vi) strategy linkages and (vii) managing customers overall. The eighth section was devoted to the demographic details of survey respondents.

Attached to the survey is a covering letter from the supervisor and researcher supporting the research work, identifying the merits of the work to the managers, thus encouraging participation. It was stressed that the study is being conducted for academic purposes only and that the effects are likely to accrue to the practice world later. In closing, the letter advises that whilst respondent support is crucial for the

study outcome, participation in this study is voluntary. In overview, each part of the survey will be discussed next.

Part 1. Customer Acquisition (CA): This part collects data on the participants' customer acquisition strategies. For example, perceived usage levels with direct marketing materials such as pamphlets and brochures; sales promotion techniques such as special offers or discounts and use of 'word-of-mouth' advertising are used to measure the *extent of these strategies to acquire customers* specified as an interaction effect in the model.

Part 2. Customer Retention (CR): This part collects data on the participants' customer retention strategies. The first item presented examines the extent of this strategy in use. The second item then asks participants to compare the *extent of strategies to retain customers* with its companion, Customer Acquisition. In both Parts 1 and 2, there was not a requirement to answer all questions and a provision to write a response was provided also.

Part 3. Budget Resources: This part itemised questions regarding the budgeting for customer acquisition and retention, whether the amounts were separated, combined or used in a general way. General budget uses in the hotel may or may not recognise use of the terms CA and CR. These items expressed 'agreement to', not 'extent of use'.

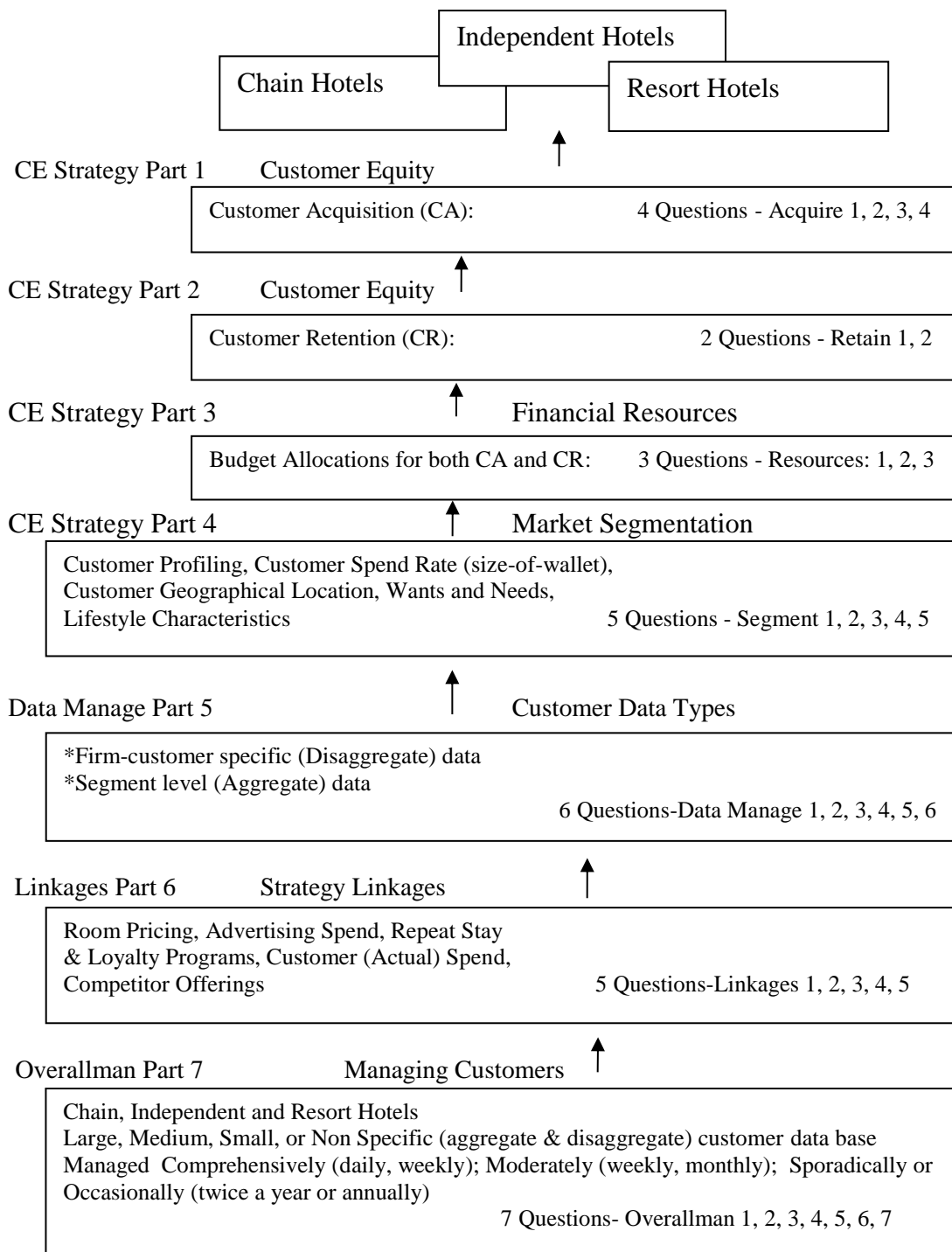
Part 4. Customer Segmentation: This set of items examines the extent of segmenting and targeting customers in the hotels. The sub categories of customer profiling and pricing issues (the 'spend rate' of customers) with the traditional market segmentation bases namely, geographic location, demographic details, behavioural and psychographic characteristics were then specified. Again, respondents could be selective in answering within the categories.

Part 5. Customer Data Management: This set of items examines the extent of use in the two category types; aggregate and disaggregate customer data. Additional information examined went a step further to examine how the data was being used. In this way item responses focused on a customer's *expected benefits when staying with us*, information of a more general nature that included *geographic/demographic information on customers*; the extent of *simplicity/complexity in office procedures that apply*, and lastly, *allocation or devotion of time to manage their customers*. There was a provision to write a response also.

Part 6. Linkages to other Strategies: This part collected data on the participants' extent of use with both the strategies and customer data sets combined. With regard to the interactive effects of managing their customers data and strategies, item constructs on *pricing of room rates strategy*, *customer spend rate*, *customer loyalty*, *advertising spend and competitor offerings* comprised the listing. Value and Volume strategies were the constructs framed that link to customer acquisition. Repeat Stay and Loyalty were the constructs framed that link to customer retention.

Part 7. Managing Customers Overall: This section shows a set of items that analyses the size and scale of operations in the hotel and how comprehensively CE is managed overall.

Following on from discussion of the development of the constructs, leads to the provisional placement of those constructs. Figure 3.3 shows this in overview for all 32 items included. In this survey, the strategies deployed for developing, defining and refining the analytical techniques and the appropriateness of the assessment instruments were given careful consideration.



32 strategy/tactical questions in total with Part 8 devoted to the demographic details of respondents.

Figure 3.3. Structural Overview of the Survey Question used in the Accommodation Hotels

3.2.2 Item Scales and Measurement Constructs

As the conceptual framework in this research program is a composite of many discrete and disparate elements combined to form an integrated model of CE from the CE, CRM and CLV literature, understandably the constructs used come from a variety of sources.

The list of item scales and measurement constructs used is shown in Table 3.4. It is comprehensive, but brief in outline. In looking at the model from top down, the first example in Table 3.4, is that of CA/CR constructs developed by Reinartz, Krafft and Hoyer (2004) which focus on the asset management of the customer. In contrast are Rust, Lemon and Zeithaml (2004), who show constructs and scales on the asset value of the customer. Both were used as they are highly relevant for this research.

The next example in Table 3.4 are the constructs and scales for Budget Resources. Items in this area developed by Nenkov, Morrin, Ward, Schartz and Hullond (2008) were adopted because of their use in drawing the distinction between optimising and maximising resources that this research endeavoured to discover. Items in Segmenting Customers were next. Influential in this area is Haws and Beardon (2010) who developed constructs and scales in consumption spending. measures related to value and price consciousness and sale proneness were developed by Lichtenstein, Ridgway and Netemeyer (1993). In other pricing tactics, such as everyday low prices, image pricing and external reference pricing, these constructs were developed by Hardesty, Beardon and Carlson (2007).

Moving down the list in Table 3.4, the CE Data Management constructs in CEM developed by Ramani and Kumar (2008), focus on the CLV measurement aspects of the customers' worth to the firm. In contrast, Kaufman, Jayachandran and Rose (2006) focus on the relational or management aspects of a customers worth to the company, that is, the CRM perspectives. Next, is Linkages in CEM. Linkages to the strategies and data was assisted with reference to McNally and Griffin's (2007) work on their managerial perceptions constructs on mutual value creation, bonding process and cooperative atmosphere scales. The last set of constructs and scales were those developed by Blattberg, Getz and Thomas (2001). Influential here, is focus on

both management of the customer asset and measurement of the equity in those assets.

Table 3.4 *Author contributions to Item Scales and Measurement Constructs used for Development in this Research*

CE Strategies	Authors
1 & 2 Customer Acquisition and Retention	
Captures three stages of CRM: customer acquisition, customer retention and customer exit CLV scales from data in the airline industry, facial tissues, electronic stores, grocery and rental cars	Reinartz, Krafft and Hoyer, 2004. Rust, Lemon and Zeithaml, 2004.
3. Budget Resources for CEM	
Maximising and optimising outcomes in any given decision scenario	Nenkov, Morrin, Ward, Schartz and Hulland, (2008).
4. Customer Segmentation for CEM	
Consumption Spending Measures Related to Pricing Pricing Tactics	Haws and Bearden, 2010. Lichenstein, Ridgway and Netemeyer, 1993. Hardesty, Bearden and Carlson, 2007.
5. CE Data Management	
Relational Information scales and the use of Technology in CRM: buyer-saleperson and firm-firm relationships Customer Relationship Management scale - items developed for Interaction Orientation INTOR	Kaufman, Jayachandran and Rose, 2006. Ramani and Kumar, 2008.
6. Interaction/Linkages in CEM	
Managers perceptions in CRM - scale 1 on-going bonding; scale 2 mutual value creation; scale 3 cooperative atmosphere and scale 4 information technology use	McNally and Griffin, 2007.
7. Managing Overall	
Management of the customer asset and measurement of the equity considerations.	Blattberg, Getz and Thomas, 2001.

Consequently, following systematic review and analysis, the constructs developed were provisionally placed into each of the sections of the survey as the conceptual framework allowed. The questions were measured using a seven-point Likert scale in the form of either Large Extent (LX) to Small Extent (SX) or Strongly Agree to Strongly Disagree with Seldom or Rarely and Don't Know or Can't Answer, available for all questions. There is a subjective rating scale used obviating the need in asking for any numerical information.

For reader interest, Appendix B shows the list in Table 3.4 in expansion. For example, there is more information on the constructs and sampling information with itemised scores in each of the respective studies.

As variable selection for the survey emanated from the listing in Table 3.4, care was taken to follow the research framework as devised in chapter two that would answer the research questions and research propositions. Details of the variables selected are discussed next. The first listing is shown for RQ1a in Figure 3.5.

There were 12 variables selected for RQ1a against the strategy drivers of consumption as shown in Figure 3.5.

RQ1a.. To what extent do four identified strategy drivers of consumption (customer acquisition, customer retention, company resources and targeting/segmenting customers) contribute to customer equity (CE) outcomes?

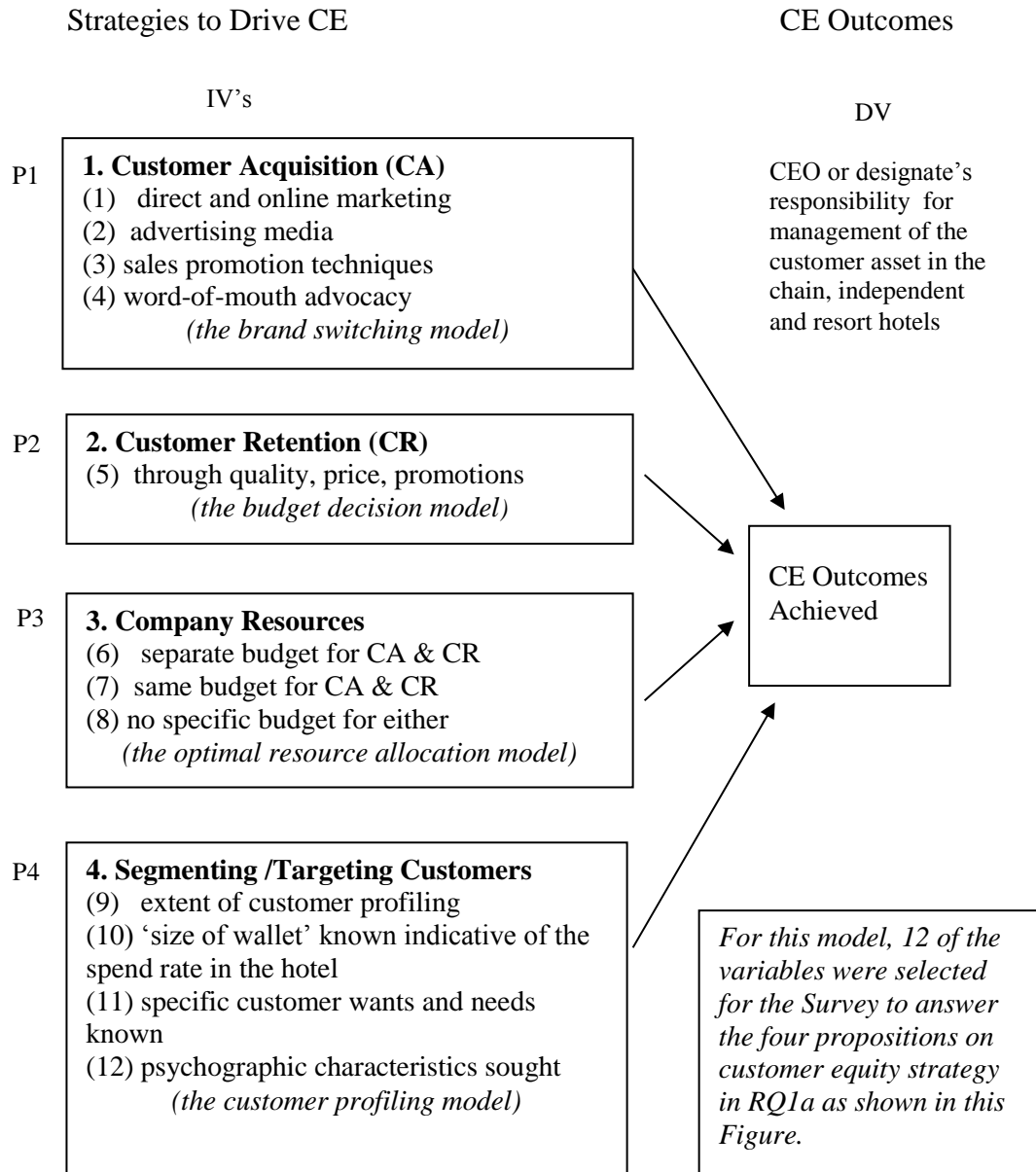


Figure 3.4 Proposed Variables in the Survey to answer RQ1a

For RQ2a, Figure 3.6 shows the breakdown with a further 12 variables.

RQ2a. To what extent are the customer equity data (both aggregate and disaggregate) managed?

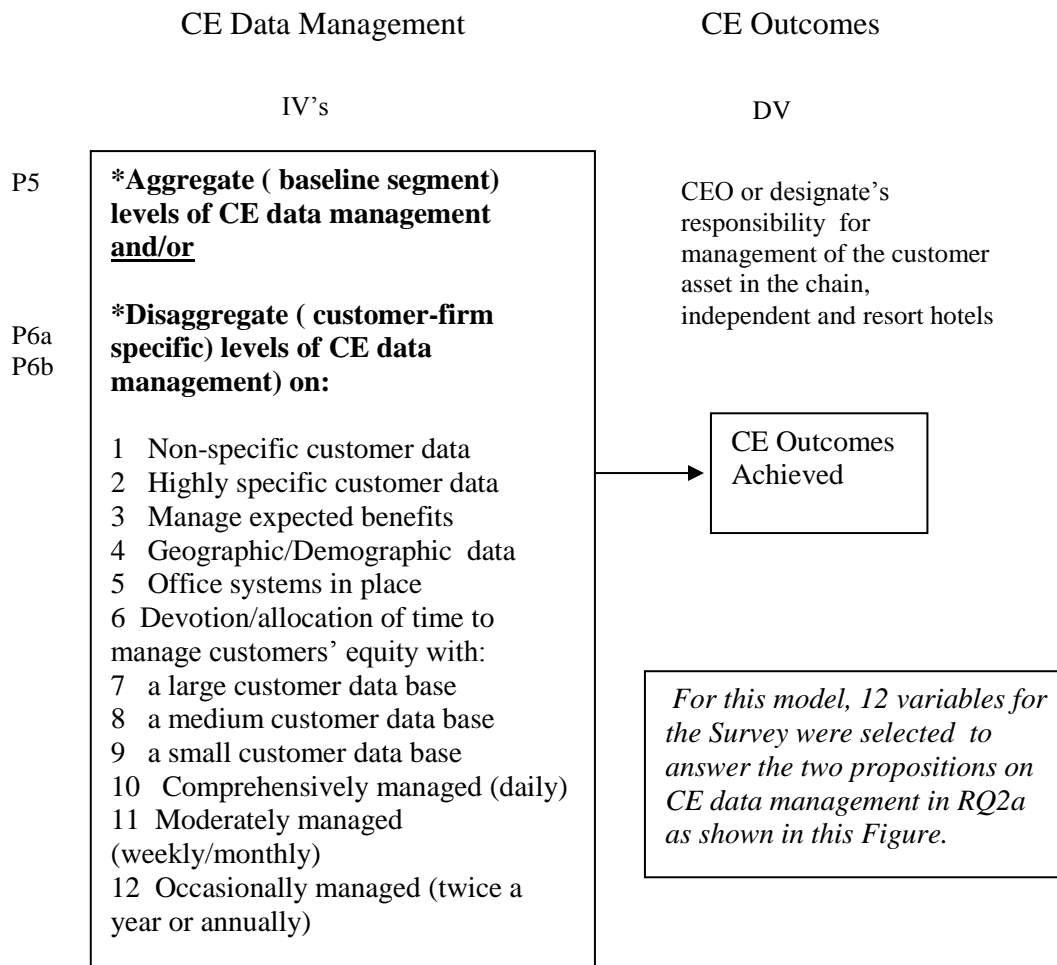


Figure 3.5 Proposed Variables in the Survey to answer RQ2a

Following identification of the variables in the survey for analysis of RQ1a and RQ2a, the last step was to do this for RQ3a. How to address RQ3a is shown diagrammatically in Figure 3.7.

Of note in this model is the amalgam of variables from RQ1a and RQ2a to answer RQ3a.

RQ3a. To what extent does the interaction of the strategies and data management techniques impact on CE outcomes achieved?

Strategies to Drive CE (Iv's)

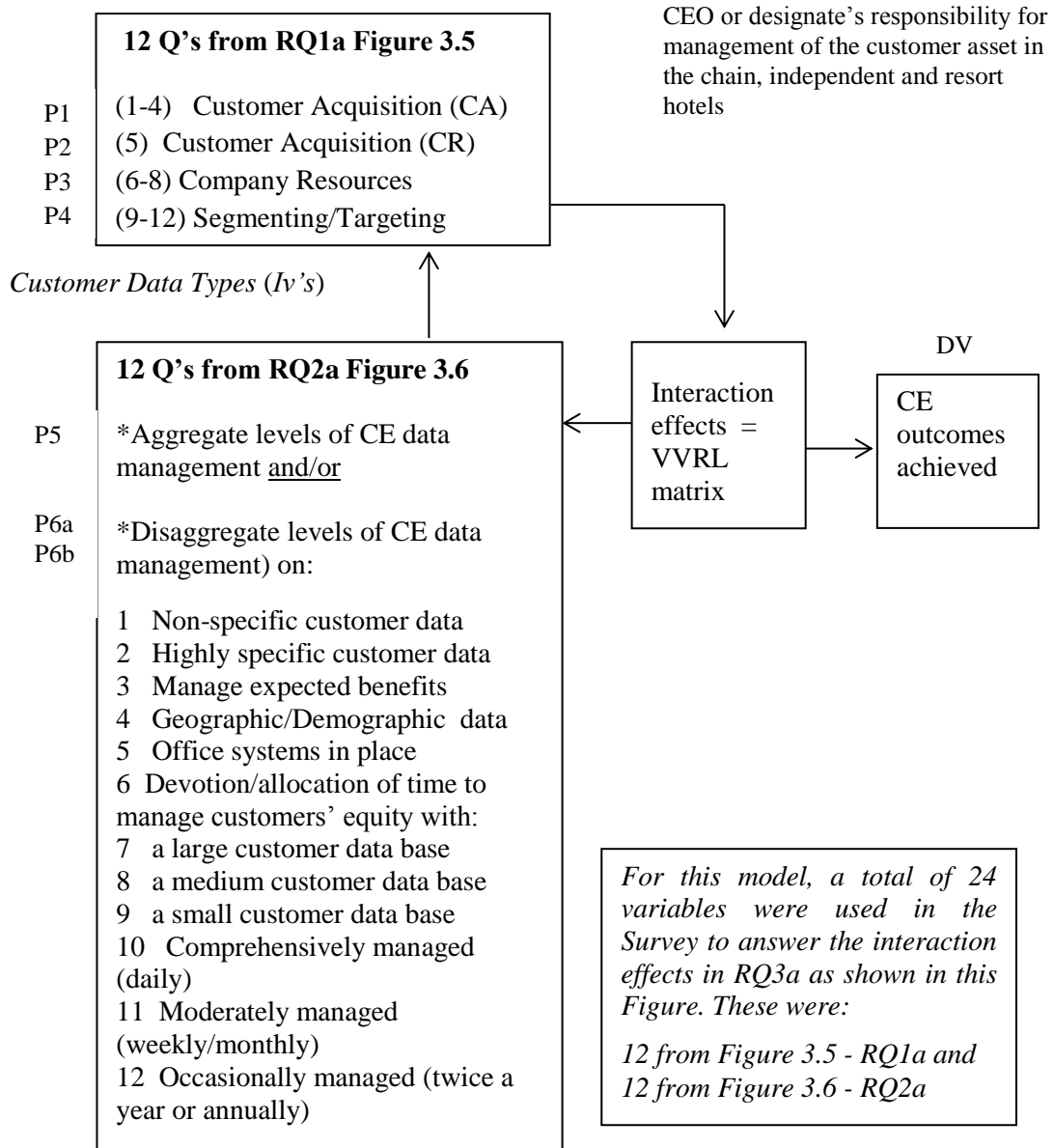


Figure 3.6 Proposed Variables in the Survey to answer RQ3a

3.2.3 Justification for the Item Scales and Measurement Constructs Used

In examining the item scales and measurement constructs for this research in CEM, several authors espouse the use of quantitative techniques as appropriate (Blattberg Getz and Thomas, 2001; Dekimpe and Hanssens, 1995; Rust, Lemon and Zeithaml, 2004). The authors highlight quantitative techniques that measure specific characteristics through structured data collection procedures are effective more with large samples for statistical generalisation to the entire population.

Following this thinking, justification for the item scales and measurement constructs for inclusion in this study's survey, were based on the following rationale. First, the recent evidence suggests a trend towards short scales that are both reliable and valid (De Jong, Steenkamp and Veldkamp, 2009; Netemeyer, Pullig and Bearden, 2002; Richins, 2004). Therefore, short scales only were used. Second, a scale was included where the measure had a reasonable theoretical base and/or conceptual definition. Third, the scale measure was composed of several (in this situation two or more items or questions). Fourth, the scale measure was developed within the marketing literature or relevant to marketing (such as the budget resources items). Fifth, at least some scaling procedures were employed in scale development. Lastly, estimates of reliability and validity existed.

Search for the items and constructs used in this study included: (1) a visual search from within literature review; (2) online computer search of publications in marketing and (3) the previous and current handbook of marketing scales by Bearden, Netemeyer and Haws (1999; 2011). For the most part, the period of inclusion is between 2000 and 2010. All are latent constructs which focus on the perceptual, where a respondent rates him/herself or others on the constructs that are subjective/opinion-based (Bearden, Netemeyer and Haws, 2011). Given their latent nature, the constructs used represent abstractions that can be assessed only indirectly. The constructs are drawn from measures developed and/or frequently used in marketing research in a self-report style response to the questions.

Of importance in the development of the measurements in the survey was that the scale was based on solid theoretical foundation from the literature review. All measures listed have been used in several studies and therefore serves as a partial guide to the literature in each topic of CE and may assist with refinement of existing measures in terms of item reduction, dimensionality, reliability and validity (Bearden, Netemeyer and Haws, 2011). How the constructs were developed is based on the following criteria:

- *Construct*: the definition and/or theoretical base of the construct as provided by the authors of the scale;
- *Description*: the description of the measure, including the number of items, scale points, scoring procedures and dimensionality;
- *Development*: how the scale was developed, the general procedures used to derive the final form of the scale from the original scale development article;
- *Samples*: the samples used in the scale development and validation;
- *Validity*: estimates of validity (i.e. reliability and convergent discriminant and nomological validity) from development of the scale. In some cases where actual estimates are provided was useful. In articles where numerous tests of validity show a pattern of results with examples provided evidence of validity;
- *Scale items*: the actual items in the scale dimensions to which the items belong;
- *Sources*: the source of the scale along with authors who developed the scale and the publication in which the scale first appeared.

3.2.4 Pre-Testing and Pilot Study

The survey instrument was pilot tested in pen and paper form to gain preliminary insights into the constructs in the model and design. A convenience/judgemental sample was to eight business persons/company managers, two marketing lecturers and two marketing consultants. The company managers are all experienced private sector managers and thus were regarded as suitable candidates in the pilot study. The two academic persons are lecturers from different universities – one in Australia and the other in New Zealand. The two Australian marketing consultants have Australian and international marketing experience. In terms of assisting to refine the survey instrument, all twelve respondents were considered an acceptable sample. As the survey instrument was planned for findings

that would be analytically, not statistically generalisable, the study would be replicated with actual hotel managers in the accommodation hotel sector.

The primary objective of the pilot study was to evaluate the extent of agreement between the raters. Nine rater assessments were considered suitable for this task. The ratings data was formulated as shown in Table 3.5.

Table 3.5 Ratings of 32 Customer Equity variables on a five point Likert scale

Variable	Rater1	Rater2	Rater3	Rater4	Rater5	Rater6	Rater7	Rater8	Rater9
Acq1	3	3	3	3	4	3	3	3	3
Acq2	5	5	5	5	5	5	5	5	5
Acq3	4	3	3	4	3	3	4	3	4
Acq4	1	1	2	2	1	1	1	2	2
Ret1	4	4	3	3	4	4	3	3	5
Ret2	4	3	4	3	4	4	3	3	4
Res1	5	5	5	5	5	5	5	5	5
Res2	4	4	4	4	4	4	4	4	4
Res3	5	5	5	5	5	5	5	5	5
Seg1	4	4	4	4	4	4	4	4	4
Seg2	1	2	2	1	1	2	2	1	1
Seg3	2	2	3	3	3	2	2	2	3
Seg4	3	3	3	2	2	1	2	1	2
Seg5	2	3	3	3	3	2	3	3	3
Data1	5	5	5	5	5	5	5	5	5
Data2	5	5	5	5	5	5	5	5	5
Data3	3	3	3	4	3	3	3	3	3
Data4	1	2	1	2	1	1	2	1	3
Data5	1	2	2	2	1	1	2	2	2
Data6	1	1	1	1	2	1	1	1	2
Link1	4	4	3	3	4	4	3	4	5
Link2	4	4	2	4	3	3	4	4	4
Link3	2	3	3	3	3	1	3	2	2
Link4	4	2	2	4	3	2	4	4	2
Link5	2	4	2	2	2	3	2	2	5
Man1	5	5	5	4	5	5	5	4	5
Man2	4	4	4	4	4	4	4	4	4
Man3	4	3	3	3	3	4	3	3	3
Man4	1	2	2	2	1	1	2	2	2
Man5	1	2	2	2	1	1	2	2	2
Man6	1	1	1	1	2	1	1	1	2
Man7	1	1	4	1	1	1	1	1	1

Using the full sample of 32 variables with nine raters, the inter-rater reliability using the Cronbach statistics (Gwet, 2008), obtained the following estimates:

$$\text{Cronbach} = 0.69$$

No major inferences are drawn from this estimate for this study as no item scales were being produced for inferential statistics purposes, that which are generalisable to a population sample. However, from the perspective of quality in construct development, the sample yields satisfactory results. Previous research suggests that a coefficient of reliability set at 0.5 to 0.6 is appropriate for exploratory research in business settings (Davis and Cosenza, 1985).

3.2.5 Main Study (Details of Phase One)

The seven section survey as detailed in section 3.2.1, was refined following the pilot. An eighth section added was devoted to the demographic details of the respondents. Items in this final section gathered information on the respondents position title, length of time in the job and employment with their current hotel, section or branch work in, age, gender and education level, but not employee income.

Sampling Approach

To obtain the largest possible sample of appropriate hotel employees who are involved in customer equity management, a reputable and accredited Australian provider of business data bases was sought. In the request to the provider they were to list all possible names of personnel in the accommodation hotels who have responsibility for managing customers in their hotels. Exclusions were out-of-the-ordinary hotels such as rainforest retreat, log cabin, backpackers, bed & breakfast and farm stay type accommodation, as they were deemed inappropriate for this study. Included were requests for the basic details of the potential respondents by name and title, hotel street address or post office box number and hotel phone, in the chain, independent and resort hotels Australia-wide. Where these categories were easily identified by name the remainder were obtained from the sample. There was no provision in the original agreement for direct phone numbers of the CEOs, general managers, director's of marketing or like names or their email addresses. Consequently, the survey was produced as a mail survey in the first instance.

There were no time restrictions on the length of employment, time in the job, education levels and knowledge or experience requirements placed on respondents. The only requirement was that a person charged with 'looking after' their hotel's customers in a CEM way, complete the survey. The survey was mailed, together with a reply-paid envelope to all 583 hotel managers on the list provided by the company representing the Australia-wide sample.

3.2.6 Procedures: Data Collection and Timing

The survey was prepared for a self-administered, paper based survey to the Australian accommodation hotels. Returns unopened would be redirected where possible. A telephone follow-up would occur within three to four weeks of the original mail-out. The mail survey could then be converted to an on-line survey in any follow-up, as agreed with the provider of the business data base distribution listing.

In follow-up to the mail survey, each email invitation contained a universal resource allocator (URL) to the now re-formatted on-line survey. In the email was the same message from the supervisor and researcher supporting the research work, identifying the merits of the work to the hotel managers, thus encouraging participation. It was stressed that the study is being conducted for academic purposes only and that the effects are likely to accrue to the practice world later. In closing, the invitation letter comments to the effect that whilst respondent support is crucial for the study outcome, participation in this study is voluntary and confidential. The actual survey representative of both the mail and on-line (URL) version, together with the covering letter to the managers is shown in Appendix C. Details of the timing for implementation and the lengths to ensure a sufficient response rate follows in Appendix D.

3.2.7 Participants in the Survey

Participants were the Chief Executive Officer (CEO) of the hotel or CE representative who are also employed by the hotel. With many different occupational titles of the office holders, the inference with regard to the expected responses are steeped in managerial theory with regard to the generalist/specialist duties office

holders perform (Mintzberg, 1980). There was only one proviso in the invitation letter forwarded to the hotel requested, and that was for respondents to be ‘responsible for CE outcomes’ in the hotel.

3.2.8 Methods of Analysis

As this study intends to explore the degree of relationships among variables, the key analytical strategy proposed is multiple regression in non-parametric design. To illustrate, the DVs in CE outcomes achieved comprise the Chain, Independent and Resort hotels all of which have CLV financial metrics, hotel patron purchase information by value, volume and turnover, and other latent variables such as managerial decision-making with regard to the use of customers aggregate and disaggregate data.

To analyse the survey data, the intention is to use a one and two-way Anova and a Multiple Response Analysis and Multiple Dichotomy Analysis in non-parametric design from the Statistical Package in the Social Sciences (SPSS) as a first assessment. Anticipating that the results from these instruments might not fulfil the requirements for obtaining as much comprehensiveness as possible in this study, other approaches would be sought. In particular, Classification and Regression Tree (CART) models (Breiman et al., 1984) and Multivariate Adaptive Regression Splines (MARS) (Friedman, 1991) models, would be the considerations for ultimately finding the strengths, associations, trends and developments in CEM and also for finding the most important relationships in the hotels data. MARS models in particular are suited for verifying the efficacy and stability of variables under review and are considered highly for these reasons.

3.2.9 Ethical Considerations

Phase One was approved by the QUT ethics committee (level 1, low risk), as there were no issues that were going to be of a sensitive business or personal nature, issues of commercial-in-confidence, or questions that would be invasive to the respondent. The ethics clearance number is 0900001182.

3.3 Phase Two: Qualitative Research Methods

Phase two was a qualitative research design which addressed the same research questions as in Phase One, this time with a ‘how’ and ‘why’ emphasis as follows:

- RQ1b. How and why do the four identified strategy drivers of consumption (customer acquisition, customer retention, company resources and targeting/segmenting customers) contribute to customer equity (CE) outcomes?
- RQ2b. How are the customer equity data (both aggregate and disaggregate) managed?
- RQ3b. How does the interaction of the strategies and data management techniques impact on CE outcomes achieved?

3.3.1 Interviewing Approach(es) Used

Phase Two uses a narrative strategy that involves construction of a detailed story from raw data (Langley, 1999). This entails interviewing hotel managers at their work places. The objectives of the interviews are therefore aimed at achieving the best that can be achieved and in a way that would be ‘cumulative’ in effect (Johnson, 2001; Warren, 2001). Essentially, the interview data can then be regarded as a type of organisation device that also serves as a validation tool (Eisenhardt, 1989).

3.3.2 Interview Process and Guide

An *Interview Guide* was produced for the prospective interviewees. In the guide was a form requesting extra information for completion that would support the study that included hotel name confirmed, size, location, RevPar ranking, average customer spend, along with the average nightly rate, customer occupancy levels and chief competitors (indicative or known).

The interview questions in the guide were based around the category of questions presented in the survey, starting with a general introduction. The interview techniques considered are as follows. Firstly, are broad questions (Perry, 2001), regarding how customers of the hotel are acquired and retained to gain a general overview. This would then be followed by probing questions to encourage elaboration (Lindlof, 1995), and clarification type questions in order to gain further

understanding of the issues under discussion (Carson, Gilmore, Perry and Gronhaug, 2001). Next, it was considered important to gain details of how CE is being managed. Possibly the use of a visual aid whereby the researcher might draw or illustrate diagrammatically, their responses could be conducted where appropriate. To finalise the interview, respondents will be asked to add any further insights they consider important. For details of the covering letter and interview guide for the managers, see Appendix E.

3.3.3 Justification of the Interviewing Approaches

The interviewer's guide is the central vehicle in the design and application of this qualitative research (Perry, 2001). In effect, it gives structure, direction and provides for some flexibility in the investigation of the research issues and also enhances the reliability of the results (Burns, 1994; Yin, 1994).

Judging Quality

The criteria for judging quality, which is the issue of how validity and reliability is assessed within 'realism's' own world view has been made by Healy and Perry (1998). In prior qualitative research, assessment about quality is a blend of both positivist and constructivist approaches (Reige and Nair, 1996). In later work, Riege's (2003) takes the view that validity and reliability fits-in with critical theory and constructivism. Given the range of views posed, this study favours the ontological philosophy within the realism paradigm. Of interest are the most salient features from Reige's (2003) work in the area and of Thompson and Perry (2004), which include:

- Confirmability - which is analogous to the notion of neutrality and objectivity in positivism corresponding closely to construct validity;
- Credibility - which is the parallel construct to internal validity. It involves the approval of research findings by either interviews or peers as realities that may be interpreted in multiple ways;
- Transferability - which is analogous to the function of external validity or generalisation in conventional quantitative research; and
- Dependability - which is analogous to the notion of reliability in quantitative research.

Lincoln and Guba (1985) and Yin (1994) add a fifth test: Trustworthiness. Trustworthiness is the qualitative dimension that demonstrates assurance and confidence in the research undertaking; a reliability guarantee that primarily corresponds to that of confirmability and credibility in Reige's (2003) work.

3.3.4 Sampling Approach

Sampling for the case studies that match the model of the Research Design in Figure 3.3, section 3.1.2, are identified for the chain, independent and resort hotels, with each named hotel a unit of analysis. The decisions regarding the use of multiple case studies - embedded, as shown in quadrant 4 in Table 3.1 support this framework for these type hotels. The approach took the view that several cases in the Chain, Independent and Resort hotels, with embedded sub-cases, would be sufficient to examine and analyse CEM in the Australian accommodation hotels. The aim is to show sufficient breadth and depth to achieve the comprehensiveness desired and required in the study, until 'saturation' or 'information redundancy' is reached, (Denzin and Lincoln, 2000; Glaser and Strauss, 1967; Strauss and Corbin, 1990). In a separate section placed at the end of the survey (mail and online), was provision for respondents to indicate if they would agree to be interviewed. It is from this listing that the case study interviewees were selected. This was in effect a convenience sample.

Participants in Interview

As the hotel managers are the one key element of this data collection process, as much primary data would be needed to be obtained from them as possible. In order to maximise the variation in the CE managers sample and increase the external validity of the results, assistant managers and other designation type officers will also be invited to join the interview process where possible. Recruiting participants at different CE management levels will be influenced by the firms' strategies, business structure and operational practices in place, as well as availability and willingness of participants to be involved, the managers' time limitations, scheduling of the interviews and other constraints. In all cases to be conducted in this research, it is envisaged the hotel manager would be present.

To ensure anonymity with regard to coding the named hotels, it is intended to abbreviate each case to Chain-International or Chain-Australia: Independent-Australia and Resort-International, as each manager identifies with. Any additions to this schema will have a number (/1, /2, or /3) placed at the end of each coded name, to show the appropriate number of cases recorded in a category, and also as a safeguard that no other named hotel anywhere in Australia or around the world would have, be likened to, or could be confused with these names.

3.3.5 Procedures: Data Collection and Timing of the Case Interviews

For this study, multiple sources of evidence will be used as shown in Table 3.5. Interviews of course would be significant. Overall, the sources are regarded as ‘cumulative’ so that the findings obtained would be as robust as possible.

Table 3.6 *Approaches to Case Studies in the Australian Accommodation Hotels: Interviews and Document Analysis*

✓	1. Interviews (open-ended conversations with key informants in three competitor hotels)
✓	2. Direct observations (observations of work situations)
✓	3. Archival (managerial records)
✓	4. Physical artefacts (e.g. computer printouts of customer data)
✓	5. Documents (e.g. internal ‘flyer’, emails, reports, articles)
✓	6. Participant Observations (identified as researcher, but also filling a real-life role in the situation being studied)

Source: Adapted from Yin, 2006.

Each item in Table 3.6 will be addressed next.

1. Interviews: The interviews need to be arranged, along with participants briefing about the interview process and research protocols. Included in the briefing would be a broad theoretical definition of CE terminology. Interviews would commence with a broad question in CEM asking interviewees to discuss their role describing how they manage their customers as a firm’s asset.

The procedure for undertaking the interviews involves:

- Interviewing experienced managers in several different size and type of hotels in two major Australian cities, Brisbane, Queensland and Perth, Western Australia.

-
- Follow a semi-structured interview approach to be adopted in a manner that fits the way the interview is progressing (Brenner, 1985; Fontana and Frey, 1994). Owing to the commercial-in-confidence sensitivities present, interviews will be hand scribed in front of and in agreement with the managers;
 - Following-up with questions after interview, in revision, for clarification purposes, further understanding and probe (by phone and email to the managers), is in line with Denzin and Lincoln's (2000) work on interpretive research and analysis as on-going. In addition, Miles and Huberman (1993), refer to analysis during and after data collection in field research as cyclical, going backwards and forwards between thinking about the data and generating new ideas for collecting new information, often leads to better quality data. This is expected to be the case in this research, with the researcher 'getting-better' each time with a view to obtaining 'thick' descriptions (Geertz, 1973) of data analysis throughout;
 - The researcher's reflections post interview on the results as a whole, will assist in cross-case analysis. This will need to cover the practicalities of delivering customer value from the managers' perspectives, and as Langley (1999) notes with regard to the principle of theorising from process data, the chance or opportunity for discussion of any rival theories that might emerge from the data.
2. Direct Observations: Where an opportunity presents in interview, direct observations of work situations would be invaluable. For example, a 'site-visit' of the hotel and its amenities, along with a view to understanding the role and responsibilities of the hotel managers could be very interesting and informative.
 3. Archival Records: Specifically company internal documents that relate to the CLV of customers, customer surveys such as feedback evaluations, reviews, or special commissioned reports internal to the hotel such as a marketing plan, or external such as the Smith Travel Research might reveal some interesting insights into CEM in the hotel(s).
 4. Physical Artefacts: These relate to spread sheet information, computer printouts and models of how CE is managed in the hotel currently. This type of information would be of particular use in hotels that have 'sister' companies or are in networked 'sharing-of-the-information' structures.

-
5. Documents: Information of a more general variety which includes advertising and promotional material, reservations data, customer rewards and loyalty information, would be the likely sources requested of the managers. Travel agents who are commissioned by the hotels, domestic and international, the hotel managers could enlighten in the interviews discussions.
 6. Participant Observations: Whilst not expecting to undertake any direct role in the hotels where observations of ‘reality’ could be experienced directly, there could be an opportunity that might arise. To witness demonstration of an activity in CEM directly, would be highly informative.

The Approach used to record the interviews without an audio tape

The peculiar challenge of note taking in interview is that of:

- (i) note taking which becomes the recording of the field data;
- (ii) while being an active participant in the meeting; and also
- (iii) observing and listening to what is going on (Yin, 2009).

Understanding and anticipating that audio transcripts might receive some resistance in the interviews with the hotel managers, the following approach to record the interviews followed from Yin’s (2011) recommendations. They are:

1. *Trying to Record Everything versus Being too Selective.*

According to Yin (2011), between these extremes lies a golden mean. This meant taking sufficient notes to support the later analytical and compositional aspects of the study.

2. *Highlighting Actions and Capturing words Verbatim.*

This means gaining an understanding of the environment and focusing on the managers as participants in interview, rather than taking copious notes. Concentrating on ‘listening’ is more important than attempting to detail every word said verbatim. The goal is to ‘get inside the managers’ heads and be open-minded in the process’.

3. *Remembering your Research Questions.*

With a formal interview protocol developed, this would enable open-ended questions to be asked at commencement and throughout the interviews, without any fear of forgetting ‘where we are at’ at any given time. This protocol would be handed to the managers, so that they could see the progress in the interview process.

3.3.6 Methods of Analysis

In the interviews to be conducted, some key assumptions for analysis have already been made as a result of the research questions formulated, and the case(s) themselves identified, with the main motive for undertaking the research to address the CE strategies and data techniques directed at the research questions. To identify patterns between hotels in the findings, it will be important to compare and contrast responses, also known as the technique of pattern matching. For example, the managers' responses to questions regarding how they acquire and retain their customers (the strategies), will be matched with their responses to 'how' and 'why' they use the type of customer data in their hotels.

The next step will be explanation building, which attempts to make sense of the patterns and identify cross linkages and pathways between specific question responses. Explanation of CE management includes answering the 'how' and 'why' of the research questions posed in chapter two.

For this research, the challenge of *doing* analysis stretches one important step further, that goes well beyond just selecting and planning for a particular analytical technique. The presentation of analysis can interact with the structure or composition of the case study (Yin, 2006). To report the findings in this study, each hotel case will be checked for accuracy of the transcripts from each manager interviewed, then analysed separately by detailing the reporting of the cases (Van Maanen, 1995). To assist with this, the hotels' names coded as explained in the sampling section 3.3.4, will be sorted and arranged in a way that assists in giving meaning and insight into the cases. The researcher's own reflections and perspectives incorporated into the analysis and reporting that is effectively recursive in nature, would also add the most value in this process.

The final stage in this section is the discussion and reporting of findings in cross-case analysis, leading to generalisations about the characteristics of an effective CE management environment. Detailing the reporting of the cases would be with the

machine learning tool Leximancer version 4.0, for coding purposes, sorting and arranging the data to be used in the analysis. An interpretation based on evidence from multiple cases as previously stated would be regarded as more compelling than the results from a single case. By comparing the cases in the accommodation hotel sector, the range of generality can be established and at the same time pin-down the conditions under which those findings occurred (Glaser and Strauss 1967; Miles and Huberman, 1993; Yin, 1994). The aim in totality is to achieve synthesis in the study as predesigned. An examination of two groupings envisaged (Chain/Resort as one and Independent as the other) for cross-case patterns (analogous to cross-experiment interpretations) will be argumentative and interpretive, (not numerically based).

3.3.7 Ethical Considerations

Phase Two has the same ethical provisions as Phase One as approved by the QUT ethics committee (level 1, low risk). Ethical considerations regarding the qualitative interviews with the managers consider the same QUT's privacy statement and confidentiality agreement(s). There are no issues that are going to be of a sensitive business or personal nature that would be invasive to the interviewee. The ethics clearance number remains the same as in Phase One, 0900001182.

3.4 Conclusion

This chapter has focused on case study methodology as the most appropriate vehicle for traversing the issues in CEM. There are two component parts in the approach. The first component framed as Phase One examines the CE strategy and data management variables in an investigative, exploratory way through a survey to be analysed through SPSS initially, and then through CART and MARS models more comprehensively in non-parametric design. The aim in Phase One is to inform Phase Two.

The second component framed as Phase Two comprise interviews and document analysis in qualitative research. The aim in Phase Two is to investigate several discrete *typical cases* in the accommodation hotel sector with a view to obtaining *confirmatory* information that would be presumed replications of the same

phenomenon (Yin, 2006). Cross-case analysis is expected to contribute to triangulation of the data and complete the study. The next chapter details the results of Phase One.

Chapter 4: PHASE ONE: RESULTS

‘You can’t manage what you can’t measure and can’t measure what you can’t manage.’

(Deming, 1982)

4.0 Introduction

The results of Phase One - the survey will be presented in this chapter in an analytical way that shows the extent of CE management in the accommodation hotels in Australia. The structure of this chapter is as follows. Section 4.1 begins with a brief outline of the managers’ demographic characteristics. Next, in section 4.2 is a critique of the CART and MARS analytical techniques used. Section 4.3 places into context the use of decision trees: two examples from the literature and one created in this research are illustrative of the methods used. Section 4.4 shows the procedures for analysis of the decision trees. Section 4.5 is a discussion of the variables used in the survey. Section 4.6 details the results and analysis of Phase One research. Section 4.7 concludes the chapter.

4.1 Characteristics of the Sample in the Survey

An Australian accredited data base service provider for the hotel’s listing was made available to the researcher which included the manager’s name, title, street address of the hotel, city and postcode. There was no facility in the agreement with this data base provider to send the survey other than by traditional mail-out. Out of 583 questionnaires sent out in a mail survey to hotel managers’ Australia-wide, 105 were returned completed, with seven returned ‘not known at this address-return to sender’. Of the 105, 93 were usable. Following this result, the survey was converted to an email survey exactly as the mail survey and sent to a further 70 respondents in the data base. 27 email survey responses were returned with 21 regarded useable. In total, 114 completed surveys were considered satisfactory for the research. A brief outline of the survey respondents is in Table 4.1.

In Table 4.1 over 50% of respondents fall into the smaller category hotel type with staffing numbers < 100. This means staff are performing many roles of a specialised nature the large chain staffing personnel would not.

Table 4.1 *Demographic Information on the Survey Respondents*

Sample Size	114 Completed Returns
Position Title	CEO 1, General Mgr 22, Managing Director 3, Dir of Sales 11, Sales & Mkt Mgr 22, CRM 6, Events/Mktg Mgr 9, Business Development Manager 6 Those with more specific titles were Reservations & Yield Mgr 1, Acquisitions Mgr 1, Consumer Insights Mgr 1, eCommerce & Mktg Mgr 1, Director of Marketing 1, Communications Mgr 1, Resort Manager 1, Property Manager 1 Those with general titles were Manager 9, Hotel Manager 7, Front Office Manager 5, Owner/Manager 5
Area(s) of Responsibility	Corporate Mgt, Sales Mgt, Marketing Mgt, Customer Relationship Mgt, Customer Service
Hotel Size (by employees)	Responses were > 500 staff = 23 hotels; >100-500 staff = 34 hotels <100 staff = 57 hotels
How long in the Position?	Staff with > 5 yrs = 47%; 3-5 yrs = 28%; 1-3 yrs = 14%; < 1 yr = 11%
Age of Staff	18-30 = 9; 30-50 = 61; > 50 = 19; Unknown = 25
Gender	Male = 74 (65%); Female = 40 (35%)
Education – level achieved	High School = 32; Trade Certificate = 1; Diploma = 37 Bachelor Degree = 30; Masters Degree = 13; PhD = 1

4.2 Critique of the Analytical Techniques and Processes Used

SPSS data in Non-Parametric statistics

The initial interpretation of the findings in SPSS non-parametric testing techniques that were achieved, indicated a need for further analysis to maximise the results. This would be done by selecting the most appropriate multivariate technique(s) available. The researcher sought advice from the high performance computing unit at the Queensland University of Technology, Brisbane on which analytical path to take. The advice was to the effect that the most appropriate technique/selection is by adherence to a set of common rules. These are to:

1. Acknowledge the assumptions of the technique(s);
2. Know the data characteristics and requirements; and
3. Determine the final use of the outcome information.

Evidence of satisfying but not maximising the requirements of the study in the SPSS output data showed all the signs of meeting the above criteria, but not exceeding it, so the researcher pursued this further. The need for ‘proving’ replication in the survey through triangulation and in achieving analytical generalisation was where the research output in SPSS appeared *wanting*. This was why decision tree analysis in Classification and Regression Trees (CART) models by Breiman et al., (1984) and Multivariate Adaptive Regression Splines (MARS) models by Friedman (1991) would be expected to meet these requirements in this study.

4.2.1 CART Models in Non-Parametric Statistics

Consequently, to gain highly relevant insights from the survey sufficient to inform the research, CART models were constructed using multinomial categorical predictors, that are important in finding associations and relationships in the data (Breiman, et al., 1984). Set variables in CART models have an added bonus (by comparison with conventional regression analyses), in that they uncover hidden meaning in the data through its data mining application in the tree structures which proved very fruitful for this research. As CART was used for *classification* purposes and not regression (due to the research design), MARS models in a non-parametric local regression equation were used in order to add to the efficacy and stability of the variables under review and which would assist in achieving triangulation of the CART data sets (Friedman, 1991; Steinberg and Colla, 1995).

With the conventions of hypothesis testing set aside in substitution for research propositions, the use of CART and MARS models in a non-linear, non-parametric application to data analysis increased the robustness of the findings in this study. The technical aspects of CART and MARS models are very sound and, thus are regarded as an appropriate analytical technique in analysis (Breiman et al., 1984; Friedman, 1991).

4.2.1 MARS Models in Non-Parametric Statistics

Multiple Adaptive Regression Splines (MARS) is a method for flexible modelling of high dimensional data. In brief overview here, the MARS model takes the form of an expansion in product spline *Basis* functions, where the number of *Basis* functions as well as the parameters associated with each one (product degree and knot locations) are automatically determined by the data. This procedure is motivated by the recursive partitioning approach to regression, and shares its attractive properties. Unlike recursive partitioning, however, this method provides more power and flexibility to model relationships that are nearly additive or involve interactions in, at most, a few variables. In addition, the model can be represented in a form that separately identifies the additive contributions and those associated with the different multivariate interaction (Besley, Kuh and Welsch, 1980; Friedman, 1991).

The goal is to model the dependence of a response variable y on one or more predictor variables x_1, \dots, x_n given realisations (data) $\{y_i, x_{i1}, \dots, x_{in}\}_{N_1}$. The system that generated the data is presumed to be described by:

$$y = f(x_1, \dots, x_n) + \epsilon$$

over the domain of the $(x_1, \dots, x_n) \in D \subset \mathbb{R}^n$ containing the data. The single valued deterministic function of f , of its n -dimensional argument, captures the joint predictive relationship of y on x_1, \dots, x_n . The additive stochastic component of ϵ whose expected value is defined to be zero usually reflects the dependence of y on quantities other than x_1, \dots, x_n that are neither controlled nor observed. The aim of non-parametric regression analysis is to use the data to construct a function $f(x_1, \dots, x_n)$ that can serve as reasonable approximation to $f(x_1, \dots, x_n)$ over the domain D of interest. The notion of reasonableness depends on the purpose for which the approximation is to be used. In nearly all applications, however, accuracy is important. Lack of accuracy is often defined by an integral error or expected error, both with their own formulas (Scott, 1992).

Recursive Partitioning Regression

With regard to recursive partitioning regression in this (non-parametric design) study, these are disjoint sub regions representing a partition of D . The goal is to use the data to simultaneously estimate a good set of sub-regions and the parameters associated with the separate functions in each sub-region. Partitioning is accomplished through the recursive splitting of previous sub-regions. The starting region is the entire domain D . At each stage of the partitioning, all existing sub-regions are each optimally split into two sibling sub-regions. The split is jointly optimised using a goodness-of-fit criterion on the resulting approximation. The recursive subdivision is continued until the large number of subregions are generated, as in the structured trees created (Friedman, 1991).

Recursive partitioning based on linear functions, basically lacks a local variable subset selection feature. A global variable subset selection emerges as a natural consequence. This tended to limit its power (and interpretability) and was probably the main reason contributing to its lack of popularity (Besley, Kuh and Welsch, 1980). To overcome this problem, recursive partitioning is a powerful tool when a piecewise constant approximation is used (Breiman et al., 1984), as was applied in this study. It has the ability to exploit lower local variables in the tree even though they may be dependent upon a large number of variables (globally) higher in the tree, that is, even though the function of $f(1)$ may strongly depend on only a few of them. This ability comes from the splitting rules that become more and more local, the lower they are in the tree. Variables that have less influence on the response are less likely to be used for splitting. This gives rise to the local variable subset selection.

Another property that recursive partitioning regression exploits, is the marginal consequences of interaction effects (Steinberg and Colla, 1995). That is, a local intrinsic dependence on several variables, when best approximated by an additive function, does not lead to a constant model. This is nearly always the case. Recursive partitioning models using piecewise constant approximations that are fairly interpretable owing to the fact that they are very simple and can be represented by a binary tree as was developed in this study. Although recursive partitioning is the

most adaptive of the methods for multivariate function approximation, it has some limitations. These are briefly:

① the approximating function is discontinuous at the sub-region boundaries; and

② certain types of linear functions with more than a few non-zero coefficients are difficult to approximate (with a piecewise approximation and additive functions in more than a few variables), as piecewise or constant or piecewise linear approximation.

Recursive partitioning regression is generally viewed as a geometrical procedure. Its framework provides the best insight into the properties mentioned earlier and can be viewed in a more conventional light as a stepwise regression procedure. The aim is to produce an equivalent model to the general format by replacing the geometrical concepts of regions and splitting with the arithmetic notions of adding and multiplying (Friedman, 1991).

Multivariate Adaptive Regression Splines

This area describes the multivariate adaptive regression splines (MARS) approach to a multivariate non-parametric regression in this study. The goal of this procedure was to take advantage of its ability to compute in high dimensional settings where adaptive computation is used and advancing the earlier tests in SPSS non-parametric. It is most easily understood through its connections with recursive partitioning regression and has been developed consequently as a series of generalisations to that procedure.

In this chapter are the MARS models that commence with a series of *Basis* functions. The starting point is to cast the approximation in the form of an expansion from those set of *Basis* functions. The recursive partitioning regression model takes the form as identified by the following formula:

$$(1) \quad \text{if } \mathbf{x} \in R_m, \quad \text{then } f(\mathbf{x}) = g_m \left(\mathbf{x} / \{ \mathbf{a}_j \}_1^p \right).$$

Here the $\{R_m\}_1^M$ are disjoint subregions representing a partition of D . The functions g_m are generally taken to be of quite simple parametric form. The most common is a constant function:

$$(2) \quad g_m(\mathbf{x} | \mathbf{a}_m) = \mathbf{a}_m$$

Adaptive regression splines are an approximation from the recursive partitioning regression model:

$$(3) \quad f(\mathbf{x}) = \sum_{m=1}^M a_m \mathbf{B}_m(\mathbf{x})$$

The *Basis* functions \mathbf{B}_m take the form:

$$(4) \quad \mathbf{B}_m(\mathbf{x}) = I[x \in R_m],$$

Where I is an indicator function having the value one if the argument is true, and, otherwise zero, if it is false. The $\{a_m\}_1^M$ are the coefficients of the expansion whose values are jointly adjusted to give the best fit to the data. The $\{R_m\}_1^M$ are the same sub-regions of the covariate space as in (1), (2). Since these regions are disjoint, only one *Basis* function is non zero for any point \mathbf{x} so that equations (3), (4) is equivalent to (1), (2). The aim of recursive partitioning is not only to adjust the coefficient values to best fit the data, but also to derive a good set of *Basis* functions (sub-regions) based on the data at hand.

For more details on CART and MARS analytical techniques and procedures, see Appendix F.

4.3 Decision Trees – Three Examples

To clarify the construction of the decision tree(s) in structured analyses in Phase One, three examples are provided. The first example is by Breiman et al., (1984), who set-up a program in a medical centre for heart attack patients. In this study, when a heart attack patient was admitted to hospital, 19 variables were measured during the first 24 hours. The tree structured classifiers in that example show 19 variables that measure blood pressure, age, gender, glucose, sinus tachycardia and more medical terminology symptoms. The CART program organised those variables in rank order of importance - highest to lowest. The goal of that study was to develop a method to identify high risk patients who would not survive at least 30 days, on the basis of the initial 24-hour data.

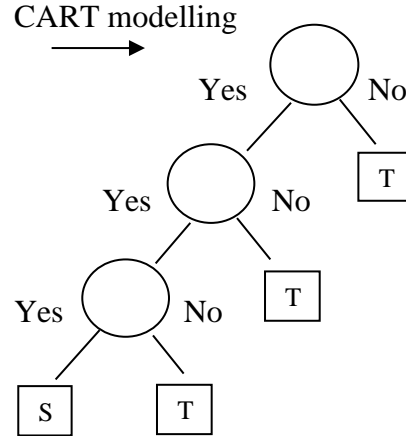
In a second more recent example, tree classifiers were used in occupational therapy. Unsworth, Baker, Taitz, Chan, Pallant, Russell and Odell (2012) examine fitness-to-drive (a motor vehicle) through decision tree analysis with variables that relate to physical attributes, mental acuity, the senses, including sight vision, smell, touch and a raft of biographical variables on patients. The research concluded with identification of the most suitable physical, sensory and cognitive assessments that were subsequently included in an occupational therapy driver assessment battery of tests.

Likewise, this research into customer equity management includes a multitude of complex variables used in each tree that were sorted, rank ordered and end with a terminal node. As a third example, Figure 4.1 provides an illustration in context. In the analysis of the tree, assessment of the variables show associations, links and patterns to determine the most appropriate or relevant groupings that determine the best way to help CE managers measure their customers' equity and manage their customer asset.

Where there is no further support for the variable, the letter 'T' is shown. The letter 'T' means terminal. Where there is support for the variables the tree 'grows' larger, in an inverse shape moving downwards until there is no further support as shown in the diagram. The letter 'S' means strong support that will lead to more growth in the tree, given the variables in use. As CART was used for classification purposes in this study and not regression, MARS models were used to support the findings.

- ▶ Are customer equity management and customer asset management the two vehicles in use for valuing customers?
- ▶ Are both aggregate and disaggregate customer data sets high in use?
- ▶ Are both CA and CR activities pursued together?

Iv's = x Strategies and Data sets
 DV = Y CE Outcomes Achieved



MARS modeling Regression Analyses applied to the tree(s)
 Iv's = x $Y = f(x_1, \dots, x_n) + E$

Figure 4.1. An Illustration of the CART and MARS Analysis Techniques in Phase One

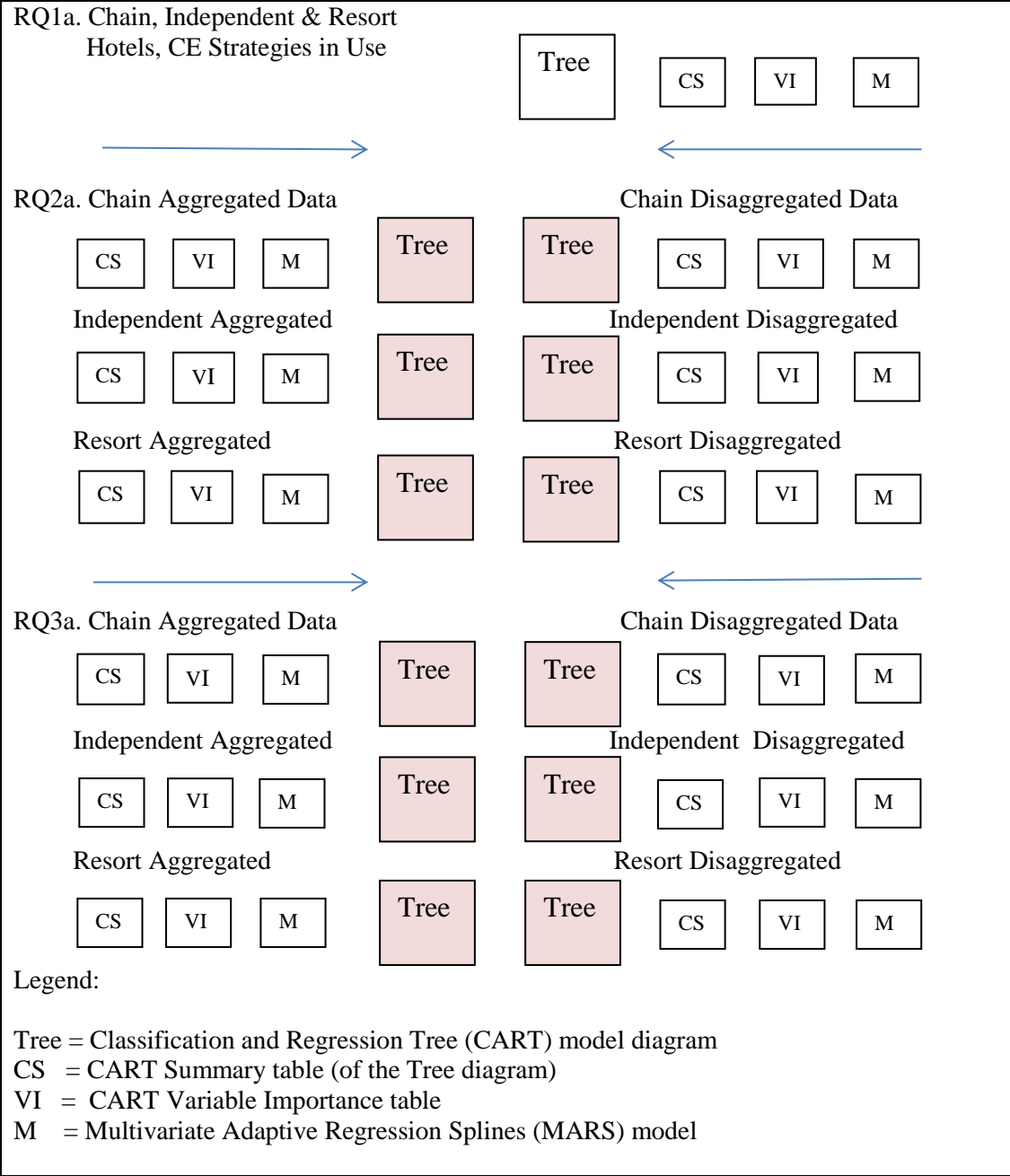
In sum, the formulation of the CART and MARS models were constructed from variables in the survey instrument used in this study. Variable selection logically follows the conceptual framework devised in section 2.7 in chapter two. With this assurance, the CART and MARS models lead to a conclusion for each research question. Throughout the rest of this chapter, results are detailed firstly through CART modelling, secondly with CART Variable Importance (VI) measures and thirdly with MARS modelling. In total, there are 13 classification trees, VI tables and MARS models in this study.

4.4 Procedural Analysis

As there is a very large analytical output with detailed discussion in this study, Table 4.2 illustrates the size of the output. Of note are 13 CART model (tree structured classifiers), with a summary of each tree in a separate table denoted as CART Summary (CS). As the tree structure is not able show all of the findings in one visual image, a Variable Importance (VI) table is generated that captures both the findings and the 'hidden' elements, itemises the variables and places all the nodes in rank order. To complement each CART model created, Multiple Adaptive Regression Splines (MARS) models shown as M are applied to each Tree to add to

the efficacy and stability in the variables examined and thus add significantly to the analysis. See Table 4.2 for illustration in context.

Table 4.2 *Size, Scope and Approach to the Reporting of the Data Output Results and Analysis in the Accommodation Hotels Study*



Of note in Table 4.2 are 52 sets of data recordings in both figure and table form that are explained in the analysis. To facilitate discussion of the results, the 12 shaded Tree diagrams have been placed in Appendix H, as they constitute the strong visual image of the results that can be viewed as support material. This reduces the number of Figures to 1 and Tables to 39, which adequately allows for explanation of

the results. With the second and subsequent (shaded) trees located in Appendix H, the Tree diagrams will be discussed through the CS, VI and M (MARS) models as shown by the arrows pointing towards each shaded tree in Table 4.2.

4.5 Variable Descriptors in this Study

Recall the discussion in section 3.2.1 with regard to the survey variables used in this study. Value and Volume strategies are the item constructs framed that link to customer acquisition. Repeat Stay and Loyalty are the item constructs framed that link to customer retention. They are coded Value, Volume, Repeat Stay and Loyalty (VVRL) strategies.

The first two of the four component parts in the VVRL strategies as a model are Value and Volume strategies. In Value and Volume, these strategies are high order Value and high order Volume in use by CE managers in the hotels. Both high order Value and high order Volume in CE means that CE managers can/will use *Intermediate/Advanced* level CE strategies and data management techniques applicable to groups and specific individual customers. However, the Value and Volume strategies also have a corresponding part, that of a low order Value and low order Volume emphasis. What these two components mean in CEM is that lower level *Baseline* level CE strategies and data management techniques apply more appropriately to segmented groups of customers, not individuals. High order Value and High order Volume has been coded as Value1 = High and Volume1 = High. Likewise, Low order Value and Low order Volume has been coded Value2 = Low and Volume2 = Low. These two variable sets relate to customer acquisition strategies.

The second two of the four component parts in the VVRL model are Repeat Stay and Loyalty strategies. In Repeat Stay and Loyalty, these strategies are strong Repeat Stay and strong Loyalty (programs) in use by the CE managers in the hotels. Both strong Repeat Stay and strong Loyalty CEM means that CE managers can/will use *Intermediate/Advanced* level CE strategies and data management techniques applicable to groups and specific individual customers. However, the Repeat Stay

and Loyalty strategies also have a corresponding part, that of a weak Repeat Stay and weak Loyalty emphasis. What these two components mean in CEM is that lower level *Baseline* level CE strategies and data management techniques apply more appropriately to segmented groups of customers, not individuals. Strong Repeat Stay and Strong Loyalty has been coded as Repeat1 = Strong and Loyalty1 = Strong. Likewise, a weak Repeat Stay and weak Loyalty has been coded Repeat Stay2 = Weak and Loyalty2 = Weak. These two variable sets relate to customer retention strategies. For further elaboration of the VVRL descriptors see Appendix G.

The many other descriptors examined and highlighted throughout the discussion of the results are more generally understood and therefore require only brief attention here. For example, a CE strategy in the tables which follow such as Linkages4 = Customer Spend, Data Manage2 = Highly Specific Data, or Linkages1 = Room Rates, all appear reasonably self-explanatory and are discussed more fully in the results. All of these CE strategies were coded this way for quantitative analysis purposes. The next section discusses the results for RQ1a, RQ2a and RQ3a. The research propositions are addressed in the Analysis of Results in chapter five.

4.6 Results and Analysis of Phase One

CART Results on RQ1a

In systematic analysis, each tree shows the results for each type of hotel namely, Chain, Independent and Resort. In RQ1a the focus is on the CE strategies in use. Recall RQ1 as:

RQ1a. To what extent do the four identified strategy drivers of consumption (customer acquisition, customer retention, company resources and targeting/segmenting customers) contribute to customer equity (CE) outcomes?

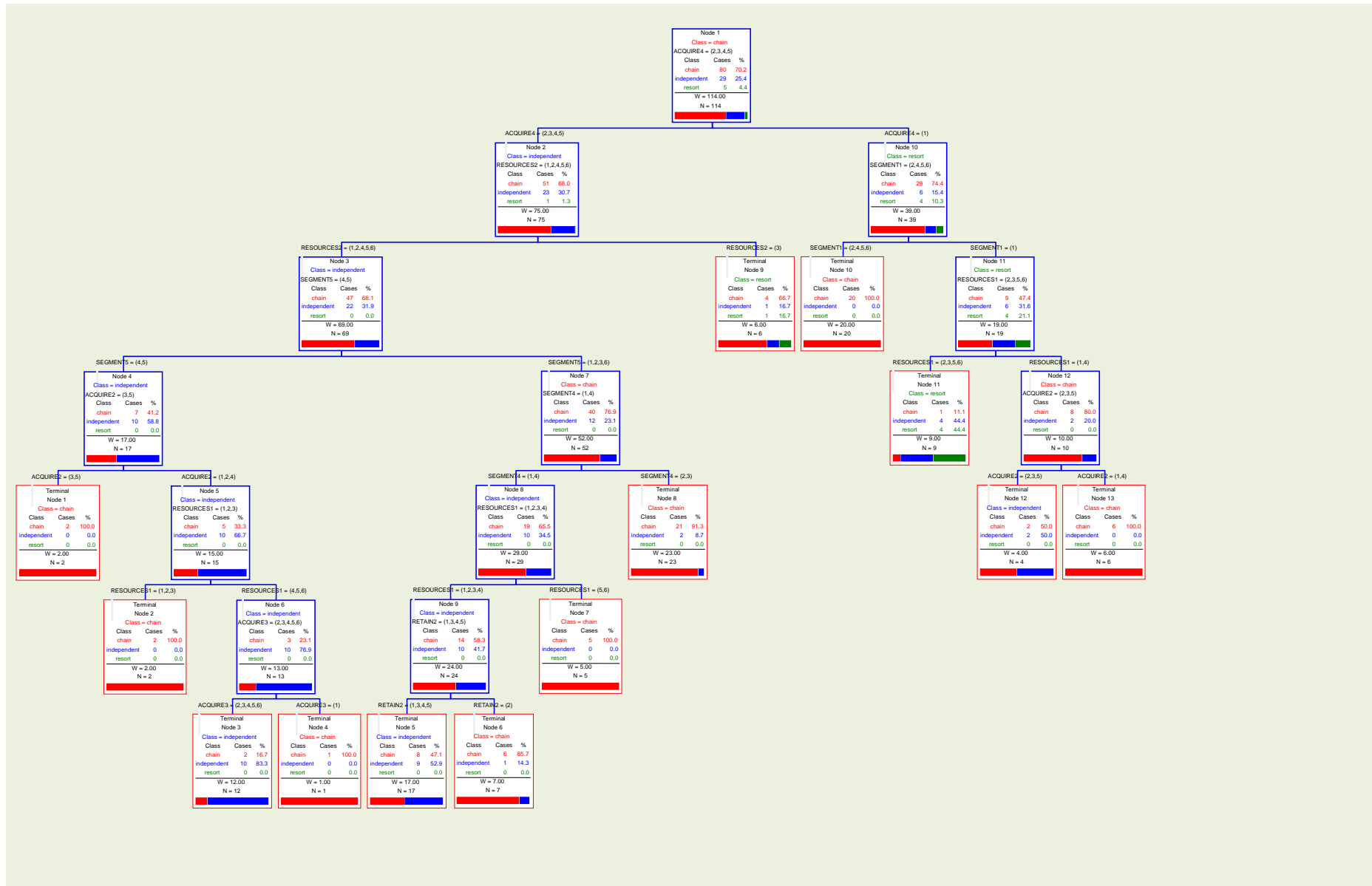
For each CART model produced, the first Tree structure as shown in Figure 4.2 provides for a methodologically sound analysis for the hotels in this study. The analyses show trends and developments, not for predictive validity, more so for the purposes of association, strength and benefits in each case. Each element in brackets are labels from the survey assigned into the Statistical Package for the Social Sciences (SPSS), used for coding and analysis purposes. The next step was to utilise these codes for a CART and MARS analysis. For example, the first node at the top in

Figure 4.2 signals support for the variable Acquire 4 ('we rely on word-of-mouth' advocacy) as the most important customer equity strategy in the hotel. This is first for the Chains and then split next for the Independents (on the left) and Resort hotels (on the right hand side of Figure 4.2). In following the left hand side of the CART model, the variable Resources2 (same Budget is used for acquisition and retention of customers), complements the variable Acquire4 (the Word-of-Mouth strategy) for the Chain and Independent hotels, with Resort hotels a terminal node at this juncture. The terminal nodes signal no further support for the strategies in the results.

Under the node Resources2 are the split nodes Segment5 (Customer's Lifestyle Characteristics), for the Chain and Independent hotels. Following the chain node to the right of Resources2, split nodes are further supported by Segment4 (Customers' Wants and Needs). The strength of the associations in market segmentation for the Chains clearly outweighs those for the Independents in the cases presented. With indicators of budget resources not separated for CA and CR activities highly in all three hotel categories, shows lack of support by contrast to the findings in the literature (Thomas, 2001; Bolton, Lemon and Verhoef, 2004) which indicates the opposite trend holds true. An issue seemingly for all hotels, signals a focus mainly on customer acquisition strategies by contrast with retention strategies the least important, as shown by the terminal nodes.

In following the right hand side of the CART model, Segment1, (customer profiling strategy), complements Acquire4, (word-of-mouth strategy) for the Resort hotels. Next, Resources1 is the variable for use of a separate budget in acquisition and retention of customers. However, even with separate budgets in use, the Tree in Figure 4.2 shows support for customer acquisition as the main strategy in use in all hotels. Unlike the left hand side of the CART model, which shows the variable Acquire2 (use of different forms of media advertising) as quite strong for the Chain and Independent hotels (as it leads to other nodes before terminating), the right hand side shows less focused attention for this variable for the resort hotels and are the terminal nodes.

Figure 4.2. CART Analysis RQ1a: DV = Chain, Independent and Resort Hotels



The summary of the Tree findings and its nodes is shown in Table 4.3. For ease of reference in looking at Table 4.3, the coded names shown in the Tree are derived from the variable labels in the survey. Likewise, the nodes are numbered from top to bottom showing their strengths and associations firstly in node 1, diminishing down to node 12 in this Tree, with no further support for the variables as shown as the terminal nodes. The figures in the right hand column are the sum of the cases from the nodes. For example, Node 1 shows support for the Acquire4, (Word-of-Mouth) at the highest strength for all 80 chain, 29 independent and the 5 resort hotels in the survey. Next, node 2 itemises the results for Resources2 (Same Budgets) indicative of the strength in support for CA and CR budgeting. This is shown as 51/80 for the Chain, 23/29 for the Independent and 1/5 for the Resort hotels.

Table 4.3 *Tree Summary of CART Model: RQ1a DV = Chain, Independent and Resort Hotels*

Strategy Type	Nodes	Variable Code; Variable Label	Chains (C) Independents (I) & Resorts (I)			
			C	I	R	Total
Acquisition -	1	Acquire4 = Word-of-Mouth	80	29	5	114
Baseline CE -	2	Resources2 = Same Budget	51	23	1	75
Retention -	3	Segment5 = Lifestyle Characteristics	47	22	0	69
Acquisition -	4-12	Acquire2 = Media Advertising	15	12	0	17
Intermediate CE -	5-8-11	Resources1 = Separate Budget	12	10	4	15
Acquisition	6	Acquire3 = Sales Promotion	3	10	0	13
		Segment4 = Wants & Needs	40	12	0	52
Retention	9	Retain2 = Focus on Retention	14	10	0	29
		Segment1 = Customer Profiling	29	6	4	39
	10					

Moving down the table to where two and three nodes are linked requires explanation as follows. For example, node 4 and 12, is where the nodes show support for the variable Acquire2 (Media Advertising) which are separated, but associated elements in the Tree known as ‘surrogate splits.’ The support for Acquire2 on the left hand side of the Tree is supported through the variable Segment5 the Lifestyle Characteristics, whereas support for Acquire2 on the right hand side of the Tree is supported through the variable Resources1, Separate Budgets. To keep the results within manageable limits of discussion here, the two separate results for Acquire2 are shown in summary together, that is 15/80 for the chain, 12/29 for the independent and 0/5 for the resort hotels that show support for this strategy.

To the left in Table 4.3 shows very briefly the relationship between the variable codes/variable labels with the strategy type. Regarded as a ‘snap-shot’ here, the focus on customer acquisition (CA) as a strategy is widespread by comparison with customer retention (CR) which is relatively sparse. Budgets are not being separated out for CA and CR in the main. Segmentation is regarded as *Baseline* which is group based only - and firm specific, regarded as the least developed CE strategies to date, by contrast to *Intermediate* levels which involve both group and individual segmentation of customers, that consist of firm - individual customer specific activities (Kumar and George, 2007).

CART Variable Importance (VI) Measures on RQ1a

To complement the CART results in Figure 4.2, summarised in Table 4.3 is the improvement technique called CART Variable Importance (VI) measures in Table 4.4. To place this in context, the CART table results and the CART VI table rankings need to be understood as being tied to and relative to one-another. Any changes to this Tree by removing or adding a variable could result in a completely different tree and substantial reshuffling of the rankings of the remaining variables, (Breiman et al., 1984). One interpretation of the VI measures is that it simply reveals the degree strength and masking in the tree. If a variable is important, but is not used in any primary splits, then it is being masked by other variables. Breiman et al., (1984), caution about placing too much emphasis on these rankings, pointing out that rankings can be quite sensitive to any random fluctuations in the data.













Nonetheless, a view in this study is that attention should be paid to variables that are strong competitors near the top of the tree, but not simply by adding-up the scores. Adding competitor variable improvements to the listing is not a viable scoring option because a single competitor can attempt to make the same competitive split at several different nodes in the tree. By definition, a competitor split is one that has not been made by CART and, given that it is not made in a parent node, it may still be highly viable at a descendant node. Giving the competitor credit for being a strong alternative at both nodes would actually be double counting since the variable is trying to make essentially the same split in both places. Without a way of assessing

competitors, this study has relied on the field research, that is, the completed survey and a priori knowledge in marketing management in arriving at this assessment of both Tree and CART VI measures.

As one of the goals of CART is to develop a simple tree structure for data analysis, it follows that relatively few variables may appear explicitly in the splitting criteria (see Figure 4.2 that splits to the left and right in the model). This could be interpreted to mean that the other variables in the survey which are not shown in the Tree, known as ‘surrogate splits’, are not as important in understanding or predicting the dependent variable. However, unlike a linear regression model, a variable in CART can be considered highly important even if it never appears as a primary node splitter, in this case, either on the left or right side in the model. The reason is, CART keeps track of surrogate splits in the tree-growing process, and as such the contribution a variable can make in prediction is not determined only by primary splits as shown in Figure 4.2 (Breiman et al., 1984).

An example in Figure 4.2 is to consider pairs of variables that contain similar information. In the Tree, Segment2 (Spend Rate) of each customer may refer to the ‘size-of-wallet’ and ‘willingness of customers to spend in our hotel’ which is *hidden* in the Tree. This contrasts with Segment5, (Customer’s Lifestyle Characteristics) which is *visible* in the Tree. Although only one of these variables may appear in a particular primary split, as one will perform better than the other in a given context, to rank one of these variables as important and the other as unimportant could be a mistake. This would become evident by eliminating the better variable when applying the Tree to new data and running the analyses again. In this circumstance, the surrogate variable, Segment2 (Spend Rate), would end-up doing all the work of the primary splitter. The phenomenon of one variable hiding the significance of another is known as *masking* and is addressed in CART’s Variable Importance (VI) measures in Table 4.4.

Table 4.4 *Variable Importance Measures RQ1a DV = (Chain, Independent and Resort Hotels)*

Variable Code	Variable Name	Score	Variable Strength
SEGMENT1	Customer Profiling	100.00	
RESOURCES1	Separate Budgets in use	88.81	
ACQUIRE3	Sales Promotion	78.89	
ACQUIRE4	Word-of-Mouth advocacy	76.64	
RESOURCES2	Same Budget in use	56.11	
SEGMENT4	Customer Needs and Wants	45.37	
SEGMENT5	Lifestyle characteristics	40.48	
SEGMENT2	Spend Rate (Size-of-Wallet)	30.02	
ACQUIRE2	Media Advertising	26.47	
ACQUIRE1	Direct/Online Marketing	19.57	
RETAIN2	Focus on Retention	15.35	
RESOURCES3	No Particular Budget	8.98	

To calculate the Variable Importance (VI) scores, CART looks at the improvement measure attributable to each variable in its role as a surrogate to the primary splits as shown in Table 4.4. The value of these improvements are summed over each node and totalled and are then scaled relative to the best performing variable. The variable with the highest sum of improvements is scored 100, with all other variables having lower scores ranging down towards zero.

The chief measure in Table 4.4 at 100.00 is Segment1, (Customer Profiling). This is significant because it takes a great deal of highly specific firm-customer disaggregated data management and resources to be utilised fully as indicated with the presence of the variable Resources1 (Separate Budgets) in use for Customer Acquisition and Customer Retention, the second most important VI measure with a score of 88.81. These top two measures are masked in the Tree, notwithstanding importance for only 29 Chain, 6 Independent and 4 Resort hotels with Customer Profiling as a very important CE strategy for them as shown in Table 4.4. The next VI measure of relative importance is Acquire3 (Sales Promotion), signalling an expense item that can be quite large and which should not go unnoticed. This has a VI score of 78.89. The fourth VI measure with an importance score of 76.64 is Acquire4 which is, ‘We rely on word-of-mouth advocacy to acquire customers to our hotel’. Understandably, for all hotels - Chain, Independent and Resorts, this is one of the most inexpensive forms of advertising that can be done, notwithstanding its difficulty, as it relies on past and present customers to advocate on behalf of new or potential customers, (Berger and Swartz, 2011; Libai et al., 2010).

Moving down the VI Table next is Resources2 (Same Budget), showing budgets in use for acquisition and retention of customers signalling that this is of less importance than indicated in the Tree. Resources2 is surrogate to the parent node, Node 1 in the Tree. In the Tree, Resources2, are indicated as important for 51 Chain, 23 Independent, and 1 Resort hotel as Table 4.4 shows. In Segment4 (Customers' Needs and Wants), Segment5 (Lifestyle Characteristics), and Segment2 (Spend Rate) of each customer (indicating the *size* of the customer wallet and *willingness* on the part of the customer to spend in the hotel, not actual spend), and lastly Acquire2 (Media Advertising), are consistent with the Tree structure as *mid-strength* indicators. For example, Segment4 is node 7 (out of 12) in the Tree and mid range in the VI Table with a score of 45.37. Segment2, which is a hidden variable in the Tree, has a reasonable strength with a score of 30.02/100 as shown in the VI Table.

However, Acquire1 (Direct and Online Marketing), whilst showing a low score of 19.57 in the VI Table, is also completely masked in the Tree. This is interesting because direct and online marketing is significantly more economical to undertake, manage and control compared to other forms of conventional media advertising (that which is contracted with agent commissions and for a specified period of time). Both Ambler et al., (2004) and Wagner et al., (2003) are influential in this area.

The least important strategy in the Tree and VI Table is Retain2, (Customer Retention). What this signals is that the Chain, Independent and Resort hotels are focusing on customer acquisition first, and retention second. This is shown in the figures for each hotel in the Tree summary Table 4.3 and in the Tree diagram Figure 4.2 with acquisition at the top in node1 and retention closer to the bottom as node9. The Classification Tree and VI findings, indicate trends and associations (not for predictive validity), of the four strategy drivers in RQ1 that are shown to contribute to CE Outcomes in priority according to business need. By implication, this makes the accommodation hotels, which are highly customer centric, see-sawing in emphasis between customer acquisition and retention as a strategy focus.

MARS Results on RQ1a.

The MARS calculations and results in each CART model are presented. They were modelled to verify efficacy and stability of the variables identified and complement the CART models. The first MARS model in Figure 4.3 complements the CART model in Figure 4.2 and VI Table 4.4. A Main-Effects MARS was run which show the effects of the x variables as a function of Y . The six (\mathbf{x}) variables MARS selected on the target variables (Y) Chain, Independent and Resort hotels, show support for $Y = 0.721235$. This result was then tempered by the strength and weaknesses of the independent variables as identified in the MARS analysis, identified as *Basis* functions. The starting point was to cast the approximation in the form of an expansion from those set of *Basis* Functions (BF), that are linked and shown in the sub-set regions where 1 is an indicator function having the value one if its argument is true, and, otherwise zero if it is false.

In broad terms, BF1/BF3 Segment5, the finding out about Customer Lifestyle Characteristics is having a negative effect (coefficient -0.431748) on the dependent variable(s) Y , when the hotels are pursuing BF5 the Loyalty2 strategy (which is a low level activity present in the data), with the coefficient -0.299099. By contrast, BF9 Linkages4, Customer Spend (coefficient +0.299446) and BF13 Linkages2, Advertising Spend (coefficient +0.180222) are both having a positive effect on Y as presented in the data. Segment5, the Customer Lifestyle Characteristics variable has an added negative contribution via BF17 (coefficient -0.189602), as it is showing association to Linkages2, Advertising Spend. Lastly, BF43 Volume1 strategy is showing a positive contribution (coefficient +0.410437) on Y , where Resources2, Same Budget is used as is presently the case. See Figure 4.3.

Main-Effects MARS Model on RQ1

Subsets for SEGMENT5_mis
 SubSet1 = {SEGMENT5 ne.}
 Subsets for SEGMENT5
 SubSet1 = {"1", "4", "5"}
 SubSet2 = {"2", "4"}
 Subsets for LOYAL
 SubSet1 = {"2"}
 Subsets for LINKAGES4_mis
 SubSet1 = {LINKAGES4 ne.}
 Subsets for LINKAGES4
 SubSet1 = {"4", "5", "6"}
 Subsets for LINKAGES2_mis
 SubSet1 = {LINKAGES2 ne.}
 Subsets for LINKAGES2
 SubSet1 = {"1", "3", "6"}
 Subsets for RESOURCES2_mis
 SubSet1 = {RESOURCES2 ne.}
 Subsets for VOLUME
 SubSet1 = {"1"}

Basis Functions
 BF1 = (SEGMENT5 ne.);
 BF3 = (SEGMENT5 is in SubSet1) * BF1;
 BF5 = (LOYAL in ("2")) * BF1;
 BF7 = (LINKAGES4 ne.);
 BF9 = (LINKAGES4 is in SubSet1) * BF7;
 BF11 = (LINKAGES2 ne.);
 BF13 = (LINKAGES2 is in SubSet1) * BF11;
 BF15 = (SEGMENT5 ne.) * BF11;
 BF17 = (SEGMENT5 is in SubSet2) * BF15;
 BF39 = (RESOURCES2 ne.) * BF1;
 BF43 = (VOLUME in ("1")) * BF39.

Y = Chain, Independent, Resort hotels

Dependent Y variables	Independent x variables	Variable codes	Variable labels
$Y = 0.721235$	$- 0.431748 * BF3$	Segment5	Lifestyle Characteristics
	$- 0.299099 * BF5$	Loyalty2	Weak strategy
	$+ 0.299446 * BF9$	Linkages4	Customer Spend
	$+ 0.180222 * BF13$	Linkages 2	Advertising Spend
	$- 0.189602 * BF17$	Segment5	Lifestyle Characteristics
	$+ 0.410437 * BF43$	Volume1	High strategy

Figure 4.3. Main Effects MARS on RQ1a

What this model of MARS reveals is that all three categories of hotels – Chain, Independent and Resort, are currently pursuing a customer acquisition strategy in the main, which is demonstrated positively with use of Linkages4 Customer Spend activities, Linkages5 Advertising Spend, and Volume1 high level order strategy emphasis. The trade-off is that the hotels are operating at *Baseline* level CE activities more than at the *Intermediate* levels of CE. This means a focus on segmentation strategies with customer groups, not individual customers. This is demonstrated negatively in Segment5 Lifestyle Characteristics and with use of a Loyalty2 Weak emphasis customer retention strategy. Next is discussion on Research Question Two RQ2a).

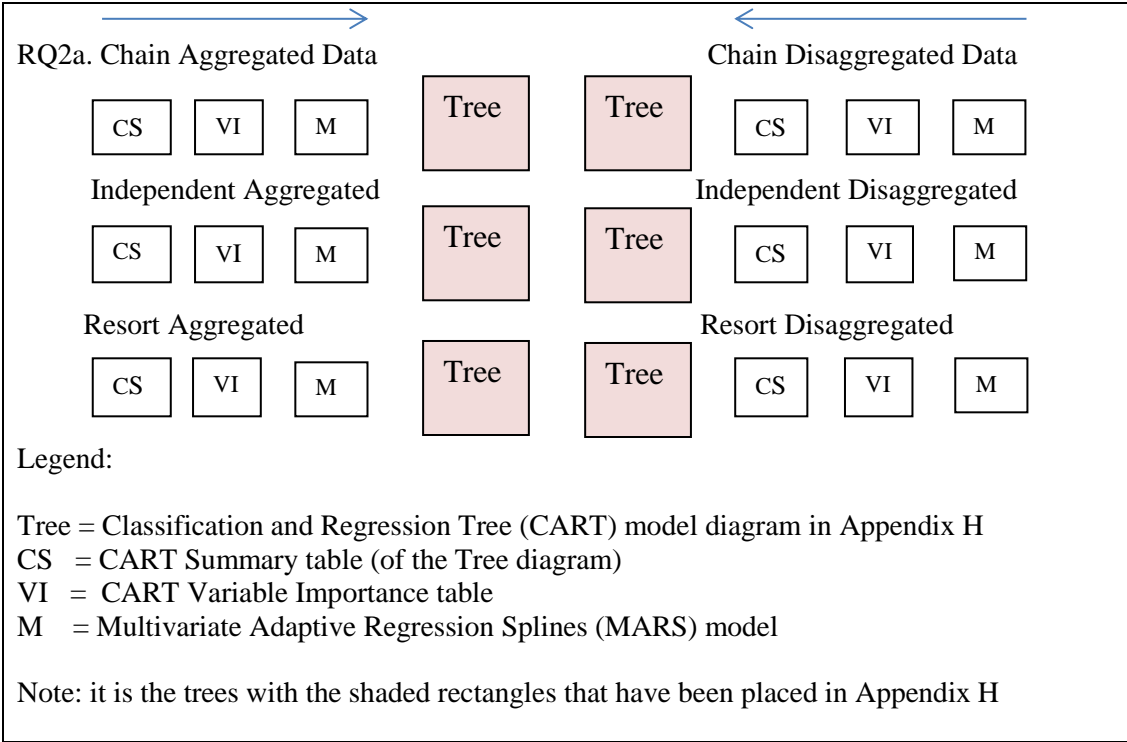
CART Analysis on RQ2a: Chain Hotels - Aggregated Data

Moving to the results of RQ2a, the focus now turns to the type of customer data the hotels use. Recall RQ2a as:

RQ2a. To what extent are the customer equity data (both aggregate and disaggregate) managed?

As management of a hotel’s customer data can be either of a general nature or highly specific, it was necessary to analyse the data types as discrete elements in the Chain, Independent and Resort hotels separately. To do this, follows the arrangements discussed earlier in section 4.4, in Table 4.2. Reproduced here in Table 4.5 is that section of the schema for RQ2a.

Table 4.5 Reporting the Data and Results for Research Question 2a



The CART results for the Chain hotels with aggregated data is first. A summary of the Tree structured classifiers is summarised in the CART Table 4.6. Note in the figures presented, the data are not results solely for the 80 Chain hotels. As mentioned earlier, one of CART and MARS features in high dimensional data is its ability to examine the dependent variable Y with the other dependent variables and the others as selected independent x variables. Consequently, each node records the primary result as 1 for strong (high) and 0 for weak (low) in all cases found not

necessarily for all 114 cases under examination. The Tree structure which identifies the cases found for analysis of the Chain hotels show the variable's utilisation and is then weighted against the other cases selected. From here, the node is placed in the Chain hotels Tree with aggregated data. If not the highest node itself, then the variable is placed relative to the highest and lowest nodes as the data dictates. This facility is particularly useful with a small sample size as in this study, as it is interfacing with, rather than isolating the data sets.

Starting at the top in Table 4.6, node1 shows 80/114 (70.2%) of cases reported using the strategy Volume1, which is attracting high volume customers to the hotel. Of this figure in node2, 76/101 (75.2%) utilise Repeat1, which is the strategy or strategies in use for repeat stay (customer retention). Strategies for Volume1 customers with repeat stay intentions relate to (i) Room Rates charged, and (ii) Customers Spend, that is, the actual amount(s) customers spend in the hotel.

Next node3 in the Tree signals Data Manage3 which is the Expected Benefits of customers to the hotel. To understand a customer's expectations of hotel service requires some effort on the part of the hotel to find this out. Whilst node4, Data Manage1 Non-Specific Customer data suggests some basic level data collection method in the hotel, this should not be taken literally to mean that no data is obtained or managed or that the management of the data is in some way *laisse-faire* as evidenced by the fact that in 69/84 (82.1%) cases, the Chain hotels are managing to segment customers, albeit at a *Baseline* level CEM way.

In support of *Baseline* segmentation principles in use, node5 in the Tree signals the use of Data Manage4, which is demographic and geographic information obtained on customers. This type of data on customers is regarded as *essential*, (Berger and Nasr, 1998). It is not as intrusive as finding out highly specific and possibly sensitive customer information. Thus, it is efficient, economically viable (cheap) to obtain, objective in its purpose and effective (easy to maintain) in the data base records, (Berger and Nasr-Bechwati, 2001; Gupta and Lehmann, 2003).

In node6 is Linkages1, Room Rates on offer shows a few, but significant cases recorded 8/10 (80%). The last case, node7 which is the terminal node signals that Loyalty1 Strong is for 7/17 (41.2%) cases.

Table 4.6 Summary of CART Model for RQ2a Chain Hotels: Aggregated Data

Strategy Type	Nodes	Variable Code; Variable Label	Chain Reported	% Ref
Acquisition	1	Volume1 = High Order Emphasis	80/114	70.2%
Retention	2	Repeat1 = Strong	76/101	75.2%
Acquisition/ Retention	3	Data Manage3 = Expected Benefits	69/84	82.1%
		Data Manage1 = Non Specific Data	27/40	67.5%
Acquisition Retention	5	Data Manage4 = Demographic/Geographic	11/23	47.8%
		Linkages1 = Room Rates	8/10	80.0%
	7	Loyalty1 = Strong	7/17	41.2%

Variable Importance

The Variable Importance (VI) scores in this CART model are shown in Table 4.7. CART examined the improvement measure attributable to each primary split in its role as a surrogate to the primary split. The importance score measures a variable’s ability to mimic the Tree and act as a stand-in for variables appearing in primary splits. The value of any variable in this listing relates to this Tree only and is not an indicator of absolute value of a variable: the rankings are strictly relative to the Tree structure.

Table 4.7 Variable Importance - RQ2a Chain Hotels: Aggregated Data

Variable Code	Variable Name	Score	Variable Strength
LINKAGES5	Competitor Offerings	100.00	
DATAMANAGE3	Expected Benefits	71.38	
DATAMANGE4	Geographic/Demographic	63.80	
DATAMANAGE1	Non-Specific Data	57.96	
REPEAT1	Repeat Stay	54.57	
LINKAGES1	Room Rates	45.33	
LOYALTY	Loyal Customers	43.91	
VOLUME	Volume Customers	42.98	
DATAMANAGE5	Systems/Office procedures	37.85	
LINKAGES4	Customer Spend	32.71	
DATAMANAGE6	Time to Manage	25.78	
VALUE2	Value Customers (Low)	21.62	
LINKAGES2	Advertising Spend	7.96	

The VI Table is signalling that Linkages5 – Competitor Offerings with the highest score of 100.00, is of very high importance that is masked in the Tree findings. The second, third and fourth VI measures conform more logically with the Tree findings, that is, customers’ expectations of hotel service (Data Manage3), and concomitant

customers' geographic/demographic details required for and obtained by the hotel (Data Manage4) are effected through *Baseline* levels of CE data management techniques (Data Manage1) as strategy.

A Repeat Stay (customer retention) strategy emphasis is negligible, as it features lower in the Tree, and similarly with Loyalty (programs), which is 43.91 in the Table or slightly under half-way down the listing. These two measures are, however, evidently unmasking some importance of these variables in the Tree. Likewise Linkages1, Room Rates features as a relatively important variable in the VI Table 4.7 signalling an importance for hotel managers on the use of this strategy.

Repeat Stay, which is a customer retention strategy, and Volume, which is a customer acquisition strategy, show a mid-way strength indicator in the VI Table, but is in reverse to both the strength of those components in the Tree. That is, Volume is the number one criteria in the Tree, followed by Repeat1 strong. In looking at the remaining five lowest VI measures in the Table, they show (i) Data Manage5, that is, Utilising Simple and Easy Office Systems and Procedures, (ii) Linkages4, How Much a Customer Spends in the Hotel, (iii) Data Manage6, Devotion to or Allocation of Time to Manage our Customers, (iv) Value2, that is low emphasis strategy on customer acquisition and (v) Linkages2, hotels' amount of Advertising Spend. What these lower five variables reveal, is that they are masked or hidden in importance in relation to other 'visible' variables located in the Tree. Whilst of low importance relative to the other variables, does not mean they are of no importance.

MARS Analysis on RQ2a Chain Hotels – Aggregated Data

This is a main effects model on RQ2 where x variables are shown as a function of Y . The eight variables MARS selected on the target variable Chains-Aggregated Data, show a positive result on $Y = 0.703513$. This figure is tempered by the independent variables as identified in the MARS model. Settings were recorded at BF=50, with no interactions and moderate penalty applied. The results of the regression equation is in Figure 4.4 as follows:

Main –Effects MARS Model on RQ2a Chain Hotels – Aggregated Data

Subsets for VOLUME

SubSet1 = {"1"}

Subsets for LOYAL

SubSet1 = {"2"}

Subsets for LINKAGES4_mis

SubSet1 = {LINKAGES4 ne.}

Subsets for DATAMANAGE1_mis

SubSet1 = {DATAMANAGE1 ne.}

Subsets for DATAMANAGE1

SubSet1 = {"1", "3", "5", "6"}

Subsets for REPEAT

SubSet1 = {"1"}

Subsets for DATAMANAGE3_mis

SubSet1 = {DATAMANAGE3 ne.}

Subsets for DATAMANAGE3

SubSet1 = {"1", "5"}

Basis Functions

BF1 = (VOLUME in("1"));

BF3 = (LOYAL in("2"));

BF5 = (LINKAGES4 ne.);

BF9 = (DATAMANAGE1 ne.)*BF5;

BF11= (DATAMANAGE1 is in SubSet1)

* BF9;

BF13 = (REPEAT in ("1"))*BF5;

BF15 = (DATAMANAGE3 ne.)*BF5;

BF17 = (DATAMANAGE3 is in SubSet1) *BF15.

Y = Chain hotels: Aggregated customer data

Dependent Y variable	Independent x variables	Variable codes	Variable labels
Y = 0.703513	+ 0.578359*BF1	Volume1	High strategy
	- 0.253072*BF3	Loyalty2	Weak strategy
	+0.210086*BF11	DataManage1	Non-specific Data
	+ 0.443421 *BF13	Repeat1	Strong strategy
	- 0.754260*BF15	DataManage3	Expected Benefits
	- 0.282150*BF17		

Figure 4.4. Main Effects MARS Model on RQ2a Chains: Aggregated Data

In broad terms, BF3 Loyalty strategy, is having a negative effect (coefficient -0.253072) on the dependent variable Y, when the hotels are pursuing BF1 a Volume strategy (which is a high level activity present in the data), with the coefficient +0.578359.

By contrast, BF11 Data Manage1, which is Non-Specified averages data in use (coefficient +0.210086) is having a positive effect on Y when influenced by the presence of Linkages4, Customer Spend in the data. Likewise, BF13 Repeat1

(Repeat Stay) strategy variable is having a positive contribution (coefficient +0.443421) also because of the presence of Linkages4, Customer Spend in the data.

BF15 Data Manage3, Customers Expected Benefits is a negative contribution (coefficient -0.754260) on Y, with the presence of Linkages 4, Customer Spend in the data. The association of BF15 to BF17 shows a negative contribution (coefficient -0.282150) as a result of the influence Data Manage1, Non-Specified averages data technique in use.

What this model of MARS reveals, is that the Chains are pursuing *Baseline* segmentation principles with their customer data with a Volume1 high order strategy which is positive. Obtaining high volume as a strategy assists in securing a significant customer base or foundation from which to work, Berger and Nasr-Bechwati, (2001). As a major customer acquisition strategy, obtaining Volume customers should enable these hotels to pursue customer retention and loyalty. If successful in this technique, the customer base grows and there is less worry of defection through turnover. Managing turnover as with labour turnover is expensive as in this case, hotels are in constant renewal of seeking customer satisfaction from *new* (to the hotel) customers.

Understanding the difficulties posed by the utilisation of aggregation data only for effecting CE outcomes particularly with acquisition and retention, puts loyalty programs on the ‘back-burner’. In other words, the Tree, VI measures and MARS models all rate Loyalty as low on the Chain hotels’ agenda of priorities.

CART Analysis on RQ2a: Chain Hotels - Disaggregated Data

Starting at the top in Table 4.8, node1 shows 80/114 (70.2%) of cases reported using the Volume1, high order strategy which is attracting high volume customers to the hotel. Of this figure in node 2, 76/101 (75.2%) utilise Repeat1 Strong, which is the strategy in use for repeat stay customers (retention). Strategies for volume customers with repeat stay intentions relate to (i) Room Rates charged, and (ii) Customer Spend, that is, the actual amount(s) customers spend in the hotel.

Next, node3 in the Tree shows Data Manage3 which is the Expected Benefits of customers to the hotel at 69/84 (82.1%) in emphasis. At node4 DataManage4, Geographic and Demographic customer data obtained shows importance for 27/40 (67.5%) of cases. Likewise, node5 Linkages1, Room Rates shows importance for 15/17 (88.2%) of cases. What these nodes signal, is that the Chains are emphasising these strategies with mixed priorities on customer acquisition and retention.

Utilising resources to combat competitors is seemingly a necessary evil. Whilst competitor influences detract from looking at products and services internal to the firm, external threats should not be overlooked or ignored. It comes down to a question of balance with resources available, (Venkatesan and Kumar, 2004). In node6, Linkages5, Competitor Offerings, this appears to be a relatively low strategy emphasis and not a major issue for the Chains in this study, as depicted in 12/23 (52.2%) of cases. The last case, node7 Loyalty1 Strong shows cases for this strategy high in emphasis for few hotels in only 7/17 (41.2%) of cases reported. What this indicates is that the Loyalty strategy is difficult to achieve in the hotels. The CART model for the Chain Hotels with disaggregated data in use is summarised in Table 4.8 as follows.

Table 4.8 Summary of CART Model RQ2a Chain Hotels: Disaggregated Data

Strategy Type	Nodes	Variable Code; Variable Label	Chain Reported	% Ref
Acquisition	1	Volume1 = High Order Emphasis	80/114	70.2%
Retention	2	Repeat1 = Strong Focus	76/101	75.2%
Acquisition/ Retention	3	Data Manage3 = Expected Benefits	69/84	82.1%
	4	Data Manage4 = Demographic/ Geographic	27/40	67.5%
Acquisition	5	Linkages1 = Room Rates	15/17	88.2%
Retention	6	Linkages5 = Competitor Offerings	12/23	52.2%
	7	Loyalty1 = Strong Focus	7/17	41.2%

Variable Importance

To calculate the Variable Importance (VI) scores in Table 4.9, CART examined the improvement measure attributable to each primary split in its role as a surrogate to the primary split. The VI measures in Table 4.9 signals that, Linkages5 – Competitor Offerings with the highest score of 100.00, is of very high importance that is masked in the Tree findings as node6.

The second VI measure Data Manage3, (Expected Benefits), when staying with us, is consistent with the Tree results in node3. The next consideration is DataManage2 Highly Specific Data. Understanding the difficulties with collecting highly specific disaggregated data and the procedures required for its use and analysis, is absent in the Tree, but its hidden importance and recognition is uncovered by the third VI measure at 62.13 in the Table.

The VI Table relative to the Tree shows a concerted effort on the part of the Chain hotels to manage the customer asset as effectively as possible. Whilst high volume is a strong pursuance strategy, it is intended for establishing a large customer base which aids sustainability and performance in hotels, (Phillips, 1996; 1999). With a strong customer base, Chain hotels are then in a prime position to advance their standing in business by working with elusive strategies such as Repeat customers. Repeat programs are shown as a strategy strength in both the VI Table and in the Tree. It is with loyalty programs that are viewed as contentious. The following results reveal the extent.

Loyalty1 and Repeat1 (customer retention) strategies, feature prominently and together in the VI Table 4.9 with scores for Loyalty1, mid-range in strength at 55.05 and for Repeat1, 54.04. However, these same two variables in the Tree are deeply divided in importance. The Tree shows these two variables are at opposite ends of the spectrum. Repeat1 is high in Tree at node2, whereas Loyalty1 is last at node7 at the bottom. Volume1 high, is node1 in the Tree and mid way in strength in the VI Table.

The next three VI measures are DataManage 6, which is the Allocation of Time to manage the customers, DataManage4, which shows regard for Geographic/Demographic customer data and DataManage5, Office Systems and Procedures in Place. All three show some importance in managing the customer asset. The coordination requirements to achieve high level desirable outcomes require management practices to be well above *Baseline* CE. These sentiments are on par with the Tree findings.

The remaining four VI measures in Table 4.9 are Linkages1, Room Rates, Linkages4, actual Customer Spend in the hotel, Linkages2, Advertising Spend and Value customers (high and low acquisition), the least important measure in the Table. These remaining four VI measures are totally hidden in the Tree.

Table 4.9 Variable Importance Chain Hotels: Disaggregated Data

Variable Code	Variable Name	Score	Variable Strength
LINKAGES5	Competitor Offerings	100.00	
DATAMANAGE3	Expected Benefits	77.38	
DATAMANAGE2	Highly Specific Data	62.13	
LOYAL`Y2	Loyal Customers	55.05	
REPEAT1	Repeat Stay	54.04	
VOLUME1	Volume Customers	42.57	
DATAMANAGE6	Time to Manage	40.79	
DATAMANAGE4	Geographic/Demographic	34.31	
DATAMANAGE5	Systems/Office procedures	30.39	
LINKAGES1	Room Rates	24.73	
LINKAGES4	Customer Spend	23.02	
LINKAGES2	Advertising Spend	10.60	
VALUE	Value Customers	8.72	

MARS Analysis on RQ2a – Chain Hotels Disaggregated Data

This is a main effects model on RQ2 where x variables are shown as a function of Y . The eight variables MARS selected on the target variable Chains-Disaggregated Data, show a positive result on $Y = 0.720397$. This figure is tempered by the independent variables as identified in the MARS model. Settings were recorded at $BF=50$, with no interactions and moderate penalty applied. The results of the regression equation is shown in Figure 4.5.

Main –Effects MARS Model on RQ2a: Chains – Disaggregated Data

Subsets for VOLUME

SubSet1 = {"1"}

Subsets for LOYAL

SubSet1 = {"2"}

Subsets for LINKAGES4_mis

SubSet1 = {LINKAGES4 ne.}

Subsets for REPEAT

SubSet1 = {"1"}

Subsets for DATAMANAGE3_mis

SubSet1 = {DATAMANAGE3 ne.}

Subsets for DATAMANAGE3

SubSet1 = {"1", "5"}

Subsets for LINKAGES5_mis

SubSet1 = {LINKAGES5 ne.}

Subsets for LINKAGES5

SubSet1 = {"1", "2", "4", "6"}

Basis Functions

BF1 = (VOLUME in("1"));

BF3 = (LOYAL in("2"));

BF5 = (LINKAGES4 ne.);

BF9 = (REPEAT in("1"))*BF5;

BF11 = (DATAMANAGE3 ne.) * BF5;

BF13 = (DATAMANAGE3 is in SubSet1)

*BF11;

BF15 = (LINKAGES5 ne.)*BF5;

BF17 = (LINKAGES5 is in SubSet1)

*BF15.

Y = Chain hotels: Disaggregated customer data

Dependent Y variable	Independent x variables	Variable codes	Variable labels
$Y = 0.720397$	$+0.560346 *BF1$	Volume1	High strategy
	$-0.257769 *BF3$	Loyalty2	Weak strategy
	$+ 0.435388 *BF9$	Repeat1	Strong strategy
	$-0.823290 *BF11$	DataManage3	Expected Benefits
	$-0.305656 *BF13$		
	$+0.210679 *BF17.$	Linkages5	Competitor Offerings

Figure 4.5. Main Effects MARS Model on RQ2a Chain Hotels: Disaggregated Data

In broad terms, BF1 Volume1, high order strategy is having a positive effect on the dependent variable Y (coefficient +0.560346). However, this is tempered by BF3 Loyalty2 low strategy, which is having a negative effect on Y (coefficient - 0.257769), when the hotels are pursuing a Volume1 strategy.

By contrast, BF9 Repeat1, strong strategy variable is showing a positive contribution (coefficient +0.435388) as a result of the presence of BF5 Linkages4, actual Customer Spend in the hotel. Next is BF11, DataManage1, which is showing a negative contribution on Y (coefficient -0.823290) when associated with BF5

Linkages4, actual Customer Spend in the hotel. BF13, Data Manage3, Expected Benefits has an added negative contribution on *Y* via BF11 (coefficient -0.305656). Lastly, BF17 is a positive contribution (coefficient +0.210679) when it is associated with Linkages4, actual Customer Spend in the hotel.

What this model of MARS reveals is that the Chain hotels are pursuing high volume customer acquisition at *Baseline* segmentation CE as the most viable strategy option. This action requires a great deal of skill and attention to manage in a mass market and is positively associated with the CE data management techniques deployed as identified in the VI Table and in the Tree. A second action in the hotels is that devoted to customer retention showing strong in the Tree with 76/101 (75.2%) of a cases responding with a somewhat lower, but important emphasis maintained in the VI Table 4.9 showing a score of 54.04. It is in the MARS model where the repeat stay emphasis is tempered negatively in the data management practices utilised. A stronger casualty in CE management strategy for the Chain hotels is lower retention because of defection and customer loyalty per se. Even with highly sophisticated disaggregate customer data available and in use, customer loyalty and the current programs which support it, are likely to remain difficult to make profitable.

CART Analysis on RQ2a: Independent Hotels - Aggregated Data

Starting at the top of the Table 4.10, node1 shows 29/114 (25.4%) cases reported use of Linkages4, Customer Spend strategy. Of this figure in node2, only 2/31 (6.5%) utilise Data Manage4, Geographic/Demographic customer data in the hotel. Offset in node3 is focus on Loyalty1 strong strategy in 27/83 (32.5%) of cases.

Next, node4 shows emphasis through DataManage5, which is Simple and Easy Office Systems and Procedures in Place 7/42 (16.6%) of cases. At node5 only 6/18 (33.3%) of cases indicate use of DataManage1, Non-Specific Customer Data in use. What this CART analysis reveals overall, is that the Independent hotels are focused on customer loyalty with retention overtones, given customer data availability and usage. An important result is Linkages4, (Customer Spend), an over-riding strategy focused mechanism in the hotels.

Table 4.10 Summary of CART Model RQ2a Independent Hotels: Aggregated Data

Strategy Type	Nodes	Variable Code; Variable Label	Indep't Reported	% Reference
Acquisition	1	Linkages4 = Customer Spend	29/114	25.4%
Acquis/Retention	2	Data Manage4 = Geographic/ Demographic	2/31	6.5%
Retention	3	Loyalty1 = Strong Focus	27/83	32.5%
Acquis/Retention	}	4 Data Manage5 = Office Systems	7/42	16.6%
Retention		5 Data Manage1 = Non-Specific Data	6/18	33.3%

Variable Importance

The Variable Importance (VI) scores for this CART run are shown in Table 4.11. As mentioned previously, the value of any variable in this listing relates only to this specific Tree and is not an indicator of absolute value of a variable: the rankings are strictly relative to the Tree structure.

The top VI measure in Table 4.11 shows Linkages4 (Customer Spend) at 100.00. This is relative to and consistent with node1 in the Tree results. How much a customer spends in the Hotel, is an important customer acquisition strategy variable, (Polo and Sese, 2011; Reinartz and Kumar, 2003). The second, third and fourth VI measures also show some conformance with the Tree findings, that is Loyalty1, strong loyalty programs which are pursued in the hotel are limited by DataManage1, Non-Specific data management techniques in use. With Data Manage5, Simple and Easy Office Systems and Procedures in place not a strong focus in the Tree, as node4, the VI measures show this of higher importance with a score of 62.78.

The next VI measure, Repeat Stay is symbolising its importance with a score of 59.56. This is a 'hidden' variable in the Tree. DataManage4, Geographic and Demographic customer data is rated fairly high in the VI Table 4.11 at 59.20, and shows its corresponding relationship with node2 which is high in the Tree.

In looking at the remaining seven mid to lowest measures in the VI's Table, they show (i) Volume2 customers as a low, but important emphasis, (ii) DataManage6, Time to Manage, (iii) Value2, that is low in strategy and low in

emphasis on customer acquisition, (iv) Linkages2, hotels amount of Advertising Spend, (v) Linkages 1, Room Rates, (vi) Data Manage3, Expected Benefits and (vii) Linkages5, Competitor Offerings. All seven variables are hidden in the Tree but show a masked variable importance. Overriding in all of this is customer retention. The Independent hotels do not work on attaining large customer data bases (volume customers) to effect turnover. They undertake to attract and retain much smaller data sets that are economically viable to manage given the scope of operations.

Table 4.11 Variable Importance – Independent Hotels: Aggregated Data

Variable Code	Variable Name	Score	Variable Strength
LINKAGES4	Customer Spend	100.00	
LOYALTY1	Loyal Customer	81.29	
DATAMANAGE1	Non Specific Data	67.62	
DATAMANAGE5	Office Systems/Procedures	62.78	
REPEAT	Repeat Stay	59.56	
DATAMANGE4	Geographic/Demographic	59.20	
VOLUME2	Volume Customers	19.29	
DATAMANAGE6	Time to Manage	18.09	
VALUE2	Value Customers	12.62	
LINKAGES2	Advertising Spend	12.34	
LINKAGES1	Room Rates	11.93	
DATAMANAGE3	Expected Benefits	10.66	
LINKAGES5	Competitor Offerings	9.38	

MARS Analysis on RQ2a -Independent Hotels Aggregated Data

This is a main effects model on RQ2a where x variables are shown as a function of Y . The eight variables MARS selected on the target variable Independent Hotels-Aggregate Data, show a positive result on $Y = 0.801169$. This figure is tempered by the independent variables as identified in the MARS model. Settings were recorded at BF=50, with no interactions and moderate penalty applied. The results of the regression equation is in Figure 4.6.

Main – Effects MARS Model on RQ2a: Independent Hotels – Aggregated Data

Subsets for REPEAT

SubSet1 = {"1"}

Subsets for VOLUME

SubSet1 = {"1"}

Subsets for LINKAGES4_mis

SubSet1 = {LINKAGES4 ne.}

Subsets for LINKAGES4

SubSet1 = {"1", "2"}

SubSet2 = {"2", "3", "5", "6"}

Subsets for LOYAL

SubSet1 = {"2"}

Subsets for DATAMANAGE1_mis

SubSet1 = {DATAMANAGE1 ne.}

Subsets for DATAMANAGE1

SubSet1 = {"1", "6"}

Basis Functions

BF1 = (REPEAT in ("1"));

BF3 = (VOLUME in ("1"));

BF5 = (LINKAGES4 ne.);

BF7 = (LINKAGES4 is in SubSet1) * BF5;

BF9 = (LOYAL in ("2"));

BF11 = (DATAMANAGE1 ne.);

BF13 = (DATAMANAGE1 is in SubSet1) * BF11;

BF15 = (LINKAGES4 ne.) * BF11;

BF17 = (LINKAGES4 is in SubSet2) * BF15.

Y = Independent hotels: Aggregated customer data

Dependent Y variables	Independent x variables	Variable codes	Variable labels
Y = 0.801169	- 0.314107 * BF1	Repeat1	Strong strategy
	- 0.513159 * BF3	Volume1	High strategy
	+ 0.296186 * BF7	Linkages4	Customer Spend
	+ 0.260132 * BF9	Loyalty2	Weak strategy
	- 0.237952 * BF13	DataManage1	Non specific data
	- 0.199508 * BF17	Linkages4	Customer Spend

Figure 4.6. Main Effects Model on RQ2a Independent Hotels: Aggregated Data

In broad terms, BF3 Volume strategy, is having a negative effect (coefficient - 0.513159) on the dependent variable Y, when the hotels are also pursuing BF1 Repeat1 strong strategy which is also showing a negative coefficient -0.314107.

By contrast, BF7 Linkages4, Customer Spend is showing a positive contribution on Y (coefficient +0.296186). Likewise BF9, Loyalty2 low strategy shows a positive contribution on Y (coefficient +0.260132). Next is BF13, Data Manage1, Non Specific (averages) data via BF11, shows a negative contribution on Y (coefficient -0.237952). Similarly, BF17 Linkages4, Customer Spend is also showing a negative contribution on Y, via BF15 and BF11 (coefficient -0.199508).

What this model of MARS reveals, is that the Independent hotels are pursuing customer Loyalty with Volume as a ‘back-up’ strategy through the Linkages4 the Customer Spend strategy. This means that customer acquisition is the mainstay strategy medium in use with customer retention through Repeat Stay and Loyalty programs less able to be achieved at this level of (aggregation data) functioning. In the VI Table 4.11 and MARS analysis, the results show weak negative associations to repeat stay and customer loyalty program options at this time, signalling ‘off-the-radar’ strategically for the Independent hotels in this study.

CART Analysis on RQ2a: Independent Hotels - Disaggregated Data

Starting at the top in Table 4.12, node1 shows 29/114 (25.4%) cases reported using of the Linkages4, Customer Spend strategy. Next is node2, Loyalty1 Strong, indicates fair usage of this strategy in 27/83 (32.5%) of cases. Next, node 3 shows emphasis for Data Manage5, which is Simple and Easy office Systems and Procedures in Place for 7/42 (16.7% of cases). Next is node3, DataManage5, Office Systems, showing support for only 7/42 (16.7%) of cases.

Node4 is Linkages1, Room Rates on offer is shown for 6/18 (33.3%) of cases. How customer data is managed in node5 is through a Volume1 high order strategy for 2/10 (20.0%) of cases. Node6 is Data Manage2, Highly Specific data which shows emphasis for 20/41 (48.8%) of cases. The last case, node7 with Repeat1, Strong retention strategies is evident for only 3/13 (23.1%) of cases reported in the Tree. The CART model for the Independent hotels with disaggregated data in use is summarised in Table 4.12.

Table 4.12 Summary of CART Model RQ2a Independent Hotels: Disaggregated Data

Strategy Type	Nodes	Variable Code; Variable Label	Indep't Reported	% Ref
Acquisition	1	Linkages4 = Customer Spend	29/114	25.4%
Retention	2	Loyalty1 = Strong Focus	27/83	32.5%
Acquis/	3	Data Manage5 = Office Systems	7/42	16.7%
Retention		Linkages1 = Room Rates	6/18	33.3%
Acquisition	5	Volume1 = High Order Emphasis	2/10	20.0%
Retention	6	Data Manage2 = Highly Specific Data	20/41	48.8%
	7	Repeat1 = Strong Focus	3/13	23.1%

Variable Importance

The Variable Importance (VI) scores for this CART analysis are discussed next. The variable with the highest sum of improvement is matched with all other variables in descending order ranging down towards zero. The same proviso applies to this listing as all others.

The top VI measure in Table 4.13, Repeat1, Strong strategy, signals that this is the most important (customer retention) strategy in the Tree at 100.00. In the Tree itself, however, this variable is relatively weak at node7, as it is a terminal node in the Tree. The second VI measure Linkages4, actual Customer Spend in the hotel is consistent in emphasis with the Tree. The Tree depicts this variable as the parent node1. The corresponding VI score is very high at 97.43. The third VI measure Loyalty1, Strong strategy emphasis is also consistent with the Tree findings in node2. It is with Linkages5, Competitor Offerings, the fourth VI measure in Table 4.12 that has been unearthed, that is, this variable is hidden in the Tree. This shows a reasonably strong score of 61.75.

Management of high disaggregated customer data with a focus on customers' expectations of service feature half way down the VI Table 4.13 as expected in DataManage2, Highly Specific data and for DataManage5 Office Systems in place. With exception to Linkages1, Room Rates (which is the pricing of rooms), the remaining six VI measures are all hidden values in the Tree, indicating some importance in diminishing value. In looking at these VI measures from mid-range 47.10 to lowest 10.29, they are (i) Linkages2, Advertising Spend, (ii) Volume2 low strategy, (iii) DataManage6, Time to Manage customers, (iv) DataManage3, customers Expected Benefits, (v) DataManage4, Geographic/Demographic customer data and (vi) Value customers, that is, the extent the hotels can pursue high or low value customer acquisition strategies. Whilst all six VI measures are hidden in the Tree, their masking reveals an importance as CE strategy drivers and when coupled with disaggregated data sets in customer retention activities. If the Linkages4 (Customer Spend) strategy is tied to Volume Customers (high or low), this signals data sets that can cater to a mass market for high volume customer groups and turnover.

For low volume groups the needs would be more specialised focusing on segmenting by special need business groups, study, leisure and tourism. A specialisation that creates some element of distinct competitive advantage in the market place, possibly exclusivity in service offerings or niche market that aims for customer retention and loyalty can be facilitated through specialised use of CE strategies with disaggregated customer data, (Homburg et al., 2008; Kumar et al., 2006). As evidenced in this study, it is the latter strategy the Independent hotels are pursuing, but not with high levels of disaggregated customer data. The results are shown in Table 4.13.

Table 4.13 Variable Importance Independent Hotels: Disaggregated Data

Variable Code	Variable Name	Score	Variable Strength
REPEAT1	Repeat Stay	100.00	
LINKAGES4	Customer Spend	97.43	
LOYALTY1	Loyal Customer	66.26	
LINKAGES5	Competitor Offerings	61.75	
DATAMANAGE2	Highly Specific Data	57.02	
DATAMANAGE5	Office Systems/Procedures	49.85	
LINKAGES2	Advertising Spend	47.10	
LINKAGES1	Room Rates	40.08	
VOLUME	Volume customers	38.10	
DATAMANAGE6	Time to Mange	31.50	
DATAMANAGE3	Expected Benefits	21.07	
DATAMANGE4	Geographic/Demographic	15.67	
VALUE	Value Customers	10.29	

MARS Analysis on RQ2a Independent Hotels – Disaggregated Data

This is a main effects model on RQ2 where *x* variables are shown as a function of *Y*. The five variables MARS selected on the target variable Independents-Disaggregate Data, show a positive result on $Y = 0.599190$. This figure is tempered by the independent variables as identified in the MARS model. Settings were recorded at BF=50, with no interactions and moderate penalty applied. The model is shown in Figure 4.7.

Main – Effects MARS Model on RQ2a: Independent Hotels – Disaggregate Data

Subsets for REPEAT

SubSet1 = {"1"}

Subsets for VOLUME

SubSet1 = {"1"}

Subsets for LINKAGES4_mis

SubSet1 = {LINKAGES4 ne.}

Subsets for LINKAGES4

SubSet1 = {"1", "2"}

Subsets for LOYAL

SubSet1 = {"2"}

Basis Functions
BF1 = (REPEAT in ("1"));
BF3 = (VOLUME in ("1"));
BF5 = (LINKAGES4 ne.);
BF7 = (LINKAGES4 is in SubSet1) * BF5;
BF9 = (LOYAL in ("2")).

Y = Independent hotels: Disaggregated customer data

Dependent Y variable	Independent x variables	Variable codes	Variable labels
Y = 0.599190	- 0.304704 * BF1	Repeat1	Strong strategy
	- 0.451191 * BF3	Volume1	High strategy
	+ 0.266215 * BF7	Linkages4	Customer Spend
	+ 0.240967 * BF9	Loyalty2	Weak strategy

Figure 4.7. Main Effects Model on RQ2a Independent Hotels: Disaggregated Data

In broad terms, BF3 Volume strategy, is having a negative effect (coefficient - 0.451191) on the dependent variable Y, when the hotels are pursuing BF1 a Repeat1 Strong strategy which is also a negative coefficient -0.304704. By contrast, BF7 Linkages4, Customer Spend is showing a positive contribution on Y (coefficient +0.266215). Likewise BF9, Loyalty2 low strategy shows a positive contribution on Y (coefficient +0.240967).

This model of MARS reveals constraints on the Independent hotels to pursue the retention of customers as a definitive strategy, given the importance on the need to attract first and retain second. These issues are not insurmountable to address with disaggregated data in use. It would be the time, energy, commitment and other resources that make this a barrier at this time.

Focusing on programs to increase actual spend amounts in the hotel by patrons is supportive of a volume strategy and quite supportive when pursuing customer

loyalty. The loyalty effect is strong in the Tree for 27/83 (32.5%) of cases and is a very strong VI measure at 66.26, but is tempered in relation to CE data management techniques in the MARS model showing a weak, but positive association to the loyalty strategy at +0.240967. Pursuing loyalty here implies use of a smaller data base of satisfied customers who are repeat stay customers, more than a larger database of customers who are neither repeat stay nor loyal to the hotels.

CART Analysis of RQ2a: Resort Hotels - Aggregated Data

Starting at the top of Table 4.14, node1 shows 5/114 (4.4%) cases reported use of Data Manage4, which is obtaining basic geographic/demographic data on customers. Next is node2 showing Linkages1, Room Rates for 5/53 (9.4%) of cases reported. Next is node3, Data Manage1, Non-Specific use of customer data, with the final node, node4 Value2, low strategy emphasis which attributes ‘low’ to mean *Baseline* segmentation customer equity (acquisition) strategies.

What all of this means, is that the Resort hotels are using aggregate customer data for the purposes of acquiring customers. The most basic of data collection and analysis procedures links to Data Manage4, which are Geographic/Demographic customer segmentation variables (such as age, gender, income, education and home/office address). These are managed through Linkages1, advertised Room Rates on offer. Value2, is the low order strategy which concentrates on economically viable customer data for large groups of transient (turnover) customers. Transient customers may return to the resorts, but are not repeat customers in the traditional sense. The CART model for the Resort Hotels with aggregated data in use is summarised in Table 4.14 as follows.

Table 4.14 Summary of CART Model on RQ2a Resort Hotels: Aggregated Data

Strategy Type	Classif. Nodes	Variable Code; Variable Label	Resort Reported	% Ref
Acquisition {	1	Data Manage4 = Demographic/Geographic	5/114	4.4%
	2	Linkages1 = Room Rates	5/33	9.4%
	3	Data Manage1 = Non-specific Data	5/25	20.0%
	4	Value2 = Low order CE data	5/15	33.3%

Variable Importance Measures

The same principles apply to this model as shown in previous CART models in this study. The top VI measure in Table 4.15 at 100.00 signals the high importance of utilising a Value2 low strategy in the hotels. However, the Value2 strategy is showing a low importance as node4, the last node in the Tree. A Value2 Low strategy means use of *Baseline* market segmentation principles which in this case applies to a low volume strategy, not high volume related. The next three VI measures DataManage1, DataManage4 and Linkages1, show relationship alignment all consistent in emphasis with the Tree findings.

The remaining five VI measures with a score of 29.88 and diminishing down to zero are hidden in the Tree and, therefore, masking their importance in the Tree. These are from highest score to lowest in the VI Table 4.15 (i) Linkages5 Competitor Offerings, (ii) Data Manage5, Systems/Office procedures, (iii) Linkages4, Customer Spend, (iv) Repeat2 - weak emphasis on customer retention and (v) DataManage6, Time to Manage the customer asset with aggregated customer data available.

Table 4.15 Variable Importance Resort Hotels: Aggregated Data

Variable Code	Variable Name	Score	Variable Strength
VALUE2	Value Customers	100.00	
DATAMANAGE1	Non-Specific Data	72.36	
DATAMANAGE4	Geographic/Demographic	57.62	
LINKAGES1	Room Rates	45.62	
LINKAGES5	Competitor Offerings	29.88	
DATAMANAGE5	Systems/Office procedures	18.32	
LINKAGES4	Customer Spend	14.77	
REPEAT2	Repeat Stay	10.54	
DATAMANAGE6	Time to Manage	9.70	

MARS Analysis on RQ2a Resort Hotels – Aggregated Data

This is a main effects model on RQ2 where x variables are a function of Y . The two variables MARS selected on the target variable Resorts-Aggregated data, show a positive result on $Y = 0.088888$. This figure is tempered only by the presence of the *Basis* Functions main subset. MARS has an optimisation mechanism for determining *Basis* Functions. As the data sets were very small for the Resort Hotels MARS modelling could not determine any BF's resulting in a zero finding. With 0 *Basis* Functions (BFs), a model with 1BF was constructed with a Max number of BF = 30.

Then, the penalty, as applied for error estimates on the added variable was moderate. See Figure 4.8.

Main –Effects MARS Model on RQ2a: Resort Hotels – Aggregated Data

Subsets for DATAMANAGE3_mis
 SubSet1 = {DATAMANAGE3 ne.}
 Subsets for DATAMANAGE3
 SubSet1 = {"2", "3", "4" }

Basis Functions
 BF25 = (DATAMANAGE3 ne.);
 BF27 = (DATAMANAGE3 is in SubSet1) * BF25

Y = Resort hotels: Aggregated customer data

Dependent Y variable	Independent x variable	Variable codes	Variable labels
Y = 0.088888	- 0.074396 * BF27.	DataManage3	Expected Benefits

Figure 4.8. Main Effects Model on RQ2a Resort Hotels: Aggregate Data

In broad terms, BF27 DataManage3, Customers Expected Benefits, is having a negative effect on the dependent variable Y (coefficient -0.074396), with the resort hotels use of aggregated customer data only in use. In other words, aggregated customer data is the less advanced of the two data management techniques available and when deployed in the resort hotels, resulting in less effective CE outcomes achieved.

The use of customer equity information with aggregated data only in the Resort hotels places large emphasis on customer acquisition as a first principle as shown by the most important VI measure Value2 at 100.00. Remembering that a Value2 CE strategy is a low order customer acquisition strategy that is useful for spontaneous, transient, intermittent visitors to the resort which are deemed ‘one-off’, but not useful for Repeat Stay and Loyalty customers. Whilst a Value2 CE strategy is an easy and economically viable strategy to maintain, ‘low order’ customer groups add to business sustainability marginally as they are not part of the established customer base. Discussion of the higher more sophisticated levels of (disaggregated) customer data management for the resort hotels follows.

CART Analysis on RQ2a: Resort Hotels - Disaggregated Data

Starting at the top in Table 4.16, 5/114 cases (4.4%) reported use of Data Manage4, which is obtaining basic geographic/demographic data on customers. The next most important node signals emphasis on Linkages1, Room Rates in 5/55 (9.1%) of cases reported. Next is emphasis on Value2, which is low value customers for 5/27 (18.5%) of cases. The final node leading to the terminal nodes is Linkages2, Advertising Spend by the hotels for 5/15 (33.3%) of cases.

What all of this means, is that there is a concerted effort on the part of the Resort hotels in obtaining and using geographic and demographic customer information in a strategy sense. ‘With funds allocated for advertising which can be a large expense factor, advertising’s effectiveness is small’ (Kotler, 2000: 594) and is an issue for 5/15 (33.3%) of cases in the Tree.

The use of a Value 2 low order strategy in the resort hotels is for 5/27 (18.5%) of cases. This is akin to *Baseline* levels in segmenting markets. Segment level marketing is usually associated with mass markets more than specialised or niche markets. For the Resort hotels who are more niche than mass in their markets, use of the Value2 strategy would logically appear to be supplementary to their main stream customer acquisition and retention strategies. Whilst the results in this study do not support the use of a Value1 high order strategy by the Resort hotels, it is inconceivable that four and five star hotels, such as, the Sheraton Mirage, Peppers, Voyages, Hyatt and Royal Pines would not use high level CE strategies and customer data types.

A Value2 (low order) CE strategy can be useful when linked to a Volume1 (high order) strategy as is usual in mass markets. There is not much benefit in pursuing a Value2 low customer strategy with a Volume2 low order strategy together, unless the hotel is very small with contained debt and small over-heads. Australian Resort hotels in the main are quite large, but are not mass marketers and herein lies the problem. Australian resort hotels as large complexes with huge fixed costs need an established customer base to survive and grow, (Murali, Sinha and Zoltners, 1992). This can be obtained with their right customer acquisition strategies

in place. The challenge is to advance their standing with higher levels of CE strategy to effect customer retention and loyalty. The CART model for the Chain hotels with disaggregated data in use is summarised in Table 4.16.

Table 4.16 Summary of CART Model on RQ2a Resort Hotels: Disaggregated Data

Strategy Type	Nodes	Variable Code; Variable Label	Resort Reported	% Ref
Acquisition/ Retention	1	Data Manage4 = Demographic/Geographic	5/114	4.4%
	2	Linkages1 = Room Rates	5/55	9.1%
Acquisition	3	Value2 = Low Order Emphasis	5/27	18.5%
	4	Linkages2 = Advertising Spend	5/15	33.3%

Variable Importance Measures

Table 4.17 shows the VI measures for the Resort Hotels with disaggregated data.

Table 4.17 Variable Importance Resort Hotels: Disaggregated Data

Variable Code	Variable Name	Score	Variable Strength
VALUE2	Value Customers	100.00	
DATAMANAGE2	Highly Specific Data	70.93	
DATAMANAGE4	Geographic/Demographic	49.72	
LINKAGES1	Room Rates	40.23	
LINKAGES5	Competitor Offerings	25.75	
DATAMANAGE5	Systems/Office procedures	14.16	
LINKAGES4	Customer Spend	12.25	
LINKAGES2	Advertising Spend	11.72	
REPEAT	Repeat Stay	10.65	
DATAMANAGE6	Time to Manage	8.09	

The top VI measure at 100.00 shows the importance of the Value2 strategy Value Customers. By contrast, the Tree shows the importance of the Value2 strategy as node3, low in emphasis. The next three VI measures are DataManage2, Highly Specific Data, DataManage4, Geographic/Demographic data, and Linkages1 Room Rates. These results imply pursuance of customer acquisition strategies as a first principle in the Resort hotels. Adopting acquisition strategies for the purposes of customer turnover, whilst revenue rich, is a useful strategy in the short term, but does not lead to maximising CE (Kumar and George, 2007), or any sustainable competitive advantage (Porter, 2000) and appears to be the strategy option for adoption currently. Understanding that Linkages5 (competitor offerings), mid-way down the VI Table 4.17, are having some effect on Linkages2 (advertising budgets)

to promote the Resorts, take valuable resources away from other higher priorities, when there is a need to combat the competitors.

The remaining four VI measures, whilst below a score of 14.00 and diminishing down to zero are hidden, with exception to Linkages2 (Advertising Spend) masking CE strategy and data management techniques of importance not shown in the Tree. These are from the highest score to lowest in the VI Table 4.17 (i) Linkages 4, Customer Spend (ii) Linkages 2, Advertising Spend, (iii) Repeat2, (iv) which is weak on customer retention and (iv) Data Manage6, Time to Manage the customer asset with disaggregated customer data available.

MARS Analysis on RQ2a Resort Hotels - Disaggregated Data

This is a main effects model on RQ2a where x variables are a function of Y . The two variables MARS selected on the target variable Resorts-Disaggregate Data, show a positive result on $Y = 0.088888$. This figure is tempered only by the presence of the *Basis Functions* main subset. With issues the same as for Resort Hotels with aggregated data previously canvassed, in finding optimisation for this Model, MARS had 0 BFs.

As a result, a model with 1BF was constructed with a Max number of BF = 30. Then penalty on the added variable was moderate. See Figure 4.9.

Main –Effects MARS Model on RQ2a: Resort Hotels – Disaggregated Data

Subsets for DATAMANAGE3_mis
SubSet1 = { DATAMANAGE3 ne. }

Subsets for DATAMANAGE3
SubSet1 = {"2", "3", "4"}

Basis Functions

BF23 = (DATAMANAGE3 ne.);
BF25 = (DATAMANAGE3 is in SubSet1) * BF23

Y = Resort hotels: Disaggregated customer data

Dependent Y variable	Independent x variable	Variable codes	Variable labels
$Y = 0.088888$	$-0.074396 * BF25$	DataManage3	Expected Benefits

Figure 4.9. Main Effects MARS Model on RQ2a Resort Hotels: Disaggregated Data

In broad terms, BF25 Data Manage³, Customers Expected Benefits, is having a negative effect on the dependent variable Y (coefficient -0.074396), with the resort hotels of use disaggregated customer data. In other words, disaggregated customer data is the more advanced of the two data management techniques available and, when deployed in the Resort hotels, is capable of highly effective CE outcomes achieved.

What these results show from both the CART and MARS figures presented, is that the Resort Hotels are using both aggregate and disaggregate customer data uniformly, but not distinctively at this time. Using customer data widely used does not equate to using *Advanced* levels of CE data management techniques, (Kumar and George, 2007). With a seemingly high concentrated effort on customer acquisition at present, as denoted by the top VI measure Value = 100.00 in Table 4.17, the CE strategies in use are linked to Linkages⁴ (Advertising Spend). Current advertising in the Resort hotels is focusing on up-coming events, such as sporting tournaments, and trade and investment seminars. Corporate and leisure groups are targeted, as well as special interest groups. To manage this type of activity requires a lot of attention to detail through the use of DataManage² highly specific data that high disaggregated data would reveal.

The use of disaggregate customer data for the Resort hotels provides an opportunity to move well beyond the reactionary strategies of playing ‘catch-up’ with the economy, by utilising *Baseline* (segment level) CE strategies only. The current high emphasis on customer acquisition as a first principle, as shown by the most important VI measure at 100.00, is understandably a logical strategy to pursue in an economic downturn. As previously mentioned, spontaneous, transient, or intermittent visitors to the Resort hotel who are deemed ‘one-off’, are an easy and economically viable strategy to adopt and maintain. They at least add revenue vital for business sustainability and may with some effort (on retention strategies), become part of the established customer base, i.e. loyal customers.

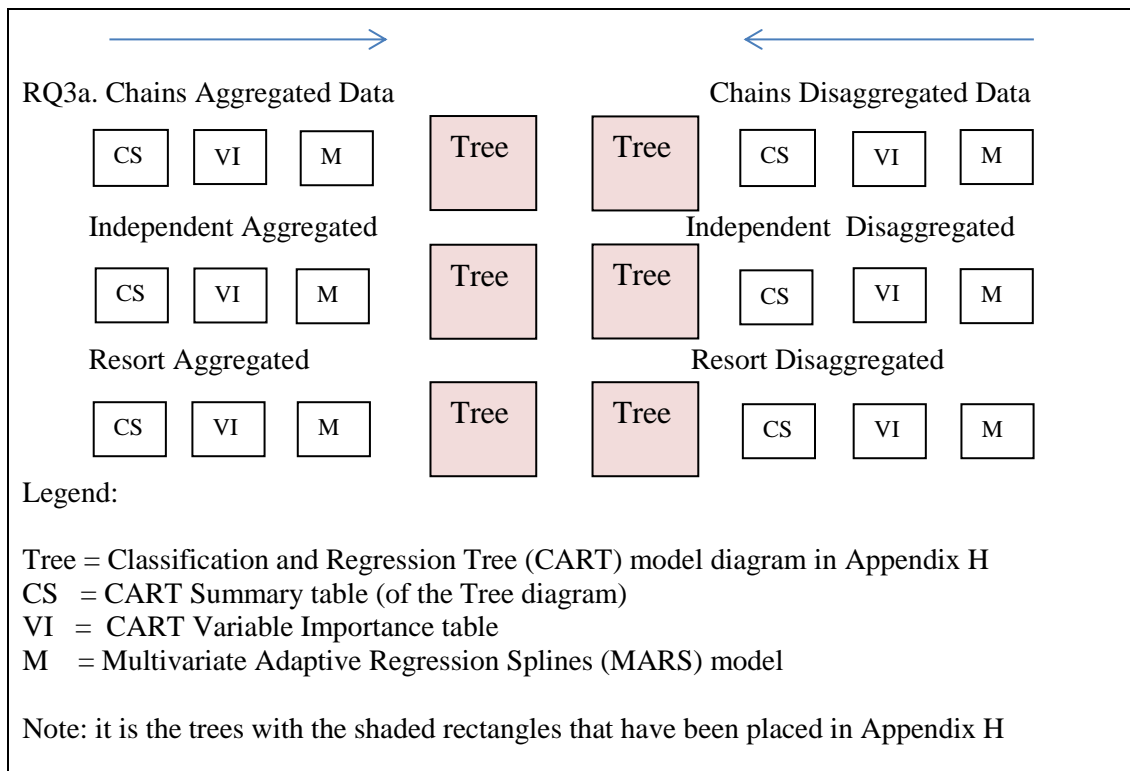
CART Analysis on RQ3a: Chain Hotels – Strategies/Aggregated Data

Moving to the results of RQ3a, the focus is on the extent of interaction of the strategies and customer data the hotels use. Recall RQ3a as:

RQ3a. To what extent does the interaction of the strategies and data management techniques impact on CE outcomes achieved?

As mentioned earlier, management of a hotel’s customer data can be either of a general nature (aggregated data) or highly specific, (disaggregated data) and as such was necessary to analyse the data types as discrete elements in the Chain, Independent and Resort hotels separately. This section shows results of the interaction effects of the customer data types with the strategies. To do this follows the same arrangements for reporting the results discussed earlier for RQ1a and RQ2a. Reproduced here in Table 4.18 is that section of the schema for RQ3a.

Table 4.18 Reporting the Data and Results for Research Question 3a



The results for the CART model for Chain hotels with aggregated data are first. Starting at the top in Table 4.19, node1 shows 80/114 (70.2%) of cases emphasise Volume1, high volume customers to the hotel. Next is node 2 showing use of the strategy Repeat1, Strong of importance for 76/101 (75.2%) cases. Next is node

3, DataManage3, Expected Benefits, showing importance for 69/84 (82.1%) of cases when linked to node2.

Following is node4, which is the Value2 (low order) strategy showing emphasis for 37/40 (75.5%) of cases. This is a focus on acquiring customers as short-term or one-off in the hotel, more than retaining customers for the long term. Moreover, node 5, the Loyalty1, strong strategy is showing emphasis for 22/27 (81.5%) of cases with aggregated data only in use. Node5 is showing emphasis when linked to DataManage3, Expected Benefits strategy. The CART model for the chains showing the strategy interactions with aggregated data only in use is summarised in Table 4.19.

Table 4.19 Summary of CART Model on RQ3a Chain Hotels: Strategies/Aggregated Data

Strategy Type	Nodes	Variable Code; Variable Label	Chain Reported	% Reference
Acquisition	1	Volume1 = High Order Emphasis	80/114	70.2%
Retention {	2	Repeat1 = Strong	76/101	75.2%
	3	Data Manage3 = Expected Benefits	69/84	82.1%
Acquisition	4	Value2= Low Order Emphasis	37/40	72.5%
Retention {	5	Loyalty1 = Strong	22/27	81.5%
	6	Data Manage3 = Expected Benefits	13/17	76.5

Variable Importance Measures

What the top VI score at 100.00 in Table 4.20 is signalling relative to the Tree, is that the variable Loyalty1, Strong strategy is of very high importance for the hotels to pursue. It is masked by the need to acquire customers first by virtue of the Volume1 strategy shown as node1, high in emphasis in the Tree. Next, the Repeat1 strong (Repeat Stay) strategy variable is significant in both the Tree and VI Table, which is indicative of customer retention as a strategy in pursuance and as best as possible, given aggregation data management techniques alone in use as shown by Data Manage1, Non Specific customer data, a hidden emphasis in the Tree, but of note in the VI Table at 87.24.

A Volume1, high emphasis strategy in the Tree in node1, corresponds with the fourth measure in the VI Table with a score at 73.24 in emphasis. A Value2, Low

value strategy emphasis is also on par with the Tree findings as a prominent customer acquisition strategy. The summary is shown in Table 4.20.

Table 4.20 Variable Importance Chain Hotels: Strategies/Aggregated Data

Variable Code	Variable Name	Score	Variable Strength
LOYAL	Loyalty1 = Strong	100.00	
REPEAT	Repeat1 = Strong	92.98	
DATAMANAGE1	Non Specific Data	87.24	
VOLUME	Volume1 = High	73.24	
VALUE	Value2 = Low	35.65	

MARS Analysis on RQ3a Chains – Strategies/Aggregated Data

This result of the main effects model on RQ3a are the x variables as a function of Y . The three variables MARS selected on the target variable Chain-Aggregated Data, show a negative result on $Y = -0.145420$ Dependent Variable = Chains. This figure is tempered by the independent variables as identified in the MARS model. Settings were recorded at $BF=30$ with no interactions and moderate penalty. See Figure 4.10.

Main –Effects MARS Model on RQ3a: Chain Hotels – Strategies/Aggregated Data

Subsets for DATAMANAGE1_mis
SubSet1 = {DATAMANAGE1 ne.}

Subsets for DATAMANAGE1
SubSet1 = {"1", "3", "5", "6"}

Basis Functions

BF1 = (VOLUME in ("1"));
BF5 = (REPEAT in ("1"));
BF7 = (DATAMANAGE1 ne.);
BF9 = (DATAMANAGE1 is in SubSet1) * BF7.

Y = Chain hotels: Strategies/Aggregated customer data

Dependent Y variable	Independent x variables	Variable codes	Variable labels
$Y = -0.145420$	$+ 0.492122 * BF1$	Volume1	High strategy
	$+ 0.365789 * BF5$	Repeat1	Strong strategy
	$+ 0.250164 * BF9$	DataManage1	Non specific data

Figure 4.10. Main Effects Model on RQ3a Chain Hotels: Strategies/Aggregated Data

In broad terms, BF1 Volume1 strategy, is having a positive effect on the negative dependent variable Y (coefficient $+0.0492122$). BF5 Repeat Stay (Retention) strategy is also a positive with a coefficient $+0.492122$. Likewise, BF9

DataManage1, Non Specified (averages) data strategy also has a positive contribution (coefficient +0.250164) via BF7.

What this MARS model reveals is that customer Volume, along with the variable Repeat Stay, which are positively associated, are linked to the Chain hotels strategy directive. This means that where a Volume strategy which focuses on customer acquisition and Repeat Stay on customer retention, both strategies are supported minimally as there is insufficient data and management techniques that can be applied with aggregation only level data. At this level, this results in CE outcomes suboptimal, as they are derived from *Baseline* level CE activities (segmentation strategies to groups) only. To be more effective, the Chain hotels need to use higher level CE strategies and disaggregated customer data sets to achieve the profitability the business desires. This is highlighted by use of the strategies with disaggregated customer data discussed next.

CART Analysis on RQ3a: Chains - Strategies/Disaggregated Data

Starting at the top in Table 4.21, node1 shows 80/114 (70.2%) cases are in the Volume1, high order strategy. Next is node2 Repeat1, Strong strategy, showing retention support in 76/101 (75.2%) cases. Next is node3 DataManage2, highly specific data in use in 69/84 (82.12%) of cases. The next node in this Tree is node4, which is Loyalty1, high order strategy for 31/44 (70.5%) of cases. Managing a customer data base to effect Repeat2 (low) loyalty outcomes – which is a weak retention strategy, is a low emphasis priority and leads to the terminal nodes in the Tree. The CART model for the Chain hotels with disaggregated data in use is summarised in Table 4.21 below.

Table 4.21 Summary of CART Model RQ3a Chain Hotels: Disaggregated Data

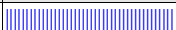




Strategy Type	Nodes	Variable Code; Variable Label	Chain Reported	% Ref
Acquisition	1	Volume1 = High Order Emphasis	80/114	70.2%
Retention	2	Repeat1 = Strong Focus	76/101	75.2%
Acquisition/ Retention	3	Data Manage2 = Highly Specific Data	69/84	82.12%
	4	Loyalty1 = Strong Focus	31/44	70.5%
	5	Repeat2 = Weak Focus	7/17	41.2%

Variable Importance

The VI measures for this CART analysis are as shown in Table 4.22. The first VI measure is Loyalty1, signalling that customer loyalty is of paramount importance in the Chain hotels, but is in contrast to the Volume1, high order strategy emphasis. As evidenced in the Tree, this means the hotels are using Volume1, high order strategy as a priority over achieving loyalty in relative terms. Whilst Loyalty1 node 4 is in use for 31/44 (70.5%) of the cases recorded, it is showing a close relationship to Repeat1 (Repeat Stay) emphasis shown as node2 in the Tree. Together they represent strong use of customer retention in CEM. Whilst these two variables (Loyalty and Repeat) are noticeably reversed in the CART model, the significance of this relationship in the VI Table 4.22 is an indicator of almost equal strength in the Tree.

With Volume1, high order strategies which achieve high volume through DataManage2, highly specific customer data, this is showing a relatively strong relationship in the results as it is mid strength in the VI table at 67.02. Unless accompanied with Value1, high value, such a strategy would mainly be used for attracting high volume customers without retention intention. In other words, this type of customer would be high turnover and transient. Given that retention as a CE strategy is strong in both the Tree and VI measures, the danger of high customer turnover is reduced, but not avoided. This infers that the chain hotels are going to some lengths to retain a large customer base at least. With Value1, high order strategy the lowest measure in the VI Table, and hidden in the Tree, this is an indicator of the hotels not focusing on high value customers at this time. The results are summarised in Table 4.22.

Table 4.22 *Variable Importance Chain Hotels: Disaggregate Data*

Variable Code	Variable Name	Score	Variable Strength
LOYAL	Loyalty 1 = Strong	100.00	
REPEAT	Repeat 1 = Strong	91.05	
DATAMANAGE2	Highly Specific Data	67.02	
VOLUME	Volume 1 = High	61.46	
VALUE	Value 1 = High	24.83	

MARS Analysis on RQ3a Chain Hotels –Strategies/Disaggregated Data

This is a main effects model on RQ3a where x variables are shown as a function of Y . The four variables MARS selected on the target variable Chain Hotels – Disaggregate Data show a positive result on $Y = 0.231784$. This figure is tempered by the independent variables as identified in the MARS model. Settings were recorded at BF=50 with no interactions and moderate penalty. See Figure 4.11.

Main –Effects MARS Model on RQ3a: Chain Hotels – Strategies/Disaggregated Data

Subsets for DATAMANAGE2_mis
SubSet1 = {DATAMANAGE2 ne.}

Subsets for DATAMANAGE2
SubSet1 = {"1", "3", "5", "6"}

Subsets for REPEAT
SubSet1 = {"1"}

Basis Functions

BF1 = (VOLUME in ("1"));
BF3 = (LOYAL in ("2"));
BF5 = (DATAMANAGE2 ne.);
BF7 = (DATAMANAGE2 is in SubSet1) * BF5;
BF9 = (REPEAT in ("1")).

$Y =$ Chain hotels: Strategies/Aggregated customer data

Dependent Y variable	Independent x variables	Variable codes	Variable labels
$Y = 0.231784$	$+ 0.519522 * BF1$	Volume1	High strategy
	$- 0.255089 * BF3$	Loyalty2	Weak strategy
	$- 0.215880 * BF7$	DataManage2	Highly specific data
	$+ 0.296461 * BF9.$	Repeat1	Strong strategy

Figure 4.11. Main Effects Model on RQ3a Chain Hotels: Disaggregated Data

In broad terms BF3, the Loyalty strategy, with a coefficient 0.255089 is having a negative effect on Y , as low emphasis strategy. With the presence of BF1, Volume1 high strategy, this is having a positive effect (coefficient +0.519522), as a high emphasis strategy.

Likewise, BF9, Repeat1, Strong (retention) strategy, is showing a coefficient +0.296461, as a high emphasis strategy. It is tempered by BF7, DataManage2, Highly Specific Data, which is having a negative effect on Y with a coefficient - 0.255089.

What this MARS model reveals is that Chain hotels pursuing volume customers have intention to retain those customers through repeat stays and have loyalty in mind. Understanding that obtaining loyalty is much more utopian than achieving retention, both are needed. Investment in and use of highly specific disaggregated data is a key tool for achieving both, i.e. customer retention and loyalty, but far from easy to do, (Berger and Nasr-Bechwati, 2001; Kumar et al., 2006). By implication, use of highly specific disaggregated customer data moves the hotel into management of intermediate-to-advanced customer data management techniques.

CART Analysis on RQ3a: Independent Hotels – Strategies/Aggregated Data

Starting at the top in Table 4.23, node1 shows 29/114 (25.4%) of cases reporting use of the Repeat1, Strong strategy which is a focus on customer retention. In node2, 19/96 (19.8%) utilise Volume1, High Order strategy – the use of attracting customers in high volume to the hotel. Next with node3, DataManage1, Non-specific data shows 11/84 (13.1%) of cases using aggregated data only with 11/84 (13.1%) of cases reported.

This leads to node4, Value1, high order strategy in 5/19 (26%) of cases reported. Lastly is Loyalty1, Strong strategy, occurring for 10/18 (55.6%) cases. The nodes terminate at this point. Table 4.23 shows these findings in summary.

Table 4.23 *Summary of CART Model RQ3a Independent Hotels: Strategies/Aggregated Data*






Strategy Type	Nodes	Variable Code; Variable Label	Indep't Reported	% Reference
Retention	1	Repeat1 = Strong Focus	29/114	25.4%
Acquisition	2	Volume1 = High Order Emphasis	19/96	19.8%
Retention	3	Data Manage1 = Non-Specific Data	11/84	13.1%
Acquisition	4	Value1 = High Order Emphasis	5/19	26.3%
Retention	5	Loyalty1 = Strong Focus	10/18	55.6%

Variable Importance Measures

The VI scores for this CART analysis are shown in Table 4.24. What this VI table signals is that Volume1, High Order strategy is as strong and consistent with the Tree results as node2. The next VI measure, Loyalty1 Strong strategy, is the next

most important score at 73.30. This is signalling high importance of the loyalty strategy, by contrast to the Tree showing limited emphasis for this variable as node5, the last node in the Tree. Offset is the need for the Independent hotels to retain customers as a first principle through the Repeat1 Strong strategy emphasis as node1 in the Tree and of mid-range strength in the VI Table at 54.37. DataManage1, Non-Specific data strategy shows its relative strength in the Tree node3 and with a VI measure of 40.23. The last VI measure is Value1, High Order strategy, which appears to be the least important variable as indicated in node 4 in the Tree both and with a VI measure of 18.40 in the Table. This is suggestive of low importance as a strategy for the Independent hotels in this study.

Table 4.24 Variable Importance Independent Hotels: Aggregated Data

Variable Code	Variable Name	Score	Variable Strength
VOLUME	Volume 1 = High	100.00	
LOYAL	Loyalty 1 = Strong	73.30	
REPEAT	Repeat 1 = Strong	54.37	
DATAMANAGE1	Non-Specific Data	40.23	
VALUE	Value 1=High	18.40	

MARS Analysis on RQ3a Independent Hotels – Strategies/Aggregated Data

This also is a main effects model on RQ3 where *x* variables are shown as a function of *Y*. The three variables MARS selected on the target variable Independent Hotels -Aggregated Data, show a positive result on $Y = 1.070830$. The result is tempered by the independent variables as identified in the MARS model. Settings were recorded at $BF = 30$ with no interactions and moderate penalty.

In broad terms, BF1, the Volume1, High Order strategy, is having a negative effect on *Y* with a coefficient -0.432526. With the presence of BF3, the Loyalty2 Weak (retention) strategy, this also is having a negative effect (coefficient - 0.445325). This means they both cannot effectively co-exist in achieving high levels of CE with only aggregated customer data in use. Likewise, BF7, DataManage1, Non Specified (averages) data as a strategy is also having negative effect on *Y*, with a coefficient -0.243482. See Figure 4.12.

Main –Effects MARS Model on RQ3a: Independent Hotels – Aggregated Data

Subsets for DATAMANAGE1_mis
SubSet1 = {DATAMANAGE1 ne.}

Subsets for DATAMANAGE1
SubSet1 = {"1", "6"}

Basis Functions

BF1 = (REPEAT in ("1"));
BF3 = (VOLUME in ("1"));
BF5 = (DATAMANAGE1 ne.);
BF7 = (DATAMANAGE1 is in SubSet1) * BF5.

Y = Independent hotels: Strategies/Aggregated customer data

Dependent Y variable	Independent x variables	Variable codes	Variable labels
Y = 1.070830	- 0.432526 * BF1	Volume1	High strategy
	- 0.445325 * BF3	Loyalty2	Weak strategy
	- 0.243482 * BF7	DataManage1	Non-specific data

Figure 4.12. Main Effects MARS Model on Independent Hotels: Strategies/Aggregated Data

What this MARS model shows, is the limited extent of use with the strategies and the data. Aggregated customer data in use by the Independent hotels results in *Baseline* levels of CE. Concentrating on two significant strategies, namely Volume and Repeat Stay (Retention) of customers simultaneously, without use of the corresponding support of higher data sets, limits outcomes achieved, but reflects the best given resources needed to manage the higher levels of customer data by the Independent hotels.

CART Analysis on RQ3a Independent Hotels - Disaggregated Data

Starting at the top in Table 4.25, node1 shows 29/114 (25.4%) of cases reporting use of the Repeat1, Strong strategy emphasis on customer retention activities. In node2, 19/96 (19.8%) utilise Volume1, High Order strategy. Next with node3 is DataManage2, Highly Specific data in use for only 11/84 or (13.1%) of the cases reported. Next is Loyalty1, Strong strategy emphasis, but of a lower order in the Tree as node4. The final node, node5 is Value1, High Order strategy emphasis, but low in strategy usage with 7/20 (22.6%) of cases reported.

What the Tree results show is that a Volume1, High Order strategy is supporting Repeat1, Strong strategy customer retention efforts. Value1, High Order

strategy which is a focus on obtaining high tariff customers, is of a much lesser emphasis in these results. Given the amount, availability and usage of disaggregated customer data is where this will impact on the CE strategies in use. What this CART model means, is that customer retention is a more important strategy focus than customer acquisition, given the availability and use of their customer data. The CART model for the independents with disaggregated data mainly is summarised in Table 4.25.

Table 4.25 Summary of CART Model RQ3a Independent Hotels: Disaggregated Data

Strategy Type	Nodes	Variable Code; Variable Label	Indep't Reported	% Reference
Retention	1	Repeat1 = Strong Focus	29/114	25.4%
Acquisition	2	Volume1 = High Order Emphasis	19/96	19.8%
Acquisition	3	Data Manage2 = Highly Specific Data	11/84	13.1%
Retention	4	Loyalty1 = Strong Focus	10/18	55.6%
Acquisition	5	Value1 = High Order Emphasis	7/20	22.6%

Variable Importance Measures

The VI scores for this CART analysis are as shown in Table 4.26. The variable with the highest sum of improvement is Volume1, High Order strategy at 100.00, with the four other variables in descending order ranging downwards towards zero. The same principles apply as with the other CART models in that the important variables list is regarded as a relative indicator, not an indicator of absolute measure of any variable.

What the VI measures are signalling relative to the Tree results shown in Table 4.26 is that acquisition through Volume1, High Order strategy is a precursor to all other strategy variables in use by the independent hotels. The second most important VI measure is DataManage2, highly specific disaggregated data which features less prominently in the Tree in node3. Next is Loyalty1, Strong in the VI measure at 71.26, but relatively weaker in the Tree as node4 shows. Next is Repeat1, Strong strategy indicating its moderate importance against node1, the most important variable in the Tree. Lastly, is Value1, High Order strategy, showing the least importance in node5 as the last node in the Tree and also the lowest VI measure at 24.92.

What these results show overall, is that whilst customer retention is important for the independent hotels, it is of lower importance than customer acquisition as shown by Volume1, High Order strategy in the table. The lowest VI measure in the listing and lowest node in the Tree is Value1, High Order customer acquisition strategy. As a high tariff strategy, the Independent hotels are avoiding strong emphasis on this strategy at this time. The results are in summary in Table 4.26.

Table 4.26 Variable Importance Independent Hotels: Disaggregated Data

Variable Code	Variable Name	Score	Variable Strength
VOLUME	Volume 1 = High	100.00	
DATAMANAGE2	Highly Specific Data	90.63	
LOYAL	Loyalty 1 = Strong	71.26	
REPEAT	Repeat 1= Strong	54.37	
VALUE	Value 1 = High	24.92	

MARS Analysis on RQ3a Independent Hotels - Disaggregated Data

This is a main effects model on RQ3 where x variables are shown as a function of Y . The three variables MARS selected on the target variable Independents – Disaggregated Data show a positive result on $Y = 0.862956$. This figure is tempered by the independent variables as identified in the MARS model. Settings were recorded at $BF=30$, with no interactions and moderate penalty applied.

In broad terms, BF3, the Volume1, High Order strategy, with a coefficient - 0.470668 is having a negative effect on Y . With the presence of BF1, the Repeat1, Strong (retention) strategy, this also is having a negative effect (coefficient - 0.353902). This means they cannot effectively co-exist in achieving high levels of CE in both strategies with their current use of disaggregated customer data. By contrast BF5, Loyalty2 Weak strategy, with a coefficient +0.205679 is having a positive effect on Y , albeit whilst low in emphasis, is a positive for the hotels. See Figure 4.13.

Main – Effects MARS Model on RQ3a: Independent Hotels – Disaggregated Data

Subset for REPEAT
SubSet1 = { "1" }

Subset for Volume
SubSet1 = { "1" }

Subset for Loyal
SubSet1 = { "2" }

Basis Functions

BF1 = (REPEAT in ("1"));
BF3 = (VOLUME in ("1"));
BF5 = (LOYAL in ("2")).

Y = Independent hotels: Strategies/Disaggregated customer data

Dependent Y variable	Independent x variables	Variable codes	Variable labels
$Y = 0.862956$	$- 0.353902 * BF1$	Repeat1	Strong strategy
	$- 0.470668 * BF3$	Volume1	High Order strategy
	$+ 0.205679 * BF5.$	Loyalty2	Weak strategy

Figure 4.13. Main Effects MARS Model on RQ3a Independent Hotels: Disaggregated Data

What this MARS model reveals is that the independent hotels in this study are pursuing Volume customers in acquisition as a first strategy with effective use of the data management techniques available (i.e. firm-customer disaggregated data management of the customer asset). Whilst retention of customers and loyalty are on the agenda of importance, these two variables shadow the volume strategy. With the Value1 the lowest VI measure Table 4.26, there is some acknowledgement of its importance. A high value strategy can lead to the nurturing of a customer which will assist with Repeat Stay. From there, the hotel can utilise Loyalty programs to maximise CE in the hotel.

To focus on customer acquisition without customer retention, or vice-versa is anathema very good CE management practice, (Reinartz, Thomas and Kumar, 2005). When both are present, as is the case here, what is showing in importance to the hotel managers is a priority on customer acquisition activities with retention activities in the background. Achieving both, uniformly given the duality of processes in play, appears distant at this time. The study findings show the relativity of this importance.

CART Analysis on RQ3a Resort Hotels – Strategies/Aggregated Data

Starting at the top in Table 4.27, node1 5/114 cases (4.4%) reported use of Value2, Low Order strategy as a first principle. In node2, 5/57 (8.8%) utilise DataManage1 non-specific, data strategy with aggregated customer data in those cases reported. DataManage1 indicates averages data in use that may be used in a spasmodic, intermittent way. In CE, this signals use of customers’ data as efficient, but not necessarily effective as a long term strategy.

This leads to node3, the last indicator in the Tree for the Resort hotels utilising Repeat2 Weak strategy emphasis with 5/31(16.1%) of cases reported. The nodes terminate at this point. The CART model for the Resort hotels is summarised in Table 4.27.

Table 4.27 Summary of CART Model on RQ3a Resort Hotels: Aggregated Data

Strategy Type	Nodes	Variable Code; Variable Label	Resort Reported	% Reference
Acquisition	1	Value2 = Low Order Emphasis	5/114	4.4%
Retention	2	Data Manage1 = Non Specific Data	5/57	8.8%
	3	Repeat2 = Weak Focus	5/31	16.1%

Variable Importance Measures

The variable with the highest sum of improvement was Value2 Low Order strategy at 100.00, with the two other variables in descending order ranging downwards to zero. The next two VI measures, DataManage1 and Repeat2 are signalling relative to the Tree results is the importance of acquiring customers. This is in low emphasis as indicated by the Value2 low order strategy. This means using *Baseline* levels of targeting to groups only, and limits the possibilities for advancing CE to higher levels. Also, travellers to the Resort Hotel ‘passing-by’, spontaneous overnight or weekend travellers, last minute travel situations or like circumstances, add little to CE strategy, other than short-term revenue gain. These travellers have not booked ahead or in advance and are highly transient. Hence, Repeat 2, Weak (retention) strategy, the third VI measure that mirrors the Tree results for the Resort Hotels are not focusing on individual repeat customer to return again, mainly groups only with aggregation data in use.

Table 4.28 Variable Importance Resort Hotels: Aggregated Data

Variable Code	Variable Name	Score	Variable Strength
VALUE	Value2 – Low Order strategy	100.00	
DATAMANAGE1	Non-Specific Data	98.44	
REPEAT2	Repeat 2 – Weak strategy	35.79	

MARS Analysis on RQ3a Resort Hotels – Strategies/Aggregated Data

This is a main effects model on RQ3a where x variables are a function of Y . The two variables MARS selected on the target variable Resort hotels-Aggregate Data, show a positive result on $Y = 0.084745$. This figure is tempered only by one other variable as identified in the MARS model, a Value2 low order customer acquisition strategy. In finding optimisation for this Model, MARS had 0 BFs. As a result, a model with 2BFs was constructed with a maximised number of BF = 30. Then penalty on the added variable was moderate. See Figure 4.14.

Main-Effects MARS Model –RQ3a Resort Hotels -Aggregated Data

With only two BF's there were no Subsets recorded in this model

Basis Functions
BF3 = (DATAMANAGE1 ne.);
BF9 = (VALUE in ("2"))*BF3

$Y =$ Resort hotels: Strategies/Disaggregated customer data

Dependent Y variable	Independent x variables	Variable codes	Variable labels
$Y = 0.084745$	$-0.084745 * BF9$	DataManage1	Non -specific data

Figure 4.14. Main Effects MARS on RQ3a Resort Hotels: Aggregated Data

In broad terms, BF9, the Value2 Low Order strategy, with a coefficient - 0.084745 is having a negative effect on Y . This emphasis is highlighted further by the presence of BF3 DataManage1, Non Specific data in use. These figures indicate weak levels of CE outcomes when aggregated data only coupled with a low level customer acquisition strategy (Value2), is in use. In other words, the Resort Hotels are not utilising the data they have on their casual or highly transient customers to benefit them well in a CE context.

With the CART and MARS models showing a similar result in the case of aggregated data in use in the Resort hotels in this study, it signals a preference for *Baseline* levels of CE strategies in use in the main. Segment level marketing would be achieved at best, with resources for more effective CE outcomes channelled elsewhere presumably.

CART Analysis on RQ3a Resort Hotels - Strategies/Disaggregated Data

Starting at the top in Table 4.29, node1 5/114 (4.4%) of cases reported use of Value2 Low Order strategy as the most important node. In node2 is Data Manage2, ighly Specific disaggregated data for 5/57 (8.8%) of the cases reported.

This leads next to Repeat2 Weak strategy emphasis in 5/40 (12.5%) cases reported indicating as a strategy not highly utilised in the hotels. Next is node4, the Data Manage2, ighly Specific strategy emphasis mentioned again. What this denotes is a splitting of the Tree with regard to specific strategies as highlighted in the footer of Table 4.29.

Node5 shows Volume2 Low Order strategy is for 4/35 (11.4%) of cases suggesting a lower tariff customer acquisition strategy in use. The last variable in the Tree is node6 which is Loyalty1 Strong strategy in focus for 4/30 (13.3%) of cases reported. What all of this means, is that a smaller number of customers can be satisfied and retained to a greater extent than larger numbers who are transient and ‘one-off’ type customers to the Resort, but smaller customer volumes need to be offset with higher value customers for this strategy to work well. Loyalty programs are not high on the agenda at this time. The CART model for the Resort Hotels with disaggregated customer data is summarised in Table 4.29.

Table 4.29 Summary of CART Model RQ3a on Resort Hotels: Disaggregated Data

Strategy Type	Nodes	Variable Code; Variable Label	Resort Reported	% Reference
Acquisition	1	Value2 = Low Order Emphasis	5/114	4.4%
	↑ 2*	Data Manage2 – Highly Specific Data	5/57	8.8%
Retention	3	Repeat2 = Weak strategy	5/40	12.5%
	↑ 4**	Data Manage2 – Highly Specific Data	5/37	13.5%
Acquisition/ Retention	5	Volume2 = Low Order Emphasis	4/35	11.4%
	6	Loyalty1 = Strong Focus	4/30	13.3%

Note: * shows a relationship with the strategy variable node1, Value2; and for

** this shows a relationship with node3, Repeat2

Variable Importance Measures

The VI scores for this CART analysis show DataManage2, Highly Specific data at 100.00, with the other four variables in descending order ranging downwards towards zero. What the VI Table 4.30 is signalling relative to the Tree results is that use of CE strategies emanate from the use of DataManage2, Highly Specific data. What is in conflict is that utilising intermediate to advanced levels of firm-customer specific data yields effective results from use of a Value1 high order strategy, not a Value2 Low strategy as shown in these results. The argument extends further to the evidence in the Tree and VI table with regard to the Repeat2 Low Order strategy. This strategy does not appear to fit well with a Volume2 Low Order strategy and would align better with a Value1 high order strategy emphasis when disaggregated data is in use. The final VI measure is that for Loyalty1 Strong strategy, a weak strategy in use by the Resort hotels at present.

Table 4.30 Variable Importance Resort Hotels: Disaggregated Data

Variable Code	Variable Name	Score	Variable Strength
DATAMANAGE2	Highly Specific Data	100.00	
VALUE2	Value 2 = Low	74.25	
REPEAT2	Repeat 2 = Weak	25.63	
VOLUME2	Volume 2 = Low	11.14	
LOYALTY1	Loyalty 1 = Strong	0.73	

MARS Analysis on RQ3a Resort Hotels - Disaggregated Data

This is a main effects model on RQ3a where x variables are shown as a function of Y . The two variables MARS selected on the target variable Resorts -

disaggregated data show a positive result on $Y = 0.086206$. This figure is tempered by only one other variable as identified in the MARS model. In finding optimisation for this model, MARS had OBFs. As a result, a model with 2BFs was constructed to match the number of BFs = 30 in the previous MARS models, as shown in Figure 4.15.

Main – Effects MARS Model on RQ3a Resort Hotels - Disaggregated Data

No Subsets recorded in MARS functionality for these smaller data sets

Basis Functions
 BF3 = (DATAMANAGE1 ne.);
 BF11 = (VALUE in ("2"))*BF3.

Y = Resort hotels: Strategies/Disaggregated customer data

Dependent Y variable	Independent x variables	Variable codes	Variable labels
$Y = 0.086206$	$-0.086206 * BF11.$	DataManage2	Highly specific data

Figure 4.15. Main Effects Analysis on RQ3a Resort Hotels: Disaggregated Data

In broad terms, BF11, the Value2 Low Order strategy, with a coefficient - 0.086206 is having a negative effect on Y . This emphasis is highlighted further by the presence of BF3 DataManage1, Non-Specific data in use. These figures indicate that the Resort Hotels are not utilising higher levels of data management on their casual or highly transient customers to the Resort hotel. These techniques are arguably reserved for the more attractive customers in CEM: those customers who are repeat stay and who have some major retention and loyalty possibilities. To that end, use of the data, the techniques and strategies employed in the Resort hotels are spread amongst their priority customer data sets.

With the CART and MARS models showing some similarity in strength (and measures) they signal use of and are emphasising low order (Value2 and Volume2) acquisition strategies at present with disaggregated data in use. This is out of kilter with what would normally be expected in the Resort hotels, (Phillips, 1996). What would be expected is the opposite; a focus on high order (Value1 and Repeat1) customers, not volume customers for turnover. Loyalty is a low focus strategy at this

time as shown by the Tree results and in the VI table. Essentially, resort hotels would normally focus on attracting volume customers, with retention in mind where they can be segmented into sporting, recreation and/or corporate groups with some individual transaction focus. For now, volume with turnover is the best that can be achieved for the resort hotels in this study.

4.7 Summary and Conclusion

To draw to a close all of these complex and detailed results, a summary of the most important trends, associations and developments for all 13 CART analyses, VI measures and MARS models is as follows. Each of the 13 Trees produced have an average of 6.15 tree node levels before reaching the terminal nodes. This is an optimal level in tree structured classifiers, (Breiman et al., 1984). By contrast, there is an average 11 variables listed in the VI Tables for RQ1 and RQ2, with an average of 5 variables listed in the VI Tables for RQ3. The MARS models complemented each Tree structure.

The CART models and VI measures

In simplifying the results of all 13 Trees and the VI Tables produced in this chapter, firstly, the top two and bottom two CART nodes from each Tree were selected from all 13 Trees. Secondly, the top two and bottom two scores from each VI table were then selected from all 13 tables. The two sets of variables were then compiled into a spread sheet to represent to main results. Where the variables were shown to be repeated in the spreadsheet, they were counted and ranked higher in importance. With the listings complete, the top six were used for emphasis as shown in Table 4.31. Consequently, each variable is shown to represent the highest (top) to lowest (bottom) in each case – one each for the Chain, Independent and Resort hotels. Of importance to note overall in its compilation, is that this is trend data, not absolute points of reference.

Table 4.31 Summary Rank-Order Results of the 13 x CART models and VI Tables in this Study

RQ1 CE Strategies		
Chain Hotels	Independent Hotels	Resort Hotels
<ol style="list-style-type: none"> 1. Word-of-Mouth 2. Same/Separate Budgets for CA-CR 3. Volume1 High 4. Repeat1 Strong 5. Competitors 6. Loyalty1 Strong 	<ol style="list-style-type: none"> 1. Customer Spend 2. Same Budgets 3. Loyalty1 Strong 4. Volume1 High 5. Repeat1 Strong 6. Value2 Weak 	<ol style="list-style-type: none"> 1. Geog/Demographic 2. Same/Separate Budgets for CA-CR 3. Room Rates 4. Value2 Low 5. Volume2 Low 6. Repeat1 Strong
RQ2 CE Data Management		
<ol style="list-style-type: none"> 1. Data Manage1. Non-specific data (Aggregate -segment level) 2. Data Manage4 - Geog/Demo 3. Data Manage3 Expected Benefits 4. Room Rates (Ads) 5. Competitor Offerings 	<ol style="list-style-type: none"> 1. Data Manage1. Non-specific data (Aggregate -segment level) 2. Highly Specific Data (disaggregate-individual level) 3. Data Manage4 - Geog/Demo 4. Data Manage3 Expected Benefits 5. Data Manage5 - Office Systems 	<ol style="list-style-type: none"> 1. DataManage1. Non-specific data (Aggregate -segment level) 2. Data Manage4 - Geog/Demo 3. Data Manage3 Expected Benefits 4. Room rates (Advertising) 5. Competitor Offerings

Chain Hotels

In looking at the variable listing in Table 4.31 for the Chain hotels, the thrust of those six (RQ1a) strategy variables, which affect the second five (RQ2a) variables, is indicative of the need for the hotels to pursue a high volume customer acquisition strategy as priority, with some attention on retention. Use of budgets for CA and CR are separated out for these two functions, but not in a significant way, for most of the hotels. With shrinking resources, a difficulty in the hotels' planning strategy is how to retain existing customers and combat the competition. Loyalty programs, the last strategy in the list, indicates a high interest need, but shows least attentiveness to these strategies at this time.

Independent Hotels

In looking at the variable listing for the Independent hotels in Table 4.31 the thrust of those six (RQ1a) strategy variables, which affect the second five (RQ2a) variables, is also indicative of the need for the hotels to pursue a high volume customer acquisition strategy as priority, with some attention on retention. Customer Spend – a strong acquisition strategy, is high on the agenda of importance for these hotels. This means that the level of CE is focused on transaction data within a customer contact data base. Use of budgets for CA and CR are not separated out for these two functions in the Independent hotels in this study. Volume and Value variables are both representative of customer acquisition strategies of different strength. A high Volume1 strategy aligns with a low order Value2 strategy. The implication of this alignment is that these two strategies taken together are easier to manage, have lower costs of maintaining services and customer satisfaction and is ‘off-the-radar’ competitively, by contrast to say when retention and loyalty strategies come into play. Unlike with the Chain hotels who need to have a stronger focus on loyalty programs (Loyalty1 strong strategy), as exemplified as effective in CLV outcomes by Gupta, Lehmann and Stuart, (2004); Kumar, (2006); and Rust et al., (2000), the Independent hotels do not. For the Independent hotels, the strong focus on loyalty customers (Loyalty1 strong strategy), is the positive and a more long-term associative CLV principle being pursued.

Resort Hotels

In looking at the variable listing for the Resort hotels in Table 4.31, on face value, the thrust of those six (RQ1) variables, which affect the second five (RQ2a) variables gives an indicator of the hotels in a state of flux. These hotels are in an invidious position because of the nature of what they do; their size and scale, specialisation, location and reputation. The summary of the data suggests that these hotels (which by and large have huge infrastructures) are utilising strategies which are out-of-kilter with their norm. Usually, resort hotels are high tariff, sophisticated and selective places to stay (Phillips, 1996). This data shows the opposite at this time. The hotels are using *Baseline* level CE strategies appealing to lower order Value2 and Volume2 customer traffic. This appears atypical for the resort hotels and

suggests a reversal of the norm for CA and CR strategies usually associated with these type hotels.

A prominent feature in all the CART and VI results in this study in all three hotel categories is a focus on customer acquisition as strategy, (but not in equal amounts), with customer retention in second place. Indicative in this summary is the variable Customer Profiling. Customer Profiling was close to the terminal node in RQ1 CART Table 4.3 (signalling the least important variable in that chart), but interestingly enough was the most important variable in the VI Table 4.4 with a score of 100.00. Whilst this variable is absent in the summary Table 4.31 (as it was below the top six listed in each case), its ‘discovered’ importance is in part helping to achieve the CE outcomes in the hotels and should not go unnoticed.

The MARS models

With MARS, these were x variables in the survey recorded as a function of Y , the dependent variable. These are shown to be positive or negative on Y in each of the 13 structured trees. The observations made for CE Management in non-parametric regression analyses, are more important than the scores as absolutes. For example, in one instance where the DV = Chain, Independent and Resort hotels on RQ1, knowing how much a customer spends in the hotel (variable Customer Spend) shows a positive score on Y (in determining CLV for those customers). However, if the Spend Rate variable is absent, not knowing how much a customer spends in the hotel, and just as importantly not knowing how much of the Customer Spend goes to the competition, has a negative effect on Y .

What the MARS models reveal overall is the difficulty the hotels are experiencing when pursuing both customer acquisition and retention strategies simultaneously. That is, a focus on the measurement of the equity in the customer competes for attention with regard to the management of the customer asset. Calculating customer equity for measurement is ‘winning-out’ at the moment. Not surprisingly, the adeptness and skill requirements in being able to manage both at the same time given the available resources, is forcing CE managers to choose between one or the other as priority and possibly as a managerial coping mechanism.

The MARS results reveal scores that favour customer acquisition strategies more than retention strategies and highlights this as a consequence approach to CE management. Many reasons exist for this as canvassed throughout the discussions. Detailed in the MARS models show an emphasis on low Value and high Volume acquisition strategies for the Chain and Independent hotels, which compete for attention. Then next, strong Repeat Stay and weak Loyalty retention strategies are evident, with the former ‘winning-out’ over the latter at this time. For the resort hotels, emphasis on low Value and low Volume strategies imply CE strategies in a state of flux, as a low Value strategy is out-of-kilter with a low Volume strategy. The reason is, a Value2 low strategy emphasises economy with a low tariff room rate. If a low tariff room rate is coupled with a Volume2 strategy, (low order volume customers), this will impact negatively on CE outcomes achieved. The MARS results also revealed differing variable strengths and associations in the strategies and the data types in use.

The next chapter is a discussion of the Phase One results with implications for CEM theory and practice. Focus is on how the research propositions relate to the research questions determined in chapter one.

Chapter 5: DISCUSSION OF PHASE ONE RESULTS

‘All generalisations are false including this one.’

Alexander Chase (1970).

5.0 Introduction

Chapter four reported the results of Phase One. The purpose of chapter five is to discuss these findings that would in turn assist with the interviews which follow in Phase Two. Phase One findings are discussed in terms of the research questions against each of the research propositions that identified gaps in Customer Equity (CE) knowledge and are structured as follows. Section 5.1 analyses the CART results against RQ1a. Section 5.2 analyses the CART results against RQ2a. Section 5.3 analyses the CART results against RQ3a. Section 5.4 analyses the MARS results on RQ1a, RQ2a and RQ3a. Section 5.5 concludes this chapter.

5.1 CART Analysis on RQ1a

The research in this thesis focuses on customer equity measurement and customer equity management issues facing accommodation hotel managers in Australia. Recall the broad research question:

How important is the management of the strategy drivers of consumption and customer data in contributing to the value of the customer asset?

In addressing this overarching question, three research questions RQ1a, RQ2a and RQ3a and six research propositions were framed to guide the research.

First is to address Research Question 1a.

RQ1a. To what extent do the four identified strategy drivers of consumption (customer acquisition, customer retention, company resources and targeting/segmenting customers) contribute to customer equity (CE) outcomes?

Each of the research propositions are discussed in the light of the results. First is Research Proposition 1.

5.1.1 Research Proposition 1

P1. Given the firm's customer data availability (aggregate or disaggregate), the customer acquisition strategy that leads to positive customer equity outcomes is the brand switching model.

What the findings in Phase One reveal as shown in the rank-order summary results in Table 4.31, is that the independent hotels in this study are utilising Blattberg and Deighton's (1996) approach to customer acquisition and retention strategies together with aggregated data management techniques in the main to effect customer equity outcomes. That is, they are not differentiating between the two strategy and data management techniques (aggregated and disaggregated) at present. For example, what proportion of expenditure is spent on advertising to acquire a customer, with that of direct selling that nurtures customer retention would be unknown to CE managers in the Independent hotels when using aggregated data sets only.

By contrast, the Chain and Resort hotels in this study as shown in Table 4.31 are utilising customer acquisition and retention strategies separately with use of disaggregated customer data to effect customer equity outcomes. That is, they are differentiating between the two strategy and data management techniques. Rust, Lemon and Zeithaml (2004), Thomas, (2001) and Thomas, Reinartz and Kumar (2004) have shown insights into the way customer acquisition and retention strategies are being distinguished as separate entities and treated outside the traditional domain of direct marketing contacts with positive results. In this study, the CART Table 4.3 shows a very strong emphasis in node1 for Acquire4 Word-of-Mouth acquisition strategy, but quite a limited emphasis in node9 with Retain2 Weak retention strategy for the Chain, Independent and Resort hotels. Moreover, use of Resources1 Separate Budgets for either CA or CR hotels is limited to 12/80 Chain, 10/29 Independent, with 4/5 recording use of this facility for the Resort hotels.

In sum, the majority of hotels are utilising *Baseline* customer equity management practices (Berger and Nasr, 1998; Gupta and Lehmann, 2003) in the main as shown in Figure 2.1 in section 2.5, chapter two, with some focus on intermediate level CE (segmenting into groups), activities. Where the hotels are focusing on specific expenditures, as is the case here, the hotels are utilising an optimal acquisition expenditures model based on, for example media advertising and promotion techniques. There was some evidence in the survey results to suggest (with disaggregation data) that the hotels are using the brand switching model (such

as the Markov switching matrix), in a way to explain more detailed switching behaviour and for obtaining important information when the hotels face serious competition. Table 4.31 shows the competitor effect in the rankings as important for both the Chain and Resort hotels. Therefore, Proposition 1 regarding use of the brand switching model for customer acquisition is supported. Next is discussion on research proposition 2.

5.1.2 Research Proposition 2

P2. Under conditions where the firm's data is limited, the customer retention strategy that leads to positive customer equity outcomes is the Budget Decision model of CE practice.

As shown in Table 4.3, only 12 Chain and 10 Independent hotels are separating out acquisition from retention spending. The issue of separation has been addressed by Rust, Lemon and Zeithaml (2004) who argue that a 'trade-off' occurs between these competing needs. The reason why it is so difficult for firms to separate acquisition spending from retention spending is because they represent different proportions of the total budget as addressed by Reinartz, Thomas and Kumar (2005).

The Resort hotels in Table 4.3 show 4/5 are few, but significant in separating out acquisition from retention spending. In this case, these hotels appear to be using the Berger and Nasr-Bechwati (2001) approach to CEM, which is to utilise optimal acquisition spending and optimal retention spending separately. To do this well requires use of a budget allocation and/or use of decision calculus in which managers' judgements and/or estimates serve as some of the inputs to achieve specific CE outcomes. For the remainder, 51 Chain and 23 Independent hotels show support for managing CA and CR together as shown in Table 4.3. Whilst testing for results in the hotels between acquisition and retention remains a difficulty as addressed by Reinartz, Thomas and Kumar, (2005), there is positive support for Proposition 2 in this study. Next is discussion on research proposition 3.

5.1.3 Research Proposition 3

P3. The resource strategy that leads to positive customer equity outcomes is the optimal resource allocation model of CE practice.

In most cases, the hotels in this study show an emphasis on measuring customer equity more than managing their customer asset. Understandably, hotels are constrained by human, physical and financial resources with financial (budget) limitations not adequate to allocate to all their customers. Ideally, the hotels should be investing only in customers who are profitable (Reinartz and Kumar, 2003). However, many companies continue to spend resources on a large number of unprofitable customers (Venkatesan and Kumar, 2004). They either invest in customers who are easy to acquire but not necessarily profitable, or try to increase the retention rate of all their customers thereby leading to wastage of limited resources. With the Chain and Independent hotels strongly investing in customers who are easy to acquire, but not necessarily profitable (Volume1; Value2 strategies), or trying to increase the retention rate of all their customers (Repeat1 strategy), they are inadvertently leading to a wastage of resources, as shown in the results throughout chapter four and in the rank-order summary of the 13 x CART models in Table 4.31.

One reason for this outcome is that these hotels appear to have not identified who are their most profitable customers in terms of the four types of strategies in use, Value, Volume, Repeat Stay and Loyalty (VVRL) and how the resources should be spent on them to achieve the profitability desired, as shown in the high versus low rankings and configuration of the strategies in both the CART and VI Tables. For example, in the Chain hotels where utilising disaggregate customer data is shown as mid to high in strength in the CART Table 4.8 and in VI Table 4.9 at 88.81, the following observations show the extent of the VVRL matrix in use.

1. Value customers high or low order (acquisition) strategy is absent in the Tree in Table 4.8 and is showing the least importance in the VI Table 4.9 at 8.72/100 in the ranking;
2. Volume customers high or low order (acquisition) strategy is very strong in emphasis as node1, but is not linked to its extension partner, the Value strategy;
3. Repeat1 strong strategy is node2 in the Tree showing high emphasis. However, managers are aligning this strategy to Volume (node1) more than its extension partner, the Loyalty1 strategy;

-
4. Loyalty itself is the least deployed of the four strategies showing a somewhat loosely coupled association in the Tree.

The reasons for this disparity relates to the lack of use of disaggregated customer data (DataManage2, highly specific), which is absent in the Tree. This is critical, because without proper use of this data type, CEM outcomes will remain suboptimal. To manage this trend and overcome any arbitrariness and any apparent difficulties in the strategy directive is by use of the Optimal Resource Allocation (ORA) framework that identifies the way in which a firm can utilise its (limited) resources appropriately (Murali, Sinha and Zoltners, 1992). Where for example, the Chain, Independent and Resort Hotels are utilising customer-firm (disaggregate level) data in sales promotion and media advertising, this is shown as weak in the CART Table 4.3, but strong in its corresponding VI Table 4.4. Where the Chain hotels for example are focusing attention on combating competitor offerings, ORA frameworks are important as shown in CART Table 4.8, and very strong in the corresponding VI Table 4.9, with a 100.00 point strength.

Where the Chain, Independent and Resort hotels are using *Baseline* (aggregate levels) of customer data, this leads to basic CE outcomes, (Kumar and George, 2007). When compared with *Intermediate* level group segmentation actions with both aggregate and disaggregate data in use, this will lead to optimisation in CE outcomes. Where *Advanced* levels of activity occur (and with the highest of disaggregate customer data in use), which is customer-firm transaction/interaction data, this will lead to maximisation in CE outcomes.

Baseline CE with disaggregated levels of data in use, Rust, Lemon and Zeithaml (2004) suggest an ORA framework that addresses value equity (price competitiveness and quality), brand equity (awareness, attitude and corporate ethics) and relationship equity (customer loyalty, affinity programs, special treatment programs and community building programs). The majority of the hotels in this study align themselves with the Rust, Lemon and Zeithaml (2004) level of thinking by focusing on price competitiveness and quality through Volume and Value strategies as a first priority and Repeat Stay and Loyalty strategies a close second. Specific

tactics within these four strategies are playing a key role such as Segment5, customer lifestyle characteristics, Acquire2, media advertising, Acquire3, sales promotion and Segment4, customers wants and needs determinants as highlighted for the Chain, Independent and Resort hotels in Table 4.3.

Hotel budgets which are allocated top down and divided into categories for CA and CR as mentioned in P1 and P2 earlier, appear at best to employ simple proportionate allocation rules to sales responses. With this approach to resource allocation when developing the marketing budget to effect, for example specific advertising and sales promotion activities for all 114 hotels in this study, there is strong support for the ORA model or framework to effect CE outcomes. Therefore, Proposition 3 is supported.

5.1.4 Research Proposition 4

P4. Under conditions where disaggregated customer data is available, the Customer Profiling segmentation/targeting strategy will lead to positive CE outcomes.

In this study, customer profiling is the strategy to help CE managers understand the characteristics of their best customers, how they want to do business with the firm, what is the most effective means of communication for their best customers and how frequently their best customers buy from them, (Kumar, Venkatesan and Reinartz, 2006). However, profiling is encumbent upon the availability of disaggregated customer data and specialised use of the strategy (Kumar and George, 2007).

With this in mind, customer profiling is not used all that widely in the Chain hotels in this study 29/80 (36%), and for the Independent hotels 6/29 (20%) and for the Resort hotels 4/5 (80%), as shown in the CART Table 4.3. Interestingly enough, whilst Table 4.3 shows customer profiling as the least important strategy in the Tree at node10, its corresponding measure in VI Table 4.4 shows the importance of this variable as the highest measure at 100.00. As customer profiling takes a great deal of time, skill and resources to do as Kumar and George (2007) and Reinartz and Kumar (2003) have identified, the CART Table 4.3 shows the limited, but significant cases reporting use of customer profiling with high level disaggregated customer data.

Consequently there is strong support for its use in leading to positive CE outcomes for those hotels.

5.2 CART Analysis on RQ2a

The data management techniques to effect CE outcomes are next. This section addresses Research Question 2a. Recall RQ2a as:

RQ2a. To what extent are the customer equity data (both aggregate and disaggregate) managed?

5.2.1 Research Proposition 5

The first research proposition emanating out of RQ2a was:

P5. Under conditions where a firm's disaggregate data availability is optimal, managing acquisition prospects through the customer's lifetime value (CLV) principle will lead to positive CE outcomes.

There are two main customer data approaches to managing customer equity. First is with use of aggregate customer data and the second is with use of disaggregate customer data. For clarity, aggregate customer data is synonymous with either segment level or firm level customer data and disaggregate customer data is synonymous with customer level or individual level data. Based on the survey results in Phase One, revisiting Table 4.31 shows the summary rank order listing compiled from the CART and VI tables in chapter four, with regard to how the strategy variables and data are managed in the hotels. Of note in Table 4.31 is the use of firm level or segment level customer data.

Aggregated Level Approaches to Managing CE in the hotels

Authors who have focused specifically on indicators for the measurement of CLV with aggregated level data approaches to CEM is Berger and Nasr (1998) and Gupta and Lehmann (2003). These studies which focus on sales volume, spending patterns and retention rates are evident in this study as shown in the various CART tables throughout chapter four (Volume and Repeat Stay strategies). For example in the Chain hotels with aggregated data in use in the CART Table 4.6 shows Volume1 high order strategy as node1 in the Tree and midway in strength in the VI Table 4.7. Connections are shown in the CART table for Linkages1, Room Rates and in the VI

table with Linkages⁴ Customer Spending patterns. The summary of these aggregate observations are also located in Table 4.31. At this *lower-level* of CE functioning, there is no identifying and improving any specific drivers of customer equity. As Berger and Nasr (1998) argue a finite projection period to measure CLV, when they coined this term *Baseline* equity, it is shown to be limited or low level CLV estimates of segmented hotel customers. To go to higher levels of CLV estimates requires a concerted effort and the required resources as Figure 2.1 indicates. This means investing in resources that allow disaggregated customer data management techniques to be adopted in the hotels.

Disaggregated Level Approaches to Managing CE in the hotels

Authors who have focused specifically on indicators for the measurement of CLV with disaggregated customer level data approaches to CEM are Kumar and George (2007), Kumar, Venkatesan and Reinartz (2006) and Persson and Ryals (2010). These studies focus on working at higher levels of CEM, that is, *Baseline* plus Customer Profiling, within an ORA framework as shown in the known and aspirational levels of CE in Figure 2.1. To effect CE through customer loyalty programs requires working at these higher levels. This is shown by Loyalty¹ strong emphasis for the Chain hotels in this research, but is ranked sixth (the lowest order ranking strategy) in the summary Table 4.31. For the independent hotels their loyalty program is higher ranked at third. For the Resorts in Table 4.31 loyalty is absent from any ranking place.

To move to even higher levels of CEM would, for example, involve identifying individual customers specifically (not segmented groups) and targeting them, utilising special techniques such as up-selling, cross-selling and service bundling, as researched by Kumar and George (2007). Customers who are involved with hotels at this level are made to feel special and in return are ready and willing to signal satisfaction and loyalty to friends, family, colleagues, associates and neighbours, on behalf of the hotel through word-of-mouth advocacy (Persson and Ryals, 2010). Word-of-mouth advertising was identified as an extremely popular technique in use by all hotels in this study as shown as node1 in the CART Table 4.3, and in the corresponding VI Table 4.4 with a score of 100.00. Not surprising is that word-of-mouth advocacy is ranked first for the Chains in the summary Table 4.31.

In using both aggregate and disaggregate customer data types together, there is the advantage of a contingency approach to the operational effects to CE management as noted by Kumar and George (2007). However, a danger with this approach is that it suggests the use of an ‘either-or’ technique depending on the circumstances. The limited number of hotels in this study that have made the concerted effort to develop and then synthesise the two ways (aggregate and disaggregate data), along with separating out their customer acquisition and retention strategies and consequent budgets for both, indicates a move well beyond *Baseline/Intermediate* segmentation levels to *Advanced* levels of CE management practice, as espoused by Kumar and George (2007). These are Resources1, Separate Budgets for 12/80 Chain, 10/29 Independent, and 4/5 Resort hotels as shown in the CART Table 4.3 and in the corresponding VI Table 4.4 a score of 88.81 in strength.

With the hotel survey results showing some attentiveness to high disaggregate levels of customer data in use, indicates strong support in leading to positive CE outcomes for those hotels. Therefore, Proposition 5 is supported.

5.3 CART Analysis on RQ3a

Interaction of the strategies and data management techniques on CE outcomes achieved is next. This section addresses Research Question 3a.

RQ3a. To what extent does the interaction of the strategies and data management techniques impact on CE outcomes achieved?

The research propositions emanating from this question are P6a and P6b. Each is discussed in turn.

5.3.1 Research Proposition 6a

P6a Under conditions where aggregated customer data is available, employing the Blattberg, Getz and Thomas, (2001) and Kumar and George, (2007) approaches to managing customer equity will lead to positive CE outcomes.

Under conditions where aggregated customer data is available and used when calculating CLV estimates in particular circumstances (measuring CE outcomes), the hotels would have conceptual differences in terms of accounting for existing

customers and prospects, as well as for the projection or time periods to assess the firm's results/outcomes (Kumar, 2006). This is reaffirmed in the discussion on the aggregate level approaches in use by Berger and Nasr (1998) and Gupta and Lehmann (2003). They emphasise firms focusing on sales and spending patterns, contribution margin and retention rates which are regarded as *Baseline* CE strategies and CE outcomes, as no specific CE drivers are identified or improved.

By contrast, approaches by Blattberg, Getz and Thomas (2001) and Venkatesan and Kumar (2004) take into account the impact of customer equity management practices. Both approaches identify specific strategies to improve customer equity. For the former study, these strategies focus on return on acquisition and retention and return on add-on selling. For the latter study, they are drivers of customer equity to improve value equity, brand equity and relationship equity.

Customer equity in these approaches uses the responses from a sample of all customers in the market in survey research, (segment level CLV). The additional information obtained from the survey helps the firm to take into account the purchase potential and brand-switching probability of its prospects (Kumar and George, 2007). The CART and MARS models in this study highlight the use of aggregate customer data approaches to CEM. By implication, the hotels using aggregate customer data mainly would follow the model path that suits their approach as discussed above or follow the recommended Blattberg, Getz and Thomas (2001) path as highlighted by Kumar and George (2007) in section 2.5, Figure 2.2 in chapter two. Therefore, P6a is supported.

5.3.2 Research Proposition 6b

P6b Under conditions where disaggregated customer data is available, employing the Venkatesan and Kumar approaches to managing customer equity will lead to positive CE outcomes.

Disaggregate level customer data approaches to CEM is about managing a customer's lifecycle through customer specific strategies. *Baseline* CE, as mentioned previously, corresponds to the customer lifetime value at the present level of marketing efforts (Kumar and George, 2007; Persson and Ryals, 2010). However, identification of effective channels of communication and optimal allocation of

marketing communication resources across the channels will improve the customer lifetime value to a higher level (Venkatesan and Kumar, 2004). The optimal resource allocation can also be done at a segment level by first segmenting customers based on profitability and longevity (Reinartz and Kumar, 2003) and then optimally allocating resources for each segment (Kumar and George, 2007). In addition, if the firm targets a customer with the right products at the right time, it can potentially result in up-selling and cross-selling, which can take CLV to even higher levels (Kumar, Venkatesan and Reinartz, 2006). The CE can be further improved if a firm balances acquisition and retention resources (Reinartz and Kumar, 2003; Thomas, Reinartz and Kumar, 2004). To do this would involve managing acquisition prospects with high potential through their lifecycle, from initial products through to strategies such as optimisation of marketing communication, up-selling and cross-selling.

What is evident in the findings in Phase One from the various aggregate and disaggregate level approaches to CEM is that the hotels differ from one another on several criteria as the variables identified. The rank-order of the variance is summarised in Table 4.31 in chapter four. Since the aggregate level approach is based on firm or segment level performance measures, the data requirement and number of metrics that need to be tracked are small. However, an aggregate level approach in general, performs poorly in terms of time to implement and expected benefits (Kumar, Venkatesan and Reinartz, 2006).

By contrast, a disaggregate level approach has a higher data requirement and more metrics to track. At the disaggregate level, this offers more benefits and is easier and faster to implement, especially on a small or select group of customers (Kumar and George, 2007). From this discussion, it can be asserted that disaggregate level data in use in the hotels is better than aggregate level data, as other studies in CE management research attest. Table 5.1 summarises these criteria.

Table 5.1 *Criteria used in CLV Estimates of a Firm's Customers*

Criteria	VK Approach	BGT Approach	RLZ Approach	BN Approach	GL Approach
Metrics to Track	Predicted contribution margin	Return on Acquisition	Contribution per customer	Retention rate, cash flows expected	Retention rate
Data Requirements	Customer-level data from firm's internal records	Segment-level data for firm's internal records	Survey data from a sample of customers	Data from firm's internal records	Publicly available firm-level data
Costs Involved	Moderate to high model estimation cost	Moderate to high model estimation cost	Moderate to high cost of survey	Moderate model estimation cost	Low model estimation costs due to simple model
Ease of Implementing	Can use small group of customers = relatively easy	Changes required at firm level = difficult	Changes required at firm level = difficult	No specific strategies mentioned	No specific strategies mentioned
Time to Implement	Short	Long	Long	N/A	N/A
Expected benefit	Measurement of CLV; <i>Customer level</i> strategies to improve CE	Measurement of CLV; <i>Segment level</i> strategies to improve CE	Measurement of CLV; <i>Firm level</i> strategies to improve CE	Measurement of CLV; <i>Firm Level</i> averages data	Measurement of CLV; Comparison of firms

Source: Kumar and George, 2007

In view of the outcomes the hotels are currently achieving, moving away from *Baseline* CE aggregate level data approaches, appears difficult for most to do. The reasons as to why are many, and would be associated with other decisions impacting on hotel performance, such as including which acquisition or retention strategies to use, resources available, customer segmentation variables to choose from and performance expectations. These are the issues confronting the hotels. A performance expectation criticality is, for example, the ability and/or willingness for firms to improve the strategy drivers especially if using aggregate data only. For this study in the accommodation hotels, where the data management techniques are shown to favour aggregated levels of data in use mainly, is influenced by the CE outcomes expected to achieve as detailed in chapter four.

In order to maximise customer equity, the hotels need to develop Repeat Stay and Loyalty programs further as this can be a source of competitive advantage, especially if hotels shift emphasis from measurement only of the data, to

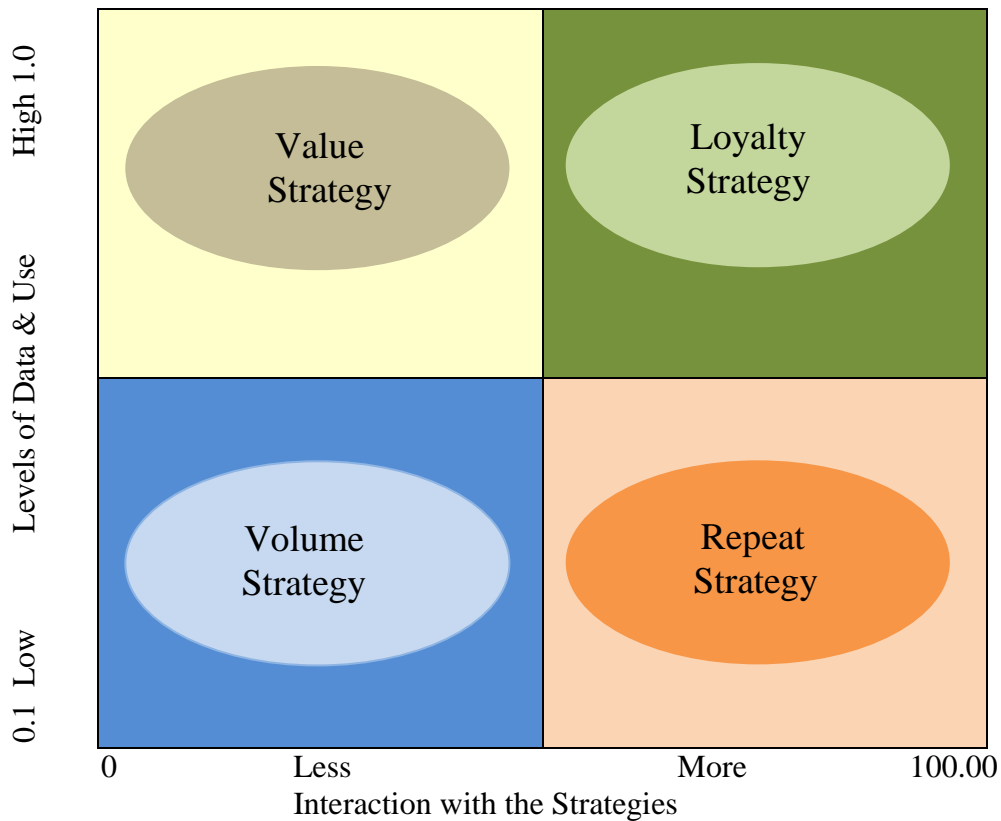
management of the measurement processes (Persson and Ryals, 2010). By implication, the hotels using disaggregate customer data mainly would follow the path that suits their approach as discussed above or follow the recommended Rust, Lemon and Zeithaml, (2004) and Venkatesan and Kumar, (2004) approaches as highlighted by Kumar and George (2007) in section 2.5, Figure 2.2, two. The disaggregated data sets for the limited, but significant examples in this study are evident of those taking advantage of these levels possible in CEM. To that end, P6b is supported.

5.3.3 VVRL Matrix in Context

To provide additional support for P6a and P6b and help explain the interaction effects of the strategies and data types further, the Value, Volume, Repeat Stay and Loyalty (VVRL) matrix was produced to answer RQ3a as Figure 5.1 highlights.

Levels of data and its use are shown as *high or low* on the vertical axis, and the interaction effects with the strategies in use are identified as *more or less* on the horizontal axis. Low level data means aggregated customer data in use in the main for firm-level or segment-level group CE marketing activities to effect CEM outcomes. High level data means disaggregated customer data in use in the main for advanced level individual marketing activities which also lead to CEM outcomes. The terms ‘more’ or ‘less’ on the horizontal axis relate to such matters as involvement with, activities in, association with, input/output and outcomes in CEM.

The Cart Variable Importance (VI) scores are symbolised in strength from 0 to 100.00 on the horizontal axis and the MARS regression scores represent the level of data and its use ranging from 0.1 to 1.0 on the vertical axis. Of interest, is how well these strategies are being used, as each strategy type symbolises a choice of competing demands for attention.



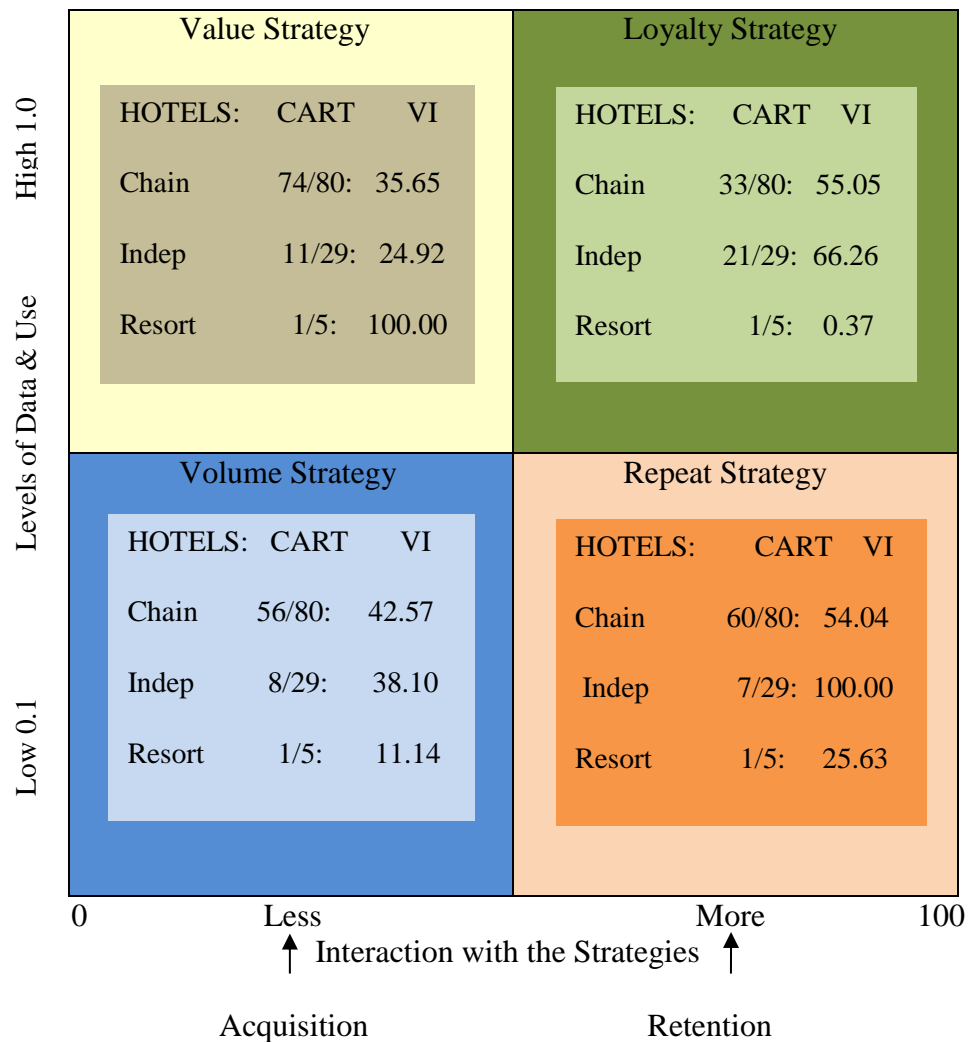
Legend: Value = V: Volume = V: Repeat = R: Loyalty = L (VVRL)

Source: Developed for this Research

Figure 5.1. Interaction Effects of Strategies and Data on CE Outcomes

To complement Figure 5.1, Table 5.2 shows actual CART and VI measures for each hotel category as represented in the VVRL matrix. The significance of the CART results in Table 5.2 is that they represent similarities and differences in the data and strategies in use, which all of the hotels in this study are pursuing at present. For example, the highest VI measure for the Chain hotels is in pursuance of the Loyalty strategy at 55.05. The next most important VI measure for the Chain hotels is for the Repeat Stay strategy at 54.04. The next most important VI measure for the Chain hotels is Volume at 42.57 and the least important VI measure for the Chain hotels is 35.65. What these figures show is that the Chain hotels in this study have a preference for acquisition more than retention in CEM, but for the fewest hotels in the listing showing 33/80, the loyalty strategy is very important. This result is not what would normally be expected given the availability of disaggregated customer data and associated use of marketing tactics emanating from the strategies, as P6b purports use of.

Table 5.2 Interaction of the Strategies and Data on CE Outcomes



Source: Developed for this Research

The next set of variables in Table 5.2 are for the Independent hotels. The highest VI measure for the Independent hotels is in pursuance of Repeat Stay strategy at 100.00. The next most important VI measure for the Independent hotels is for the Loyalty strategy at 66.26. The next most important VI measure for the Independent hotels is for the Volume strategy at 38.10 and the least important VI measure for the Independent hotels is for the Value strategy at 24.92. What these figures show for the Independent hotels is a much greater spread between acquisition and retention activities, with a strong leaning towards retention and loyalty in CEM. This is commendable given the Independent hotels are utilising aggregate data under P6a in the main. The size of these hotels, which are much smaller in customer volume traffic than their Chain and Resort counterparts, their location, overheads, the

ease and simplicity with which to conduct their business activities, are some of the likely factors in being able to ‘get close to the customer’ in their own special way.

The last set of variables in Table 5.2 are for the Resort hotels. The most important VI measure for the Resort hotels is in pursuance of the Value strategy at 100.00. The next most important VI measure for the Resort hotels is for the Repeat Stay strategy at 25.63. The next most important VI measure for the Resort hotels is the Volume strategy at 11.14 and the least important VI measure for the Resort hotels is for the Loyalty strategy at a low of 0.37. What these figures mean for Resort hotels shows CEM in a state of flux. They are attempting to pursue acquisition (through the Value strategy) and retention (through Repeat Stay) simultaneously, which is commendable. However, these hotels struggle with a Volume strategy that leads to repeat business. The Value strategy in use is not extending to a Loyalty strategy. These hotels are pursuing CA in groups (leisure, sporting, business), with aggregated customer data, but do not show signs of nurturing these groups in CR. Therefore, one-on-one customers in volume (that provide for high level transactions and interactions with customers), will be a difficult task for the these hotels going forward under P6a. Of surprise is that these hotels demonstrate they have the skills and resources to undertake and master P6b activities.

In looking at the four VI measures in Table 5.2 for the Chain hotels, they appear to be ‘middle-of-the-road’ in all four strategies symptomatic of ‘hedging ones bets’, or an example of using an ORA model to maximise CE in each separate strategy. For the Independent hotels, they favour a Repeat Stay and Loyalty strategy approach as first emphasis, which means a focus on retention. This is logically followed by a Volume and Value strategy emphasis - customer acquisition. This approach to CE is not likely to be sustainable long term as acquisition precedes retention. For the Resort hotels there appears to be a kind of ‘disconnect’ with the strategies, as focus is prominent first with a Value strategy for acquisition purposes, followed by a Repeat Stay for retention purposes. Then emphasis turns to a Volume strategy again for acquisition purposes, with the Loyalty strategy very low on the radar of importance. All of this is with aggregated customer data in the main. What is apparent is the need for earnings certainty to advance beyond these levels.

5.4 MARS Analysis on RQ1a, RQ2a and RQ3a.

To draw the discussion of this chapter to a close, final commentary is in relation to the MARS results in Phase One as pivotal data. A summary of the regression scores from the MARS tables for the dependent variable in the Chain, Independent and Resort hotels are reproduced as shown in Table 5.3. The results show that all four strategy drivers and the two customer data sets positively influence CE outcomes achieved at all three levels, *Baseline, Intermediate and Advanced* levels of customer equity, with *Advanced* CE the best of the best approaches the hotels have adopted minimally. There is a strength of association and relativity between the strategies and data types in use as revealed. Working through each of the research propositions is as follows.

RQ1a:

- Proposition 1: This proposition centred on Blattberg and Deighton's (1996) use of CA/CR strategies by the hotels in *Baseline* equity as the most predominant CE strategy in use. There was some evidence in the findings to suggest the use of the Markov brand switching matrix to bolster support for customer acquisition strategies as the CART and MARS data show and is therefore supported.
- Proposition 2: Contrary to Blattberg, Getz and Thomas (2001) and Thomas' (2001) view that budgets are starting to be separated for CA and CR, the findings in this study show the opposite to be true at this time except for a significant few hotels, such as the Resorts. With acquisition and retention strategies divided by spending patterns of varying amounts, this illustrates the difficulty the hotels are having in reconciling these competing needs, especially with existing earnings and earnings potential which come from both strategies in use. To manage the hotels' CE when conducted together has been addressed through Berger and Nasr's (2001) Budget Decision model and is therefore supported.
- Proposition 3: The findings revealed that where customer level disaggregate data level are not available, the Blattberg, Getz and Thomas (2001) *Baseline* CE approach to CE outcomes based on segment level marketing with aggregate level actions should apply. This was shown to be the case for the Independent hotels in particular. In this case, the ORA

framework in budget decisions focuses on a different set of metrics to predict the effects on acquisition, retention and add-on selling returns. Add-on selling, which represents a cost to the firm, is where the customer has an affinity with the hotel and develops some form of relationship with these hotels.

By contrast, where firm level actions apply to segment or individual customer level actions, (*Intermediate* or *Advanced* level CE) Rust, Lemon and Zeithaml (2004), suggest an ORA framework that addresses value equity (price competitiveness and quality), brand equity (awareness, attitude and corporate ethics) and relationship equity (customer loyalty, affinity programs, special treatment programs, community building programs). Some of these activities were shown to be evident in the Chain and Resort hotels. These CE activities focus on forward looking metrics (greater than 1-2 years), and are used in unison with past performance metrics. In this study, there is too much emphasis on past performance and actions with the future very uncertain in CE earnings forecasting. The findings therefore gave clues to suboptimal use of available resources, symptomatic of the prevailing 'winds-of-time'. Nonetheless, the extent of use of ORA frameworks is acknowledged and supported.

- Proposition 4: With customer profiling a highly endorsed strategy in CE management practice in the hotels, this was in actuality endorsed fully in only a handful of cases cited as shown in the Tree summary for RQ1 Table 4.3, chapter four. How the customer data is managed overall is in the rank-order summary of the 13 x CART models in Table 4.31. This summary shows the strategies and data management approaches (aggregate and disaggregate) in use in relative terms. The model is illustrative of the relational aspects between RQ1 and RQ2 activities taking place with and between levels in approach to CEM. The directional intent has been shown in this study to favour customer acquisition strategies with customer data management as a first consideration, with customer retention strategies second with a measurement mainly focus taking place. This is 'way-off' from a CEM strategy focus that manages customer acquisition and retention which involves both measurement and

management aspects simultaneously. The principle of customer profiling is however supported.

RQ2a:

- Proposition 5: Out of the two sets of data management approaches (aggregate and disaggregate) the hotels can adopt for use in CEM, the form(s) most preferred and used are (i) the *Baseline* aggregate levels, and (ii) *Intermediate* aggregate levels. Whilst useful and pertinent, these are argued as the weakest forms for achieving the best in the firm's CE outcomes (Kumar and Petersen, 2005). The VVRL matrix in Table 5.2 shows this trend towards aggregate data use; very strong for the Chain and Independent hotels. With no *Basis Functions* (BF) qualifiers in the MARS results for the Resort hotels, their use of aggregate customer data is also high as evidenced throughout this study. As Kumar and George (2007) have noted, to develop CE beyond the *Baseline/Intermediate* levels to *Advanced* levels requires a commitment to this decision that will include the need for appropriate resources to be found also. Aggregate level customer data was therefore supported.

RQ3a

- Propositions 6a, 6b: Among the strategy drivers, the impelling and pivotal VVRL matrix model developed is regarded to be of primary importance in identifying CE outcome levels achieved to date in this study. In looking at Table 5.2, the VVRL strategies when linked to the customer data types, both aggregate and disaggregate for the Chain hotels show weak, but positive support on the interaction effects. Next, when viewed for the Independent hotels, the strategies with aggregate customer data show strong levels of support and likewise the linkages with disaggregated data show strong support. Lastly for the Resort hotels, there is weak, but positive support for the strategies with both aggregate and disaggregate customer data types in use.

Whilst each of the VVRL matrix elements and the two customer data types, aggregate and disaggregate are extremely important on their own as shown to be the case in this study, there is no evidence of any use of these

elements used in a synthesised way for achieving CE outcomes. Understandably, this ‘tuning-in-and-out’ is the best that can be achieved in CEM in the hotels currently and not uncommon in CE management practice, as highlighted by Kumar and George (2007), Persson and Ryals (2010) and Petersen et al., (2009). Consequently, under the conditions as noted for use of aggregate data in P6a and disaggregate data in P6b, both levels are supported.

Recall that 0.1 to 1.0 in MARS regression in this non-parametric study design does not result in scores for determining causality. The regression findings are purposeful in showing strength of association, links and trends in the data. *Basis Functions* (BFs) in MARS are the CE strategy variables that are having a positive or negative effect on *Y* as shown in Table 5.3. The effect is to give efficacy and stability in the variables under examination and support the Tree findings in each case.

Table 5.3 *Multivariate Adaptive Regression Splines (MARS) Results for the Accommodation Hotels in this Study*

RQ1a	Research Proposition	Level of Support
Y = Chain, Independent, Resort hotels Y = 0.721235	P1, P2, P3, P4 -0.431748*BF3	P1,P2, P3, P4 all tentatively supported
RQ2a		
Y = Chain hotels: Aggregated customer data Y = 0.703513	P5 +0.210086*BF11	With DataManage1, non-specific data = tentatively supported
Y = Chain hotels: Disaggregated customer data Y = 0.720397	P5 No qualifier	No MARS recording = fully supported
Y = Independent hotels: Aggregated customer data Y = 0.801169	P5 - 0.237952* BF13	With DataManage1, non-specific data = tentatively supported
Y = Independent hotels: Disaggregated customer data Y = 0.599190	P5 No qualifier in BF5	No MARS recording = fully supported
Y = Resort hotels: Aggregated customer data Y = 0.088888	P5 No qualifier in BF5	No MARS recording = partially supported
Y = Resort hotels: Disaggregated customer data Y = 0.088888	P5 No qualifier in BF5	No MARS recording = partially supported
RQ3a		
Y = Chain hotels: Strategies/Aggregated customer data Y = -0.145420	P6a, P6b + 0.250164* BF9.	With DataManage1, non-specific data = partially supported
Y = Chain hotels: Strategies/Disaggregated customer data Y = 0.231784	P6a, P6b - 0.215880* BF7	With DataManage2, highly specific data = partially supported
Y = Independent hotels: Strategies & Aggregated customer data Y = 1.070830	P6a, P6b - 0.243482* BF7	With DataManage1, non-specific data = tentatively supported
Y = Independent hotels: Strategies & Disaggregated customer data Y = 0.862956	P6a, P6b No qualifier in BF5	No MARS recording = fully supported
Y = Resort hotels: Strategies/Aggregated customer data Y = 0.084745	P6a, P6b - 0.084745* BF9	With DataManage1, non-specific data = partially supported
Y = Resort hotels: Strategies/Disaggregated customer data Y = 0.086206	P6a, P6b - 0.086206*BF11.	With DataManage2, highly specific data = partially supported

Note: < .5 = partially supported;

> .5 = with positive and negative qualifiers = tentatively supported;

> .5 = with no qualifiers = fully supported

5.5 Chapter Conclusion

This chapter has discussed the survey findings in Phase One in CE Management research in the Accommodation hotels in Australia. The study examined four drivers of customer equity and two kinds of data types (aggregate and disaggregate) customer data to manage customers' equity in systems review, whilst controlling for managerial inputs in past and present CE activities. There were no

inputs into the managers' behaviour in CE activities for example research into managerial and leadership behaviour, or job satisfaction and performance which might play a part as in other studies.

The CART and MARS results give rise to the hotels pursuing the strategies and customer data types vehemently, but not uniformly or equitably. The implications are that optimisation of these strategies and data types does not lead to maximisation in CEM. Similarly, addressing the strategies and data types helps to achieve efficiency, but does not lead to effectiveness. What is required is synthesis in the use of the strategies and data types as shown in the VVRL matrix. To synthesise the VVRL elements is not the same as merger. In synthesis, the elements can remain distinctive in their own right, but are used more uniformly and consistently in a holistic way. Merger suggests use in combination such as VV together and RL together such that one of the original terms in both sets is eliminated.

Of course, synthesis requires more than a willingness and ability to perform. It requires a confidence that emanates from a certainty such that a steady income stream would produce. This is the CLV principle in action. The accommodation hotel industry is one of the least capable in the services sector to be able to forecast future profit from income streams, by contrast to say the banks, insurance firms and broker finance companies. The difficulty is in the nature of non-contractual relationships with the hotels. Some contractual relationships are occurring for mainly the Chain and Resort hotels in business (with the airlines, coach transport providers, government agencies) and leisure/sporting (golf, tennis, rock concert) type contexts.

It is a logical historical progression for the accommodation hotels to work with aggregated customer data in the main. Customer groups as noted above in the business, government and leisure sectors dictate the form. It is those hotels which have a structure that incorporates, say a casino on one or two floors of the hotel complex that will advance its services to individual customers contacts, transactions and interactions. The Jupiters Hotel/Casino complex is one example in Queensland where this happens. The Nara Resort on the Gold Coast owns the adjacent Sea World theme park complex, as part of a total suite of services on offer to individual

customers and groups. The Hotel Mantra in Brisbane City is a 10 floor city sky line complex that has units (rooms) for rent and that can be purchased (sold) as strata-titled apartments and then ‘let-out’ by the owners through a lease-back arrangement with the hotel. These types of contractual arrangements provide for a more guaranteed income stream than a hotel offering rooms for short term guest stays alone can achieve.

Naturally, hotel size, shape and location play an important part in the goals and objectives to be achieved, as well as the business charter determined in each case. To achieve results under the conditions of P6a is commendable. Achieving results under the conditions of P6b is excellent. It will require a re-think for those hotels wishing to move to high levels of disaggregate customer data in order to achieve *Advanced* levels of CE (Kumar and George, 2007). The key in either or both is sustainability and growth in CEM.

The next chapter is an analysis and discussion of the interviews in qualitative research conducted as Phase Two.

Chapter 6: PHASE TWO: RESULTS, ANALYSIS AND CROSS-CASE DISCUSSION

‘If you want to truly understand something, try to change it.’

Kurt Lewin (1976)

6.0 Introduction

Discussion of the results in chapter five highlight the extent of CEM in the Accommodation hotels as researched. Key points of emphasis emerged that would assist in the case studies which followed. First, is that with regard to the known and aspirational levels in CE management in the Australian context as shown in Figure 2.1 in chapter two. The ‘known’ levels have been demonstrated to be *Baseline CE* with some advances to optimising resources in most cases as discussed by Berger and Nasr (1998). Advancing the ‘known’ levels further were demonstrated in the chain hotels in particular, this time akin to *Intermediate CE* as researched by Blattberg, Getz and Thomas (2001), Gupta and Lehmann (2003) and Rust, Lemon and Ziethaml (2004).

The ‘aspirational’ levels which is *Advanced CE* was demonstrated in too few cases, the Chain-International/3 and Resort-International/1 hotels in particular. This was not unexpected as *Advanced CE* requires profiling customers and data mining, (Kumar and George, 2007). The implication here is that to achieve at the intermediate levels and especially advanced levels of CE, requires individual customer data (highly disaggregated) that can be exploited by the hotel’s highly trained staff. Consequently, the best that is being achieved is by the relative few, as the CART diagram in Figure 4.2 and corresponding Tree summary in Table 4.3 in chapter four shows.

The majority of responses in the survey in Phase One demonstrated action with Resources2, Same Budget, which is group or segment level (aggregated) customer data used for the purposes of ease, cost, convenience and purpose. It appears on balance that the *Advanced* levels of CE that use high levels of disaggregated

customer data in Australian accommodation hotels will remain aspirational for some time to come.

This leads to the second point of emphasis from the results discussion in chapter five and that is the continual emphasis on the measurement of CE as the main driver of CE outcomes and in particular a concentrated effort on customer acquisition at the expense of retention and loyalty as the key strategy at this time. Few of the hotels canvassed have customer retention and loyalty programs as their main tenet of operations, symptomatic of the difficult trading period the hotels are experiencing as current policy, but also because of the difficulty these types of programs are to *do*, maintain and the resources required to undertake them. Additionally are the expected return on the investment incurred and tangible outcomes achieved that need to be reported to shareholders and other stakeholders. This is what is referred to as CE asset management. Armed with this information, this aided analysis and discussion of the case studies in this chapter in qualitative research.

The structure of this chapter is organised into two parts. The first part is as follows. In section 6.1 is a discussion of the approaches to analysis of the cases. In section 6.2 the term ‘manager’ is used to describe the interview participants most of which have different position titles. A brief description of the manager’s demographic information follows. Section 6.3 details the interview process. Section 6.4 details the findings in the case studies. The researcher will compare and contrast the case study particulars that emerged from the study, submit quotation extracts from the interviews and other supporting hotel documents obtained and connect these findings to the research questions and research propositions in chapter two.

The second part of this chapter will compare and contrast the cases in cross-case discussion and analysis through the text mining tool Leximancer version 4.0 in section 6.5. Approaches to Document Analysis and the findings are discussed at length. section 6.6 details the cross-case findings. Section 6.7 concludes this chapter.

In moving to analysis of the cases, this part of the research set out to answer the research questions shedding more light on the way CE is managed in the Australian accommodation hotels. The approach was through qualitative interviews. The research questions were paraphrased in interview so as to be less ‘academic’ in speak and tone and also to be ‘in-tune’ with the practitioner audience whilst maintaining the same academic intent. Following the standardised interview format in a semi-structured interview context for all eight hotels, interview questions were asked against the survey research questions framed in Phase One.

6.1 Approaches to Analysis

With uniformity and consistency in mind with regard to the interviews, the researcher took the following four approaches to analysis. The first form was to analyse responses to the same question(s) asked, looking for similarities and differences in those responses. A second form of analysis was to check for overall consistency. In that light, the researcher was interested to discover the hotel manager’s purpose or charter in managing their customers against the evidence they used to decide on what is feasible to *do* in practice and the outcomes achieved.

The third form of analysis was to give clarity in meaning to the specialised revenue management terms used in the hotel industry and hotel specific advertising slogans. An indication of what was meant by for example ‘clean, comfortable and connected’ (3Cs) varies with ‘cost, cleanliness and closeness’ (3Cs). A hotel communicating ‘people, places and purpose’ (3P’s), contrasts with ‘prestigious, purposeful and peaceful’, (3Ps). No significant inferences were drawn on these acronyms representing what the hotels do. The conclusion drawn is that hotels’ existing and potential customers will use those terms (at least in their psyche) as a way of differentiating from the competition and ultimately what the hotels themselves would like customers to do is ‘attach to’ them in some meaningful way.

The fourth form of analysis was enabling the managers as interviewees to describe their view of managing their CE strategies and customer data techniques and for the researcher to record those ideas on paper, as interviews were not tape recorded. To facilitate this process, a sketch, not unlike an artist sketching a portrait

of someone in front of them would be used. In this way, the researcher could quickly model the points being made with assistance from the managers and then later cluster those drawings into a managerial flow chart. Details of the interview participants are as follows.

6.2 Interview Participants

All of the interviews were with the ‘manager’ of the hotel, recognising that there are a variety of different titles in the listing. With the Chain and Resort hotels affiliated around the world, focus in this study is on their Australian operations only. All Independent hotels in this study are Australian owned and based. The cases would be selected with interviews conducted until information saturation has been achieved. A total of eight distinct and separate hotels and interviews completed the study. A brief description of the managers for the case study interviews are identified in Table 6.1.

Table 6.1 *Demographic Information on the Hotel Managers Interviewed*

Sample Size	Eight Separate Hotels – each a Case Study
Position Title	CEO 1, General Manager 3, Group General Manager 1; Director of Sales 1, Property Manager 1, Resort Manager 1
Area(s) of Responsibility	Corporate Mgt, Sales Mgt, Marketing Mgt, Customer Relationship Mgt
Hotel Size (by employees)	Chain Hotels = >300-500+; Independent Hotels = >100: The single Resort Complex = >300
How long in the Position?	All title holders > 5 yrs in their present role
Age of Staff	Not asked directly: an observed estimate is between 35 and 50 years in each individual case
Gender	Male = 7: Female = 1
Education – level achieved	High School = 2; Diploma = 1; Degree = 4; Masters Degree = 1

The coded name of each Hotel, star rating and actual position title of the participants interviewed, is shown in Table 6.2 below.

Table 6.2 *Brief Characteristics of each Hotel and Participants Interviewed*

Chain-International/1: 5 star Brisbane Hotel - CEO
Chain-International/2: 5 star Brisbane Hotel - Director of Sales
Chain-International/3: 5 star Brisbane Hotel - General Manager
Chain-Australia/4: 4 ½ star Brisbane Hotel - Group General Manager
Independent/1: 3½ star Brisbane City Hotel - General Manager
Independent/2: 4½ star Brisbane Terrace Hotel - Property Manager
Independent/3: 3½ star Perth City Hotel - General Manager
Resort-International/1: 5 star Qld Sunshine Coast – Resort Manager

6.3 Interview Process

A confirmation email letter with an interview outline was forwarded to each manager who agreed to be interviewed. A blank copy of the mail survey was also forwarded to those who wanted to familiarise or re-familiarise themselves with it as the mail survey was either forwarded to them or a colleague named in the mail-out database, three months earlier.

Face-to-face interviews were conducted in 45 minutes to 1 hour which allowed time for the managers to be explicit about how they use the strategies and customer data and why they do what they do in CEM. In the interviews, the researcher sought to gain an understanding of their role in the hotel in managing their customer asset. For example, a hands-on approach is very different to delegated authority and responsibilities. In light of this, the researcher asked how managers went about acquiring and retaining their customers and the ramifications of utilising only one or the other as priority and preference, and in some of the interviews both simultaneously.

In addition, the researcher canvassed questions regarding company resources (budgets), to manage either or both strategies (acquisition and retention) and whether these budgets were separated out in particular, used together or used in conjunction with other managerial priorities. The interviews tended to begin with the broad question, *'How do you acquire your customers currently?'* This was followed by,

'What steps do you take to retain them?' These open-ended type questions allowed for clarification and probe. The interviewees were able to make specific statements and gave prize examples and explanations of their role and that of their staff, expectations and outcomes and the criteria which counts as evidence in achieving those outcomes. Reiterating that this was a systems review of the strategies and customer data management and techniques in use, and not an analysis of the manager's behaviour or performance management, the researcher sought to gain an understanding of the manager's conceptual framework and how this impacts on their hotel management practices. In this way, the researcher was seeking 'honest' answers to the questions asked of them without bias. In the spirit of openness and trust, notwithstanding the confidentiality clauses mentioned on both sides, (academic and private sector) and the commercial-in-confidence sensitivities facing hotel management, the interviews went ahead as planned in agreement. With this in mind, the researcher took on face-value what each manager said.

6.4 Findings

6.4.1 (Part 1 & 2 Questionnaire) Customer Acquisition and Retention

The researcher was interested to know how customers are acquired and what steps are taken to retain them. The decision criteria used by the managers varied widely as CART and MARS results in chapter four attest: some utilised internal to the firm procedures and practices (sales and marketing teams, reservations personnel with in-house data management techniques in place); others used external agencies to effect customer acquisition and management of the hotel's customer data.

Acquisition Strategies Used

All four Chain International Hotels and the one Resort hotel recorded use of:

- in-house mechanisms, such as their own reservation system, customer data base for customer recording, contact and marketing purposes;
- working with outside advertising agencies for promotional work that cannot be performed in-house and use of both domestic and international travel agents who work on commission for customers who stay at the Hotel;
- very modern web sites for in-house promotional purposes. Direct and Online marketing materials – pamphlets, brochures, email and online reservations are par for the course for these hotels.

All of the above noted hotel web sites are interactive between the customer and Hotel in varying degrees. With the social media sites gaining some influence in the market place generally, these are located in two of the chain international hotel sites only, Chain-International/3 and Resort-International/1. Mentioned only briefly in interview, the social media sites as such are not used all that extensively by these Hotels as a customer acquisition medium at the present time. The one Australian chain hotel (Chain-Australia/4), does all of the above with exception to the use of external advertising agencies and international travel agents.

Retention Strategies Used

In interview with the managers, commentary on retaining customers was predominantly through price/quality promotions in their advertising, but also through targeted promotions of their established clientele. With the Chain-International/3 reporting around 5000 established customers on their data base of contacts in Australia, targeted promotions to them offer opportunities to expand through word-of-mouth advocacy. 'advocacy' by contrast to 'advertising' should be clarified here. Word-of-mouth advocacy is when customers talk to friends, neighbours, siblings, work colleagues, even strangers about their experience(s) with the hotel, with recommendation for others to stay there (Libai et al., 2010). Word-of-mouth advertising is what the hotel does to promote and recruit new customers (Berger and Schwartz, 2011). In interview with the manager in the Chain-International/1 for example he commented on word-of-mouth advocacy with:

'the offer of a coupon (advertisement) sent to an existing customer for a weekend stay in our Hotel, may also be offered in transfer to a friend or other person(s) known to the first customer, if the existing customer cannot take-up the offer.'

In discussion further, this manager in the Chain-International/1 went on to say:

'a variation on this theme is that a coupon which is offered to an original customer who can use the coupon can be extended to other persons for 50% the normal tariff on the room offered.' The manager noted that coupons are also transferable within the Hotel's chain, enabling customers to choose from city to city or to regional and coastal locations throughout Australia.

With regard to word-of-mouth advertising (the low cost retention strategy), this was pursued in three of the hotels, Chain-International/1, Independent-Australia/1/2. For the most part, commentary took the following form:

'We contract with wholesale travel agents domestic and international and manage demand that way' (Chain-International/1). A variation to this was explained with, *'We look to advertise internally through the networks of this hotel'* (Chain-International/3).

With retention strategies, the chain hotels and resort hotel had significantly more resources for managing this area than the independent hotels. With comments such as, *'Our CRM and sales teams use data mining algorithms to manage our customer's loyalty'* (Chain-International/3). By contrast the comments, *'We push a low price/high quality accommodation and service to our existing customers, both corporate and leisure'* (Independent-Australia/2), show subtle but significant differences to their CEM approaches. For example, the Chain-International/3 hotel signalled in the interview discussion that they had two teams – one for customer acquisition (the CLV sales team) and the other for customer retention (the CRM team).

The Independent-Australia/2 hotel by contrast cannot match these kinds of resources, due to obvious differences in their size and scope of operations and customer data bases. In another example, *'we advocate the home-away-from-home messages with great value, in our advertising to existing and new customers'* (Independent-Australia/3).

This commentary from the manager in interview matched the Hotel's slogan advertising in their promotional brochures as consistent messages easily understood. The rooms in this Hotel are for two to four persons in open-plan studio layout, but has locked windows and no balconies. To argue to customers and potential customers in promotional brochures that this hotel is a 'home-away-from-home' style accommodation could be misleading advertising, except for the fact that each room is a private, self-contained unit with kitchen and bathroom facilities. Laundry, however, is a shared arrangement in the basement of this Hotel.

Summary of Part 1 & 2 Customer Acquisition and Retention

In this section of the interviews, focus of attention was on how the managers acquire and retain their customers. The Chain and Resort hotels reported use of both in-house and external agencies to assist in their marketing endeavours and use of their web sites are interactive in a number of cases. The Independent hotels reported less advanced use of their CE strategies. In all eight case interviews, discussion resulted on customer acquisition more than customer retention at this time.

6.4.2 (Part 3 Questionnaire) Company Resources (Budgets)

In all but two hotels, the managers reported using the same budget for managing customer acquisition and retention. Reasons why the budgets are used this way was identified through the commentary, *'Head Office in Sydney allocate the resources to be shared throughout the network,'* (Chain-Australia/4). In another example, *'Our sales team utilise various external Revenue Management Systems, that link directly to the Hotel's customer data base and budgeting system'* (Chain-International/3).

In some cases there are strong links to, *'our parent-company'*, (Chain-International/1), *'our sister-company'*, (Independent-Australia/3), *'our subsidiaries'*, (Independent-Australia/2). In the cases where the budgets are separated out, there was an indicator of high level use of the strategies, (Chain-International/3; Resort-International/1). The manager in the Resort International/1 complex said,

'We have two sales teams - one for acquisition and the other for retention. We use our own systems developed in-house for forecasting future sales, events and promos and customer data base for analysis and management purposes.'

This particular case was a *stand-out* for many reasons. For example, observations from a site visit by the manager with the researcher showed the hotel layout. This included making observations about strategy, structure and operations. The location, ambience and decor were noticeably prestigious. Customer service experienced by the researcher was first class. The customer responsive levels were evidenced by the sales and promotion documentation the Resort displays and website information as well.

The manager reported that this is a privately owned Australian Resort. There is no leasing or subletting of buildings, tennis courts, mechanical workshops and more. There are staff employed full-time and casual. There are 324 rooms with a 60% occupancy in 2011. With the customer groups they comprise: 50% executive and 50% leisure visitors to this Hotel. It has a higher than average tariff stay at \$220.00 per night. A break down of customer/client groups are, Victoria 30%, NSW 25%, Qld 25% and overseas 15% with the remainder highly transient, off-the-street, unrecorded customers for further contract purposes, 5%. The Hotel is recognised highly in the rankings by an independent accredited firm, Smith Travel Research located in the USA. It has a five star rating. Even with all of this, whilst the acquisition team reported good results for the year, the manager reported a poor repeat rate and customer loyalty to the Hotel, by the retention team. There was no further probe into why this was so. In general comment, there was acknowledgement of the extremely poor trading conditions in the State overall, because of the high Australian dollar, cost of living expenses rising and the floods in Queensland and interstate, all adding to poor consumer sentiment to travel.

Summary of Part 3-Company Resources (Budgets)

The managers in the interviews reported use of the same budget for managing customer acquisition and retention in all but two hotels. Reasons why the budgets are used this way is linked to the hotel's strategy, structure and operations which restrict flexibility in budgeting matters. Where they are separated out (Chain-International/3; Resort-International/1), these hotels are high profile strong brand names, quality assured and accredited, have high reputation and credibility and consequently are doing as much as they can in the current economic climate. One case outline describing the setting as a five star Hotel (Resort-International/1), show-cased excellence in all aspects of their operations, but experienced difficulties in achieving the desired CE outcomes (acquisition and retention) in 2011.

6.4.3 (Part 4 Questionnaire) Targeting - Segmenting Customers

All managers in the interviews placed their customer groups into two broad categories: corporate (used interchangeably with business) and leisure groups. Only in one case was there mention of a third category, government, (Chain-Australia/2).

Observed in this particular interview was use of the word ‘client’ as well as ‘customer’. When the researcher asked the interviewee to explain the difference between the two, the following explanation was offered.

‘A customer is regarded as someone who is transient, intermittent, occasional, or even one-off, who contributes little to the hotel’s outcomes’. By contrast,

‘A client is someone who is more long-term, returns often and is more loyal to the Hotel’ (Chain-Australia/2).

Managers reported that clients are sometimes client groups such as airline personnel or mining executives who contribute to the hotel’s CE through contractual agreement(s). Arrangements of this kind with the hotel are won by tender, which is indicative of a longer term business association (acquisition-retention strategy). Furthermore, in all but one hotel (Independent-Australia/2), is where the hotels have customer-client contractual arrangements (some of which are two year contracts with an option to renew in certain circumstances). This shows some level of earnings certainty as future earnings can be calculated over the entire contractual period. This is in direct contrast for most hotels where earnings and earnings potential are in non-contractual settings, which makes forecasting very imprecise in customer lifetime value calculations.

Noticeably, in all but one hotel is where, *‘in the main, 85% of our customers are leisure travellers with only 15% corporate stays at our Hotel’* (Independent-Australia/1). The opposite holds true for the other seven hotels who reported between 40% the lowest (Independent-Australia/3) and 80% the highest (Chain-International/3) for their corporate contribution to CE respectively. All hotels were able to provide further details of their segmentation categories demonstrating attention to customer profiling as a specific strategy technique in use in five cases, (Chain-International /1/2/3; Chain-Australia/4 and Resort-International/1). This is important because the technique of customer profiling leads to the most detail on specific customers and customer groups. If done extremely well, it involves data mining. Whilst information in the interviews did not provide for highly specific details of their customer contact/relationship methods, an example in one case with the least corporate exposure the manager explained,

'5% of our corporate category are executive business people with 10% middle management, one of which is a contract with airline crews. Agent-based referrals comprise 55% with 30% direct contacts through direct marketing methods and other advertising mediums. "Walk-ins" and "Cold-call" enquiries make up the remainder' (Independent-Australia/1).

Of significance from all of the interviews with the managers in discussion in this area of segmenting and targeting customers, was the level of functioning in a CE management context. Only two hotels displayed levels beyond intermediate CE towards *Advanced* CE, (Chain-International/3; Resort-International/1). Specific practices in *Advanced* CE strategies mentioned in interview include:

'use of the customer spend rate (size-of-wallet) and willingness to spend in the Hotel, (share-of-wallet)' (Resort-International/1). In another example,

'our sales team(s) find-out about our customers' incomes, education where they live, what they do, family status, their current lifestyles and the benefits they expect to receive when staying with us' (Chain-International/3). The remainder of the hotels appear to manage at *Baseline-to-Intermediate* CE at best.

Summary of Part 4 Targeting –Segmenting Customers

In this section of the interviews, the managers demonstrated use of their segmentation practices. In two cases, there was evidence of high use of CE practices with specific mention of the 'spend rate' of each customer, the size and share-of-wallet and willingness of customers' to spend in the hotel(s). This type of detail known to the sales teams, as well as finding out about their customers' lifestyle characteristics, needs and wants that impact on their reasons to stay at the hotel(s) were demonstrated for the Chain-International/3 and Resort-International/1 hotels. With this level of customer involvement, these hotels are demonstrating use of *Advanced* level segmentation strategies well beyond *Baseline* segmentation principles. By contrast, the remainder hotel managers demonstrated measures quite well entrenched, but not to the level of customer-firm transaction data, highly disaggregated, at the *Advanced* CE segmentation levels described above. This means for the remaining six hotels they have a measurement only oriented charter, a categorise by customer groups and use aggregated customer data in the main.

6.4.4 (Part 5 Questionnaire) - Customer Data Management

Recall in the Introduction section 6.0 the levels of CE that is/can be attained namely *Baseline*, *Intermediate* or *Advanced*. Two hotels, the Chain-International/3 and Resort-International/1 were able to demonstrate working at *Advanced* levels of CE strategies and customer data, managing their transactions and individual customer interactions at a very high level. *Advanced* level CE comprise the skills and techniques that Kumar and George (2007) and Rust, Lemon and Zeithaml (2006) espouse in pursuance of CE maximisation strategies such as knowing:

- Customer size-of-wallet and share-of-wallet;
- Retention defect rates and reasons why customers defect;
- Up-selling, cross-selling and product/service-bundling;
- Always-a-share, alive-until-they-die and lost-for-good customers, (Schmittlein, Morrison and Columbo, 1987).

These strategies are difficult to implement and manage with regard to profitable return on the investment expended. In two cases reported (Chain-International/2/3) is where the managers reported some use of these tactics in their hotels.

The remaining chain hotels reported activities at lower levels than that described above, that is, transaction and customer interactions focusing on group categories such as business, sporting and leisure. This equates to *Intermediate* levels of high aggregate/low disaggregate customer data in use. As noted in section 2.5 in chapter two, Blattberg, Getz and Thomas (2001) and Rust, Lemon and Zeithaml (2004) approaches take into account the impact of customer equity management practices at the *Intermediate* level. Both approaches identify specific strategies to improve customer equity. For the former study, these strategies are on return on acquisition and retention and return on add-on selling. For the latter study, they are drivers of customer equity to improve value equity, brand equity and relationship equity. Customer equity in these approaches use the responses from a sample of all customers in the market, in survey research (segment level CLV). The additional information obtained from the survey helps the firm to take into account the purchase potential and brand-switching probability of its prospects, (Kumar and George, 2007).

At the lowest levels of CE are *Baseline* CE activities. This occurs for the Independent hotels, (Independent/1/2/3). As a refresher, *Baseline* CE strategies are aggregate level approaches to CEM. First coined by Berger and Nasr (1998) and Gupta and Lehmann (2003), they focus on sales and spending patterns, contribution margin and retention rates, but not on developing the strategy drivers of CE in any concerted way that would assist in customer retention and customer loyalty. Lower level CE activities, therefore, focus on calculating CLV with an Optimal Resource Allocation (ORA) strategy at best.

To move beyond the focus on financial measurement only are the tangible/intangible rewards of knowing ‘how’ and ‘why’ Value and Volume Customers (high or low), and Repeat Stay and Loyalty Customers (strong or weak) are managed in the hotel. These variables relate specifically to questions in interview namely:

- How large is your customer base? Is it stable or transient?
- Who looks after the customer data in your organisation?
- What type of customer data is collected?
- How is the data managed?
- How do you know when a customer is profitable to you?

None of the interviewees were able to discuss CE data management levels beyond measurement only principles at best in CLV terminology. In particular, are systems called Revenue Per Available Room (RevPar), as Woodworth and Walls (2009) discuss are in unprecedented decline. This is a yield management system used by all of the hotels interviewed. In a basic premise, rooms are priced arbitrarily at first, i.e. all interviewees mentioned use the Cost/Plus pricing approach (Kotler, 2007) as their modus operandi. For an example of RevPar, see Appendix I.

Next is discussion of hotel rates. With regard to hotel rates, there are four rate types hotel managers use in CLV calculations. These are:

1. Wholesale rates,
2. Retail Rates (also called, Last Minute Availability Rate),
3. Negotiated rates, and
4. Contracted rates.

These pricing strategies were evident in the Chain and Resort hotels, more so than in the Independent hotels. An explanation of the four rate structures follow with implications.

First, wholesale rates are where third party interests such as travel agents 'buy' rooms from the hotel and then 'on-sell' them at a higher rate. Second, retail rates are the highest possible revenue obtained per available room. For the Resort-International/1, these are people who walk-in off the street usually at weekends. As with other hotels, rooms 'left open' are sold at the best possible rate, called the Best Available Rate (BAR) or RACK rate. Third, negotiated rates are those arranged with business/corporate clients. For the Resort-International/1, these rates include arrangements for conference and other group forums. The final type is the contract rate. Contracts are arranged with groups of senior and middle-management, for example sporting groups. Arrangements expire every 2 years. There is a 90 day cancellation period once arranged, which means this is a 'lock-in' clause with a penalty.

The implications are that these rate structures appear to have separate uses, are recorded as separate procedures and thus appear to contribute to the hotels CE in a useful but ad-hoc way. The hotels' customer/client data bases require a raft of discrete settings: not all recording of customers' contacts and actions would likely be done-in-house with all of these systems in use. A different reporting of customers on these separate data bases adds to the task of compiling, sorting and analysing the results for reporting CE outcomes to hotels' stakeholders (parent company, shareholders and bankers) to suggest a few. One danger in the use of these rate structures in an ad-hoc or non-systematic way, is that they appear to be a smorgasbord of strategy type application to any segmented group of customers. Customer groups learn very quickly that the retail rate is the starting point to a negotiated settlement rate. Consequently the retail rate would be a very poor proxy of hotel CE performance overall.

Another interesting finding in the research is that there is a ranking structure in the hotel industry known to the hotel managers. Ranking is linked to RevPar. Hotels

receive rankings based on RevPar which incorporates the Average Daily Rate and the hotel utilisation in its calculation, (Queenan, Ferguson and Stratman, 2009). The hotels' ranking is also defined within a competitive set the hotels establish, based on similar levels of service and proximity (geographic location). The organisation who looks after this is the Smith Travel Research located in the USA.

All managers reported using the Ranking System with RevPar, with exception to three managers reluctant to discuss the RevPar Ranking in their hotel. No significant reasons were given for 'why not?' The researcher took this to mean that rankings were 'too sensitive' to discuss and 'off-limits'; whilst known to the managers there was a preference not to use it, or that the managers do not agree with the ranking methodology. The researcher was of view that part of the reason for hotels deciding not to link-in with rankings was due to observation of *who* they regarded as their competition within the Ranking guidelines. Each differed greatly. Moreover, hotel business structures vary considerably in Australia which adds to major differences in operations. One implication of these observations from interview is that the hotels who are not in the STR ranking structure are choosing to report their CE and finances through their accountants in Australia under the Corporations law only, so as not be under scrutiny by an outside of Australia organisation such as STR.

The last question in this section asked by the researcher was, 'Are the customer data procedures (measures) you have in place at the moment working effectively?' When a manager in interview made a point about their CE methods and systems in use, their distribution channels and travel agents commissioned, in each case interview in all eight hotels, the researcher made a quick sketch, (pen drawing) of his/her answers. In one interview, the manager made alterations to the drawing in a 'live-interactive way' with the researcher, showing how their systems and procedures work in practice. In compilation from all hotels, the model of current CE management practice is shown in Figure 6.1.

In terms of their systems functioning as illustrated in Figure 6.1, the managers were not able to state definitively how effective their model is, how well it is

working overall and what changes need to be made to make it work better. It is in the words of one manager, '*a work in progress model*' (Independent-Australia/1). The managers, however, were more vocal in terms of the model's efficiency. They are buoyed by the advent of the internet which means cheap and easy access to customers and clients by contrast to the fees payable to a full service agent.

On the left hand side of the model in Figure 6.1 are the drivers of CE - methods and systems in use by the hotels. Of note is the use of the strategies the managers made mention of. They are *Baseline* CE management approaches, as detailed by authors Berger and Nasr (1998). This is in contrast to strategies which focus on *Intermediate* levels of CE (Blattberg, Getz and Thomas, 2001), or on *Advanced* CE practices that place management of the strategies and data as a first priority, followed by measurement second (Persson and Ryals, 2010). See Figure 6.1 in illustration. At best in Figure 6.1 are *Intermediate* levels of CE Management practice taking place, for example customer surveys to assist with finding out customer needs and wants, customer demographic and geographic variables.

On the right hand side of the model in Figure 6.1 are the hotels intermediaries. The managers acknowledged in interview the skills the intermediaries bring to the hotels in customer acquisition contact activities mainly, but also in the management of the customer processes, both fee based. This is by Micros Fidelio, Guest Centrix, Travelclick and ihotelier as shown in Figure 6.1. It is the fees from these intermediaries that are prohibitive for all of the independent hotels. As reported by the managers in the Independent hotels, (Independent-Australia/1/2/3), their customer volumes and profit margins are insufficient to warrant the services on offer by Micros Fidelio, Guest Centrix and the other named external customer service providers. Consequently, for the Independent hotels, there is a reliance on their internet and intranet connections in use for internal/external communications, promotional offers and network applications.

Hotel Methods & Systems

Drivers of CE
 * Acquisition & Retention (methods used baseline/segment level customer data obtained – aggregate & disaggregate
 * Resources in use (ie RM systems)
 * Segmentation variables (eg customer profiling at best)

Internal Systems (in-house software)
 Hotel Customer Revenue Management System – Forecasting & Optimisation models
 [Revenue Per Available Room (RevPar) + Average Daily Rate (ADR) and hotel utilisation in its calculation = property ranking]
 Property Ranking from using RevPar and ADR.

External Systems (external software)

- Micros Fidelio (Australia) RMS
- Guest Centrix PMS
- Travelclick
- ihotelier

Source: Developed for this Research

Distribution Channels

Global Distribution Systems (GDS)

- Galileo (UK); Amadeus
- Sabre; Micros Fidelio (Australia)

Travel Agents – Accommodation Providers
 *International
 STR Global
 Wagon-Li (Thomas Cook)
 *Australia
 Harvey World Travel
 Flight Centre; Wotif.com

Other Management Techniques eg
 *Performance Mgt (Adaptability)
 *Balanced Scorecard

Various Business Models of the Eight Hotels in this research:

- Private Ownership Indep/2; Indep/3; Resort/1
- Wholly-Owned Subsidiary Chain/2; Chain/4; Indep/1; Resort/1
- Conglomerate Chain/1; Chain/3

Those with.....

- ❖ Strata-titled rooms Chain/2; Chain/4; Indep/1
- ❖ Leased Restaurant, Car Park, Foyer etc Chain/2; Chain/4; Indep/1

Figure 6.1. General Model of the Process of Customer Equity (CE) Management in Accommodation Hotels in Australia

Customer information is obtained at the *Baseline/Intermediate* levels of group segmentation in the main. To reiterate, *Advanced* levels of customer equity management are when the hotels find-out customer size and share-of-wallet, specific needs and wants, and are using up-selling and cross-selling on individual customers. *Advanced* CE has a leaning towards effectiveness measures, the asset management of the customer, as it goes beyond the basic contact and transactions processing

associated with the customer to advanced levels of action and interaction. The Chain-International/3 and Resort-International/1 hotels operate with limitations at this level.

The remainder of the hotels are focusing on efficiency principles in the main, the asset valuation of the customer. In interview with the managers, efficiency measures were reinforced through mention of Revenue Management Systems in place. Table 6.3 shows the pattern of arrangements in broad overview.

Table 6.3 *Hotel Revenue Management Systems in Use*

	I	E	PMS	GDS	TA
Hotel type Chain/1; Chain/2 Chain/4; Resort/1	✓	✓		✓	✓
Chain/3; Independent/3	✓	✓		✓	✓
Independent/1			✓		✓
Independent/2	✓	✓			✓

Source: Developed for this Research

Legend: I = Internal Systems: E = External Systems: PMS = Property Management System: GDS = Global Distribution System: TA = International and Domestic Travel Agencies

Further in Table 6.3, all but one hotel use their own and external systems to help them measure and manage their customer asset. Independent-Australia/1 only utilises a property management system. In interview, discussion with Independent-Australia/1 about their property management system by contrast to internal and external systems was discussed in relation to scale (size of the hotel and customer volume), resources available (staff expertise and budgets) and preference for its use at this time. As an aside, property management systems can be either external or internal. In this case (Independent-Australia/1), it is an external provider developed system. In one other case, the manager reported development of an *in-house* property management system underway, as complementary to the external systems in use at present, but with a view that their *in-house* property management system would replace the existing arrangements, thus obviating the need for reliance on external provider support systems in future (Chain-International/2).

In all cases, the managers were able to name and discuss their customer data and management systems as mentioned in Figure 6.1. In two hotels namely Chain-International/3 and Resort-International/1, discussion extended to two more general management-in-use types: performance measurement–adaptability perspective, (Walker and Ruekert, 1987) and the balanced score-card approach, an advance on Kaplan and Norton’s (1992) original measures that drive performance and suitability for the hotel industry as discussed by Brander-Brown and McDonnell (1995).

Whilst details on the experience and the effectiveness of these systems in both hotels was sparse, it highlighted to the researcher how difficult it is for any of the hotels to ‘latch-onto’ any one system as a panacea for effectiveness in CE outcomes. This is highlighted in a study by Phillips (1999) who details the inadequacies of the traditional accounting performance measures with a recommendation to foster innovation in performance measurement through the Miles and Snow (1978) typologies -‘prospector’, ‘analyser’, ‘defender’ and ‘reactor’ strategies. Even though in the Phillips (1999) study the theme of managing CE remains measurement oriented, it at least signals company investment in amalgamating strategic with financial systems that will help improve performance in outcomes.

The last discussion topic in Figure 6.1, are the travel agents and global distribution systems. All hotels identified are using travel agents both internationally and locally (Australian) based agents. Local travel agents, as direct customer acquisition intermediaries, are essential in many respects as they *free-up* precious time to concentrate on other matters such as customer retention. These agencies are well known in the accommodation hotel sector, networked and operate on a scale much larger than one hotel can match. The downside is that their services do not come cheaply. International agents with subsidiaries in Australia charge fees between 20% and 30% of the booking fee which lowers margins for profit significantly in the Australian market, (Chain-International/2). With international online travel agents, the story is no different. In the interviews, the managers were just as disheartened with the rates charged by traditionally based agents with those charged by international online agents. These rates have been substantiated and reaffirmed in

practice, (Toh, Raven and DeKay, 2011). This is why the managers are very receptive to Australian internet Accommodation providers such as Stayz.com.au and Wotif.com.au. Whilst Stayz charge 15% of the booking fee for rooms over \$130 per night (as at 2011 rates), Wotif charge 10% for any room in any hotel and have done so since inception in 2000, (phone interview with the Marketing Manager, Wotif, August 2011).

International travel agents and international online agents such as PriceLine.com, Hotels.com and ExPedia.com have not been able to penetrate the Australian market without giving-up huge margins and Australian hotels will not give up the lower margin rate as it does not make good economic sense to do so (video interview with CEO Graham Smith, Wotif.com.au 2005). The reason why the international travel agents and international online agents fees are so high is that Priceline.com, Expedia.com and Hotels.com captured the market early in the new millennium with brokering arrangements with the hotels in the USA especially, to operate under a merchant model which is the wholesale purchase of rooms from hoteliers (Toh, Raven and DeKay, 2011). When rooms are purchased at wholesale rates, this provides those agents with large opportunity to on-sell those rooms to the general public at retail rates, some of which are at premium prices the wholesaler benefits from. This system of high margins remains in existence today for those international travel agents.

By contrast, the Wotif.com company is an Australian on-line accommodation provider that sought a very different model to the USA wholesale price model; one of operating on much lower margins overseas competitors would not be able to match. An all-in-one commission based system of 10% is inclusive of all other 'hidden' charges, such as the GST. The other advantage is that the Wotif commission based system allows the hotels to retain management responsibility of their hotel rooms, as Wotif as their agent does not purchase rooms from them to be sold at premium agent rates. International online agents who operate a commission based system are typically between 15% and 30% *give-up* only 5% of their rates to the airlines (Toh, Raven and DeKay, 2011).

Further with the GDS in Figure 6.1, managers reported use of these in an integrated way in three cases (Chain-International/1/3 and Resort-International/1). In one example, the manager explained:

'The GDS is a major sales channel for direct retail bookings through major travel websites. We use Micros Fidelio (Australia). They set-up a system for us where we can accept real-time bookings from consumer travel websites, including Expedia, Travelocity, Trip Adviser, Zuji, Orbitz and more. In the system set-up, we have a direct link to airline ticketing to travel agents such as Flight Centre, and the system looks after money transfers in our case through American Express as well as with the international travel agency Carlson Wagonlit' (Resort-International/1).

Of note with global distribution systems systems is their apparent use and emphasis on *retail consumers*. This is interesting because consumers are not customers until converted –and when converted are not retention customers. The GDS is the vehicle for this base conversion only. It appears that in using a global distribution system, these three hotels at least are experimenting with the 'latest' of sales channels, tapping into and drawing on the trends world-wide where the consumer is taking a large interest in searching and booking directly, either on their website or by phone. Justifying this advertising medium will be done with sales. In only one hotel out of the three that mentioned links to a global distribution system, is where 50% of sales are leisure-retail in the hotel (Resort-International/1). The other two Chains recorded 20% of their sales coming from leisure groups only with 80% coming from business groups.

With all of these systems the managers mentioned use of, their view on effectiveness is calculated by the ROI expended in the process. If it cannot be justified financially, (an efficiency measure), then the managers shelve the idea. At the time of interview, there were a large number of issues the hotels were facing. These were in summary:

- budgetary limitations to effect high level CE outcomes,
- falling demand for rooms resulting in lower sales,
- the high Australian dollar and falling consumer sentiment to travel adding to the hotels problems, especially the overseas appetite for inbound travel.

With CA the single main focus of attention as reported in interview, in a CEM sense this is a rather simple, narrow view of managing and says little about CR which is critical to the survival and growth of the business in the longer term.

Summary of Part 5 Customer Data Management

In customer data management, decision making occurs in the hotels at *Baseline* levels of CE in the main, with some level of *Intermediate* and *Advanced* level decisions and actions taking place. Discussion highlights how difficult it is for the hotels to move beyond *Baseline/Intermediate* levels approaches to embrace more *Advanced* levels of CE strategies and CE data management techniques. To do so would move beyond a focus on the financial measurement of their actions only, to principles that employ the management of strategy and measurement of the data considerations together.

All hotels use revenue Per Available Room (RevPar), as a yield management tool with cost/plus pricing their mantle. Four methods used in calculating hotel room rates are wholesale, retail, negotiated and contracted. Rankings are tied to RevPar and also a hotel's competitive set. Business structures appeared to play a significant role in the management of hotel operations.

A model of the management process formed in the interviews with the managers, provides a brief 'snap-shot' of their revenue management systems in use and property management system in one hotel instance. Next was discussion of other management techniques in a few cases: performance management (hotels perspective) which focuses on adaptability measures and use of the balanced-score-card with measures that drive organisational performance in the hotel. No judgements were made on the suitability and use of these systems by the hotels. Overseas and Australian Travel agents perform the role of intermediaries and charge anywhere between 20% and 30% of the total booking for the overseas agents' involvement and between 10% and 15% for total bookings by Australian agents. The significance of their differences relate to the way the agents operate. In the USA they operate with a merchant model (wholesale > retail), whereas in the Australian model it is commission (retail) agency based system. Two hotels participate in the Micros-

Fidelio GDS sales vehicle that is set-up to interface directly with the consumer for bookings.

6.4.5 (Part 6 Questionnaire) - Interaction Effects of the Strategies and Customer Data on CE Outcomes

The final interview discussion topic was in relation to the way the strategies and data management techniques impact on CE outcomes achieved.

CE Data Management Interactions

First with data management interactions, a strong message in all eight interviews was with regard to managing customer demand with supply. Reinterpreted as ‘capacity management’, a brief overview of this aspect of managing (dilemma) is shown from the results of the interviews in Table 6.4. Of interest are the staff/room ratios, indicating work loads much greater for staff in two of these hotels (Chain-Australia/2; Independent-Australia/3). However, caution must be placed on the base figures as customers vary in their wants and needs and place different demands on staff. For example, it would not be unexpected that in a five star Resort complex (Resort-International/1), customers’ expectations of service at \$220.00 per night would be much higher than that for a hotel offering at \$140.00 per night service offering (Independent-Australia/3).

Table 6.4 *Capacity Management in the Hotels*

Base Hotel Data							
	Rooms R	Employees E	Ratio R/E	2011 Occupancy rate	Star Rating	Length of Stay Nights	Av. Tariff
Chain//1	304	140	(2.17)	70%	★★★★	2	\$170
Chain//2	141	34	(4.14)	80%	★★★★½	1.25	\$187
Chain//3	267	120	(2.22)	82%	★★★★½	1.3	\$250
ChainA/4	164	55	(2.90)	82%	★★★★½	1.4	\$200
IndepA/1	71	40	(1.77)	85%	★★★½	1.8	\$127
IndepA/2	179	80	(2.23)	85%	★★★★½	1.5	\$155
IndepA/3	180	27	(6.66)	85%	★★★½	2.5	\$140
ResortI/1	324	180	(1.80)	60%	★★★★★	2	\$220

Source: Developed for this Research

With occupancy rates very uneven between the hotels, notice in one example the occupancy rate is 60% for Resort-International/1 and 85% for Independent-International/1. Both have very similar employee/room ratios 1.8 for Resort-International/1 and 1.77 for Independent-International/1, and their respective star rankings as well as their RevPar rankings differ also. Resort-International/1 is managing 4 times the size customer base ($71/324 = 4.5$ times in room numbers), showing also that they are more than 1½ times higher in tariff value customers ($\$127/\$220 = 1.73$), compared to a smaller hotel (Independent-Australia/1). This indicates that hotel size and scale issues are quietly contentious.

Along with size and scale, as a mix of ‘high and low’ customer strategy, the researcher named the employee *involvement ladder* as an issue. In discussion with all eight Managers regarding the roles front line staff have in the hotel were as follows. Most mentioned reception starting with bookings, with the next step the customers’ arrival at the Hotel Reception. Then in no particular order: valet parking > room service > restaurant, bar and catering > entertainment > conference > tours > cleaning and maintenance > airport taxi transfers > computer data entry/billing > banking and finance > ancillary staff management supervision and > hotel departure, make up the foreseeable staff/management/customer interactions. In this routine type scenario, which can be reduced to two variables customer relations and management tasks, is where variation between those who were performing specialist roles compare with those who are performing more generalist roles. For example, in Table 6.4, a hotel with fewer staff to accommodate for large room numbers, (Independent-Australia/3; Chain-International/2), which shows a ratio of 6.66 and 4.14 respectively, indicates staff operating as generalist – ‘across all facets’ of customer-firm interface in the hotel.

By contrast, in a hotel where more staff look after fewer rooms, (Resort-International/1; Independent-Australia/1), there is argument for staff operating at specialist levels of ‘designated roles’. The impact bookings would have on work load in both of these instances discussed could be significant as they are lowest for the Resort-International/1 at 60% occupancy rate and highest for all the Independent hotels at 85% at the time of interview. Noticeably, the two largest hotels in terms of

room numbers (Chain-International/1; Resort-International/1) share the lowest occupancy of all eight hotels for the calendar year in 2011. Discussion in interview in those two hotels as to why this is so were reflective of the situation and occurrences discussed earlier with the:

- Current poor economic times resulting in falling demand/falling revenues;
- Shrinking budgets which means less for advertising and promotions;
- Difficult trading periods bringing hotels “on-the-radar” competitively which impacts negatively on outcomes achieved;
- Consumer choice heightened with price in mind and location specific services on offer; and
- Higher living costs reducing disposable income for hotel customer stays.
-

CE Strategy Management Interactions

Second, was discussion on the strategies in use. In interview, discerning were comments on the four strategy variables of importance -Value, Volume, Repeat Stay and Loyalty (VVRL). On reflection post interviews, observations of the managers’ comments were placed in context and summarised in a check list type format as Table 6.5 shows.

Table 6.5 *Customer Equity Strategy Management Interactions in the Hotels*

		High	Low	High	Low	Strong	Weak	Strong	Weak
		Value		Volume		Repeat		Loyalty	
1	ChainI/1	1	–	1	–	1	–	–	–
2	ChainI/2	–	1	1	–	1	–	–	–
3	ChainI/3	1	–	1	–	1	–	–	1
4	ChainA/4	1	–	1	–	1	–	–	–
5	IndepA/1	–	1	1	–	–	1	–	1
6	IndepA/2	1	–	–	1	1	–	–	1
7	IndepA/3	–	1	1	–	–	1	–	–
8	ResortI/1	1	–	1	–	1	–	–	1

Acquisition Strategies

Retention Strategies

Source: Developed for this Research

Whilst simplistic in appearance, there are serious managerial implications inherent for each hotel. To demonstrate in one example, on the top line in Table 6.5 is reference to the hotel Chain-International/1. In this hotel, the manager made

mention of the four variables above in the interview. In discussion, pursuance of a moderate-to-high Value, high Volume customer acquisition strategy was a priority with the (retention) comment,

'our sales team looks at all aspects of the sale-time of day, day of the week, spend rate on the hotel room, spend rate elsewhere in the hotel, e.g. gym, coffee shop, restaurant etc, all done through our RevPar System' (Chain-International/1).

Noticeable in this discussion and in Table 6.5 is that Loyalty programs were reported low on the agenda of priority. The reason for this as mentioned by the manager in her experience in this hotel in the use of loyalty programs in the past, is that, *'there are very low returns for the time, energy and costs of implementation'*. This hotel belongs to a medium sized chain – with an international presence - 48 hotels in total, world-wide.

In looking at another example on line three in Table 6.5, this is one of the largest chain hotels in the world. With 3000 employees world-wide, it has six in Australia and none in New Zealand, (Chain-International/3). In discussion, pursuance of very high Value, high Volume customer acquisition strategy was a priority with the comment,

'our clientele is 80/20 business/corporate versus leisure groups. With that kind of ratio, we're not catering to people off the street. Our retention rates are strong as a result of our make-up. I wouldn't call our clients loyal to this hotel, but we do look after who we have' (Chain-International/3).

The manager mentioned from his experience that it is the credibility and reputation of the hotel that carries it in good stead in these difficult times. Transient customers are welcome additions to the stable client base. However, the hotel's loyalty programs are not targeted to them. By contrast to the first two examples above, in line five, Table 6.5 is another example, the smallest hotel in this sample of eight. This central city hotel is nestled in a complex ownership arrangement with five other hotels located in Sydney and Perth. Head Office is in Sydney and all are networked. In discussion, pursuance of a low Value, high Volume customer acquisition strategy was a priority with the comment,

'this hotel attracts customers for all of the large sporting (rugby league football, soccer, tennis) music entertainment (Neil Diamond, Rod Stewart concert), school groups, coach groups and leisure travellers. Of less emphasis is that of the corporate traveller to this hotel', (Independent-Australia/1).

Throughout the discussion in this interview, the essence of this hotel's strategy emphasis and data management techniques in use is with regard to customer contact arrangements, efficiency with transactions and a nurturing of customer relationships. This process outline was interpreted to mean a focus on acquisition for turnover mainly, with some links to retention and loyalty, but principally at the *Baseline* segmentation levels of CE. In Table 6.5 for all eight listings, the managers were asked to respond more concisely to questions in relation to customer relationship type and duration, that which mirrored the mail survey. More specifically this was about:

- Customer Type: Value (high/low) and Volume (high/low); with
- Relationship Duration: Repeat Stay (strong/weak) and Loyalty (strong/weak).

To help explain and further clarify these deeper, more meaningful issues facing the hotel managers, the discussions were modelled post interviews as shown in Figure 6.2. Figure 6.2 identifies the Value, Volume, Repeat Stay and Loyalty (VVRL) variables in the four cells, with high and low profit associations linked to customer data management considerations on the vertical axis, and high and low relationship duration linked to customer acquisition and retention strategies on the horizontal axis. The legend indicates the level of strategy involvement and achieving results through the data. In each cell, the associations have been named by the researcher as, 'Reach', 'Selectivity', 'Continuity' and 'Ultimate', with each title reflecting the strategy and data management techniques currently in use in the hotels (data obtained from the case interviews) that lead to profit in a CE context. Brief explanation of each one follows.

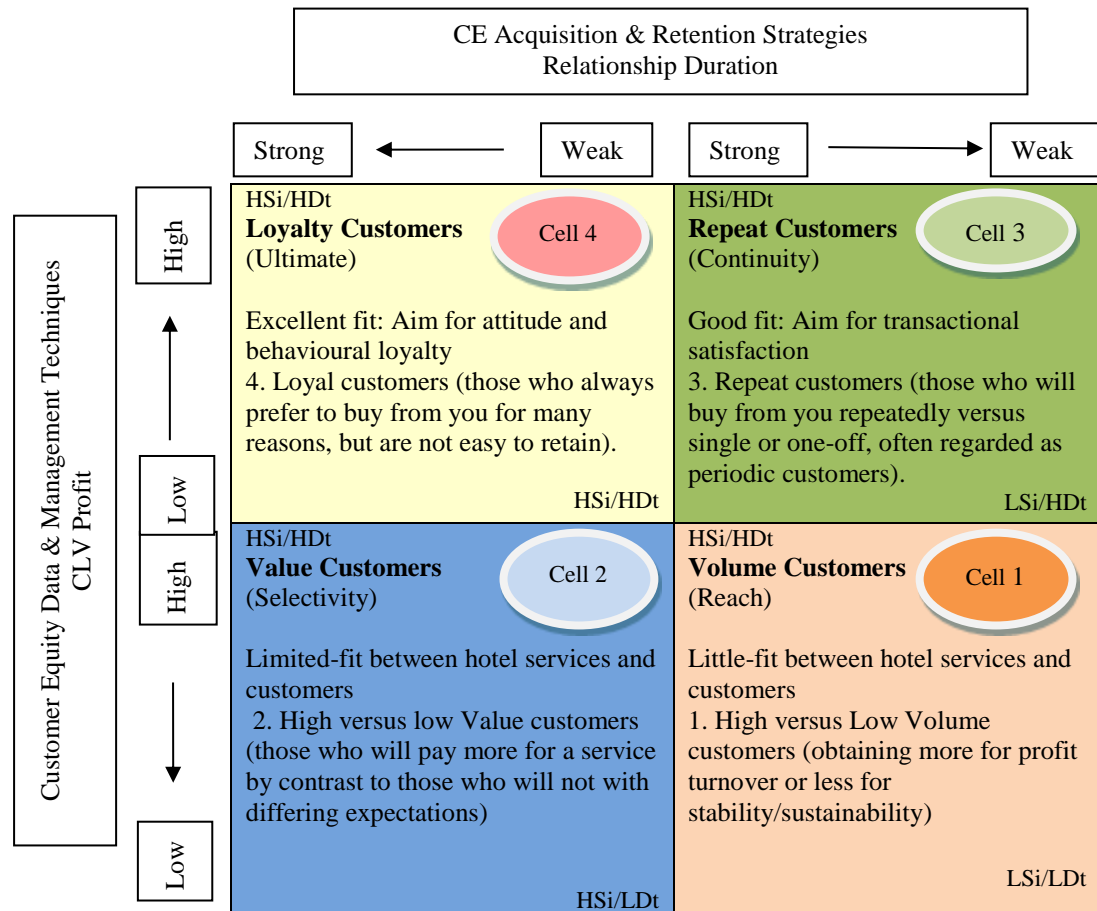


Figure 6.2. Interaction Effects of Strategies and Data on CE Outcomes, with implications for Profit and Relationship Duration

The following legend applies to Figure 6.2:

- LSi = Low Strategy Involvement
- HSi = High Strategy Involvement
- LDt = Low Data and Techniques
- HDt = High Data and Techniques

Volume Customers: First, high versus low Volume customers – cell 1 in the model is called ‘Reach’. Reach in this regard is a strategy for sustainability through customer volume. If the strategy is to seek high volume customers, one consequence may be high customer turnover, as the time and attention hotel staff can devote to customers diminishes as guest volume increases, assuming no additions in staff. See Table 6.4 for a refresher on the staff/room ratios. If low Volume is the strategy, this is akin more to securing sustainability through stability, but profits will be lower in comparison. In this cell, strategy involvement and the data management techniques are akin to *Baseline* CEM and evident in all eight hotels. The Chain-International/1/2/3 and Chain-Australia/4 all reported using a Volume1 high order

strategy, with the Resort-International/1 reporting use of a Volume2 low order strategy. All three independent hotels (Independent-Australia/1/2/3) also indicated use of the Volume2 low order strategy.

Value Customers: Second, high and low order strategy Value customers – cell 2 in the model is called ‘Selectivity’. This is a strategy that is highly correlated with hotel capacity (Volume customers). The eight hotel cases discussed, differed somewhat in this regard. As with Volume, this is a consequence strategy as the hotels demonstrated a pattern of pursuing both a Value strategy and a Volume strategy at the same time. This is likened to Porter’s (1985) paper on firm’s strategy choice between overall cost leadership and differentiation. A choice between these two strategies is preferable as not to choose between one or the other leaves firms in the “middle-of-the-road”. With the strategy and data considerations in this study, this is not so much a decision about a choice between two alternatives (Value or Volume), but about depth and strength of associations with both in use. This is akin to *Baseline/Intermediate* CE data Management. Whether the strategies and data in cells 1 and 2 are managed predominantly alone or together, they both remain customer acquisition focused. The Chain-International1/2/3, Chain-Australia/4 and Resort-International/1 all reported using a Value1 high order strategy, with all three Independent hotels (Independent-Australia/1/2/3) indicating use of the Value2 low order strategy.

Repeat Stay Customers: Third, is the strategy of Repeat Stay customers in cell 3 which in the model is called ‘Continuity’. This strategy aims for frequency and duration. Essentially, the number of customers the hotels can attract and retain in cells 1 and 2, will contribute to frequency. Duration on the other hand is the length of stay. In Table 6.4 the length of stay on average for all eight hotels is 1.71 nights. The aim is to increase both frequency (how often) and duration (how much) for maximum impact, that is, for a customer set to contribute to the hotel’s profitability and become loyal customers. To achieve consistently well involves use of Hsi/HDt (high strategy involvement with high data management techniques). This is akin to *Intermediate* CE with some advanced standing customer data management

considerations in the mix. All eight hotels reported use of the Repeat1 strong strategy.

Loyalty Customers: The last mentioned strategy customer loyalty in cell 4, in the model is called ‘Ultimate’. This is the best of the best, but requires a lot of work to achieve in a CLV sense. The problem is that loyalty (programs) are expensive to create, establish and administer for the most-often poor ROI returns. Customers do not attach to them all that keenly or quickly. It is after all a lock-in mechanism by the hotels. The manager’s decision not to pursue them as a strategy identified earlier, is a double edged sword – ‘to do is risky’ whereas ‘not to do is perilous’, (McCall and Voorhees, 2010). The true aim of customer loyalty programs is *wanting* continuity.

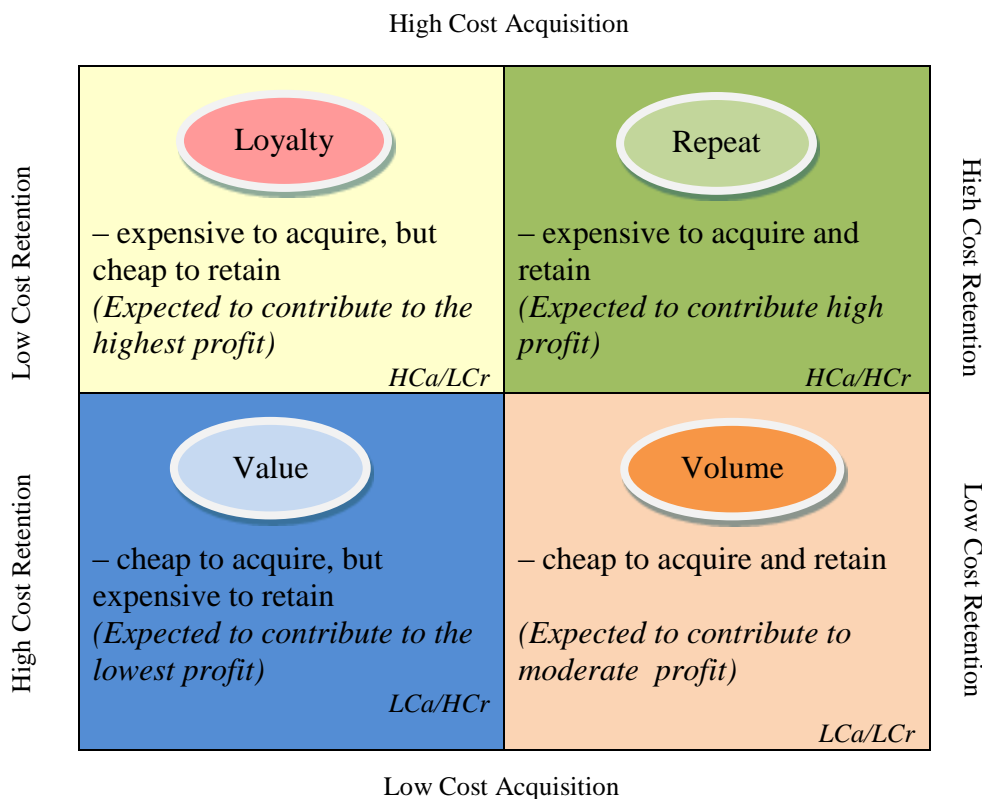
Unfortunately, to capture customers who become frequent purchasers of the hotel has become very difficult to achieve by virtue of the principle of discontinuous change in society that has occurred since the early 1990s, (Nadler, Shaw and Walton, 1995). It requires the highest of strategy and data management systems, as well as time, money, motivation and expertise to effect well as noted by HSi/HDt elements in the loyalty quadrant. The payoff, however, is high when successful. This is *Advanced* CE Management. Whether the strategies and data in cells 3 and 4 are managed predominantly alone or together, they remain customer retention focused. The Chain-International/2/3, the Resort-International/1 and one Independent hotel (Independent-Australia/2), all indicated use of the Loyalty1 strong strategy in use. The remaining four hotels namely Chain-International/1 and Chain-Australia/4 and the Independent hotels, Independent-Australia/1/3, reported lack of attention to this strategy.

Individual contexts aside, all four cells imply some form of customer retention as the managers in interview were able to attest. With the view then that customers are profitable in all four cells, a brief comparison of the extent to which those that are profitable with those that are not, links to four other assumptions that were discussed briefly in the interviews.

These were to do with costs:

- High Cost acquisition/Low Cost retention HCa/LCr
- High Cost acquisition/High Cost retention HCa/HCr
- Low Cost acquisition/High Cost retention LCa/HCr
- Low Cost acquisition/Low Cost retention LCa/LCr

For illustration of the cost associations see the second analytical model in Figure 6.3. Both Figure 6.2 and Figure 6.3 are the VVRL matrix that are intended to interact in overlay with one another in the schema of CE strategy and data management outcomes. Discussion of Figure 6.3 follows briefly.



Source: Developed with adaptation from Thomas, Reinartz and Kumar, 2004

Figure 6.3. Suggestive Cost Associations with Customer Acquisition and Retention Strategies in the Accommodation Hotels

Value Customers: coded high and low in the survey in Phase One means high and low order categories of data management and the strategies in use by the hotels. It is not simply high and low spend rates by customers, the size-of-wallet or share-of-wallet, important as these are to know in strategy; it is these and other strategies assessed in the total schema of management operations that is important. High order

Value strategies equate with *Advanced* CE Management of the data and strategies, whereas low order Value equates to *Baseline* CE Management and *Intermediate* at best. Both are useful and pertinent and used in different circumstances in different hotels. Overarching is that whilst customers are cheap to acquire, they are expensive to retain and contributed to 25% of customers, with 15% of profits (Thomas, Reinartz and Kumar, 2004), as noted in Table 2.1 in chapter two. The hotels in this category are the Chain-International/1/2/3, Chain-Australia/4 and Resort International/1 all reported using a Value1 high order strategy, with all three Independent hotels (Independent-Australia/1/2/3) indicating use of the Value2 low order strategy.

Volume Customers: coded high and low in the survey in Phase One means high and low strategy emphasis more than simply a strategy for managing customer numbers. Volume for turnover equates more with mass marketing and Porter's (2000) cost leadership strategy, whereas volume for retention equates more with niche or specialised marketing exemplified by Porter's differentiation strategy. Overarching is that customers in this category who are the easiest to acquire and retain, but not loyal customers contributed to 32% of customers, with 20% of profits (Thomas, Reinartz and Kumar, 2004) as noted in Table 2.1. The hotels in this category are the Chain-International/1/2/3 and Chain-Australia/4 all reported using a Volume1 high order strategy, with the Resort International/1 reporting use of a Volume2 low order strategy. All three Independent hotels (Independent-Australia/1/2/3) also indicated use of the Volume2 low order strategy.

Repeat Customers: coded strong and weak in the survey in Phase One means strong and weak strategy emphasis on customer retention more than a customer's perspective on repeat stays. Consistent with the Volume strategy, many hotels in this study show a strong to weak concern for customer acquisition which leads to retention. By implication, retention focuses on customer satisfaction. Acquiring and retaining a customer for satisfaction purposes does not make them a loyal customer of the hotel. There is a great deal of difference between satisfaction and loyalty. Companies which aim for satisfaction without also pursuing loyalty have been said to fall into the 'satisfaction trap' (Kotler, et al., 2007:47). In a report by Reichheld

and Sasser (1990), reducing customer defections by only 5% can improve profits anywhere from 25% - 85%. In another example, repeat customers spent twice as much in 24-30 months of their relationships as they did in their first six months (Reichheld and Scheffer, 2000). Overarching is that repeat customers who are expensive to acquire, but cheap to retain, contributed to 15% of customers, with 40% of profits (Thomas, Reinartz and Kumar, 2004), as noted in Table 2.2. All eight hotels in this category reported use of the Repeat1 strong strategy.

Loyal Customers: coded strong and weak in the survey in Phase One means strong and weak strategy emphasis more than loyalty from a customer's perspective per se. Recall Table 4.31 showing the rank-order summary of the hotels showing a weak concern for loyalty. The importance of customer retention stems from its close connection to the hotel's bottom line (Reinartz and Kumar, 2003; Rust and Chung 2006); retention typically serves as a mediator in the satisfaction-profitability chain as researched by Rust, Lemon and Zeithaml (2004). At the very least, repeated here for emphasis in one interview was, *'we keep who we can'*, (Chain-International/3), which was interpreted to mean developing models that lower the defect rate or customer churn. As customer satisfaction serves as a key element in customers' defection decisions (Oliver, 2009), managers need to know the time frame for measurement; single point in time versus satisfaction measured over time and the collection and reporting of the results - customers' self-reports or company generated findings. managers are ultimately interested in usage patterns. A decrease in usage patterns suggests eventual defection but knowing share-of-wallet increases the likelihood of customers remaining with the hotel (Cooil, Keiningham, Aksoy and Hsu, 2007).

These studies highlight some of the difficulties the managers expressed in grappling with loyalty issues. Overarching is that customers in this category who are expensive to acquire and retain, contributed to 28% of customers, with 25% of profits (Thomas, Reinartz and Kumar, 2004), as noted in Table 2.1. The case studies in this category are Chain-International/2/3, the Resort-International/1 and one Independent hotel (Independent-Australia/2), all indicated use of the Loyalty1 strong

strategy in use. The remaining four hotels namely Chain-International/1/4 and the Independent-Australia/1/3, reported lack of attention to this strategy.

Summary of Part 6 Interaction effects of the Strategies and Customer Data on CE Outcomes

Concomitant with CE measurement outcomes, is that of hotel managers being able to manage their customer asset. Both are affected by current hotel demand and supply. First was discussion with regard to CE data interactions. Described as ‘capacity management’, Table 6.4 was compiled from interview transcripts, showing occupancy rates, length of stay, star rating and average nightly tariffs. Included in this discussion was commentary on the eight hotels’ size and scale issues. Second, was discussion on the employee *involvement ladder*. In the scenario given from observation in hotels, employees act and interact in their daily routines to the extent of *specialist* in the large chain hotels and *generalist* in the small independent hotels.

Third was discussion on CE strategy interactions. Table 6.5 shows interaction of the Value, Volume, Repeat and Loyalty (VVRL) strategies, with examples in matrix outline. Table 6.5 reveals a dichotomy of choice the hotels face with the strategy variables – Value and Volume strategies represent customer acquisition and Repeat Stay and Loyalty represent customer retention. Customer acquisition strategies with repeat stay intentions were the strongest variables of interest, followed by acquisition volume. Loyalty was weak for all eight hotels in this sample.

In line with Table 6.5 for all eight hotel listings, the managers were asked to respond more concisely to questions in relation to customer relationship type and duration. Two models were drawn as shown in Figure 6.2 and Table 6.3 in order to expand and explain these issues in context. The two models together, highlight the complexities the hotel managers face in juggling acquisition and retention (together) within budget constraints and falling demand, those CE strategies and data types used that will help return a profit on the investment expended. A summary of this discussion on the interaction of the strategies and data management is shown in Table 6.6.

Table 6.6 *Strategies and Customer Data Techniques in use in eight Hotel Case Studies*

Hotel	Value	Volume	Repeat	Loyalty	Data
Chain-I/1 *	Value1 high	Volume 1 high	Repeat1 strong	Loyalty2 weak	HSi/HDt Disagg/Agg
Chain-I/2	Value1 high	Volume 1 high	Repeat1 strong	Loyalty1 strong	HSi/HDt Disagg/Agg
Chain-I/3 *	Value1 high	Volume 1 high	Repeat1 strong	Loyalty1 strong	HSi/HDt Disagg/Agg
Chain-A/4	Value1 high	Volume 1 high	Repeat1 strong	Loyalty2 weak	LSi/LDt Disagg/Agg
Indep't-A/1	Value2 low	Volume 2 low	Repeat1 strong	Loyalty2 weak	LSi/LDt Aggreg
Indep't-A/2	Value2 low	Volume 2 low	Repeat1 strong	Loyalty1 strong	LSi/LDt Disagg/Agg
Indep't-A/3	Value2 low	Volume 2 low	Repeat1 strong	Loyalty2 weak	LSi/LDt Aggreg
Resort-I/1 *	Value1 high	Volume 2 low	Repeat1 strong	Loyalty2 weak	HSi/HDt Disagg/Agg

*Denotes highest capacity and capability for CEM outcomes

6.4.6 (Part 7 Questionnaire) - Managing Overall

Links to the Research Propositions

The goal of this part of the analysis was to determine which cell or cells in Figure 6.2 and 6.3 contribute to maximising CE outcomes overall and in finding this out, help cement answers to the research questions and the six research propositions in the literature review. To do this, the third analytical summary in Figure 6.4 identifies the path analysis (based on the propositions in CE strategy and data management), regarding how well CE is managed in the accommodation hotel sector in Australia. This information was compiled from the interviews with the managers, post interview transcripts in follow-up with key managerial informants, the hotels internal (private) documents and internet (public) documents and annual report from two chain hotels (Chain-international/1 and /3). See Figure 6.4 for the summary.

Figure 6.4. Propositional Analysis of CE Management in Australian Accommodation Hotels

		High Strategy involvement	Low Strategy involvement		
Customer Retention	CR	<p style="text-align: center;">Loyalty Customers</p> <p>Excellent fit: Aim for attitudinal and behavioural loyalty</p> <p style="text-align: right;">Cell 4</p> <p><i>P1. Direct Marketing/CRM (through Optimal (Acq & Ret) Expenditures model and the MARKOV brand switching matrix).</i> <i>P2. Separate budget for Acquisition & Retention</i> <i>P3. Company Budgets-within an ORA framework-Purchase frequency, Contribution Margin and Marketing Costs, (VK approach)</i></p> <p><i>P4. Segmentation by groups and individuals- Leisure and Business</i> <i>P5. Data Management – Advanced Equity: profiling- data mining</i> <i>P6a and b. High disaggregate data</i></p> <p style="text-align: right;"><i>HSi/HD&T</i></p>	<p style="text-align: center;">Repeat Customers</p> <p>Good fit: Aim for transactional satisfaction</p> <p style="text-align: right;">Cell 3</p> <p><i>P1. Direct Marketing/CRM (through Optimal (Acq & Ret) Expenditures model and the MARKOV brand switching matrix).</i> <i>P2. Separate budget for Acquisition & Retention</i> <i>P3. Company Budgets -Within an ORA framework - Return on Acquisition, Return on Retention and add-on selling (BGT & KG approaches)</i></p> <p><i>P4. Segmentation by groups and individuals- Leisure and Business</i> <i>P5. Data Management –Intermediate + survey data: Customer data</i> <i>P6a and b. Medium disaggregate data</i></p> <p style="text-align: right;"><i>LSi/HD&T</i></p>	High Data & Techniques	
	CA	<p style="text-align: center;">Value Customers</p> <p>Moderate-fit between hotel services and customers</p> <p style="text-align: right;">Cell 2</p> <p><i>P1. Direct Marketing/CRM through in-house developed (Acq) Expenditures model-optimal</i> <i>P2. Same budget for Acquisition & Retention</i> <i>P3. Company Budgets-within an ORA framework-Value Equity, Hotel name Brand Equity and CRM programs, (RLZ approach)</i> <i>P4. Segmentation by groups – leisure and business</i> <i>P5. Data Management – Baseline + Data from survey sample</i> <i>P6a and b. low disaggregate data with high aggregate</i></p> <p style="text-align: right;"><i>HSi/LD&T</i></p>	<p style="text-align: center;">Volume Customers</p> <p>Limited-fit between hotel services and customers</p> <p style="text-align: right;">Cell 1</p> <p><i>P1. Direct Marketing/CRM (through in-house developed (Acq) Expenditures model- optimal</i> <i>P2. No particular budget for Acquisition & Retention</i> <i>P3. Company Budgets-Promotional expenditures (BN & GL approaches)</i></p> <p><i>RP4. Segmentation by customer groups- leisure mainly</i> <i>P5. Data Management – Baseline Equity - sales averages</i> <i>P6a and b. low or no disaggregate data with high aggregate</i></p> <p style="text-align: right;"><i>LSi/LD&T</i></p>		Low Data & Techniques

Source: Developed for this Research

In systematic analysis, each of the interview results for each type of hotel namely, Chain, Independent and Resort are discussed below. In RQ1b the focus is on the CE strategies in use. Recall RQ1b in this qualitative study as:

RQ1b. How and why do the four identified strategy drivers of consumption (customer acquisition, customer retention, company resources and targeting/segmenting customers) contribute to customer equity (CE) outcomes?

The research proposition for RQ1 is:

P1. Given the firm's customer data availability (aggregate or disaggregate), the customer acquisition strategy that leads to positive customer equity outcomes is the brand switching model.

P1 relates to RQ1b: Customer Acquisition Strategies

In looking at P1 across all four cells in Figure 6.4, the popular approach to customer acquisition in all eight hotels was shown to be customer-firm transaction based arrangements. To attract customers, the hotels use direct marketing/CRM techniques as suggested by Venkatesan and Kumar (2004), through their travel agencies, their own media advertising and hotel websites. Where the hotels go further to obtain transaction and customer-firm specific data, as indicated by the Chain-International/1/2/3 and Resort-International/1, this occurs for them more in cells 3 and 4 respectively. The Markov brand-switching model is a tool in use by these hotels only.

The second research proposition for RQ1b is:

P2. Under conditions where the firm's data is limited, the customer retention strategy that leads to positive customer equity outcomes is the Budget Decision model of CE outcomes.

P2 relates to RQ1b: Customer Retention Strategies

This is P2 across all four cells in Figure 6.4. Given in some situations where budget for acquisition and retention are not separated out functions (in Value and Volume situations), the best that can be achieved is analysis by customer behaviour. Whilst useful, the disadvantages with this CEM approach is that customer data remains at and is limited to 'customer contact details' in the main, does not assist in finding out specific customer wants and needs, is limited to direct mailings, web based and letter box drops. Analysis of customers at this level particularly for the two

Independent hotels without disaggregated customer data (See Table 6.6 showing Independent-Australia/1/3), remains difficult for them in achieving CE outcomes beyond *Baseline* CE levels, that is in the Berger and Nasr (1998), Blattberg, Getz and Thomas (2001) and Gupta and Lehmann (2003) approaches to CEM in cells 1 and 2 respectively.

From the interview transcripts, there was evidence of hotels optimising budgets distinctly for acquisition and retention (Chain-International/3; Resort-International/1), with the three other Chain hotels embracing the separation effects to some degree. This is in tune with Rust, Lemon and Ziethaml's (2006) work on their Optimal Resource Acquisition (ORA) expenditures model which provides for a break down of customer expenditures specifically with that of the brand switching model such as Markov, to explain basic switching behaviour and more. For example, in one case (Chain-International/3), where attempts to cross-sell services in their hotel met with some resistance, the hotel manager reported use of the Markov decision model to account for the negative customer reactions to this failed sales attempt. This issue has been explored by Günes, Aksin, Ormeci and Ozden (2010).

Therefore, from the interview data there is strong support for P1 and P2 at advanced level CLV in two cases (Chain-International/3: Resort-/International/1), with medium support for three more cases (Chain-International1//2/3). Hotels showing weak support for P1 and P2 by not separating out customer acquisition from retention and utilising separate budgets for both, rests with the Independents, (Independent-Australia /1/2/3).

The third research proposition for RQ1b is:

P3. The resource strategy that leads to positive customer equity outcomes is the Optimal Resource Allocation model of CE outcomes.

P3 relates to RQ1: Company Resources (Budgets)

Much of the discussion in the interviews shown visually in Figure 6.4, centred on the use of the hotels' resources that affect the costs of customer acquisition with that of retention in each of the Value, Volume, Repeat Stay and Loyalty (VVRL) strategy variables. As actual profitability data was not able to be obtained directly from the eight hotels in this study, Thomas, Reinartz and Kumar's (2004) example

show that their similar attribute four cells can be profitable. As their study is a surrogate measure of effectiveness and not a direct or actual measure obtained, places this in context for the eight hotels in this study. Consequently, knowing the extent of those customer segments who are profitable compared to those who are not was not evident in any of the eight hotels interviewed. What was evident from the managers in interview(s) was a keen interest on the easiest of (leisure) groups to acquire as priority. Attempts to increase customer retention were the second priority and loyalty third as evidenced in the interview transcripts.

With Volume customers a discussion topic in all eight cases, this raised the spectre of spending resources on large numbers of unprofitable customers, as previously researched by Venkatesan and Kumar (2004). Hotel managers were silent on this issue. However, the managers who suggested pursuing Volume customers (who are easy to acquire), but only moderately profitable is when they are transient as the following comments show, *'it's better to get them in the door, than not have any at all'* (Chain-Australia/4).

Conversely, attempting to increase retention rates through for example poorly constructed or poorly managed loyalty programs, also leads to wastage of valuable and limited resources. In one example in the Resort-International/1, promotional documents show a raft of week day and weekend promotional offers in the hotels brochures that would appeal to all and sundry. There was no clear target market framed in these promotional documents. There were oblique references to existing customers' benefits from overnight and extended stays, with offers for new prospects at discount to normal pricing for a second visit. Overall, there was evidence in five hotel cases of using systematic analytical tools within a framework, such as the revenue management systems and global distribution systems systems mentioned earlier that fall within their ORA framework, to manage their CE, (Chain-International/1/2/3; Chain-Australia/4; Resort-International/1).

Therefore, there is strong support for P3 in five cases and weak support for P3 by the remainder hotels, (Independent/1/2/3).

The fourth research proposition for RQ1b is:

P4. Under conditions where disaggregated customer data is available, the customer profiling segmentation/targeting strategy will lead to positive CE outcomes.

P4 relates to RQ1: Targeting –Segmenting Customers

CEM requires addressing CLV and CRM tools conjointly. To do this requires specific segments to be created and strategies developed for each segment. All eight hotels were able to confirm their specific customers which are broadly segmented into two groups – business and leisure. Within these two groups, some are more profitable than others (Reinartz and Kumar, 2000), and finding out the specifics such as customer spend in the hotel, high or low Value room rates expenditures, degree of up-selling to a more expensive room (e.g. suite), and Repeat Stay information, all affects CLV of customers (Reinartz and Kumar, 2003). For this type of customer understanding and relationships to occur requires customer profiling.

In all but two hotels, (Independent-Australia/1/3) the managers indicated some level of customer profiling. Noticeably, in those two broad segmented areas - business and leisure, there was no individual customer profiling evident in any of the cases – group based only. This is understandable as profiling is incumbent upon the availability of high disaggregated customer data and specialised use of the strategy (Kumar, Venkatesan and Reinartz, 2006). Customer profiling if done well links positively to profitability as Thomas, Reinartz and Kumar (2004) were able to demonstrate in their study shown in Table 2.1 in chapter two. Therefore, there is strong support for P4 for the four Chain, one Independent and the one Resort hotel, (Chain-International/1/2/3; Chain-Australia/4 and Independent-Australia/1) with weak support for P4 by the two remainder hotels, (Independent-Australia/1/3).

Next is discussion of RQ2b focusing on the CE strategies and customer data and techniques in use. Recall RQ2b in this qualitative study as:

RQ2b. How are the customer equity data (both aggregate and disaggregate) managed?

The research proposition for RQ2b is:

P5. Under conditions where a firm's disaggregate data availability is optimal, managing acquisition prospects through the customer's entire life cycle will lead to positive CE outcomes.

P5 relates to RQ2: Customer Data Management

In six hotel cases where disaggregate customer data was observed in use, this is for the leisure groups in three of the cases (Chain-International/1/2; Chain-Australia/4) and leisure/business groups for the other three, (Chain-International/3; Resort-International/1; Independent-Australia/2). What this means for the hotels working with the leisure groups only is that they are 'hovering' between the theoretical levels of CE in the Berger and Nasr (1998) and the Gupta and Lehmann (2003) approaches that espouse *Baseline* levels of CE and that of the Blattberg, Getz and Thomas (2001) and the Rust, Lemon and Zeithaml (2004) approaches that espouse *Intermediate* levels of CE. In a practical sense these *levels* include basic and more advanced customer contact details, use of an ORA with some cross-selling and up-selling capabilities evidenced.

At *Advanced* levels of CE (Kumar and George, 2007), would be evidence of all of the above plus customer profiling which was mentioned as used in two hotel cases, the Chain-International/3 and Resort-International/1. However, this was not evidenced to the degree that warrants an assertion or claim to the tag of 'Advanced CE' in those hotels. Discussion in interview did not transcend beyond the transaction and interaction levels of customer data these hotels are using in CP. Consequently, it is not at the level of sophistication (that data mining techniques would produce), that is required in order to manage their CE at these levels, especially when *balancing* customer acquisition and retention strategies is required as espoused by Kumar and George (2007).

With the hotels showing medium-high levels of CE as the best estimate being achieved at present, there is strong support for P5 for hotels gearing towards *Advanced* levels of CE in two cases (Chain-International/3; Resort-International/1). *Intermediate* levels of CE are being achieved in three more cases (Chain-

International/1/2; Chain-Australia/4; Independent-Australia/2). Hotels showing weak support for P5 by utilising aggregate customer data only are by the remainder hotels (Independent-Australia/1/3/).

Next is discussion of RQ3b focusing on the interaction of the CE strategies and customer data and techniques in use. Recall RQ3b in this qualitative study as:

RQ3b. How does the interaction of the strategies and data management techniques impact on CE outcomes achieved?

The research proposition(s) for RQ3b are:

P6a Under conditions where aggregated customer data is available, employing the Blattberg, Getz and Thomas (2001) and Kumar and George (2007) approaches to managing customer equity will lead to positive CE outcomes.

P6b Under conditions where disaggregated customer data is available, employing the Venkatesan and Kumar (2004) approaches to managing customer equity will lead to positive CE outcomes.

P6a and P6b relate to RQ3b: Interaction effects of the Strategies and Customer Data on CE Outcomes

In all eight cases, the hotels face different scenarios according to the availability and use of their customers' transaction data. In two out of eight cases (Independent-Australia/1/3) this was shown to be for aggregate data only for customer contact and financial transaction purposes, advertising through different media, their own website advertising and some word-of-mouth uses (such as incentives to customers for their patronage). This is *Baseline* CLV with the interaction effects of data-to-strategies limited to customer Volume and Value principles in the main. These are the conditions under which P6a applies.

By contrast, in the six other hotels (Chain-International/1/2/3; Chain-Australia/4; Resort-International/1; Independent-Australia/2), they use aggregate and disaggregate customer data well beyond *Baseline* CLV levels to contact their customers, transact with them and interact with them in specific customer-firm situations. Admittedly, the interactions are segmented group based (business clients),

with minimal individual customers one-on-one. Nonetheless, at this level at least, these six hotels have progressed to *Intermediate/Advanced* level CE, by knowing more detailed information about the size and share-of-wallet (within the segmented groups and with some one-on-one customers). This is in line with the Rust, Lemon and Zeithaml (2004) approach to CE; the extent of knowing customers specific details. The principle ‘always-a-share’ (Schmittlein, Morrison and Columbo, 1987), is in line with the Berger and Nasr (1998) approach to CE. Knowing expected customer benefits and optimally allocating resources is in line with the Rust, Lemon and Zeithaml (2004) approach to CE and maximising CE through up-selling, cross-selling and through customer profiling is in line with the Kumar and George’s (2007) approach.

Hotels showing weak, but positive support of the interaction effects of customer data on the strategies in P6a appear in two cases where aggregated customer data is in use. There is strong support of the interaction effects of customer data on the strategies in P6b in the six cases where disaggregated data is high in use.

6.4.7 Summary of the Case Studies

This section of the chapter has analysed the case study findings in CE management research in accommodation hotels in Brisbane and environs and Perth, Western Australia. It details the interview results from eight managers in the Chain, Independent and Resort hotels, culminating in a General Model of CE processes as shown in Figure 6.1: the managers use of CE in their hotels. To further advance the first version of the VVRL matrix discussed in Phase One in chapter five, two further enhancements to this matrix are shown in Figure 6.2 on the interaction effects of the data and strategies on CE outcomes and in Figure 6.3 showing costs associated with managing customer acquisition and retention strategies. In managing CE overall, Figure 6.4 demonstrates how well the hotels fair in a VVRL context against the research propositions in this study.

The next section in this chapter will examine in cross-case discussion the hotel case study data findings and draw conclusions from this for managing CE in practice. To do this, an analysis of all of the hotel documents, the interview transcripts and

interview reflection summaries were examined through the text mining and machine learning tool Leximancer version 4.0.

6.5 CROSS-CASE ANALYSIS

6.5.1 Approaches to Document Analysis

Yin's (2011) view of initial interpretations that may cause a return to a reassembling of the coded information was the path taken in this research. For example, the initial set of supporting documents shown in Table 3.5, section 3.3.5 in chapter three, was reassessed during the interview phase of this qualitative study. Accompanying forms of supporting information were obtained from each hotel case study in particular. See Table 6.7 for details.

Table 6.7 *Document Analysis in the Accommodation Hotels (other than Interview data)*

Annual Reports	Chain International/1 and /3
Web site promotional information	All eight hotels
Reservations Information (CA data)	Chain International/3 and Resort/1
Rewards Program (CR data)	Chain International/1/3 and Resort/1
External Systems Software users e.g. Micros Fidelio Guest Centrix Travelclick ihotelier	Chain International/1 /3 /4 and Resort/1 Independent Australia/1 Independent Australia/2 Independent Australia/3
Global Distribution Systems e.g. Galileo (UK) Sabre	Chain International/3 and Resort/1 Chain International/1
Travel Agents – International and Domestic	All hotels

Noticeable were different tenets of emphasis in the document records reflecting the goals and objectives of each hotel. For example, the Independent hotels favour on-line media for promotions, by contrast to the array of on-line and the print media, tourism agency contracts and in-house promotional tools available in the Chain hotels and resort hotel canvassed. Consequently, Table 3.5 was revised to reflect the documents gathered in each case study conducted as shown in Table 6.7.

From this collection of supporting information, the next step was to logically sort the information into the three categories, Chain hotels, Independent and Resort hotel. How these documents were analysed is as follows:

-
- First, undertake a paper review of all the documents gathered. In this way, information specific to each hotel was sorted, framed and then organised into a CEM context.
 - Second, analyse the information obtained against the Kumar and George's (2007) hybrid approach for measuring and managing customer equity (as detailed in Figure 2.2 in chapter two).
 - Third, factor this information into the conclusions of the research.

Analysis then went a step further to include the use of the text mining system Leximancer version 4.0. As a content analysis tool, the use of Leximancer enabled the documents to be sorted and framed objectively. This aided systematisation of the documents with the intention to reduce or avoid researcher bias in the analysis process. As with all types of machine learning tools, Leximancer can process very large amounts of data quickly and visually screen display the results. However, as Yin (2009: 129) notes, the data do not 'speak for themselves'. Thus the quality of the information and strength in the data was at the forefront in this part of the research. With this in mind, the following fields of analysis were envisioned and undertaken:

Comparisons: looking for similarities and differences among the items in the data questioning why these are so. A deeper understanding of shared viewpoints with the hotels' managers with regard to their similarities and differences evident in and between the cases was important. Suggestions by Denzin and Lincoln (2003); Miles and Huberman (1994) and Yin (2003) are pertinent in this area, as discussed below.

Unusual or out-of-the ordinary instances: looking for information in the analysis that on first glance appeared to reflect the same as in another hotel, but on closer inspection reveal some and maybe major differences. Notes taken in interview, direct observations and reflections post interview did not as expected reveal any unusual activity. Size and scale of operations is where there were obvious and noticeable differences in the management of CE.

Engage in rival thinking: in the framework on generalising from case study to theory in Figure 3.2 in chapter three was information that could provide for alternative explanations of CEM from the initial observations made. Overarching in all of this are the researcher's interpretations of the reassembled Document Analysis data in Table 6.7. The basis for effective interpretation of this entire analysis and that

which would hold up to scrutiny by significant others, include the following of Yin's (2011) suggestions:

- Completeness: (to the extent the interpretive findings have an end point);
- Fairness: (to the extent objectivity, neutrality and impartiality are present);
- Empirical accuracy: (to the extent there is representativeness in the data);
- Value-added: (to the extent interpretation of the findings may go beyond confirmability of the replication logic to include something *new* or revelatory; and
- Credibility: to the extent document analysis would by themselves be a credible source of information in this research into CEM.

The final consideration in document analysis was the avoidance of two extremes. Either having a lot of documents, but a superficial analysis, or having sufficient information that could be 'mined' – one that over-reaches the quality of the data (Yin, 2011). The latter was pursued.

Further discussion on use of Leximancer used to support the cross case analysis is as follows. Leximancer is a lexical-text analysis tool which is consistent with grounded theory (Stewart and Chakaraborty, 2010). Two elements in Leximancer were used – thematic analysis followed by content analysis. In thematic analysis, Leximancer constructs themes from the data as shown in Figure 6.5. The three largest circles highlight the interface between the strategies and customer data shadowed by the tree structured classifiers. This visual representation of the hotels' data shows the distinctive characteristics from the entire array of information inserted. The predominant information comes from the interview transcripts, reflective interview commentaries, and the scanned information from document analysis. It is possible to expand or contract the theme size in the model(s) produced and in doing so will either increase the number of circles to around twenty, or conversely reduce it to three.

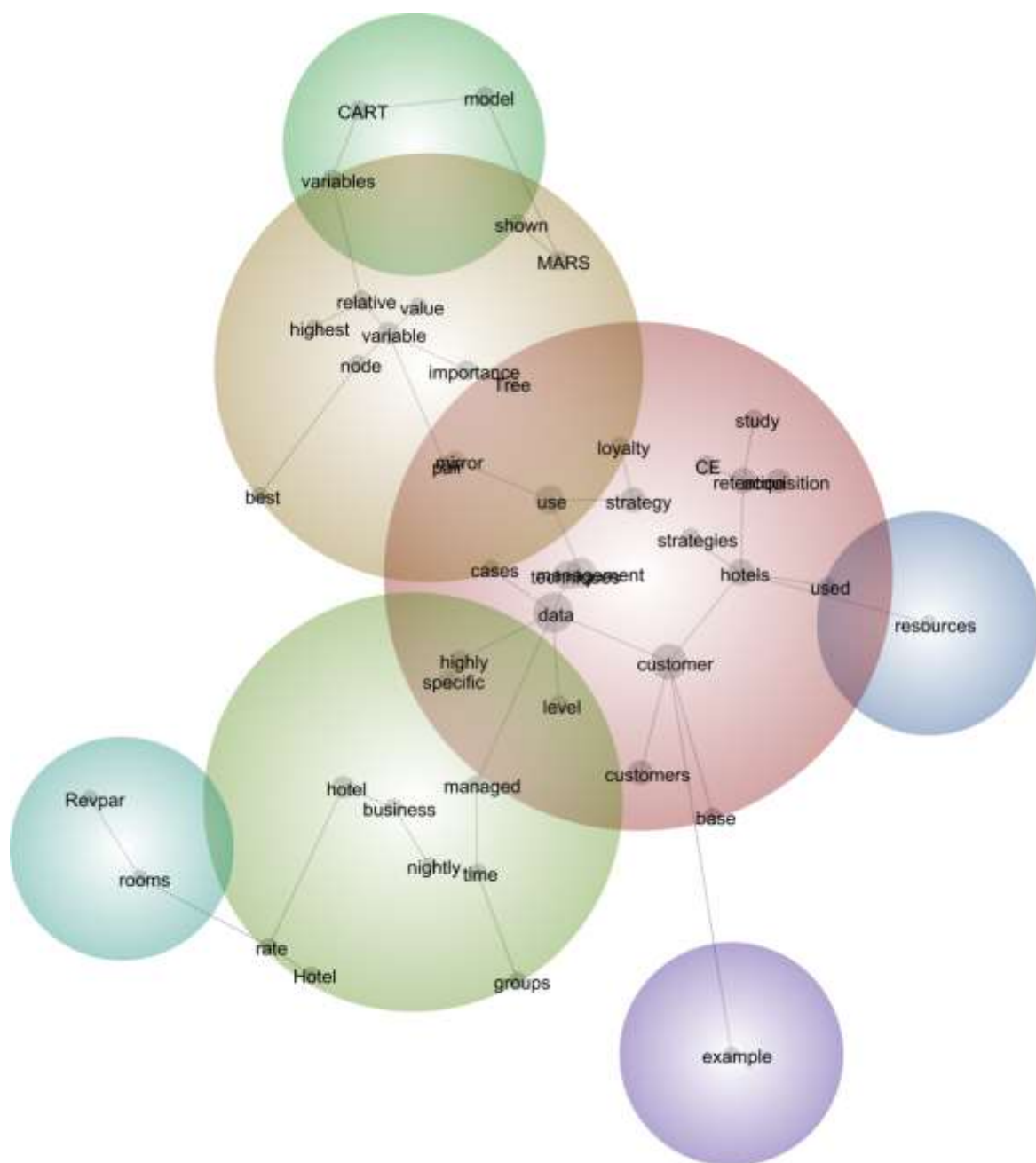


Figure 6.5
Leximancer Concept Map in the Accommodation Hotels

The three large circles with four small circles as shown in Figure 6.5 is an attempt to show the associations not too cluttered, but not too brief. Findings in content analysis is next.

In analysing the data in Leximancer, there are several ‘tool bar’ functions that facilitate this process. They are shown as Theme, Concepts, Thesaurus, Pathway and

Query functions. To illustrate, the hotels' information coded and sorted in the Concepts area is shown in Table 6.8 below. Displayed is the list of name-like and word-like concepts ranked by their frequency of occurrence in the text. Clicking on any one reveals its connections with other concepts (not shown in Table 6.8).

Table 6.8 *The Ranked Concept in Leximancer*

Name-Like	Count	Relevance
CART	105	27%
CE	99	26%
MARS	73	19%
Tree	71	18%
Hotel	47	12%
Revpar	35	09%

Word-Like	Count	Relevance
1. data	387	100%
2. customer	380	98%
3. hotels	232	60%
4. customers	221	57%
5. use	206	53%
6. management	185	48%
7. techniques	174	45%
8. retention	166	43%
9. hotel	161	42%
10. acquisition	152	39%
11. strategy	147	38%
12. model	123	32%
13. variable	107	28%
14. variables	87	22%
15. strategies	77	20%
16. cases	67	17%
17. mirror	66	17%
18. pair	66	17%
19. specific	61	16%
20. relative	61	16%
21. study	61	16%
22. importance	60	16%
23. level	59	15%
24. base	57	15%
25. highly	55	14%
26. shown	55	14%
27. groups	55	14%
28. example	55	14%
29. business	53	14%
30. used	53	14%

31. loyalty	52	13%
32. rooms	49	13%
33. time	46	12%
34. resources	46	12%
35. rate	45	12%
36. managed	44	11%
37. node	44	11%
38. value	41	11%
39. best	35	09%
40. highest	31	08%
41. nightly	14	04%

This information is also accessible visually and is displayed in a rainbow of lines connecting the concepts showing strength of the relationship (co-occurrence) between the concepts. For example, when utilising the field Pathway, this shows the relationship between two major areas in the study. For example, a name-like concept such as ‘CE’ can be compared with a word-like concept ‘Management.’ Alternatively, when the word Strategy is selected on the Concept Map (which is line 11 in Table 6.8 listing), which is aligned with the word Management (the 6th line in the listing), this enables analysis of these two concepts to be done. Continuing to ‘drill-down’ in this way is how the data was analysed throughout.

6.6 Findings

What the results in Leximancer show overall is as follows. The largest circle in Figure 6.5 shows the strategies for CA and CR in association with customer data management. This circle shows customer retention as the strongest variable with customer acquisition a close second. This corresponds to line 8 for retention with 43% relevance and line 10 for customer acquisition with 39% relevance in the rankings in Table 6.8. With these two variables close in association and strength, the distinguishable aspect is customer loyalty showing a weak emphasis. This is shown in line 31 with 13% relevance, in Table 6.8.

Management of CE in line 6 shows a strong relevance at 48%. Corresponding to this is CE strategy in line 11, 38% and customer data management techniques in line 7, 45% relevance. Nestled with these variables is Data at 100%, line 1, with Customer, 98% line 2 and Customers 57%, line 4. Whilst all of these variables signal close association, what stands out disassociated is *level* of CE activity in line 23, at

15%. This is important because levels of CE activity are regarded as critical in CEM (Kumar and George, 2007). At *Baseline CE*, there is very little attention beyond a basic contact data base of customer contacts taking place. At *Intermediate CE* levels there is far greater attention with regard to segmenting customers and managing customer groups, managing acquisition and retention with appropriate resources (ORA) and specifically targeting of customers taking place. At *Advanced* levels of CE is where the hotels are maximising both the measurement of the equity in their customers (CLV aspects) as well as the management of the asset (CRM aspects).

Discussed at length throughout this chapter are levels of activity directed at *Baseline/Intermediate* levels of CE the hotels are performing at with customer groups in the main. The Concept Map in Leximancer reaffirms this finding with terminology centred on specific aspects of CE at these levels. Examples include RevPar rankings and room rates, customer groups, resources, data and the dimension of time. Consistent with the chapter findings is absence in the Concept Map of levels beyond *Baseline/Intermediate CE*, that is, *Advanced CE* activity, which includes sophisticated customer profiling, the activity of cross-selling, up-selling and product/service bundling occurring in an environment of customer/firm transactions and interactions with an individual customer.

Out of the Concept Map emerged three themes of managing CE in the hotels. First is at *Baseline* levels, second at *Intermediate*, and third at *Advanced* levels of CE. Discussion of each follows.

Theme 1: Managing at *Baseline* levels of CE practice reveals transactions to segmented groups of customers. This is for the Independent-Australia/1/3/ hotels. Managing CE at this level focuses on sales averages with margins for profit with aggregate customer data in use in the main. It is a customer acquisition strategy with a customer Value² low and Volume² low strategy emphasis, the main CLV measure. There is no compunction on behalf of these hotels to address the strategies or advance the customer data types in any way. This level of activity achieves only moderate CE outcomes and is supported in RQ1b and RQ2b.

Theme 2: Managing at Intermediate levels of CE is where most of the activity in CE management is occurring in the hotels currently. This is for the Chain-International/1/2/3, Chain-Australia/4 and Independent-Australia/2 hotels. Managing CE at this level focuses on contacting and transacting with customer groups, developing strategies for each segment and analysing survey data from those segments, computing the averages in a CLV context, and identifying and developing the strategy drivers for promotional purposes. There is an urgency on behalf of the hotels listed above to address both the strategies and customer data types. This level of activity contributes to achieving optimal CE outcomes and is fully supported in RQ1b and RQ2b.

*Theme 3: Managing at Advanced levels of CE is where the hotels are involved the least at present. Two hotels that show promise at this level are for the Chain-International/3 and Resort-International/1 hotels. Managing at this level requires focusing on the customers at the most advanced levels of CE. Customer profiling that which includes targeting customers specifically and individually would be the norm. Targeting customers who are receptive to up-selling and cross-selling would be specific activities undertaken. The hotels would have an Optimal Resource Allocation (ORA) model in place and separate budgets for CA and CR activities. Word-of-mouth advertising as researched by Libai et al., (2010), would be working for the hotel. *Engaged customers* as researched by Libai (2011) and Brodie, et al., (2011), would also be taken on-board as a required level of CE activity. In this way, word-of-mouth *advocacy* would also be effective. There appears to be some interest in advancing to the highest CE levels by the two hotels listed above. This highest level of activity contributes significantly to maximising CE outcomes and is fully supported in RQ3b. Figure 6.6 is a schematic diagram of the results: a context for discussions across different hotels with support for and appreciation of the *levels* of CE each are working at currently.*

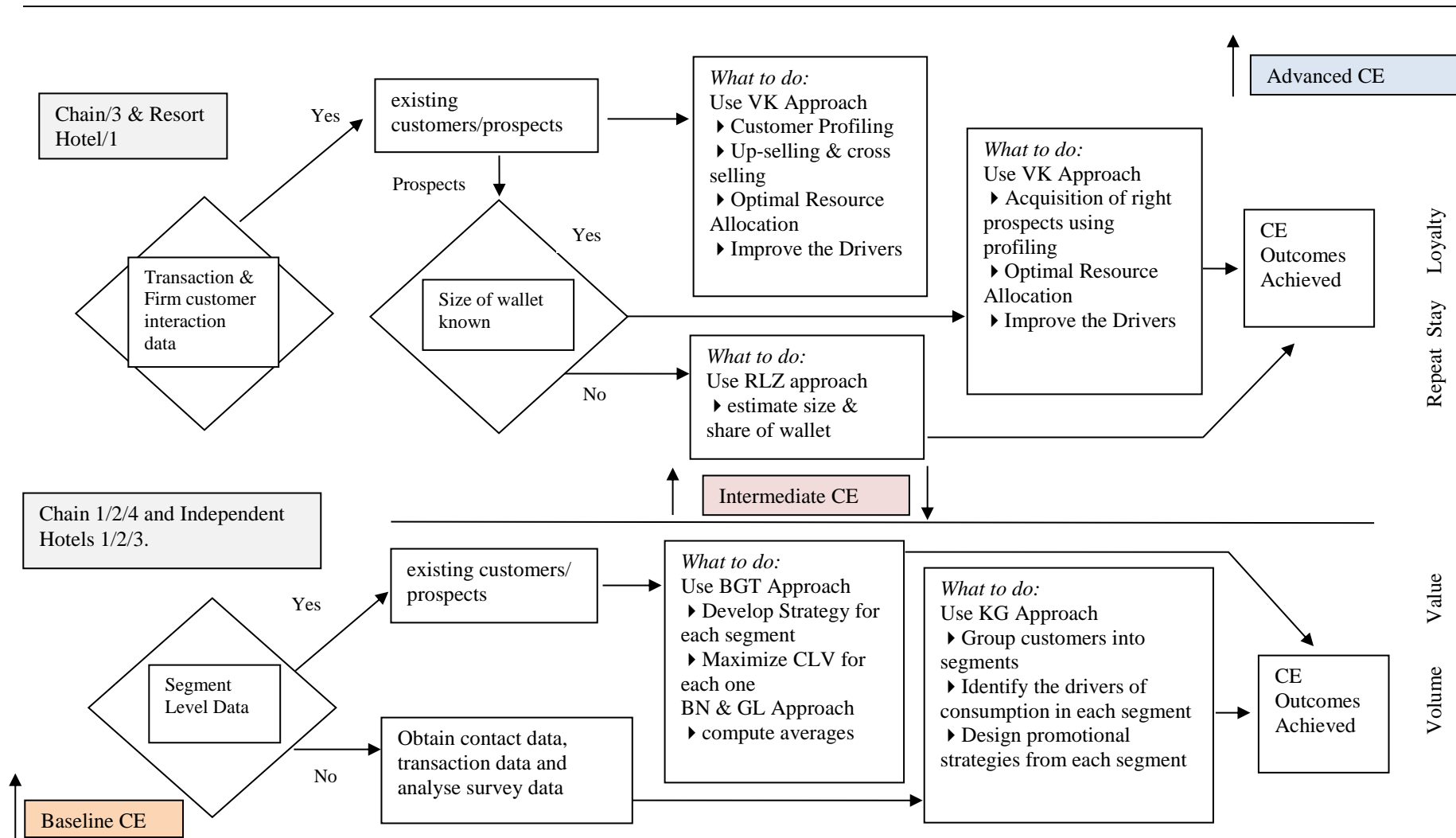


Figure 6.6. CE Strategies and Data Management in Cross Case Analysis in eight Hotels

Source: Developed with adaptation from Kumar and George, 2007

Key points in Figure 6.6 is discussed next. First, adjacent to *Baseline*, *Intermediate* and *Advanced* level indicators of CE are arrows pointing up and down. These signal a flexible adoption or approach to the management of CE in individual hotel circumstances. Hotels planning for growth or when there is a need to manage contraction could be facilitative in this regard. Ideally, when working at *Baseline* CE levels only, hotels would consider development of their CE strategies and customer data sets in order to take advantage of the benefits this will bring. As Kumar and George (2007) note, it is critical for firms to move beyond *Baseline* and *Intermediate* CE in order to maximise CE at *Advanced* levels.

A contingency approach to moving up or down might also include a sideways move. In line with growth (up prospects) or contraction (down indicators), might also include maintaining the status-quo levels in CEM. The hotels in this study showed emphasis of ‘playing-it-safe’ in the markets. This was not unexpected as the risk of planning for growth when demand is falling appeared to be a judgement call the managers in this study had made well. A ‘steady hand’ in difficult times appears to be a very appropriate managerial decision. In reinforcement is the quote:

‘Anyone can hold the helm when the sea is calm.’

Publius Syrus (1st Century BC)

In line with the issues about growth levels in CEM, Figure 6.6 shows emphasis on customer acquisition (CA) and customer retention (CR) taking place in the hotels. *Baseline-Intermediate* CE in this study reveals activity high in customer acquisition. At *Advanced* levels is where both CA and CR can be treated uniformly. This shows managing with adopted references on the horizontal axis.

To the right of Figure 6.6 are the named strategy variables Value, Volume (VV) which focus on CA, and Repeat Stay and Loyalty (RL) strategies which focus on CR. By carefully managing the marketing activities taking place in the hotels, provides opportunity to blend these measures in a more systematic, analytical and unified way as appropriate. This shows managing with adopted references on the vertical axis. To adopt both the horizontal and vertical approaches as indicated in

figure 6.6 reveals the hotels effectively managing CE for measurement and managing their customers as assets in a matrix style model of continuous activity.

Integrating the approaches in synthesis forms the basis of this research undertaking. Figure 6.6 highlights the possibilities when several approaches are modelled together. The model highlights the possibilities of utilising aggregate and disaggregate customer data with the strategies at different levels which may for example accommodate for difficult times during the year, when seasonal fluctuations impact and when other pressing situations confront the hotel managers. A more flexible approach to CEM is possible in this model than how CE is managed at present. It could lead to the hotels moving from reliance on aggregate customer data only to more sophisticated uses with disaggregate customer data mainly. The hotel industry has less challenging issues to obtain individual customer transaction data by contrast to for example, large retailers without loyalty cards, coin-operated vending machine owners, or other cash businesses. The challenge of course would be to obtain longitudinal data on a large number of variables for maximising CE. For the two hotels in this study where end-user transaction data is available allows for their marketing investments to be customised. Figure 6.6 summarises these sentiments holistically.

For a deeper understanding of the approaches to CEM discussed in Figure 6.6, the findings are compared in terms of how well the hotels are performing with regard to their measurement of customer equity and management of the customer asset, (Persson and Ryals, 2010; Villanueva and Hanssens, 2007). The similarities and differences across the various approaches with respect to the underlying assumptions, data requirements, metrics computed, the level and type of aggregation is shown in each case discussed. First is Table 6.9 outlining in summary, *Baseline* level CEM activities for the Independent-Australia/1/3 hotels. Theoretical assumptions are followed by the data requirements and metrics used to manage the strategies at firm level customer segmentation activities. CE outcomes are average CLV estimates at best.

Table 6.9 *Baseline level CE in two hotel case study examples*

Theoretical Assumptions –Berger and Nasr (1998) and Gupta and Lehmann (2003) approaches: <ul style="list-style-type: none"> • Sales take place once a year • Constant retention rate spending and retention rate • Constant contribution margin/constant growth rate for the contribution margin • Finite projection period, BN approach: Infinite projection period, GL approach 	
Data Requirement <ul style="list-style-type: none"> • Firm level data • Promotional expenses • Retention Rate • Contribution Margin • Rate of Growth in Profit 	Metrics to Use <ul style="list-style-type: none"> • Average contribution • Retention rate • Contribution per customer • Marketing costs
Customer Segmentation Principles <ul style="list-style-type: none"> • Firm level Marketing 	Customer Equity Outcomes <ul style="list-style-type: none"> • Average CLV • Aggregation by multiplication

Next is Table 6.10 outlining in summary, *Intermediate* level CEM activities for the Chain-International/1/2, Chain-Australia/4 and Independent-Australia/2 hotels. CEM is performed at more in-depth levels as the theoretical approaches displayed indicate. The data requirements and metrics in use, link more appropriately to segment level marketing to groups in the main, through survey analysis and other in-house customer analytical techniques in use. CE outcomes remain at the group average of CLV computation at this level.

Table 6.10 *Intermediate level CE in four hotel case study examples*

Theoretical Assumptions –Blattberg, Getz and Thomas (2001) and Nasr (1998) and Rust, lemon and Zeithaml (2004) approaches: <ul style="list-style-type: none"> • Contribution for each segment varies across time • Customers in the sample represent the customer base of the firm • Retention rate and acquisition probability for each segment vary across time • Finite projection period • The purchases in a unit time occur in intervals inversely proportional to the average number of purchases 	
Data Requirement <ul style="list-style-type: none"> • Segment level data/data from sample • Customer ratings on the hotel strategy drivers of customer equity • Products/services purchased recently • Contribution Margin • Frequency of purchase • Acquisition rate/ retention rate information 	Metrics to Use <ul style="list-style-type: none"> • Return on Acquisition/contribution per purchase • Return on Retention/retention probability • Return on add-on-selling
Customer Segmentation Principles <ul style="list-style-type: none"> • Segment level Marketing 	Customer Equity Outcomes <ul style="list-style-type: none"> • Aggregation by summation of segment level CLVs

Next is Table 6.11 outlining in summary *Advanced* levels of CEM activities for the Chain-International/3 and Resort-International/1 hotels. These are albeit at minimal levels.

Table 6.11 *Advanced level CE in two hotel case studies*

<p>Theoretical Assumptions –Venkatesan and Kumar (2004) and Kumar and George (2007) approaches:</p> <ul style="list-style-type: none"> • The future purchases in a given year are assumed to occur in intervals inversely propositional to the predicted frequency • Assumptions formulated can be relaxed • Finite projection period 	
<p>Data Requirement</p> <ul style="list-style-type: none"> • Customer transaction data • Data on firm-customer interactions 	<p>Metrics to Use</p> <ul style="list-style-type: none"> • Purchase Frequency • Contribution margin • Marketing costs
<p>Customer Segmentation Principles</p> <ul style="list-style-type: none"> • Customer level Marketing 	<p>Customer Equity Outcomes</p> <ul style="list-style-type: none"> • Aggregation by summation of individual level CLVs

CEM is performed at the highest levels in this situation as the theoretical approaches displayed indicate. The data requirements and metrics in use here link more appropriately to customer level marketing through specific activities aimed to increase the CLV of the individual. This would include data that would enable up-selling, cross-selling and service-bundling to take place. CE outcomes are at the individual level of CLV computation.

As highlighted, the various aggregate and disaggregate approaches taken by the hotels differ on the basis of expected benefits, data requirements, costs involved and ease of implementation, time to perform tasks and metrics to track as detailed throughout this thesis. The hotels have made their choice of approach on the importance of the criteria chosen by the firm, such as to achieve profitable outcomes and sustain their growth prospects.

6.7 Conclusion

This chapter has two parts. The first part analysed the case studies in the Chain, Independent and Resort hotels in Perth City, Western Australia, in Brisbane City, Queensland and Brisbane environs. Discussion of the interviews highlighted the managers' willingness to share their views on the way they manage their customers

as assets of the firm, culminating in a General Model of their CE processes in interview, subsequently amalgamated and summarised in Figure 6.1 section 6.4.4. Discussion of the VVRL matrix proved influential in the discussions.

The second part is a cross-case analysis through the text mining tool Leximancer. In cross-case analysis, approaches to Document Analysis were coded appropriately. The results highlight the extent of CEM in the eight individual hotel case study examples. To complete Phase Two, a model of practice (with theory) in CEM is shown in Figure 6.6 and discussed at length, with further commentary on the hotels approaches to CEM itemised in Table 6.9, 6.10 and 6.11. This research into CEM in the Australian accommodation hotels demonstrates the current and future possibilities in CEM when the strategies and data types are used in an integrated way. Models developed during the research could be influential in advancing CEM in Australia. The methodological approaches to data collection and analysis achieved in the interviews with analysis and cross-case discussion concludes this section. The next chapter concludes the study.

Chapter 7: CONCLUSIONS

‘The [marketing] organization will have to redefine its role from managing customer interactions to integrating and managing all the company’s customer to customer - facing processes.’

Philip Kotler (2007)

7.0 Introduction

This research adopted the case study approach to investigate and analyse the field of Customer Equity Management (CEM) in Australia. The non-linearity of the methodology enabled the research to be conducted iteratively, in a spiral of continuous activity, with the specific intent to uncover and discover new insights in the field, in a systematic and analytical way. This research had the benefit of respondents to a survey in Phase One and commitment by participants in interview in Phase Two, to achieve the research objectives and, in doing so, advance managerial understanding of CE in Australia. This case study was concerned about how and why CE is conducted in Accommodation hotels as a sector example with a view to advancing CEM theory. Confined to one industry sector only, it nevertheless challenges some of the contemporary managerial assumptions about CE through survey research and respondent interviews.

The structure of this chapter is as follows. Section 7.1 is a review of the objectives of the research and discussion of the findings in terms of how they provide answers to the overarching research question and the three research questions that addressed the gap in the literature on customer equity management. This is detailed in subsection 7.1.1 and 7.1.2 which discuss the main findings in both Phase One and Phase Two research respectively. Contributions to theory, practice and methodology is next in section 7.2 and in the associated subsections. Next are limitations in section 7.3, followed by directions for future research canvassed in section 7.4. Section 7.5 concludes the thesis.

7.1 Review the Objectives of the Program of Research and Key Findings

Recall the overarching research question in this thesis which underpinned this case study research program.

How important is the management of the strategy drivers of consumption and customer data in contributing to the value of the customer asset?

The thesis is an investigation into CEM which is divided into a two phase research process in order to achieve analytical generalisation. Both phases are located within a theoretical framework of value or worth to the firm, with each phase applying a specific research design to address this question within the case study approach. The set objectives and research questions raised for both phases are identified as follows, commencing with Phase One.

Phase One investigated the overarching research question by addressing the gaps in CE management knowledge identified in the literature review in chapter two. These gaps were signposted by the research questions, RQ1a, RQ2a and RQ3a which emphasise the ‘to what extent.....’ aspects of the strategies, data management types and interaction effects. Restated are the RQs for Phase One quantitative research as follows:

- RQ1a. To what extent do the four identified strategy drivers of consumption (customer acquisition, customer retention, company resources and targeting/segmenting customers) contribute to customer equity (CE) outcomes?
- RQ2a. To what extent are the customer equity data (both aggregate and disaggregate) managed?
- RQ3a. To what extent does the interaction of the strategies and data management techniques impact on CE outcomes achieved?

The objectives of Phase One were firstly to undertake an exploratory study of the perceptions hotel managers have regarding their customers’ equity and secondly, to gain insights into the extent CE is managed in the hotels. This study examined the set variables through a conceptual framework in CE management theory with findings that were confirmatory and analytically generalisable against the three

research questions. The model examined CE under three specific CE management conditions namely:

1. The strategy drivers of consumption in use;
2. The customer data types to choose from; and
3. The interaction of the strategies and data types on CE outcomes achieved.

The next section addresses how the findings answer the research questions and research propositions posed to address the research gaps in CE management knowledge in quantitative research. This is first in Phase One research.

7.1.1 Discussion of the Key Findings – Phase One

Phase One research used the Kumar and George (2007) model of known and aspirational levels in CE Management at, and above, *Baseline* CLV measurement and their hybrid approach for measuring customer equity as detailed in chapter two, as an organising framework to identify and examine hotel managers use of specific CE techniques. In the management of their customers' equity, the strategies were identified as Customer Acquisition, (CA) Customer Retention, (CR) Company Resources and Segmenting/Targeting Customers. These were contrasted with the two customer data types, aggregate and disaggregate. First is discussion of RQ1a which addresses the CE strategy drivers (of consumption) with regard to the Research Propositions RP1, RP2, RP3 and RP4 respectively. Recall RQ1a as:

RQ1a. To what extent do the four identified strategy drivers of consumption (customer acquisition, customer retention, company resources and targeting/segmenting customers) contribute to customer equity (CE) outcomes?

CA/CR Strategies: RP1- Markov Brand Switching Matrix

The findings in Phase One highlight how the strategies for customer acquisition (CA) and customer retention (CR) are used in the hotels. Principally, they show their use as distinct elements in CEM. Details show Value and Volume strategies are used for CA, and Repeat Stay and Loyalty strategies are used for CR. This is in contrast to authors who show study findings with CA and CR together (Reinartz, Krafft and Hoyer, 2004; Rust, Lemon and Zeithaml, 2004). This means that the structural results in this research are different to the findings by several other

authors. As the context and situations are different, the structural results in this thesis reveal activities in CA more than CR with advertising and sales promotion along with finance (budgets) and investment decisions in the strategies and customer data types the main vehicles in use. In line with White's (1993) work in the application of the Markov decision processes, the results of the hotels' stance in these decision areas are valuable in the following ways:

- (i) They facilitate computation of optimal policies;
- (ii) Real-life problems which relate to actual models used provide insights into the selection of policies that can be used for more complex problems and that which might be solved by other means, e.g. simulation;
- (iii) The results also provide a rich ground for parametric studies (statistics with hypotheses) in CEM theory.

In this research program, the specific structural elements of the strategies in use demonstrate some level of optimisation in CEM. These structured elements however are used in the context of (restricted) hotel policy space iteration and in this sense policy iteration does not preserve structure (Wessels and Van Nunen, 1973). As these findings infer optimisation more than maximization of the strategies with Markov decision processes, this stance will see hotels continuing to operate in a CE strategy vacuum.

CA/CR Strategies: RP2 – Budget Decision Processes

Budget allocations for CA and CR are starting to be distinguished as separate entities (Blattberg and Deighton, 1996; Reinartz and Kumar, 2003), but this is not happening widely in the accommodation hotels of Australia in this study. The reasons, as discussed previously relate to the need for hotels to optimise their strategies at the expense of maximisation principles in practice, an area researched by Nenkov, et.al. (2008). With acquisition and retention strategies divided by spending patterns of varying amounts, this illustrates the difficulty the hotels are having in reconciling these competing needs, especially with existing earnings and earnings potential arising from both strategies in use. With hotel managers showing a preference for managing CA and CR activities separately, the following findings from the literature show where levels of CE activity are supported, (Berger and Nasr,

1998; Gupta and Lehmann, 2005; Rust, Lemon and Zeithaml, 2004). At *Baseline* CE are levels 1, 2 and 3.

Levels 1, 2 and 3 are as follows:

- Level 1: Customers at the firm level of CLV require metrics that support contribution per customer, retention rates and marketing cost estimates approaches (Berger and Nasr, 1998) to CEM;
- Level 2: Customers at the firm level of CLV require metrics that support contribution per customer, retention rates and average contribution approaches (Gupta and Lehmann, 2003) to CEM;
- Level 3: Customers at the firm level of CLV require metrics that support retention probability and contribution per purchase approaches (Rust, Lemon and Zeithaml, 2004) to CEM.

For CE outcomes above levels 1, 2 and 3, the literature is more explicit in the requirements for managing CA and CR. Notice that these levels move away from firm level customer data management to more advanced levels of segmentation, requiring contact and transactions directly with groups and individuals. This is shown in levels 4 and 5 as follows:

- Level 4: Customers at the segment level of CLV require metrics that support return on acquisition and return on retention approaches (Blattberg, Getz and Thomas, 2001) to CEM;
- Level 5: Customers at the individual level of CLV require metrics that support purchase frequency, contribution margin and marketing costs approaches, (Venkatesan and Kumar, 2004) to CEM.

To maximise the benefits to be gained in CEM is to utilise all five levels as discussed throughout this thesis in an integrated way. The first three levels demonstrate ‘what is happening’ at, and above Baseline CLV measurement, with what ‘needs to happen’ in the hotels in adopting the remaining two levels to achieve *Intermediate/Advanced* levels of CE. Managing CA and CR activities together is occurring at level 5 at *Advanced* CE. These sound theoretical approaches in the five levels discussed, contrast with hotel strategic impacts, that is in the known and aspirational levels of CE Management as researched by Kumar and George (2007), above Baseline CLV Measurement (refer Figure 2.1, in chapter two).

Company Resources: RP3- Optimal Resource Allocation

Studies in the area of (ORA) frameworks by Kumar, Venkatesan and Reinartz (2006) and Venkatesan and Kumar (2004) show empirical findings in CA and CR activities in business to business firms with uniform results. The findings in this business to consumer study in the accommodation hotels show ORA frameworks with various degrees of emphasis. At the very least are ORA frameworks that encompass promotional expenditures, (Berger and Nasr, 1998; Gupta and Lehmann, 2003), with value equity and CRM programs (Rust, Lemon and Zeithaml, 2004), approaches adopted by the Chain, Independent and Resort hotels maximally. At best are ORA frameworks in use showing return on acquisition, return on spending and add-on-selling approaches, (Blattberg, Getz and Thomas, 2001; Kumar and George, 2007), with purchase frequency, contribution margin and marketing costs approaches, (Venkatesan and Kumar, 2004), for the Chain, Independent and Resort hotels minimally. The implication for this study is that there is a ‘trade-off’ between these competing needs. If realised, this will lead to an ‘allocation imbalance’ - an over-spending on acquisition and under-spending on retention, an area researched by Reinartz, Thomas and Kumar (2005). To offset an allocation imbalance, would be to use the VVRL matrix developed in this study (refer Figure 5.1 and Table 5.2 in chapter five). The VVRL matrix highlights the *known* outcomes in CEM, but its main value is in guiding the known and aspirational activities in CE, as its foundation is based on a uniform, consistent approach to CEM, integrated.

Customer Segmentation: RP4 – Customer Profiling

The traditional or conventional ways of segmenting customers into groups and group categories is entrenched and provides a ‘comfort-zone’ for CE managers to use. The approaches used are the well-known segmentation bases: geographic, demographic, behavioural and psychographic variables. The findings show emphasis in these main tenets and those which comprise advanced measures, such as customer profiling (refer Table 4.31 in chapter four). With customer profiling a highly endorsed strategy in CE management practice in the hotels, this was found to be a strategy used in principle more than in actual, as evidence showed customer profiling to be endorsed fully in only a handful of cases cited.

To advance beyond the four well-known segmentation bases to the more advanced standing segmentation principles, such as customer profiling, requires good reason. For example, the findings in Phase One suggest very high use of the word-of-mouth principle in CE, but show little advancement in this business to consumer area of marketing and even less in the new wave area of marketing to the consumer. This indicates that the hotel managers intuitively understand word-of-mouth advocacy and the social media sites, along with the benefits these can bring to the hotel. The managers also appreciate their potential as a fruitful source of advertising. However, they do not appear confident about how to evaluate these advanced type strategies. In other words, word-of-mouth advocacy and the social media sites as CE strategies provide intangible rewards and, as such, cannot be reflected in any CLV estimates of financial performance at this time.

In addition, most of the literature in this area has been conducted in customer contractual settings where forecast earning capabilities are more certain. In the hotels study, the opposite is true with most activity occurring in non-contractual settings. This means current and future earnings are less certain and, in many instances, unknown. Consequently, without highly specific and detailed information on the customer, and at significant cost to the hotel to find-out, the possibility of undertaking customer profiling in the true sense of data mining is voided. Whilst data mining is out of reach for many hotels to pursue at present, the VVRL matrix produced in this research presents a way of segmenting hotel customers definitively. Expressed as high/low value and volume strategies, with high/low repeat stay and loyalty strategies, these measures are well beyond the four common bases in segmenting customers and represent a new way of thinking with regard to the customer-firm interface in CEM research.

Next is discussion of RQ2a which addresses the customer data types both aggregate and disaggregate, with regard to Research Proposition RP5. Recall RQ2a as:

RQ2a. To what extent are the customer equity data (both aggregate and disaggregate) managed?

Customer Data Management: RP 5 - Where disaggregate customer data is optimal.

The findings in this research show the optimal conditions for managing CE are based on indicators for the measurement of CLV with aggregated level data through the Berger and Nasr (1998), and Gupta and Lehmann (2003) approaches to customer equity data management. These approaches specifically focus on sales volume, spending patterns and retention rates. As Berger and Nasr (1998) argue a finite projection period to measure CLV, when they coin this term *Baseline* equity, it is shown to be limited or low level CLV estimates of segmented hotel customers. Both the Berger and Nasr, (1998) and Gupta and Lehmann, (2003) approaches are regarded as the *lower-level* of CE functioning, as there is no opportunity afforded to managers to identify and improve any specific drivers of customer equity and also limited use of customer data (and techniques).

The optimal conditions for managing CE above *Baseline CE* are based on indicators for the measurement of CLV with disaggregated level data through the Kumar and George (2007), Kumar, Venkatesan and Reinartz (2006) and Persson and Ryals (2010) approaches to customer equity data management. These studies focus on working at higher levels of CEM, that is, *Baseline* plus customer profiling, within an ORA framework. In addition, identifying individual customers specifically (as well as segmented groups) and targeting them, utilising special techniques such as up-selling, cross-selling and service bundling, as researched by Kumar and George (2007), increases CE outcomes exponentially.

In using both aggregate and disaggregate customer data types together requires an approach to CEM being resourced for example by two teams in the hotel: one for CA and the other for CR. Few hotels in this study however have adopted such an approach. Instead, hotel managers have adopted a ‘managing-the-moment’ style to achieving CE outcomes. This is expressed as a contingency approach to the operational effects to CE management as researched by Kumar and George (2007). However, a danger with this approach as noted earlier is that it suggests the use of an ‘either-or’ technique depending on the circumstances.

The study findings in this research confirmed the dilemma managers face in CE practice management as a result of ‘*either-or*’ thinking and ‘*flexible*’ decision making. Specifically, with managers having taken the option to adopt *Baseline* level CE (aggregation) approaches (Berger and Nasr, 1998) in customer data management, by contrast to adopting *Intermediate/Advanced* CE (disaggregation) level approaches (Kumar and George, 2007), this is viewed as a consequence approach to managing CE. The consequence is a trade-off between short-term efficiency versus long-term effectiveness outcomes. In adopting *Baseline* levels of customer equity activity this thesis shows that the hotel managers (from the survey) have not ventured much beyond segmenting by customer groups (business, conference, leisure) with high aggregation, *transaction* data, to more advanced models of CE proffered in this research that encompass high disaggregation, *transaction and interaction* data. This occurs because disaggregate customer data is less than optimal in the hotels. As most hotels are in non-contractual settings with their customers, disaggregate customer data is very difficult to obtain, requires a significant amount of resources to pursue and use, and must be part of a legitimate hotel strategy.

Next is discussion of RQ3a which addresses the strategies and customer data types both aggregate and disaggregate with regard to the Research Propositions RP6a and RP6b. Recall RQ3a as:

RQ3a. To what extent does the interaction of the strategies and data management techniques impact on CE outcomes achieved?

RP6a - Aggregate data using the Blattberg, Getz and Thomas, (2001) and Kumar and George, (2007).

With the findings in Phase One showing a preference for high/low aggregation level data (Blattberg, Getz and Thomas, 2001; Kumar and George, 2007), over high/low disaggregation level data (Venkatesan and Kumar, 2004), the former is ‘winning-out’ over the latter at present. The positive in this for CEM is that these approaches take into account the impact of customer equity management practices. Both approaches identify specific strategies to improve customer equity. For the former study, these strategies focus on return on acquisition and retention and return on add-on selling. For the latter study, they are drivers of customer equity to improve

value equity, brand equity and relationship equity. Customer equity in these approaches use the responses from a sample of all customers in the market in survey research (segment level CLV). The additional information obtained from the survey helps the firm to take into account the purchase potential and brand-switching probability of its prospects (Kumar and George, 2007). The CART and MARS models in this study highlight the use of aggregate customer data approaches to CEM. By implication, the hotels using aggregate customer data mainly would follow the model path that suits their approach as discussed above or follow the recommended Blattberg, Getz and Thomas (2001) path as highlighted by Kumar and George (2007).

RP6b - Disaggregate data using the Venkatesan and Kumar, 2004 approaches

What is evident in the findings in Phase One from the various aggregate and disaggregate level approaches to CEM is that the hotels differ from one another on several criteria as the variables identified. The rank order of the variance was analysed and summarised, (refer Table 4.31 in chapter four). Since the aggregate level approach is based on firm or segment level performance measures, the data requirements and number of metrics that need to be tracked are small. However, an aggregate level approach in general, performs poorly in terms of time to implement and expected benefits (Kumar, Venkatesan and Reinartz, 2006; Venkatesan and Kumar, 2004). In short, managing customer equity at these (aggregation) levels is geared towards lower profit expectations, risk averse investment decisions and the amount of discretionary budget allocation and spending decisions delegated to managers by the executive. In a CEM sense, this is regarded as a negative, as Kumar and George (2007) highlight in their hybrid model of CE measurement (refer Figure 2.2 in chapter two). The greatest gains in CE and CLV maximisation depend upon uniform and consistent managerial practices with high disaggregated customer level data readily available and in use.

Issues Arising from this Discussion

Issues arising out of these practices provide insights into CEM in the Australian accommodation hotels. For example, analyses conducted through CART and MARS models in non-parametric design show the following findings. The

strength of the associations in the decision trees and regression scores are positive in places and negative in others (as highlighted throughout Phase One, summarised in the CART results as shown in Table 4.31, chapter four and in the MARS results in Table 5.3 in chapter five). Differences are stark where customer acquisition (CA) and customer retention (CR) strategies are conducted separately. Indicatively, Value and Volume (VV) strategies which link to CA and Repeat Stay (R) and Loyalty (L) strategies which link to CR are not performed equally, uniformly, or consistently. The reason is that the VVRL strategies are viewed as discrete entities of financial performance expectations; united as VV and RL for purpose, but detached as an integrated model of network associations for uniform CEM practice.

The work of Phillips (1999) and Queenan, Ferguson and Stratman (2009), outline conceptual performance measurement frameworks in hotels, which reinforce the measurement mainly aspects in CEM. Not surprising then is that evidence in this program of research shows a dichotomy of thought and action between customer acquisition and the measurement of customers' equity on the one hand, with customer retention and management of the customer asset on the other, with a major leaning towards measurement of CA activities at the expense of RL activities as a way of assessing the customer's worth to the firm.

7.1.2 Discussion of the Key Findings – Phase Two

Phase Two research also investigated the overarching research question by addressing the gaps in CE management knowledge identified in the literature review in chapter two. These gaps were signposted by the research questions, RQ1b, RQ2b and RQ3b which emphasise the 'how' aspects of the strategies, data management types and interaction effects with some attention on 'why' aspects as well. Restated are the RQs for Phase Two qualitative research as follows:

RQ1b How and why do the four identified strategy drivers of consumption (customer acquisition, customer retention, company resources and targeting/segmenting customers) contribute to customer equity (CE) outcomes?

RQ2b How are the customer equity data (both aggregate and disaggregate) managed?

RQ3b How does the interaction of the strategies and data management techniques impact on CE outcomes achieved?

This phase involved a two-stage research design. The first stage used in-depth interviews, with a convergent emphasis (Carson, Gilmore, Perry, and Gronhaug, 2001; Perry, 2001), in eight separate competitor hotels in Brisbane City, Queensland, Brisbane environs, and Perth City, Western Australia. In the second stage, the text mining and analytics tool Leximancer version 4.0 was used to sort, code and analyse the extent to which CE is measured and managed across all eight hotels.

The first stage of Phase Two entailed interviews with the managers in all eight cases categorised into Chain, Independent and Resort hotels, which culminated in a General Model of CE Practice that managers use in their hotels (refer Figure 6.1 in chapter six). This provided several insights into how the managers contextualise the value of relationships with their customers. The first insight which links to the strategies and data types in RQ1b and RQ2b, is how the managers utilise in-house advertising and recruitment agencies of customers (travel agents) in a systems way of managing their CE from a forecasting, implementing and control mechanism in their hotel(s). As there is a ‘connection’ formed with these service providers in a contractually based environment, CE managers can manage these processes well. It appears that control of managerial inputs and outputs is the central theme and integral to the operations and managerial practices taking place in each individual hotel case. With formulation, implementation, review and evaluation of strategies and customer data types which make-up the foreseeable possibilities in hotel operations, an evaluation mechanism that emanates out of CE implementation practices helps each hotel determine the CLV of its customers. In other words, the hotel managers need to have control over managing their customers’ equity as tangible outcomes expressed in their financial statements.

The second insight is with regard to in-house (traditional and internet) promotions used interactively to attract and retain customers. Notably, within the social experience of hotel consumption practices, there is an apparent ‘disconnect’ between the customer and hotel, signalling *time* and *space* issues in a non-contractual

setting belonging to the customer, not the service provider. Two authors who have addressed consumer time and space issues when transacting with the firm have framed this under the banner of customer engagement. In Van Doorn's et al., (2010) study, customer behaviour manifestations may have a brand or firm focus beyond transaction resulting from motivational factors. By contrast, a customer value framework that has four components – CLV, referral, influencer and knowledge based feedback from the customer to the company, was researched by Kumar et al., (2010). Noticeable in the Kumar et al., (2010) study and Van Doorn's et al., (2010) study are how the conceptualisation of a firm's engagement with a customer differs. Kumar et al., (2010) view customer engagement from the lens of CLV measurement, whereas Van Doorn's et al., (2010) view is from CRM, particularly behavioural and psychographic segmentation perspectives. Both raise their issues as fertile grounds for further research.

Broadening the scope of research in CEM has led to the consequences of customer relationships with firms going beyond the traditional forms of business to business and business to customer, to that of customer to customer interactions (Libai et al., 2010). Whilst outside the scope of this research to address directly, indirectly observations made in this research show indicatively that hotel managers like the in-house mediums as a customer acquisition and retention technique. With internet promotions in particular, these are favoured because of their low cost installation, maintenance and use aspects, but managers know little on how to control its use or evaluate its worth as a CA and CR mechanism. The reason is, customer to customer actions and interactions in CEM are an under-researched area in the literature and consequently not well developed in practice as yet. A firm's relationships with its customers that go beyond 'participation' and 'involvement' to that of 'engagement' is arguably brand loyalty and emotional attachment to the brand association (Libai et al., 2010), requiring high level or advanced individual customer data which this research has addressed and shown to be the least favoured strategy by hotel managers at present. How managers' have shown to manage their CE currently with agency contacts and in-house media promotions is highlighted by the General Model of Practice, produced during the interviews as a focal part of this research, (refer Figure 6.1 in chapter six). An extension is the way in which managers align this current

activity with new and different mediums and interface with consumers who are not as yet established customers of the hotel in today's multichannel or multimedia environments. The interdisciplinary nature of this research in CEM has embraced identifiable CE strategies and customer data types to show their links to organisational value propositions (CE outcomes achieved) as a key research aim in this thesis.

In RQ3b, the VVRL matrix (advancing the VVRL matrix in Phase One), delved into the strategies and data types further and revealed two noteworthy insights. First is that customer acquisition in use by the hotels is a more fruitful strategy to deploy than retention in the main, a confirmatory finding with that found in Phase One. Second, within the VVRL matrix, emerged issues that reflect the critical differences in each quadrant or cell and indicate the perceived interest in their use by hotel CE managers (refer Figure 6.2 in chapter six).

These differences were labelled with names to depict the strategy choice(s) as follows:

- 'Reach' (Volume Customers) and 'Selectivity' (Value Customers), with
- 'Continuity' (Repeat Customers) and 'Ultimate' (Loyalty Customers).

For example, Value and Volume strategies were clustered together as they form a highly functional and pragmatic basis for use in CEM. The Repeat Stay strategy logically links-in with the Loyalty strategy. However, in this study, there is a leaning towards a Repeat Stay strategy as 'stand-alone', with some linking-in with Value and Volume more than with any other variations found. For example, Value and Volume was not found to be linked to Loyalty. Other combinations fell short of strong association too, such as Repeat Stay with Volume, and Loyalty with Value. Consequently, in all examples found, Loyalty was found to be the least preferred strategy emphasised.

With the costs of implementing and monitoring these strategies lies an issue with the customer data management type(s) in use. For example, the interaction effects of the strategies and data on CE outcomes, aggregate customer data is much cheaper and easier to use than disaggregate customer data (refer Figure 6.3 in chapter

six). As the Repeat Stay and Loyalty strategies show the highest cost in acquiring a customer with the Value and Volume strategies showing the lowest cost use, it is the Loyalty strategy that is expected to contribute to the highest profit as researched by Reinartz and Kumar (2003). Therefore, the least effective strategies and data types (VV with aggregated data) are used the most, with the most effective strategies (RL with disaggregated data) used the least in this thesis.

Individual contexts aside, all four cells imply some form of customer retention as the managers in interview were able to attest. With the view then that customers are profitable in all four cells, the hotel managers are working from a thinking that they can decide their actions which are based on 'either-or' thinking as efficient. In actuality, this kind of thinking is shallow and anathema to effective CEM outcomes. It is because RQ3 posits the view of the interaction effects - implying that uniformity and consistency in practice ultimately leads to better CE outcomes.

Cross-Case Discussions

Next were the results of the cross-case discussions, the second stage of Phase Two research. The approach used to assist with sorting, coding and organising hotel documents into a framework to identify patterns in the data and for explanation building in the thesis, was the text mining tool Leximancer version 4.0. Patterns in the data, mirror those in the first stage of Phase Two, that is, the hotels association with CA is much stronger than that with CR. In another example, budgets for CA and CR are not being separated out as the literature suggests otherwise (Thomas, 2001; Rust, Lemon and Zeithaml, 2004). What the CE strategies in use by the hotels depict is a focus on *Baseline/Intermediate* levels of CE activity in the main.

Further in the second stage of Phase Two was analysis of the research propositions in RQ1b, RQ2b and RQ3b. With positive support found for all of the research propositions as discussed throughout and summarised in the Value, Volume, Repeat Stay and Loyalty (VVRL) strategy matrix in Phase One (refer Figure 5.1 and Table 5.2 in chapter five), the findings in further development of the VVRL matrix reveal four insights (refer Figure 6.2 and 6.4 in chapter six). The first is a *limited-fit* between hotel services and customers lies in the Volume part of the matrix. Second is

that which shows a *moderate-fit* between hotel services and customers applies to the Value part of the matrix. Third, is a *good-fit* strategy which aims for transactional satisfaction in the Repeat Stay part of the matrix and lastly, an *excellent-fit* which aims for attitudinal and behavioural loyalty, rests within the Loyalty part of the matrix. There are four ramifications that follow-on from this.

First, is a low strategy involvement and low data involvement and technique (LSi/LD&T), the Volume strategy if used on its own, will consistently under-perform in a CEM sense. Second, if managers couple an LSi/LD&T with a higher strategy involvement and low data and technique (HSi/LD&T), the Value strategy, then CE managers are operating at some level of efficient utilisation in a CEM sense. Third, is to go a step further and deploy the first two with a low strategy involvement and high data and techniques (LSi/HD&T), the Repeat Stay strategy, and this will ensure the hotels are operating at optimum performance levels in a CEM sense. Fourth, is to utilise all three with a high strategy involvement and high data and techniques (HDI/HD&T), the Loyalty strategy, and in doing so will ensure CE managers are operating at premium levels of performance. This uniform level of operating with all four cells was noticed in use in two hotels only, the Chain-International/3 and Resort-International/1. These indicators reflect the themes derived from analysis in the data as follows.

Theme 1: Managing at Baseline levels of CE practice reveals transactions to segmented groups of customers. Working at the VV strategy levels is applicable in this instance. The theoretical assumptions in CEM which apply here have been addressed by the Berger and Nasr (1998) and Gupta and Lehmann (2003) approaches to CEM. The principal assumptions for Berger and Nasr (1998) include:

- Firm level customer data – annualised sales – aggregation by multiplication – average CLV estimates;
- Constant retention spending and retention rate (promotional expenses);
- Contribution margin – rate of growth in profit;
- Finite projection periods.

For Gupta and Lehmann (2003), the principal assumptions include:

- Publicly available firm level customer data – annualised sales – aggregation by multiplication – average CLV estimates;

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- Constant retention rate;
 - Constant contribution margin/constant growth rate for the contribution margin;
 - Infinite projection period.

Theme 2: Managing at Intermediate levels of CE (in conjunction with Baseline), is where most of the activity in CE management is occurring in the hotels currently. Working at the VV strategy levels with additional R levels is applicable in this instance. The theoretical assumptions in CEM which apply here have been addressed by the Blattberg, Getz and Thomas (2001) and Rust, Lemon and Zeithaml (2004) approaches. The principal assumptions for Blattberg, Getz and Thomas (2001) include:

- Segment level customer data – periodic sales – aggregation by summation of segment level CLVs;
- Contribution margin for each segment varies across time;
- Retention rate and acquisition probability for each segment vary across time;
- Finite projection period.

For Rust, Lemon and Zeithaml (2004), the principal assumptions include:

- Firm level customer data from a sample – annualised sales – aggregation by multiplication – average CLV estimates;
- Customers in the sample represent the customer base of the firm;
- The purchases in unit time occur in intervals inversely proportional to the average number of purchases;
- Finite projection period.

Theme 3: Managing at Advanced levels of CE is where the hotels are involved the least at present. Working at the full VVRL strategy levels is applicable in this instance. The theoretical assumptions which apply here in CEM have been addressed by the Venkatesan and Kumar (2004) and Kumar and George (2007) approaches to CEM. The principal assumptions for Venkatesan and Kumar (2004) include:

- Customer level CLV – customer transaction (sales) data – aggregation by summation of individual level CLVs;
- Data on firm-customer interactions;

-
- Purchase frequency and contribution margin;
 - The future purchases in a given year are assumed to occur in intervals proportional to the predicted frequency – an assumption that can be relaxed;
 - Finite projection period.

The principal assumptions for Kumar and George (2007) include:

- Customer level CLV – customer transaction (sales) data – aggregation by summation of individual level CLVs;
- Data on firm-customer marketing actions and interactions and marketing costs;
- Differential treatment to customers on the basis of their CLV is carefully managed;
- Longitudinal database availability includes objectives to formulate and reformulate customer level strategies and firm level strategies with the financial valuation of the firm;
- Finite projection period.

These themes highlight the CE strategies and data management techniques in use as a point of emphasis in cross case comparison in synthesis (refer Figure 6.6 in chapter six). It shows all three themes from probability to possibility in sequential form. To give effect to these findings, a revised conceptual framework was developed as shown in Figure 7.1, 7.2 and 7.3 with discussion as follows.

Revised Conceptual Framework

Figure 7.1, 7.2 and 7.3 are a schematic representation of how customer equity is utilised and can be improved by effective management practices and constitutes the revised conceptual framework(s) in this thesis. The differences in theoretical approach to measuring and managing customer equity are identified in each case. In Figure 7.1 the strategies and customer data types are used in relative isolation to one another. There are few interactive effects of the strategies and customer data types that impact on outcomes achieved as shown by the absence of any arrow linkages. By contrast, Figure 7.2 and Figure 7.3 show the linkages and emphasis based on the strategies and customer data in use that impacts on CE management outcomes achieved. These are the approaches found in cross case analysis that represent the state-of-play for the accommodation hotels in this thesis. See the revised conceptual

framework(s) diagrammatically in Figure 7.1, Figure 7.2 and Figure 7.3 as follows. First is the conceptual framework representing *Baseline* CE relevant to the Independent hotels.

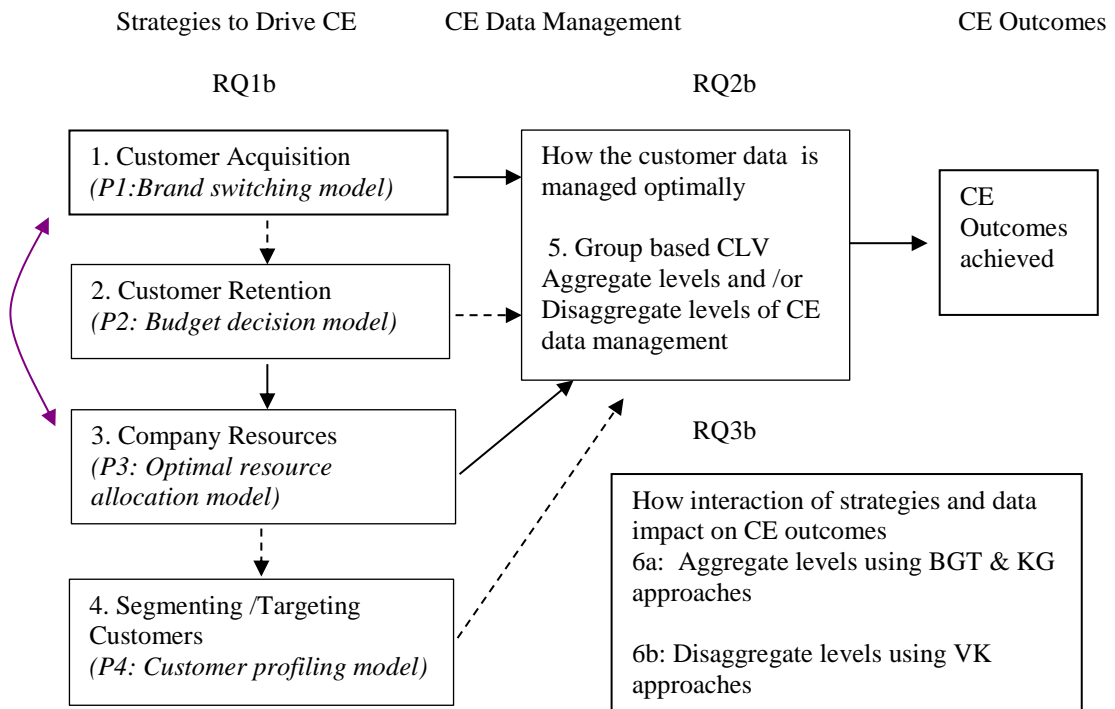


Figure 7.1. Conceptual Model of CE for the Independent Hotels

Second is the conceptual framework representing *Intermediate* CE relevant to International and Australian Chain hotels. The same legend applies for these two models.

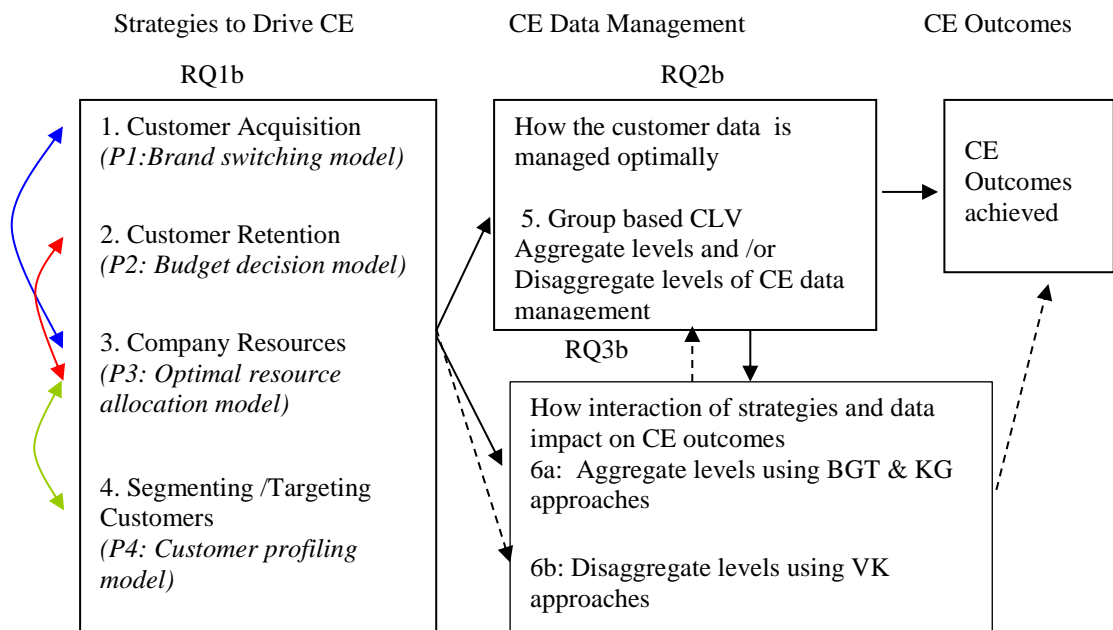


Figure 7.2. Conceptual Model of CE for the International and Australian Chain Hotels

Third is the conceptual framework representing *Advanced* CE relevant to the International Chain and International Resort hotel.

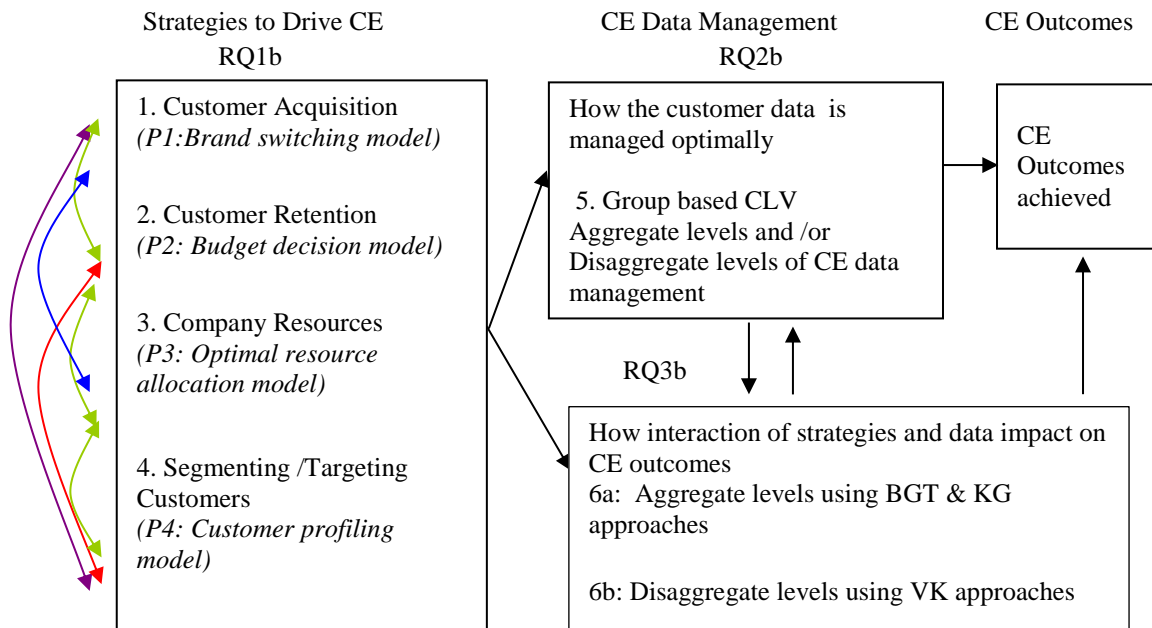


Figure 7.3. Conceptual Model for the International Chain and International Resort Hotel

Legend: Unbroken lines \longrightarrow = strong links: Broken lines $-----\longrightarrow$ = weak links:
No lines or arrows connecting to the strategies or data types = no links or associations.

Theoretical Discussion of the Revised Conceptual Framework(s)

To give credence to these conceptual frameworks in revision are several points of theoretical interest. First, in Figure 7.1 the relative contributions confirm the Berger and Nasr (1998) and the Gupta and Lehmann (2003) approaches to CE at the aggregate levels of functioning. With a focus on sales and spending patterns, contribution margin and retention rates, the Independent hotels do not focus on identifying and improving any specific drivers of customer equity. They are also limited to the use of aggregated customer data in the main. These hotels are using a finite projection period to measure CLV in *Baseline* equity, the Berger and Nasr (1998) approach to CEM. In some limited situations, these Independent hotels are approaching their CLV over an infinite projection period. Whilst the growth rate in margins is similar to that of the Berger and Nasr (1998) approach, the way customer equity is computed in the Gupta and Lehmann (2003) approach may produce quite different results. The magnitude depends on the growth rate and retention rate used in the computation. Retention and loyalty are important for these hotels, but not as a

significant strategy or approach. This indicates that the hotels' are focusing mainly on measuring customer lifetime value for volume related to customer turnover, more than managing their customer asset for value retention. These sentiments are in summary for the Independent hotels:

- *Baseline* CE which has Budgets in ORA, but not separated for CA/CR (Berger and Nasr, 1998; Rust, Lemon and Zeithaml, 2004) + Aggregate data for customer segmented groups (Berger and Nasr, 1998; Gupta and Lehmann, 2003) + firm level approaches using survey data (Rust, Lemon and Zeithaml, 2004) + balancing acquisition and retention, (Blattberg, Getz and Thomas, 2001), but not uniformly or consistently. No development of the strategies or data types is deployed. CA is the most favoured strategy. There are very few interactive effects of the strategies and data management types occurring as shown by the broken and no lines interfacing in the figure. Customers are managed in a measurement context only, transactions based approaches, (Berger and Nasr, 1998; Gupta and Lehmann, 2003).

In Figure 7.2, a different dynamic is taking place with regard to the International and Australian Chain hotels. The three curved arrows (unbroken lines) to the left of the figure are intended to convey some concerted effort to improve the strategies as Blattberg, Getz and Thomas (2001) and Rust, Lemon and Zeithaml (2004) approaches highlight. With strategy improvements occurring, this takes into account working on CA with Value and Volume (VV) strategies in the main. There is, however minimal attention in addressing CR with Repeat Stay and Loyalty strategies (RL), and both CA and CR strategies are not managed all that well together. Where resources are optimal under an ORA framework, they are not being separated out for CA and CR, and segmentation is based on groups with aggregated customer data in use. This is for the International and Australian Chain hotels. The arrows with broken lines are intended to show links that are important but weaker in emphasis. As such, levels of CE achieved are greater than in Figure 7.1. These sentiments are in summary for these hotels:

-
- *Intermediate* CE which has Budgets in ORA, but not separated for CA/CR (Berger and Nasr, 1998; Rust, Lemon and Zeithaml, 2004) + Aggregate data for customer segmented groups (Berger and Nasr, 1998; Gupta and Lehmann, 2003), + profiling + cross-selling + up-selling approaches (Kumar and George, 2007), + balancing acquisition and retention, (Blattberg, Getz and Thomas, 2001). A lot more interactive effects between the strategies and data management is occurring at this level. Customers are managed in a measurement context mainly, transactions CLV based approaches, (Gupta and Lehmann, 2003; Rust, Lemon and Zeithaml, 2004). There is some willingness to develop their strategies.

At the highest levels of CE are the strategies and customer data types used in unison. This is illustrated in Figure 7.3 for the International Chain and International Resort hotel, who demonstrate use of *Advanced* CEM, albeit in limited form. The multiplicity of the curved arrows to the left of the figure is intended to convey a more definitive and comprehensive effort to manage and improve the strategies that are occurring which takes into account working on CA with Value and Volume (VV) strategies and CR with Repeat Stay and Loyalty strategies (RL), together.

To operate at this level requires the availability and use of transaction data, customer data and retention data such as the size and share-of-wallet information (Du, Kamakura and Mela, 2007). These hotels are operating in both B-to-B (contractual) and B-to-C (non-contractual) situations. Where resources are optimal under an ORA framework, they are separated out for CA and CR and segmentation is based on group and individual transactions with disaggregated customer data in use. Because of the limitations of various approaches discussed in each figure, a single approach to effectively manage outcomes cannot be applied to all scenarios.

Whilst the hotels in Figure 7.3 are utilising some or all of the (VVRL) strategies and the customer data types aggregate and disaggregate, it is imperative to develop an integrated approach to CEM that can be used in a range of different scenarios as espoused by Kumar and George (2007) and Persson and Ryals (2010).

Levels of CE activity are greater and much more responsive and integrated than in Figure 7.1 and Figure 7.2. These sentiments are in summary for these hotels:

- *Advanced* CE which has Budgets in ORA are separated for CA/CR (Blattberg, Getz and Thomas 2001) + Disaggregate customer data for segmented groups and individual transactions (Kumar and George, 2007) + profiling + cross-selling + up-selling + size and share-of-wallet, (Du, Kamakura and Mela, 2007) + balancing acquisition and retention, (Blattberg, Getz and Thomas, 2001) + word-of-mouth advertising and advocacy are in place (Berger and Schwartz, 2011; Libai, et al., 2010). The highest interaction effects with the strategies and data management types are occurring at this level. Customers are managed in both a measurement context and as assets of the hotel, (Persson and Ryals, 2010). The highest achievements in CEM are experienced at these levels.

Cross-Case Comparisons

Cross-case comparisons in Leximancer version 4.0 show overall that the hotels have more in common in a CEM sense than what their obvious differences in size, shape and type reveal. It is on the scale and sophistication of CE activities where the Chain/Resort hotels differ most by comparison with the Independent hotels. The reasons why the Independent hotels in Figure 7.1 are working at *Baseline* levels in the main were reported as significantly tied to their hotel's goals and objectives, scope, the availability and use of limited resources, timing, and the skills required to work at higher levels of CE. It is from this that higher levels of CE are not strategically important or operationally efficient for these hotels to aspire to. By contrast are the International and Australian Chain hotels working at *Baseline to Intermediate* levels of CE in Figure 7.2. For these hotels, the goals are similar as for the Independents with the major difference that their size and scale of operations show, providing this grouping with more scope for excelling in CE outcomes.

The highest levels attained at *Advanced* CE are significant achievements for the International Chain and International Resort hotel, depicted in Figure 7.3. What remains aspirational for these hotels is in terms of consumer based equity that was in

earlier discussion (refer section 2.2 in two). To effect customer-to-customer interactions could be strategically important to embrace as researched by Brodie, et al., (2011) and Libai (2011), but remains a future area of impact in CEM research.

7.2 Contributions to Customer Equity Management Theory, Methodology and Practice

This research program presented a unique opportunity to examine first-hand how organisations measure and manage their customer asset. The approaches undertaken in this thesis contribute to a deeper understanding of how to theorise and conceptualise both the measurement and management of customers as value to the firm: all of this in a unified, systematic and consistent way. Theoretical contributions in this research arise from four sources:

- Careful selection of the marketing variables that comprise the CE strategies and customer data types;
- A conceptual framework developed;
- An exploratory examination of the complex nature of these variables,
- A two phase research process in case study methodology.

The nature of the research phases and the newness of the research design regarded as pre-paradigmatic, Borch and Arthur (1995); Perry, Reige and Brown (1999) are highlighted in the following discussion of the theoretical, methodological and practical contributions identified in this program of research.

7.2.1 Contributions to Customer Equity Management Theory

Through addressing the knowledge gaps in customer equity research as identified in the literature review, (principally that the CE strategies in CRM and the customer data types in CLV have been researched widely as separate entities), the research undertaken in this thesis makes an important contribution to CE theory in tandem, (Persson and Ryals, 2010; Villanueva and Hanssens, 2007). Essentially, these two discrete areas of difference in customer equity management research namely, (1) the CLV measurement aspects and (2) the CRM aspects, with customers regarded as assets of the firm, are examined in combination. This varies greatly to their singular differences portrayed in the literature to date. The research techniques applied within the case study approach are a significant contributor to new

knowledge in CEM research, as the program of research was grounded in the theory of value or worth of a customer to a company (Gupta, Lehmann and Stuart, 2004), through a two phase research process. The theory of customer worth is defined in this thesis in chapter one as follows: (refer section 1.4.2);

Customer Equity Management (CEM) is viewed as both the measurement of a customer's equity and the management of that same customer as an asset of the firm.

This definition was articulated specifically for this research to guide the program. The two phase format examined the depth areas of managers interpretations and responses in relation to both the measurement and management aspects in CEM.

Phase One Research

Phase One contributes to the field of CEM by quantitatively examining the extent to which CE is managed in the accommodation hotels. The research set out to examine hotel managers' breadth and depth experiences in CE to gain insights into how well used and entrenched CEM systems are in the Australian accommodation hotels and how they are applied in practice. Through wide reading of the item scales and measurement constructs of the various authors in the field, careful selection of the variables under review aided the development of the conceptual framework in this thesis. Given this scope, the research contributes to the CE literature in two ways.

Firstly, the conceptual framework that emanated out of the literature review resulted in development of the overarching research question in this research as noted. With the strategy and customer data types as variables framed in a unique way, this is not unlike an experimental design, where the related 'independent' variables are customer acquisition and customer retention, company resources and customer segmentation/targeting customers and the customer data types, with the 'dependent' variable the CE outcomes achieved (refer Figure 2.3 in chapter two).

The blend of both quantitative (customer data) aspects with the qualitative (strategic driver) aspects show the foreseeable possibilities in theory that were examined in an integrated context to achieve holistic CE outcomes, (Kumar and George, 2007). This framework overall enabled the study to fulfil the objectives set

and serve as a reference or guide for future research to benefit from. To that end, the model is more guiding than prescriptive, as the results highlight the significance for both the management of the customer as an asset of the hotel and for the equity obtained from those same customers.

The second contribution in Phase One research takes the managerial findings from individual hotel managers up to a (synthesised) level for examining the extent of use and how the strategies and customer data types can be managed in a more integrative, holistic way to achieve more highly effective customer equity outcomes. This was achieved in a matrix model developed as a sub-set of the strategies in RQ1a and RQ2a named Value, Volume, Repeat Stay and Loyalty (VVRL) strategies, (refer Figure 5.1 and Table 5.2 in chapter five). The figures in the matrix highlight the interactive effects of the customer data types with the strategies, showing similarities and differences in each of the Chain, Independent and Resort hotels in the survey. The results demonstrated managers favouring Value and Volume strategies to effect customer acquisition, more than Repeat Stay and Loyalty strategies to effect retention of customers. Additionally, the VVRL matrix findings are linked to the *levels* of CE achieved in the hotels. *Baseline* level CE (aggregated customer data) techniques and strategies are shown to be favoured in the main. The main contribution this part of the study makes to the CE literature is in recognition of the integrative effects the strategies and customer data types have on forging greater improvement outcomes in CEM. For managers who have responsibility for achieving both equity in their customers and managing those same customers as assets of the firm, makes the VVRL matrix influential. Few studies have ventured this far in CEM research design, with none in Australia.

Phase Two Research

The research undertaken in Phase Two contributes to the literature on customer equity in two ways. The first contribution provides a detailed qualitative examination of how hotel managers practice CE in their respective organisations, with a focus on the hotels systems and processes that are used in practical marketing applications. Influential in this thesis are how convergent interviews conducted, are conveyed (Perry, 2001) particularly with regard to the assemblance and analysis of information

in three distinctly different category types of hotel - the Chain, Independent and Resorts. Building on the work of the VVRL matrix findings completed in Phase One research, the second iteration advances the VVRL matrix further. Specifically, Phase Two findings drive the VVRL matrix deeper to incorporate costs associated with customer acquisition and retention and also argue customer relationship duration issues. The VVRL matrix in total accumulation now becomes a multi-faceted approach to managing CE.

The second contribution to the literature in Phase Two research is with regard to the eight individual hotel case studies now addressed as a collective in cross-case analysis. The contribution this makes to the literature in CEM is in pseudo experimental design. Specifically, the research design in cross-case analysis took the approach similar to the way a laboratory technician selects a topic for a new experiment, that is, multiple cases = multiple experiments (Yin, 2003a). The eight individual cases were divided into two streams for comparison purposes. The two categories were Chain/Resort as one stream, and the Independent hotels the other stream. This enabled comparisons to be made in CEM more clear, more objective and definitive than would otherwise be the case analysing eight cases on their own.

The results demonstrated similarities and differences in the ‘how’ and ‘why’ context of *levels* achieved in CEM, preferred managerial styles, approaches to and decisions adopted, which is similar in context with that identified in Phase One. The results of the cross-case comparisons are highlighted in summary (refer Figure 6.6 in chapter six). Phase Two research therefore makes a significant contribution to the literature in CE by demonstration of the managers espoused theories (what managers *actually do*) and theories-in-use (what managers *say they do, value or believe in*), in their everyday management practices (Argyris, 1990). It is how the VVRL matrix can mesh with these values that will enhance CE outcomes achieved.

Implications

The implications of this research to CE theory is in the definition formulated specifically to examine CE from both the measurement of a customer’s equity and the management of that same customer as an asset of the firm. This research is a major *first cut* attempt at integration of these separately managed and researched components.

7.2.2 Contributions to Methodology in CE Research

The first contribution to methodology in this research was with the adoption of the Classification and Regression Tree (CART) and Multivariate Adaptive Regression Splines (MARS) approaches to analysis of the data in Phase One. Decision tree models with regression analyses applied, are shown to be very powerful analytical tools that can be used in either parametric form (for statistical studies with hypotheses) or non-parametric form (for statistical studies with research propositions). Both CART and MARS modelling that were once the domain of marketing research projects in the 1980s were ‘lost’ to two fields of endeavour: econometrics and operations research.¹

In this study, with their use in non-parametric form as appropriate, enabled the data to be displayed visually showing strength of associations, trends and ‘hidden’ developments, from a relatively small, but complex data base, for the purposes of analytical generalisation. Phase One provides more extensive knowledge in the area of CEM by taking an integrated systems approach to theoretical understanding that complements and extends prior research in CLV and CRM studies. Using CLV and CRM as combined elements in CE, provides an insightful extension in CEM generally and in the Australian hotels context in particular. The major contribution in methodology therefore is in reigniting the spark of interest in this definitive research approach for the statistical and analytical rigour it has brought to this applied marketing research project.

The second contribution to methodology in Phase Two research in CEM is in the special way managers experiences with their CE strategies and customer data types were examined. Specifically, this was in a *systems* study, by contrast to behavioural management study. This is not to be confused with the original socio-technical systems approach to Organisational Development, (OD), type studies first researched by Trist and Labour (1981) and Mumford (1985).

1. As noted by Professor Jordan Louviere when discussing the ‘state of play’ in Marketing in a panel discussion at the ANZMAC Marketing Conference in Adelaide, December, 2012, the lack of use in CART and MARS modelling in current Marketing research projects was mentioned as a key point of interest.

In the Trist and Mumford studies, where ‘systems’ were blended with ‘people’, and where much social science researched has subsequently absorbed these two forms as one, this research primarily focused on CEM systems. The interrelatedness of examining CE from both perspectives cannot be understated, but an attempt to do both a managerial behavioural study and a systems study in one research program would have been methodologically unsound.

Notwithstanding, there is a level of joint optimisation that has been achieved in this study evidenced by and through the research design - an element of socio-technical *theory*, as researched by Cherns (1976), but not to the extent where the boundaries of the two would become blurred. Consequently, the contribution this part of the study makes to methodology in CEM is with regard to systems with managerial behavioural inputs as distinct from behavioural theory with systems inputs for reasons of clarity, distinction and purpose.

The third contribution to methodology is with regard to a deeper understanding of how to theorise and conceptualise CEM when adopting different approaches to traditional ways of research in CE that will inform theory and practice (Carson et al., 2001; Perry, 2011; Yin, 2006). In this case, Phase One through survey research and Phase Two through interviews and document analysis. As a mixed methods approach within a case study program, the two phases in the research design whilst distinctive in technique, are complementary in purpose and tone, but above all else are dependent upon one another for CE outcomes. This combination resulted in a comprehensive examination of how hotel managers value their customers financially (through equity achieved in their customers) and non-financially (as assets of the firm). The Phase One and Phase Two approaches to the research demonstrate the value that each can bring on their own. It also shows that when combined in the research design, this extends researchers’ and managers’ understanding of ‘maximisation’ principles in CEM, as researched by Kumar and George (2007). Coined *Advanced* levels of CE (Kumar and George, 2007; Kumar and Petersen, 2005; Reinartz and Kumar, 2003), this level of achievement remains mostly

aspirational for the hotels in this study, but is not inconceivable an approach to achieve as this research demonstrates.

Implications

The implications of this research to methodology is in the use of CART and MARS modelling in current and future research projects that has been ‘lost’ to the fields operations research and econometrics. On their own or combined in a mixed methods approach as adopted in this research, offers much scope for future research.

7.2.3 Contributions to CEM Practice

The findings in both Phase One and Phase Two research recognise the importance of understanding the managers’ perspectives in CEM. This is the area of combined CLV/CRM activities, and as such provides a broader perspective to assist practitioners to understand this area of marketing when synthesised. The research undertaken in this thesis extends managers knowledge in customer equity in four ways; through the strategies and budget allocations deployed, customer segmentation principles and customer data management techniques used. Each is discussed in turn.

1. CE Strategies

The main contributions to practice in this program of research is that which emanated from the conceptual framework that led to the ‘General Model’ of CEM developed ‘live’ in the interviews as a ‘snap-shot’ of current activity. It is this model that could be developed and adapted further for use by practicing managers. The first strategy would be to separate out customer acquisition (CA) from customer retention (CR) activities as first mentioned by Blattberg, Getz and Thomas (2001) and Thomas (2001) as the best way to achieve outcomes in CEM practice. To do this equates to working on Value and Volume (VV) strategies for CA and Repeat Stay and Loyalty (RL) strategies for CR. This would be a measurement focus in the main, but would also have some emphasis in managing customers as assets as well.

2. Budget Allocations

The second strategy would be to allocate separate budgets and staffing resources to CA and CR as highly recommended where possible and practicable. In this way, appropriate ORA frameworks can be put in place, as researched by Kumar, Venkatesan and Reinartz (2006) and Murali et al., (1992). As these allocations

become distinct in a CE strategy sense, it then follows the budgets for staffing these areas would also be allocated and managed separately. For CE managers, the performance of both areas (CA and CR) could be tracked and be reported on separately, but could also be combined for reporting purposes to the manager.

3. Customer Segmentation

The third strategy, would be to combine both 1 (CA/CR activities) and 2 (budget allocations and staffing resources) above to include a third element in the model, customer segmentation principles. There are three levels where segmentation would need to be addressed namely, *Baseline*, *Intermediate* and *Advanced* levels as detailed in this thesis. As explained in detail, authors who are influential in describing these areas are Berger and Nasr (1998); Blattberg, Getz and Thomas (2001) and Rust, Lemon and Zeithaml (2004). *Baseline* to *Intermediate* levels equate to segmenting by category or groups. These comprise leisure, sporting, social and business and can be segmented further by geographic, demographic, behavioural and psychographic characteristics as previously discussed. *Advanced* level segmentation is individual connections with a customer and requires a deeper understanding and commitment to effect these arrangements well. *Baseline* to *Intermediate* levels, more than *Advanced* levels, first acknowledged by Kumar and George (2007), is confirmatory in this research program. For the hotels, an added dimension to their stance is very much due to circumstance: ‘satisficing’ more than ‘maximising’, demonstrates the stark reality in business life today. Notwithstanding the limitations on being able to achieve the *best of the best* in CE outcomes, leads to how the customer data is managed.

4. Customer Data Management

The fourth strategy in the ‘adapted’ General Model of Practice would now include the hotels’ customers data along with the previous three sections and together completes the list of CE ‘must do’s’ for practicing managers. Customer data management is where attention turns to the extent or level of what each hotel is able to do and capable of managing. Findings in this thesis support Kumar and George’s (2007) emphasis on the benefits of utilising disaggregate customer data mainly over aggregate customer data only. In this research in the accommodation hotels, the strategies and data management techniques have been shown to favour aggregate

customer data in use mainly by the hotel managers. The General Model of CE practice developed in this thesis provides an opportunity to be adopted, adapted and used in a way which supports the hotels' various clientele in contemporary CEM based on the implementation of points 1-4 above. Specifically, it is indicative of the present actions that occur in CEM.

Further Practitioner Insights

Significant in CEM are the customer category types, business to business, business to customer, and customer to customer. Whilst much work remains to be achieved in the first two categories and where most of the discussion has centred on in this thesis, the customer to customer interface and interactive effects requires definitive thinking and action on how to measure and manage this type of customer asset. Much of this discussion emanates from the General Model of Practice summarised in Figure 6.1 in chapter six, which is revised and advanced in this chapter in Table 7.1 as an exemplary model for practice.

Much of what is recognisable in Table 7.1 has been discussed at length in both Phase One and Phase Two research and consequently 'reframed' here for practicing managers. For example, Table 7.1 Part (a) shows what needs to happen when managers prefer to operate in a linear fashion to effect each hotel's CE outcomes. The orderly, sequential approach to managing CE as shown is not simple to do, as it relies on what customer data is available now, in future and how it would be managed. Consequently, this approach to effecting outcomes is far from rudimentary.

Complementary to the model in Table 7.1 Part (a) is the model in Table 7.1 Part (b). The myriad of complexity shown in Part (b) is far from linear and indicative of 'what is happening now', against 'what is possible, probable and aspirational' in a matrix management style of operating. In Table 7.1 Part (b), there are three types of customer categories this practitioner model would do well to separate out; business to business, business to customer and customer to customer interactions. These are on the horizontal axis. With experience, commitment and appropriate resources allocated, managerial emphasis could develop from *Baseline* segmentation through

to *Intermediate* and then grow to *Advanced* levels of segmenting. These are shown on the vertical axis.

Table 7.1 *Linear and Matrix modelling in CEM: Retrospective actions and Prospective interactions in the Australian Accommodation hotels*

(a)

CE Strategies	Budgets	Segmentation	Data Manage	Types	Outcomes
CA for Value and Volume (VV) CR for Repeat Stay and Loyalty (RL)	Separated for VV and RL activities Resources for separate teams in CA and CR an advantage	Baseline/ Intermediate levels for groups. Advanced levels for individuals.	Aggregate for transactions only Disaggregate for high level individual interactions	B to C is main B to B is sought C to C is future	CE for management of the customer asset (CRM) CE for measurement of the customer asset (CLV)

(b)

Segment levels	B to C Low-High Aggregate data	B to B Low-High Disaggregate data	C to C Low-High Disaggregate data
Baseline CE <i>for Customer Acquisition: one-to-many</i>	Transaction CLV to customer groups by category-sporting, leisure	Transaction CLV to customer groups by category-occupational, or industry specific	Current web site use, one-way/two way transactional and interactive (booking) information and payment procedures, encryption devices, privacy set-up,
Intermediate CE <i>for Customer Acquisition and Retention: one-to-many and one-on-one</i>	“Buyer Centre” development: includes agent referrals, in-house promotions	“Buyer Centre” driven: includes all of B to C including word-of-mouth advertising online and traditional to the hotel’s customer firm(s).	Present and future CE strategy and tactical management and measurement tools to include multi-way transaction and interaction effects with the hotel’s 7 C’s: <ul style="list-style-type: none"> ▶ content-hotel offers, specials ▶ context-social, business ▶ communication- relational ▶ community- brand recognition ▶ customer -referral mechanisms ▶ channels- face book, twitter, email ▶ costs-calculated for CLV returns
Advanced CE <i>for Customer Retention: one-on-one</i> Contact Basis	Hotels networked promotions WOM advertising Up-selling, cross-selling, service bundling Non-contractual	word-of-mouth advocacy firm driven from customer to the hotel: ‘engaged customers’ Contractual	word-of-mouth advocacy (consumer driven to the hotel: one-on-one & networks) Role of agents of the hotel in the B to C, B to B and C to C networks and how these can be separated-out How C to C interactions are measured and managed in CE terms Non-Contractual

Legend: Business to Consumer = B to C: Business to Business = B to B: Customer to Customer = C to C

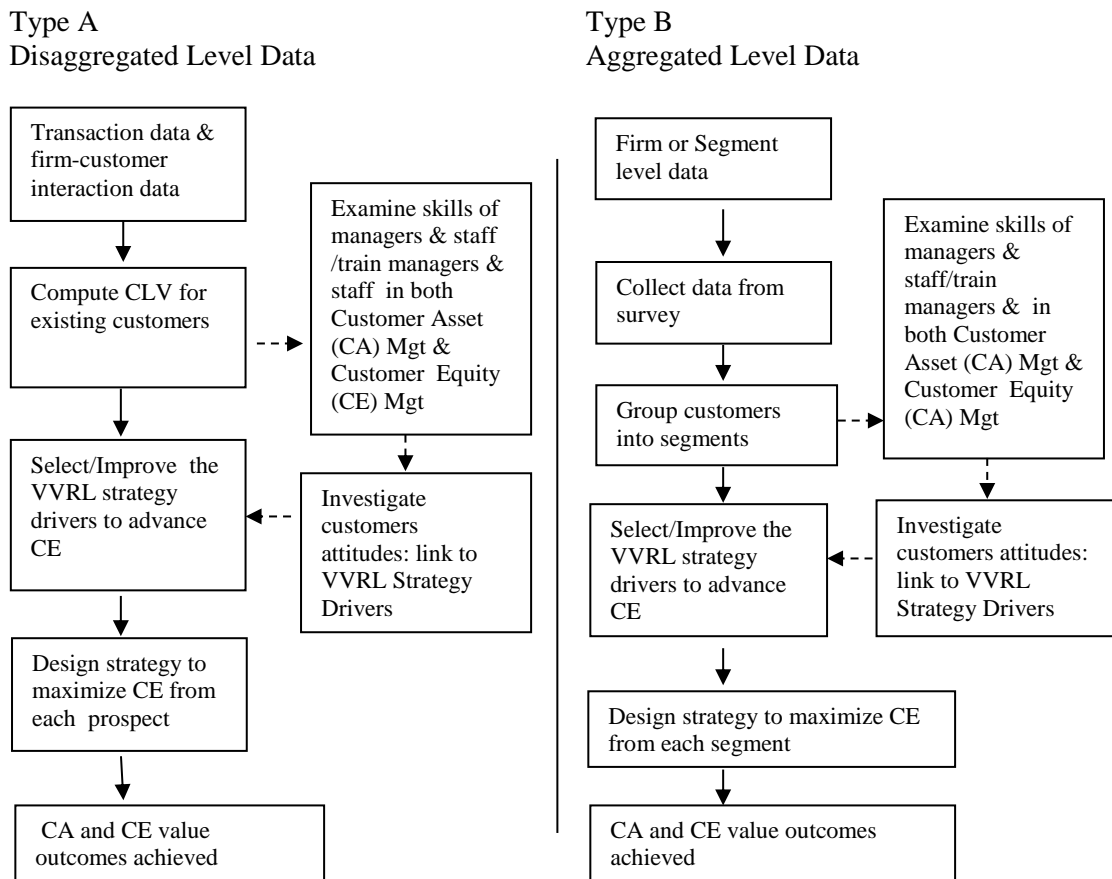
Indicative is aggregate customer data in use at present in the main, which is regarded as low or mediocre CLV data based on customer groups; basically a contact and transactional data base. By contrast, is disaggregate customer data which is regarded as more complex and beneficial to use. This type of data is elevated beyond a basic contact and transaction type data base, to that which includes interaction with the hotels' customer groups and individual customers one-on-one. In line with both interacting and transacting with customers is an interesting element on the right hand side of the matrix in Table 7.1 Part (b). This is the 7Cs listing in the customer to customer column, which is an amalgam from the reflections in the Document Analysis part of stage two in Phase Two. For example, the third 'C' in the listing, 'Communication' is the relational side of the customer contact and interface with the customer, as Brodie et al., (2010) and Libai (2011) have researched as 'customer engagement'.

At the bottom of Table 7.1 Part (b) is how the strategies from left to right affect the duality of customer equity management and customer asset management, with customer asset management by far the most difficult to do and maintain. An added dimension and complexity in all of this is the basis of contact with customers. For the hotels it is contractual occasionally versus non-contractual most often. This means customers are tourist and leisure travellers most often (non-commercial), with a portion of the sector, business travellers (with some commercially contracted).

Lastly, where Table 7.1 is a 'systems' model, it is effective when viewed holistically. It is not regarded as a model for 'selectivity' and 'choice' as demand in a hotel dictates. This is however likely to be an unintended consequence of the model in implementation, as on 'first sight' and on 'face value', selectivity will inevitably take place. To counteract or combat this type of response is to attach a 'people' category to the systems model as shown in Figure 7.4.

An A and B type approach to managing CE which provides structure that can evolve may alleviate some of the feeling of being overwhelmed in the mire initially. Two columns are representative of the CEM levels that can be achieved in the hotel(s) with proviso. The bold straight arrow lines in Figure 7.4 show the pathway for managing the strategies and customer data types (aggregated and disaggregated).

Whilst practitioner development and customers' perspectives, as shown by the dotted lines, is an important part of CEM processes, both were excluded from examination directly in this research program. The reason, as stated earlier, is that the context for this research is on systems functioning of customer equity and not the behavioural aspects of the managers or their hotel customers per se.



Source: Produced for this research

Figure 7.4. A Contingency Approach to Managing CE for Practice Managers

Ideally, in advancing systems and processes in CEM, there would be a team of 'people' in the hotel to manage category A activities, as this requires focused attention on the more advanced levels of CE as shown in Table 7.1. Remembering that category B is where most of the attention occurs currently makes category A aspirational for many hotels. Marry the linear and matrix 'systems' arrangements in Table 7.1 with the 'people' requirements in Figure 7.4 and this is likely to be highly beneficial and facilitate CEM from a practicing manager's perspective.

Focus throughout this research in the CE models developed imply unification of the strategies and making use of the available customer data to better existing CE outcomes achieved, all of this in theoretical development and not models for practice management to adopt as presented. Table 7.1 and Figure 7.4 are therefore introduced as guiding and facilitative for the benefit of CEM practice. A way of highlighting the foregoing discussion of contributions to the theory, methodology and practice in phase one and two research in this thesis, is shown by way of summary in Appendix J.

Implications

The implications of this research to practice is with regard to the focus on systems functioning, not behavioural management. Consequently the models produced in this research have high to very high appeal for implementation as they are objective, neutral and impartial in the discussions. The people component as critical as this is to achieve success in managing CE is discussed in an A and B type structure in Figure 7.4 for managers who need to focus on people first in their organisations.

7.3 Limitations of the Research

The hotel case studies undertaken in this thesis resulted in a two phase approach in the design to study specific aspects of the overarching research question. While this approach enriched the program of research through methodological triangulation, there were various constraints and limitations inherent in the process.

Sampling Parameters Defined

First, the research was limited to investigating company CE strategies and customer data within a defined set of parameters. A non-causal approach to survey sampling in Phase One was determined as appropriate due to the analytical methods being used. The literature is more deterministic in support of causal sampling frameworks to obtain the widest variation of opinions and in obtaining higher accuracy in the domain of interest under study (Davis and Cosenza, 1985). However, the survey sample in Phase One did not set out to achieve high accuracy through causality. The aim was to generalise to theoretical propositions and not populations

or universes with hypotheses. The impression though could be that this approach may give the appearance of a weaker outcome.

Likewise, the case studies in Phase Two were chosen through a convenience, judgmental process and do not represent a ‘sample’. In *doing* a case study, the goal was to expand and generalise theories (analytic generalisation) and not enumerate frequencies (statistical generalisation), which may give the impression of writing a story and not a treatise.

With regard to the exploratory nature of the research in Phase Two, the managerial sample recruited for the interviews was considered suitable as each were experienced managers with significant titles and likely to be the most *informed* persons in their organisations. However, with all managers having different backgrounds, interests and skills, they were not an homogeneous group. They were open in conversation and strong listeners, but at the same time appeared guarded in what they said and importantly left no trace of the true or underlying context with their answers from questions provided to them. Researchers would need to keep these issues in mind when interviewing prospects in qualitative interviews.

Methodological Limitations

Examining CE in only one industry sector – accommodation hotels provides for a concerted, concentrated approach to the research, but limits the generalisability of the results. Other issues such as the way respondents are recruited and managed, as well as the quality of the data collected over the period are very important elements to get right (Yin, 2003a; 2006). Whilst Phase One and Phase Two research discussed how these issues were addressed, the contrariety of approach to the research design in CEM may have in-built methodological limitations that were not easily identifiable. For example, in Phase One research using CART and MARS models in non-parametric design is challenging as it is important to determine the technical terms to be applied to the tree structured classifiers. In global parametric modelling, function approximation in high dimensional settings by and large is used in statistics. In non-parametric modelling in low dimensional settings, to successfully generalise requires the choice of three paradigms - piecewise, local parametric fitting

and roughness penalty. In high dimensional settings, adaptive computation is used. An adaptive computation is one that dynamically adjusts its strategy to take into account the behaviour of the function to be approximated (Lyness, 1970; Friedman and Wright, 1981). Adaptive computation was the type used in this study.

These techniques are the types to be considered for later interpreting the results. They represent limitations if the Salford Systems package is unavailable to the researcher or is difficult to obtain, and if specialised technical support and assistance is absent. This type of research, which places lengthy demands on time to conduct and analyse, requires careful consideration from the outset. With customer equity and asset value of the customer an under-researched area of marketing when combined, notwithstanding the limitations mentioned, CART and MARS models present marketers and researchers with both an opportunity and challenge.

In Phase two research the limitations are more qualitative. In the preliminary stage of Phase Two, the interview data collection process was in real time. This makes this type of data richer and finer grained. As the process of interviewing is dynamic, controlling for situations and events requires a lot of attention to detail. By contrast, the less dynamic aspects of the research, that is, the document analysis stage, is much easier (but not necessarily simple) to control and manage.

In the second stage of Phase Two (document analysis), the researcher was able to analyse the hotels current and historical data such as annual reports, internal documents, spread sheet information on customers and hotel web site promotional information through Leximancer version 4.0. Whilst this type of data is large collectively, the fruits were the recorded ‘happenings’ and the broader trends revealed in CE management detailed throughout. While both types represent comprehensiveness in the research program, the interviews required a certain distancing and reflection before it was possible to separate out what was really significant from that of *noise* (Creswell, 1998; Lincoln and Guba, 1985). As for document analysis in a very large research undertaking, this would be untenable to manage without use of the well established variety of computer aided machine learning tools available, such as Nudist, NVivo or Leximancer.

7.4 Directions for Future Research

The first direction for future research in CEM is the opportunity to replicate either or both phases of this research to determine the extent to which the findings can be generalised. For example, further in-depth studies in both qualitative and quantitative design into managers experiences with the CE strategies and customer data types in use are warranted in order to more fully understand how CEM practices can be integrated in ways that enhance CE outcomes achieved. This in turn may provide knowledge into how both equity in a customer and customers as assets can be achieved and managed uniformly in a systems approach to CEM. Case study methodology is an under utilised area in CEM research. Consequently the findings in Phase One and Phase Two demonstrates its potential to uncover and discover new insights away from traditional interpretivist approaches, to that which incorporates the *realism* paradigm in qualitative research.

In Phase One research, the research design was developed to capture the chief experiences of hotel managers attachment to CE strategies and the two types of customer data. This research design was grounded in the area of decision tree theory to the analysis of data, (Breiman et al., 1984), which dates back at least to the 1960s where this was implemented using several pieces of software, including automatic interaction data, (Morgan and Sonquest, 1963) and chi square automatic interaction data, (Kass, 1980). The authors of the original work and developers of its computational algorithms are among the world's most highly regarded statisticians. Breiman, et al., (1984), developed Classification and Regression Trees (CART) methodology as a single procedure that can be used to analyse either categorical (classification) or continuous data (regression) using the same technology. Either way, it presents its results in the form of decision trees, which is a departure from more traditional statistical analysis procedures.

The tree structure of the output allows CART to handle massively complex data while producing diagrams that are easy to understand. Basically, an exploratory data analysis tool, the CART method is a highly visual communication medium and has been used as appropriate for this research. CART methodology, which became the cornerstone in structured tree classifiers gives title to these authors as pioneers in

theoretical and applied statistics and statistical computing unmatched in other data mining and machine learning tools. Complementary to CART are Multiple Adaptive Regression Splines (MARS) by Friedman (1991).

Friedman saw a problem common to many disciplines - that of adequately approximating a function of several variables to many variables, given only the value of the function (often influenced by noise) at various points in the dependent variable space. Research on this problem occurs in applied mathematics (multivariate function approximation), statistics (non-parametric multiple regression) and in computer science and engineering (statistical learning neural networks). Friedman was able to solve these problems by introducing Multiple Adaptive Regression Splines (MARS), which is a method for flexible modelling of high dimensional data. When used alone or in conjunction with CART models as demonstrated in this research, the findings are very strong. Replicating Phase One research with these tools will address the call for future directions when examining both the management of customer's equity and customers' as assets of the firm in CEM research.

7.5 Conclusion Commentary

This chapter discussed the findings and contributions of the program of research in CEM. The research shows contributions to CE theory, practice and also to methodology. This was followed by limitations and future directions. The two phase approach in case study methodology provided an innovative, comprehensive and integrated approach to investigating significant, but distinct areas of customer equity namely, CLV and CRM. The aim was to answer the overarching research question on how important the management of the strategy drivers of consumption and customer data are in contributing to the value of the customer asset. Both phases applied a different research method and design to investigate aspects of this overarching question. For Phase One it was the *to what extent*, whilst for Phase Two it was the *how and why* of CEM. Both phases provided in-depth answers to the research questions derived from the knowledge gaps in the literature on CE. As a result, these individual explanations were combined to forge a comprehensive answer to the overarching research question.

Clearly then, two distinct phases of complementary tone and purpose is what has been achieved in this research program. Underpinned by the realism philosophy, the ontological perspectives and epistemology applied, occurred within the methodology adopted. In other words, the philosophy adopted addressed the critical reality between the researcher and hotel managers with the appropriate techniques used. Within this context, important contributions to customer equity research, methodology and marketing practice has been achieved. With limitations in the research acknowledged, the research findings provide a solid foundation for further research into the field of CEM.

As marketing to the customer shifts in emphasis to include the consumer, an associated difficulty and challenge is that which affects our understanding of consumer-to-consumer actions and interactions and finding ways to tap into these activities. Customer to customer activities already appear to be a criticality that is impacting on present CEM strategies. The difficulty with customer to customer marketing actions is that this area is *Advanced* level CE, which is the most difficult side of CE to measure. Attempts to measure and manage CRM fall on the Repeat Stay and Loyalty (RL) side of the VVRL matrix described in this research. This is in contrast to CLV measurement and management aspects that fall on the Value and Volume (VV) side in the VVRL matrix. Notwithstanding these difficulties, authors who have made calls to investigate the customer to customer area were canvassed in the literature review. The literature review that discusses word-of-mouth and customer engagement is the latest in the call for measuring and managing these aspects of CE.

Theorising from Process Data in CE Management

From the outset, replication logic in qualitative design was the aim of this research program to achieve analytical generalisation and that which has been achieved. Careful in this research was to use a blended approach from Weick's (1979) categories of accuracy, generality and simplicity as theoretical forms when explaining the use of different strategies in this research. Data that reflects what Weick (1979) calls 'accuracy' worked with the aim of achieving analytical rigour. The data to achieve analytical saturation through triangulation is the effect of

generalisation in the study. Simplicity, concerns the number of elements and/or relationships in a theory (Langley, 1999). Whilst the CART and MARS systems have excellent explanatory power in both parametric and non-parametric research designs, couple this with interviews and document analysis in qualitative research, and this will result in a strong theoretical treatise as produced here.

To that end, the models produced in this research are an important advance on existing theories in that they show an approach to the complexity hotel managers face when measuring customer equity and managing the customer asset in a unified and consistent way. This is the extent of a rival theory in this research, with explanation as to the way the researcher analysed ‘contemporary practice’ in CE Management conducted in the cases and explained by the hotel managers themselves. Emanating out of this was some attempt to practicalise the theoretical models of CE management produced for the benefit of practice, and more could be done in this regard. Suffice to say, it is a development.

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Appendices

Appendix A Rationale for the Conceptual Framework in CEM

The rationale for focusing on specific strategy drivers of CE, the two types of customer data - aggregate and disaggregate, with a view to examining the interaction effects of both strategies and data sets in CEM were based on the literature. The literature on CE has its bases in CRM and CLV principles. It was necessary to undertake wide reading in these areas before an investigation into CE could take place. When completed, the literature review was organised conceptually into a research framework as shown in Table 2.1 in chapter two. Table A1 below shows the same listing as in Table 2.1 more comprehensively discussed. This is how the four CE strategies and two customer data sets were modelled as a unified approach for testing empirically.

Table A1
CE Strategy Drivers

Focused area of Research: <i>Trends, Patterns, Association, Prediction</i>	Lead Author(s)
1. Customer Acquisition (CA) and 2. Customer Retention (CR) models	
<p>Conceptual models</p> <ul style="list-style-type: none"> » Conceptual framework for optimising resources for specific application of CLV to firm value for testing in car rental firms, cosmetic companies and restaurants. » A chain of effects conceptual framework developed for understanding how CLV affects shareholder value. » Conceptual framework for addressing marketing productivity, cataloguing what is known with future research suggestions » Valuing Customers as Assets: conceptual model using historical data on customers in 5 companies: one traditional and four internet companies. <p>Theoretical models</p> <ul style="list-style-type: none"> » Examine the theoretical link between CA and CR. » Provide a theoretical framework model for linking marketing actions and expenditures to CR and profitability, but with no empirical results. » Choosing the right customers: theoretical applications and implications. » Recapturing lost customers: Theoretical model developed from a newspaper subscription data base of 566 lapsed customers with hypothesised relationships. » WOM research: theoretical directions provided. <p>Empirical models</p> <ul style="list-style-type: none"> » Modeling CLV: A review of several empirical studies in market segmentation and the allocation of resources to CA and CR. 	<p>Blattberg and Deighton, 1996.</p> <p>Berger, Eechambadi, George, Lehmann, Rizley and Venkatesan, 2006.</p> <p>Rust, Ambler, Carpenter, Kumar, and Srivastara, 2004.</p> <p>Gupta, Lehmann and Stuart, 2004.</p> <p>Thomas, 2001.</p> <p>Bolton, Lemon and Verhoef, 2004.</p> <p>Reichheld and Sasser, 1990; Reichheld, 1996.</p> <p>Thomas, Blattberg and Fox, 2004.</p> <p>Libai, Bolton, Bugel, deRuyter, Gotz, Risselada and Stephen, 2010.</p> <p>Gupta, Hanssens, Hardie, Kahn, 2006.</p>

<p>» Undertake an empirical investigation into CLV in a non-contractual setting.</p> <p>» An empirical model of the duration of the customer's relationship with a continuous service provider in the mobile phone industry.</p> <p>» An empirical investigation into the profitability of long-life customers.</p> <p>» Size and Share-of-Wallet known: empirical study in the banking sector.</p> <p>» Predicting customer wallet without survey data: empirical study in the banking sector.</p> <p>» What drives Word-of-Mouth (WOM) sales? Field and controlled laboratory experiment based on more than 300 products with real conversations.</p> <p>» WOM and Communicators' loyalty: experimental investigation in two service settings.</p> <p>» Managing Loyalty and Profitability together. Exploratory and explanatory study using cross-sectional survey data in the airlines industry.</p> <p>» Detecting Defection: measuring the predictive accuracy of the customer churn models using logistic regression, (Logit and Tree structured classifiers).</p>	<p>Reinartz and Kumar, 2000.</p> <p>Bolton, 1998.</p> <p>Reinartz and Kumar, 2000; Thomas, 2001.</p> <p>Du, Kamakura and Mela, 2007.</p> <p>Glady and Croux, 2009.</p> <p>Berger and Schwartz, 2011.</p> <p>Garnefeld, Helm and Eggert, 2011.</p> <p>Rust, Lemon and Zeithaml, 2004.</p> <p>Neslin, Gupta, Kamakura, Lu and Mason, 2006.</p>
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Company Budget Resources in CE

Focused area of Research:	Lead Author(s)
<i>Funding Decisions</i>	
3. Resource Allocation and Costs for CA & CR activities	
<p>Conceptual</p> <p>*The role of firm resources on marketing specific actions. Conceptual framework using secondary data in regression analyses.</p> <p>*examining the link between firm resources and sustained competitive advantage. The model is a strategic framework not tested empirically.</p> <p>Theoretical</p> <p>* Impacts of resource allocation on marketing decisions in 3 case study hypothesised situations, not examined empirically.</p> <p>Empirical</p> <p>*A Service-Profit Chain (SPC) framework adapted to business markets (resource allocation at the individual level). A comparison of empirical studies of SPC models and hypothesised results of their own model using Bayesian Information Criteria (BIC).</p> <p>* CLV framework for customer selection and resource allocation strategy. Empirical study in the computer industry.</p> <p>* Review of their previous empirical studies on allocating resources to CA and CR activities in B2B firms in 2003 and 2004.</p>	<p>Slotegraaf, Moorman and Inman, 2003.</p> <p>Barney, 1991</p> <p>Murali, Sinha, Zolters, 1992.</p> <p>Bowman and Narayandas, 2004.</p> <p>Venkatesan and Kumar, 2004</p> <p>Kumar, Venkatesan and Reinartz, 2006.</p>

Customer Segmentation

Focused area of Research:	Lead Author(s)
<i>Customer Mechanisms</i>	
4. Segmenting/Targeting Customers in CEM	
<p>Conceptual</p> <p>* Conceptual model of profitable CLV with hypothesised constructs on purchase degree, focused buying, cross buying and average inter-purchase time in a B-to C setting.</p> <p>*Provide a conceptual framework for finding and then keeping the right customers. No empirical findings.</p> <p>* A CLV revised conceptual framework based on the antecedents of CLV measurement, not tested empirically.</p>	<p>Reinartz and Kumar, 2003.</p> <p>Thomas, Reinartz and Kumar, 2004.</p> <p>Kumar, 2006</p>

<p>Theoretical</p> <ul style="list-style-type: none"> * Customer-Level Marketing: a review of the theoretical and empirical evidence with suggestions for further research. *Who are your customers and what do they do next? A theoretical computational model based on the number and timing of the customers' previous transactions. <p>Empirical</p> <ul style="list-style-type: none"> * Theoretical models of measuring CE with an empirical study in the airlines industry. *Customer Relationship Dynamics with regard to service quality, customer loyalty, differing types of customers and switching costs. A conceptual, hypothesised model in the retail financial services industry. * A hypothesised model of consumption satisfaction. 	<p>Kumar and Petersen, 2005.</p> <p>Schmittlein, Morrison and Columbo, 1987.</p> <p>Rust, Lemon and Zeithaml, 2006.</p> <p>Bell, Auh and Smalley, 2005.</p> <p>Heitmann, Lehmann and Herrmann, 2007.</p>
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CE Data Management

Focused area of Research:	Lead Author(s)
<i>Baseline, Intermediate to Advanced levels</i>	
5. Aggregate and Disaggregate levels of CE data	
<p>Customer Data Sets:</p> <p style="text-align: center;"><i>(a) Aggregate approaches to CE</i></p> <p>Theoretical</p> <ul style="list-style-type: none"> * Theoretical measurement models of CE at the firm level with finite projection periods. * Uses publicly available data in a simplistic CLV model for measuring CE at the firm level in infinite projection periods. <p>Empirical</p> <ul style="list-style-type: none"> * Empirically model CA, CR and Add-on selling average acquisition rates and retention rates for each segment as a surrogate for future retention probabilities. * Firm level (aggregate) approaches using survey data from a sample to arrive at the mean CLV. * Balancing CA & CR resources to maximise CE. An empirical study in a B-to-B high technology manufacturer. <p style="text-align: center;"><i>(b) Disaggregate approaches to CE</i></p> <p>Conceptual</p> <ul style="list-style-type: none"> *A critical review of CLV frameworks for CEM. Formulation of hybrid approach to CE 'maximisation', not empirically tested. <p>Empirical</p> <ul style="list-style-type: none"> *Predictive model of CE Measurement which takes into account the impact of CEM practices in the insurance industry. 	<p>Berger and Nasr, 1998.</p> <p>Gupta and Lehmann, 2003.</p> <p>Blattberg, Getz and Thomas, 2001.</p> <p>Rust, Lemon and Zeithaml, 2004.</p> <p>Reinartz, Thomas and Kumar, 2005.</p> <p>Kumar and George, 2007.</p> <p>Verhoef and Donkers, 2001.</p>

Interaction of the Strategies and Customer Data Sets

Focused area of Research:	Lead Author(s)
<i>Linkages</i>	
<p>Conceptual</p> <ul style="list-style-type: none"> * Conceptual model of CE Measurement and CEM and associative issues not tested empirically. * Conceptual framework of metrics to maximise profitability, not tested empirically. * Compilation of 9 Marketing Metrics from the extant literature and marketing practice for CEO's. * examines utilisation of multiple metrics to measure performance. 	<p>Persson and Ryals, 2010.</p> <p>Petersen, McAlister, Reibstein, Winer, Kumar and Atkinson, 2008.</p> <p>Farris, Bendle, Pfeifer and Reibstein, 2006.</p> <p>Roberts and Ambler, 2006.</p>

<p>Theoretical</p> <ul style="list-style-type: none"> *Framework for customer asset management (in the firm's financial statements). Their theoretical reporting model is not tested empirically. * Review of the extant literature on CE measurement, CE management and research opportunities. *Review of the extant literature of marketing models in services sector and customer relationships with suggestions for future research in this area. <p>Empirical</p> <ul style="list-style-type: none"> * Conceptual model of the drivers of Customer Equity. The model is tested empirically in a European do-it-yourself retailer with 24,000 customers. * Summary of the empirical findings on marketing strategies, metrics and firm value, with suggestions for future research. * Framework for addressing customer prioritisation in both B-to-B and B-to-C settings empirically tested in 310 firms. * Develop a formative measurement instrument for customer equity management empirically analysed in a qualitative research design (interviews) and then tested quantitatively (using survey data) to reveal three dimensions of CEM: analysis, strategy and actions. 	<p>Wiesel and Villanueva, 2008.</p> <p>Villanueva and Hanssens, 2007.</p> <p>Rust and Chung, 2006.</p> <p>Vogel, Evanschitzky and Ramaseshan, 2008.</p> <p>Srinivasan and Hanssens, 2009.</p> <p>Homburg, Droll and Totzek, 2008.</p> <p>Bruhn, Georgi and Hadwich, 2008</p>
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Legend:

CE: Customer Equity, CRM: Customer Relationship Management/Marketing,

CLV: Customer Lifetime Value,

CA: Customer Acquisition, CR: Customer Retention, BR: Company Budget

Resources, Customer Segmentation: CS,

Average CLV = Firm level and/or Segment level CE activities: (Aggregated customer data and uses),

Individual CLV = Customer-firm transaction and interaction level CE activities (Disaggregated customer data and uses),

CAM: Customer Asset Management - the asset management of the customer,

CEM: Customer Equity Management: The value or worth of the customer asset.

Appendix B

Item Scales and Measurement Constructs developed for this Research

The ten author contributions used for Phase One in this research as noted in Table 3.3 in chapter three are detailed below with regard to constructs developed and mean scores reported. Note: the authors report their contributions and results in dissimilar ways. Table B1.

CE Strategies and CE Data Management

1 & 2 Customer Acquisition and Retention

Reinartz, Krafft and Hoyer, 2004

Constructs	Scores
<p>Captures three stages of CRM: 1. Customer Acquisition (CA); 2. Customer Retention (CR); 3. Exit Management (EM). Sample: Several pretests using Marketing Managers and CRM experts were conducted. Senior executives from 211 firms in Austria, Germany and Switzerland provided usable responses as key informants (Sample 1). In Sample 2, 95 responses of performance were also collected for 98 firms. None of the indicators exhibited serious multicollinearity problems</p>	<p>Item means (and standard deviation) scores were: Sample 1 5.1(1.8); 7.1(1.8); 4.1(2.0) for CA/CR/EM Sample 2 4.9 (1.6); 6.7 (1.6); 3.6 (1.6) for CA/CR/EM</p>

Rust, Lemon and Zeithaml, 2004

<p>CLV scales from data in the airlines, facial tissues, electronic stores, grocery and rental cars For brevity, details for the airlines only are reported here. The constructs are: 1. Value related drivers - price, quality, convenience; 2. Brand related drivers - awareness, information, image; 3. Relationship Related drivers – loyalty program, preferential treatment, knowledge of the airline procedures, recognises me as special, trust. Sample for the airline study only: 229 consumers (100 completed surveys)</p>	<p>For brevity- Airline Industry scores only. Logit regression results at $p < .01$ with the largest scores were with the: Value related drivers: Price .975; Quality .904; Convenience .830 Brand related drivers: Awareness .938; Information .656 Image .878 Relationship related drivers: Loyalty program .921; Preferential Treatment .898; Knowledge of the Airline .708; Recognises me as special .851; Trust .889</p>
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3. Budget Resources for CEM

Nenkov, Morrin, Ward, Schartz and Hulland, 2008

Constructs	Scores
<p>Maximising and optimising outcomes in any given decision scenario. Consensus has the goal of satisficing rather than maximising which entails an option that surpasses a threshold of acceptability. In other words, pursuing what is good rather than what is the best option. Samples 1-4 U/G students Sample 5 healthcare professional Sample 6 passengers at bus terminal Sample 7 individuals waiting for jury duty</p>	<p>3 factors – 1. Alternative search 2. Decision difficulty 3. High standards Across all seven samples maximisation scores ranged from 1.15 to 6.52 with mean of 3.88 Evidence was mixed regarding gender differences in samples 4, 6 and 7. Males were more likely to be maximisers than females.</p>

4. Customer Segmentation for CEM

Haws and Bearden, 2000

Constructs	Scores
<p>Consumer Spending Self-Control (CSSC) is related to the ability to monitor and regulate one's spending-related thoughts, emotions, and decisions with self-imposed standards. CSSC provides a amore specific construct and measurement of a consumer's self-control in terms of spending decision making</p> <p>Sample 1 164 adult consumers Sample 2 176 adult consumers Sample 3 224 adult consumers</p>	<p>Item means (and standard deviation) score were: Samples 1 & 2 5.0 (1.13); 5.06 (1.20) Mean scores across all adult samples (total $n = 737$ with 173 respondents) reported overall as 5.16.</p> <p>Based on gender with mean scores for men were 5.20 and for women at 5.12 were not statistically different. The mean score from study 1 which used student participants was 5.39.</p>

Lichenstein, Ridgway and Netemeyer, 1993

<p>7 Measures Related to Pricing Responses. 5 constructs are related to the negative role of price scales: Mean and SD</p> <p>1. Value Consciousness 39.00 (7.34) 2. Price Consciousness 21.96 (7.64) 3. Coupon Proneness 19.18 (7.78) 4. Sale Proneness 23.55 (8.26) 5. Price Mavenism 18.12 (8.29) (expert, or knowledgeable enthusiast) Sample: 1000 surveys distributed in a field setting - supermarket grocery store to shoppers.</p>	<p>2 constructs are related to the positive role on price scales: Mean and SD</p> <p>1. Price – Quality Schema 14.97 (5.21) 2. Prestige Sensitivity 19.11 (8.73)</p> <p>Items 1, 3, 4 and 5 of the price consciousness scale required reverse scoring. Multi item scales for each of the seven price-related constructs were developed from Churchill, (1979); Lichtenstein and Burton, (1989); Moschis and Churchill, (1978); Peterson and Wilson, (1985).</p>
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Hardesty, Bearden and Carlson, 2007

<p>Pricing Tactic Persuasion Knowledge (PTPK) A PTPK is defined as knowledge of pricing tactics used by sellers to generate favourable price perceptions regarding their brands, stores and offerings. Message themes such as:</p> <p>1. Everyday low prices 2. External reference pricing 3. Image pricing Sample 441 adults students in U/G 3 award</p>	<p>Mean scores were: 11.14 in measure purification study. 11.54 in Time Period 1of test-retest study. 11.85 in Time period 2 of test-retest study. 12.24 for people having retail experience footnoted in known group study. 10.60 for people having no retail experience footnoted in known group study</p>
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5. CE Data Management

Kaufman, Jayachandran and Rose, 2006

Constructs	Scores
<p>The Role of Relational Embeddedness in B to B situations</p> <p>1. Buyer-salesperson relationships 2. firm-firm relationships 3. Product attractiveness 4. Marketing Strategy</p> <p>Sample: 210 buyers in non-perishable categories with Retailers A and B.</p>	<p>Mean scores were: Firm-Firm Relationships *Retailer's trust of Manufacturer, 6 items- the lowest .811 and largest .921 *Retailer's Commitment to Manufacturer 5 items the lowest .878 and highest .946 *Retailer's Satisfaction with Manufacturer, 5 items – the lowest .698 and highest .889 Buyer-Salesperson Relationship Quality *Buyer's trust in Salesperson, 6 items – the lowest .862 and highest .944 *Buyer's Commitment to Salesperson, 5 items – the lowest .856 and highest .957 Buyer's Satisfaction with Salesperson, 4 items – the lowest .912 and highest .942 No scores were recorded for Product Attractiveness and Marketing Strategy</p>

Ramani and Kumar, 2008

<p>Interaction Orientation (INTOR) reflects a firm's ability to interact with its <i>individual</i> customers and to take advantage of information obtained from them through successive interactions to achieve profitable customer relationships. The constructs are:</p> <ol style="list-style-type: none"> 1. Belief in the Customer Concept (CC) 2. Interaction Response Capacity (IRC) 3. Customer Empowerment (CE) 4. Customer Value Management (CVM). <p>Sample: 211 Marketing Executives in 107 firms with average sales volumes of \$5 billion. 74 firms were B to B</p>	<p>Means and standard deviations for the four components of INTOR were:</p> <table style="border: none;"> <tr> <td>CC</td> <td>3.56</td> <td>(1.08)</td> </tr> <tr> <td>IRC</td> <td>3.36</td> <td>(1.16)</td> </tr> <tr> <td>CE</td> <td>3.43</td> <td>(1.42)</td> </tr> <tr> <td>CVM</td> <td>3.12</td> <td>(1.49)</td> </tr> </table>	CC	3.56	(1.08)	IRC	3.36	(1.16)	CE	3.43	(1.42)	CVM	3.12	(1.49)
CC	3.56	(1.08)											
IRC	3.36	(1.16)											
CE	3.43	(1.42)											
CVM	3.12	(1.49)											

6. Interaction/Linkages

McNally and Griffin, 2007

Constructs	Scores												
<p>Managerial Perceptions of Relationship Marketing. The constructs developed were:</p> <ol style="list-style-type: none"> 1. On-going Bonding Process 2. Mutual Value Creation 3. Cooperative Atmosphere 4. Information Technology use <p style="text-align: center;">Sample: 87 managers in three professions (marketers/product managers, purchasers/supply managers, and mechanical engineers/designers) from earthmoving equipment companies to motor vehicle companies</p>	<p>The means and standard deviations for the four factors were:</p> <table style="border: none;"> <tr> <td>1. On-going Bonding Process</td> <td>4.11</td> <td>(1.00)</td> </tr> <tr> <td>2. Mutual Value Creation</td> <td>5.51</td> <td>(1.27)</td> </tr> <tr> <td>3. Cooperative Atmosphere</td> <td>5.99</td> <td>(0.61)</td> </tr> <tr> <td>4. Information Technology use</td> <td>3.83</td> <td>(0.83)</td> </tr> </table>	1. On-going Bonding Process	4.11	(1.00)	2. Mutual Value Creation	5.51	(1.27)	3. Cooperative Atmosphere	5.99	(0.61)	4. Information Technology use	3.83	(0.83)
1. On-going Bonding Process	4.11	(1.00)											
2. Mutual Value Creation	5.51	(1.27)											
3. Cooperative Atmosphere	5.99	(0.61)											
4. Information Technology use	3.83	(0.83)											

7. Managing Overall

Blattberg, Getz and Thomas, 2001

Constructs	Scores
<p>This is a 10 chapter, 3 section book literature review on:</p> <ol style="list-style-type: none"> 1. Management of the Customer Asset and Measurement of the Equity in those Assets. 2. CE strategies 3. CE data management techniques 	<p>Managing the customer asset requires the ability and willingness to advance the strategy drivers. With enhancement, measuring the equity in those assets involve three quantitative levers:</p> <p>Acquisition Equity = $(Rate_{acq} \times Margin_{acq}) - Expenditures_{acq}$</p> <p>Retention Equity = $\frac{1}{1 - Rate_{ret}} \times (Margin_{ret} - Expenditures_{ret})$</p> <p>Add-on-Selling = $Rate_{a-o} \times \left[\frac{1}{(1 - Rate_{a-o})} \times (Margin_{a-o} - Expend_{a-o}) \right]$ = Customer Equity per Customer</p>

For Quick Reference on these 10 Sources, see listing below:

Blattberg, R.C. Getz, G. and Thomas, J. (2001). *Customer Equity: Building and Managing Relationships as Valuable Assets*. Boston, MA: Harvard Business School Press.

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- Hardesty, D., Bearden, W.O and Carlson, J.P. (2007) Persuasion Knowledge and Consumer Reactions to Pricing Tactics, *Journal of Retailing*, 83 (4), 199-210.
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Appendix C

Letter and Mail Survey to all 583 hotels Australia-wide

This was also converted for use as an email survey in follow-up, in order to attract a larger pool of respondents.



Faculty of Business
School of Advertising, Marketing and Public Relations
Brisbane, Qld 4001

Date 15/3/11

Hotel/Motel Questionnaire on Customer Management
Information and Instructions for participants

There are eight parts to the completion of this questionnaire. The component parts are:

- ¹Strategies to Acquire and ² Retain customers,
- ³ Company Resources Used and ⁴ Targeting/Segmenting Customers,
- ⁵ Customer Data Management,
- ⁶ Links to other Strategies and ⁷ Managing Customers Overall,
- ⁸ Your Statistics,

The attached questionnaire is organised in a 1-5 selection choice format so as to obtain brief insights into the way you manage your Customers in your hotel/motel at present. The questionnaire should take no longer than 10 minutes to complete approximately. Completion of your biographic details at the end completes the process. These details will be used in an aggregated way to describe the sample who completed the survey. You will not be identified in anyway.

Following completion of the survey, there is scope for clarification and expansion of each topic or area in an interview, should you wish to participate. Information obtained in interview will not be linked to your survey data provided here.

No names of personnel or hotel/motel names will be used in any write-up reports. Consequently, anonymity and confidentiality throughout the research process will be assured.

Thank you for participating in this study.

**Customer Management Questionnaire – Hotels & Motels, Australia
Brief Overview**

This questionnaire asks you to list the appropriate response to the management of your current and past customers. It is part of a QUT, Brisbane study. It should take no longer than ten minutes to complete approximately.

Instructions to Participants

There are 8 parts to this questionnaire

For each of the statements in Parts 1-8, please indicate your preferred choice/selection by marking one of the numbers radio buttons between 1 and 5 (with 5 being the highest).

Part 1: Strategies used to *acquire* customers

The following statements refer to the customer acquisition strategies in your hotel/motel.

These questions refer to the extent to which you use these strategies.

5	4	3	2	1	0
Large	Some	Uncertain	Limited	Seldom or	Don't Know or
Extent	Extent		Extent	Rarely	Can't Answer
(LX)	(SE)	(U)	(LE)	(S or R)	(DK or CA)

How do you acquire customers currently?	5	4	3	2	1	0
	(LX)	(SE)	(U)	(LE)	(S/R)	(DK/CA)
We use Direct and/or Online marketing materials – pamphlets, brochures, email	0	0	0	0	0	0
We use Advertising through different media	0	0	0	0	0	0
We use Sales Promotion as a technique	0	0	0	0	0	0
We rely on 'word of mouth'	0	0	0	0	0	0
Any other? (<i>Write your response here and extent of use</i>)	0	0	0	0	0	0

Part 2: Strategies used to *retain* customers

The following statements refer to the customer retention strategies in your hotel/motel. These questions refer to the extent to which you use these strategies.

5	4	3	2	1	0
Large	Some	Uncertain	Limited	Seldom or	Don't Know or
Extent	Extent		Extent	Rarely	Can't Answer
(LX)	(SE)	(U)	(LE)	(S or R)	(DK or CA)

Strategies to <i>retain</i> customers	5	4	3	2	1	0
	(LX)	(SE)	(U)	(LE)	(S/R)	(DK/CA)
We focus more on acquiring customers than on specific ways to retain them	0	0	0	0	0	0
We focus more on retaining customers (through quality, price, promotions etc), than simply acquiring them	0	0	0	0	0	0
Any other? (<i>Write your response here and extent of use</i>)	0	0	0	0	0	0

Part 3. Company Resources Used

The following statements refer to the financial resources available for customer acquisition and retention in your hotel/motel.

These questions refer to the extent to which you agree/disagree with each statement.

5	4	3	2	1	0
Strongly	Agree	Uncertain	Disagree	Strongly	Don't Know or
Agree				Disagree	Can't Answer
(SA)	(A)	(U)	(D)	(S D)	(DK or CA)

Resources in use	5	4	3	2	1	0
	(SA)	(A)	(U)	(DA)	(SD)	(DK/CA)
We have a separate budget for acquisition and retention of customers	0	0	0	0	0	0
Often times the same budget is used for acquisition and retention of customers	0	0	0	0	0	0
We have no particular budget for acquisition and retention of customers	0	0	0	0	0	0

Part 4. Targeting/Segmenting Customers

The following statements refer to the way(s) you target/segment or categorize your customers in your hotel/motel.

These questions refer to the extent to which you use these strategies.

5	4	3	2	1	0
Large extent (LX)	Some extent (SE)	Uncertain (U)	Limited extent (LE)	Seldom or Rarely (S or R)	Don't Know or Can't Answer (DK or CA)

Market Segmentation of Customers	5	4	3	2	1	0
	(LX)	(SE)	(U)	(LE)	(S/R)	(DK/CA)
We utilise Customer Profiling by obtaining as much information on customers as possible	0	0	0	0	0	0
We operate on the "spend rate" of each customer	0	0	0	0	0	0
The other basic segmentation variables we use comprise:						
• Geographic (Location of where the customer comes from)	0	0	0	0	0	0
• Finding out what the customer wants , needs (from using our services)	0	0	0	0	0	0
• Finding out about the customer's lifestyle characteristics that impact on their reasons to stay with us.	0	0	0	0	0	0
Any other? (<i>Write your response here and extent of use</i>)	0	0	0	0	0	0

Part 5. Customer Data Management

The following statements refer to the way you manage your customer data in your hotel/motel.

These questions refer to the extent to which you use these strategies.

5	4	3	2	1	0
Large extent (LX)	Some extent (SE)	Uncertain (U)	Limited extent (LE)	Seldom or Rarely (S or R)	Don't Know or Can't Answer (DK/CA)

Customer Data Management	5	4	3	2	1	0
<i>Considerations</i>	(LX)	(SE)	(U)	(LE)	(S/R)	(DK/CA)
We have non-specific customer data, but do record weekly (LX), monthly (SE), quarterly (LE), or annually (S/R) as averages	0	0	0	0	0	0
We have highly specific customer data which may be examined individually and recorded weekly (LX), monthly (SE), quarterly (LE), or annually (S/R)	0	0	0	0	0	0
The way we manage our customers <u>generally</u> is to: <ul style="list-style-type: none"> • Obtain what Customers expected benefits are when staying with us • Obtain geographic/demographic information of customers • Apply simple and easy office procedures we have • Devote/allocate time to manage our customers 	0	0	0	0	0	0
Any other? (<i>Write your response here and extent of use</i>)	0	0	0	0	0	0

Part 6. Linkages to other Strategies

The following statements refer to the way you manage your customer data in your hotel/motel.

These questions refer to the extent to which you use these strategies.

5	4	3	2	1	0
Large extent (LX)	Some extent (SE)	Uncertain (U)	Limited extent (LE)	Seldom or Rarely (S or R)	Don't Know or Can't Answer (DK or CA)

Linkages	5 (LX)	4 (SE)	3 (U)	2 (LE)	1 (S/R)	0 (DK/CA)
We link our customer data to:						
• The pricing of our Rooms (room rates)	0	0	0	0	0	0
• How much we spend on advertising	0	0	0	0	0	0
• How loyal our customers are (repeat stays)	0	0	0	0	0	0
• How much the customer spends in our hotel/motel	0	0	0	0	0	0
• Our Competitors offerings	0	0	0	0	0	0
Any other? (<i>Write your response here and extent of use</i>)	0	0	0	0	0	0

Part 7. Managing Customers Overall

The following statements refer to the way you utilise value with regard to your customers in your hotel/motel.

These questions refer to the extent to which you agree/disagree with each statement.

5	4	3	2	1	0
Strongly Agree (SA)	Agree (A)	Uncertain (U)	Disagree (D)	Strongly Disagree (S D)	Don't Know or Can't Answer (DK or CA)

Managing Customers Overall	5 (SA)	4 (A)	3 (U)	2 (DA)	1 (SD)	0 (DK/CA)
Overall, we would have a :						
• Large data base of customers (500-1000)	0	0	0	0	0	0
• Medium data base (300-500)	0	0	0	0	0	0
• Small data base (100-300)	0	0	0	0	0	0
• Non specific number recorded	0	0	0	0	0	0
Overall, we manage our customers (data) :						
• Comprehensively (each day, each week)	0	0	0	0	0	0
• Moderately (weekly, monthly)	0	0	0	0	0	0
• Sporadically or occasionally (twice a year or annually)	0	0	0	0	0	0

Part 8. Your Statistics

Please mark one box for each question.

Your Position Title (Please write)
Length of time in present job	<input type="radio"/> Less than 6 months <input type="radio"/> 6months – 1 year <input type="radio"/> 1-2 years <input type="radio"/> 3-5 years <input type="radio"/> Over 5 years
Length of employment with 'X'	<input type="radio"/> Less than 6 months <input type="radio"/> 6months – 1 year <input type="radio"/> 1-2 years <input type="radio"/> 3-5 years <input type="radio"/> Over 5 years
The section, branch or division in which you work	<input type="radio"/> Customer Service <input type="radio"/> Customer Relationship Management <input type="radio"/> Corporate Management <input type="radio"/> Data Management (of Customers) <input type="radio"/> Marketing Strategy <input type="radio"/> Sales Management <input type="radio"/> Other area(s) you would like to include
Your age (years)	<input type="radio"/> 18-30 <input type="radio"/> 31-40 <input type="radio"/> 41-50 <input type="radio"/> 51-60 <input type="radio"/> Over 60
Gender	<input type="radio"/> Male <input type="radio"/> Female
Education – highest level achieved	<input type="radio"/> High School <input type="radio"/> Post High School Certificate <input type="radio"/> Diploma <input type="radio"/> Degree <input type="radio"/> Post Graduate Diploma <input type="radio"/> Master's Degree <input type="radio"/> PhD <input type="radio"/> Other please specify
Company Size (by number of employees)	<input type="radio"/> 1-25 <input type="radio"/> 26-50 <input type="radio"/> 51-100 <input type="radio"/> 101-300 <input type="radio"/> 301-500 <input type="radio"/> Over 500

Thank you for completing this questionnaire

If you have any questions about this survey, please contact the researcher direct Mr Tony Carr, PhD candidate QUT, Brisbane (a.carr@qut.edu.au), or phone 07 3138 0600.

Attention Respondees:

Following completion and return of the survey, respondents have the opportunity to provide their email address if they are prepared to be contacted for an in-depth interview. Assurance is to the effect that their email address is not linked to their survey results.

For the implementation timing of the quantitative survey and the lengths to ensure a sufficient response rate, see next page below.

Appendix D
Timing of the Quantitative Survey and the Lengths to Ensure a Sufficient Response Rate

1. Pilot Sept/Oct/ 2010
2. Delay for full implementation in Nov/Dec 2010, was due to the Qld/NSW/Vic floods and Cyclone Yasi devastation in Qld, Jan/Feb, 2011.
3. Full Implementation Mar, 2011
Mail survey to 583 manager's in the Australian Accommodation hotels Australia-wide.
4. 90 responses returned. Apr, 2011
From this 90, 12 were unusable due to incomplete information. A further 30 were returned for the following reasons: e.g.
 - (i) receiver not known at this address,
 - (ii) receiver left address, return to sender,
 - (iii) hotel under renovation, please try again later,
 - (iv) not relevant to us. (this was because of inadvertently sending the survey to Hinterland Log Cabin and/or Rainforest Retreat style accommodation.
5. This process ended with 78 usable responses. Apr/May, 2011
Phone and email follow-up of the 'returns' were made to those considered usable and new prospects in a random selection from the master data base of 583 named hotels. 17 state-wide and interstate phone calls and 60 email requests to complete the survey on-line was done. This resulted in a further 36 acceptable responses. In total 114 responses were used in the final analysis.

From both the mail survey and on-line responses in follow-up, there was a secondary field isolated from the actual survey with a request for interview should the respondent wish to participate for the qualitative part of the research program. It was from those that responded in the affirmative where consideration was given to interview the manager of that hotel, following analysis of the survey. Interviews occurred in August 2011 and were finalised in November 2011.

Appendix E
Letter to Managers requesting an Interview and Interview Guide

Dear

Re - Hotels Interview

This is to request your (further) participation in a Queensland University of Technology (QUT) Brisbane research project in Marketing Management, which has a focus on how companies manage their customers. It is in follow-up to a survey forwarded to 500 hotels around Australia in March/April of this year, with your hotel on my list of requests to participate in. The survey data I have collected so far is aggregated, which means there is no identifier to specific hotels or respondents names. The link for the email survey is at:

<http://survey.qut.edu.au/survey/168223/fba3/>

I am now in a position to advance the research further and in doing so request your involvement in a brief interview. Whilst interview questions focus on your customers and on how you manage them, the data will again be aggregated so that no hotel names or respondents will be identified in any write-up reports. I have some pre-set questions which should take about 30-40 minutes to complete.

QUT is a highly reputable University with strong ethics standards in place. Consequently, you can be assured that all information collected and analysed will remain confidential to protect all parties involved. You would of course be a first recipient of the report and discussion findings when completed.

There is no obligation on your part to participate. Should you agree to an interview, I can work on a day and time that suits you. An email response is fine. My phone number at QUT is (07) 3138 0600 or alternatively on mobile 0414 757 610.

I would like to thank you in anticipation for your participation in this important research project. Looking forward to hearing from you shortly.

Yours sincerely,

Tony Carr

PhD Researcher,
QUT Business School,
Brisbane, Qld. 4001.

Cricos Code: 00213J

Appendix E continued

Interview questions sent to all managers (who agreed to be interviewed), prior to interview.

QUT, Brisbane Research Project: How Customers are Managed in Accommodation Hotels in Australia

Brief Overview

Customer Equity Management is the way a firm manages its customers uniformly. By definition, it advances the well-known and documented Customer Lifetime Value and Customer Relationship Management principles.

How customers are managed in accommodation hotels in Australia is the aim of this research. In order to find out how well this is done (with a view to improvement), I need to ask a series of questions to hotel managers in interview. Please complete the company information section prior to interview if possible.

Interview Questions:

A) Strategies to Acquire and Retain Customers

1. How do you acquire your customers currently?
2. What steps do you take to retain them?

B) Company Resources

1. Do you have a budget for customer acquisition and retention activities?
2. How is it used, for example budget/forecasting mechanisms in place for estimating future profit streams from existing customers?

C) Market Segmentation and Target Marketing

1. How do you categorise your customers into sections or groups?
2. What does a typical customer look like in this company?

D) Customer Data

1. How large is your customer base? Is it stable or transient?
2. Who looks after the customer data in your organisation?
3. What type of customer data is collected? This may range from very broad to highly specific
4. How is the data managed?
5. How do you know when a customer is profitable to you?
6. Are the customer data procedures (measures) you have in place at the moment working effectively?

E) Data Management and the links to A, B and C above

1. Do you link your customer data in D, to any of the elements listed in A, B or C?

F) Interaction of the Elements (A, B, C) with Customer Data (D)

1. Where you consider that there is a link with all four elements (A, B, C, D), what is the impact on the firm? This may for example be linked to retention of customers, profit expectations from sales, growth forecasts, changes made to service delivery or service offerings and the like.

Additional Information

Hotel Details

Answer and/or Comment

Name of your Hotel	
Geographical Location: City or Suburb and State	
Hotel Type – Chain or Independent Large, Medium, or Small Star Rated:	
Business Model: Acquisition (Wholly Owned Subsidiary) Lease Strata-Title	
Hotel Size by: Room numbers & Occupancy level Employee numbers (approximate);	
Average time customers spend in the hotel and average nightly dollar rate. RevPar Ranking	
Customer Type by: Name and Proportion eg 40% Executive, 40% Middle Management, 20% Leisure, or other categories eg Students, Sporting Groups, Professional/Technical Groups, Youth, Maturity, Seniors market etc.	
Types of Customer Data Collected: <input type="checkbox"/> Aggregate data (broad or general group customer data averaged managed daily, weekly, monthly etc) <input type="checkbox"/> Disaggregate data (highly specific individual customer data managed daily , weekly, monthly etc)	
Chief Competitor(s) (indicative or known)	



QUT Privacy Statement

Queensland University of Technology (QUT) Brisbane is committed to protecting your privacy and the confidentiality and security of Company and any Personal information provided by you. By completing and signing conjointly where indicated at the end of this Privacy Statement, you confirm that you have read, understand and agree to the Privacy Statement set out below and you consent to QUT's collection, use and disclosure of the information you supply as part of your involvement in this research project – “How Companies Value their Customers”.

1. Your Company and any Personal information collected by QUT for this research project is for the purposes of a systems review of the hotel and its functionality with regard to customers' and not a focus on hotel manager's and staff per se. Consequently, this is not a psychological study of human behaviour or managerial study of employees. Therefore, input into this research from yourself as manager and employees under your control are viewed as;

- a. a key company resource (conduit/facilitator) in the project;
- b. a link to the data (information) held on customers by you or your hotel employees in which any information obtained will be recorded in code only in any write-up material – ie, no personal names, biographical information, designation or position title(s) or company names will be recorded;
- c. an information specific or general source information provider that in all cases will be aggregated for a QUT published thesis and any refereed journal article(s) published subsequently; and
- d. private and confidential, whereby information obtained could not be used for the purposes of competitive advantage by respondent hotels.

2. QUT does not disclose your Company or Personal Information to external service providers to whom QUT has contracted out functions such as printers, mailing houses, IT companies and media and advertising companies, without expressed permission from you as contributor. Information may be transferred or stored outside the country where the information was collected for the purposes stated above.

3. You may access or correct any company or personal information we hold about you (subject to any applicable legal exceptions). Please contact the researcher direct on (07) 3138 0600 if you would like to access or correct the Company or Personal Information that we hold about you. There would be no fee incurred for this access.

QUT Researcher's Name
Name

Hotel Contributor's

Signed

Signed

Date

Date

Appendix F

Brief Overview of Cart and Mars modeling

Classification and Regression Trees (CART)

Introduction

Classification and Regression Tree (CART) models are an advanced tool for tree-structured analysis. CART uses a decision tree to display how data may be classified or predicted. Through a series of ‘yes/no’ questions concerning database fields, CART automatically searches for important relationships and uncovers hidden structures in complex research data.

CART is increasingly being used in medical, marketing, environment, banking and other commercial applications. In the last decade, several hundred scholarly articles have referred to the CART methodology. Because of its appropriateness, this is the reason for its use in this research.

Tree structured classifiers to analyse data goes back at least to the 1960s and has been implemented in several pieces of software, including Automatic interaction Data, (Morgan and Sonquest, 1969) and Chi Square Automatic Interaction Data (Kass, 1980). The technique offers a powerful method to assess the reliability of new data predictions and with the latest advances in CART methodology have overcome some of the early erroneous conclusions.

The authors of the original work and developers of its computational algorithms are among the world’s most highly regarded statisticians. Leo Breiman Professor of Statistics at the University of California (now retired) and Jerome Friedman is Professor of Statistics at Stanford University and Head of the Computational Research Group at the Stanford Linear Accelerator Centre. Richard Olshen is professor of Biostatistics at the Stanford University School of Medicine and Charles Stone is Professor of Statistics at the University of California, Berkeley. Consequently, their book (Breiman, Friedman, Ohlsen and Stone, 1984) on CART methodology is cornerstone and gives title to these authors as pioneers in theoretical and applied statistics and statistical computing unmatched in other data mining and machine learning tools.

CART Basics

CART is a single procedure that can be used to analyse either categorical (classification) or continuous data (regression) using the same technology. Either way, it presents its results in the form of decision trees, which is a departure from more traditional statistical analysis procedures. The tree structure of the output allows CART to handle massively complex data while producing diagrams that are easy to understand. Basically an exploratory data analysis tool, the CART method is

a highly visual communication medium and has been used as appropriate for this research.

Because CART treats all variables as numeric, the CATEGORY command is needed to identify categorical variables in this non-parametric analysis. When the dependent variable is numeric, CART grows a regression tree using an optional least squares criterion. When the dependent variable is categorical, CART grows a classification tree using the optional GINI diversity index. Unless otherwise specified, the maximum tree growth is one for no further splitting is possible, or where the terminal nodes contain fewer than 10 cases. The defaults (which can be changed) include unit misclassification for costs for classification trees and for all problems, printing of 10 trees from the sequence of trees grown, 10-fold cross validation for smaller sets and up to 5 surrogates and competitor splits at each node.

Variable Importance Measures

As one of the goals of CART is to develop a simple tree structure for data, relatively few variables may appear explicitly in the splitting criteria. This could be interpreted this to mean that the other variables are not as important in understanding or predicting the dependent variable. However, unlike a linear regression model, a variable in CART can be considered highly important even if it never appears as a primary node splitter. The reason is, CART keeps track of surrogate splits in the tree-growing process, and as such the contribution a variable can make in prediction is not determined only by primary splits. The phenomenon of one variable hiding the significance of another is known as *masking* and is addressed in CART's Variable Importance (VI) measures in the 13 Tables produced for this research as shown in Chapter 4.

To calculate the VI scores, CART looks at the improvement measure attributable to each variable in its role as a surrogate to the primary split. The values of these improvements are summed over each node and totalled and are then scaled relative to the best performing variable. The variable with the highest sum of improvements is scored 100, with all other variables having lower scores ranging downwards towards zero.

In conclusion of the CART Variable Importance measures and rankings, it needs to be understood as being tied to and relative to the tree. Any changes to a tree by removing or adding a variable could result in a completely different tree and substantial reshuffling of the rankings of the remaining variables. One interpretation of the variable importance list is that it simply reveals the degree of masking in the tree. If a variable is important, but is not used in any primary splits, then it is being masked by other variables. Breiman, Friedman, Olshen and Stone (1984) caution about placing too much emphasis on these rankings, pointing out that rankings can be quite sensitive to any random fluctuations in the data.

Multiple Adaptive Regression Splines (MARS)

Introduction

A problem common to many disciplines is that of adequately approximating a function of several variables to many variables, given only the value of the function (often influenced by noise) at various points in the dependent variable space. Research on this problem occurs in applied mathematics (multivariate function approximation), statistics (non-parametric multiple regression) and in computer science and engineering (statistical learning neural networks).

Multiple Adaptive Regression Splines (MARS) is a method for flexible modeling of high dimensional data. The model takes the form of an expansion in product spline basis functions, where the number of *Basis* functions as well as the parameters associated with each one (product degree and knot locations) are automatically determined by the data. This procedure is motivated by the recursive partitioning approach to regression and shares its attractive properties. Unlike recursive partitioning, however, this method produces more power and flexibility to model relationships that are nearly additive or involve interactions in at most a few variables. In addition, the model can be represented in a form that separately identifies the additive contributions and those associated with the different multivariate interaction, (Friedman, 1991).

The goal is to model the dependence of a response variable Y on one or more predictor variables x_1, \dots, x_n given realisations (data) $\{y_i, x_{i1}, \dots, x_{in}\}_{N_1}$. The system that generated the data is presumed to be described by:

$$y = f(x_1, \dots, x_n) + \epsilon$$

over the domain of the $(x_1, \dots, x_n) \in D \subset R^n$ containing the data.

Existing Methodology

In global parametric modelling, function approximation in high dimensional settings by and large are used in statistics. Non-parametric modelling in low dimensional settings is successfully generalised using three paradigms-piecewise, local parametric fitting and roughness penalty. In high dimensional settings, adaptive computation is used. An adaptive computation is one that dynamically adjusts its strategy to take into account the behaviour of the function to be approximated, (Lyness, 1970; Friedman and Wright, 1981).

Much of the discussion from here on Recursive Partitioning Regression and the Multivariate Adaptive Regression Splines is located in chapter four which shows the calculations and results in each CART case presented.

Methodological Issues

Global parametric modelling can be very accurate and efficient vis-a-vis their data use. Their weaknesses include vulnerability to outliers and subtleties missed by the researcher. Parametric modelling such as linear and logistic regression, while relatively easy and quick to compute, are only accurate if the specified model is a reasonable approximation to the true underlying function. Typical parametric models have limited flexibility, usually performing best when simple. Further extensions to model specification, such as polynomials in predictors, can mistrack. If the true function is sufficiently complex, a good approximation may, in reality, be impossible, Friedman (1991).

By contrast, local nonparametric models (as is the case in this research) require a simplification or summary of the data. Smoothing is one such technique. For example, one objective in this research program is to summarise how a target variable (e.g. Chain, Independent or Resort hotel) behaves in a small region of data containing low values of x_1 variables, (i.e. value customers, volume customers, repeat stay and loyalty customers). In this case, a single value for this region can be used, or a curve, surface or regression can be fitted. Then, developing a separate summary in the remaining regions of x_1 , predictor space paints a picture illustrating how y behaves in the entire region of x_1 values. Painting the complete picture required some cross-regional smoothing to join the functions in the neighbouring regions. (Mars Manual, p.11)

The goal of non-parametric modelling is to predict Y as a function of x . To estimate the expected value of Y for this research, data records with a specific set of x 's were available. If too few data points had been available the researcher would have been forced to make do with data points that are 'close'. Data points which are not quite close can be down-weighted, but this technique introduces bias and raises questions about how far x 's be used and down-weighted. This research avoided these issues. (Mars Manual, p. 12)

Bias-variance trade-off. Global parametric models tend to be stable but biased, whereas complex local non-parametric models tend to have the reverse properties – given that the localisation is faithful to the data and thus minimises bias. The challenge, however is to find the optimal balance between bias and variance (ie, to minimise mean squared error - MSE). In this research there were observations of the largest pool of responses emanating from the eastern seaboard of Australia. The researcher is estimating the impact of CE management decisions in hotels located in Perth, WA with that of the other states of Australia. Because of the fewer observations that were available from Canberra and the Northern Territory, the

researcher was unable to expand the survey to include those states. Given the restrictions, the data are perhaps less relevant, but were used in the absence of any other information.

Fatal flaw in Nonparametric Modelling: The curse of dimensionality.

Most of the research in fully-nonparametric models focuses on functions with 1, 2 or 3 predictor variables. In *Multivariate Density Estimation*, Scott (2009) suggests a practical limit of five dimensions. More recent work may have pushed this up to eight dimensions, but attempting to use these ideas directly in the context of most market research or data mining contexts is hopeless, (Friedman, 1991).

For example, suppose we decide to look at only two regions for each variable in a database, values below average and values above average. Given two predictors, four regions will need to be investigated: low/low, low/high, high/low, and high/high. Similarly, with three variables, eight regions will need to be investigated, with 4 variables, 16 regions, etc. Now consider 35 predictor variables – even with only two intervals per variable, 2^{35} (or 34 billion) regions, most of which will be empty, will need to be examined!

Given the number of records in most data sets, it is feasible to approximate the function $y = f(x)$ by summarising y in each distinct region of x . For some variables, two regions may not be enough to track the specifics of the function. If the relationship of y to some x 's is different in 3 or 4 regions, for example, the number of regions requiring examination is even larger than 34 billion with only 35 variables. Given that the number of regions cannot be specified a priori, specifying too few regions in advance can have serious implications for the final model. A solution is needed that accomplishes the following two criteria:

- » Judicious selection of which regions to look at and their boundaries; and
- » Judicious determination of how many intervals are needed for each variable. (e.g. if a function is very 'squiggly' in a certain region, many intervals are required, whereas if a function is a straight line, only one interval is needed).

Given these two criteria, a successful method will essentially need to be ADAPTIVE to the characteristics of the data. Such a solution will probably ignore quite a few variables (affecting variable selection) and will take into account only a few variables at a time (also reducing the number of regions). Even if the method selects 30 variables for the model, it will not look at all 30 simultaneously. Such simplification is accomplished by a decision tree – at a single node, only ancestor splits are being considered; thus, at a depth of six levels in the tree, only six variables are being used to define the node.

Epilogue

Discussed at length by Friedman, (1991) are several related issues. They are:
Lack of Continuity – as a limitation on recursive partitioning, p.13;

Further generalisation – due to its inability to provide good approximations to certain classes of simple often occurring functions, i.e. where there are no strong interaction effects, p.14;

MARS algorithms – Algorithm 2 implements the stepwise part of the MARS strategy by incorporating the modifications to recursive partitioning in Algorithm 1. Algorithm 3 constructs a sequence $M_{\max} - 1$ models, each one having one less Basis function than the previous one in the sequence. The best model in this sequence is returned (in J^*) upon termination, pp16-18;

ANOVA decomposition, the result of applying Algorithms 2 and 3 is discussed in model form, p.18;

Model selection – among the issues addressed in MARS procedures are lack-of-fit criterion, p.19; degree of continuity, p.22; knot optimisation, p.24, and computational considerations, p.28.

Summary of MARS features

- Is data driven rather than user driven.
- The data dictates the functional form.

In CART and MARS they automatically determine both variable selection and functional form.

Important is not to be overly data driven. A priori knowledge is very valuable and can help shape a model when several alterations are all consistent with the data.

Predictive accuracy (validity) is one criterion, but the use of data generation for telling a story and use the insights to make decisions (decision tree or regression model) can be used to yield results that represent the data and to assist in understanding the underlying patterns and relationships.

x = independent variable(s) can be thought of as approximating the generic function, $Y=f(x) + \text{noise}$.

Challenges: The Researcher's task, to accurately predict y given some variable x , can be thought of as approximating the generic function, $y = f(x) + \text{noise}$. In tackling this task, the primary challenges are on deciding the predictor (independent) variables; how they combine to generate y ; the underlying functional form for each predictor, e.g. log, square root, power, inverse, S-shape; interaction terms and what degree of interaction is required.

Conclusion

The aim of the MARS procedure is to combine recursive partitioning and spline fitting in a way that best retains the positive aspects of both, while being less vulnerable to their unfavourable properties. The greatest strength of recursive partitioning is its adaptability through its *local* variable subset selection strategy. This makes it a highly dynamic computation mechanism, capable of tracking the dependencies associated with a wide variety of complex functional forms.

Two weaknesses of recursive partitioning are the lack of continuity of its models and its inability to capture simple relationships such as linear additive or interactions of low order compared to n . A lot of the earlier problems to do with dimensionality, splitting rules, interpretability and more have been addressed since inception. Experience in its use will increase the optimal use and performance of the procedure. The attempt to show use of MARS tools in this study, demonstrates the strategy capabilities which holds substantial promise as a tool in further multivariate estimation research models.

Quick source reference for this discussion:

Breiman, L., Friedman, J. Olshen, R.A. and Stone, C.J. (1984), *Classification and Regression Trees*, Wadsworth & Brooks/Cole, Pacific Grove, CA.

CART Manual, (2001). Tree Structured Non-Parametric Data Analysis, Salford Systems, CA.

Friedman, J. (1991). Multivariate Adaptive Regression Splines, *The Annals of Statistics*, 19 (1) 1-67.

MARS Manual, (2001). Multiple Adaptive Regression Splines, Salford Systems, CA.

Appendix G

Discussion of the variables: Value, Volume, Repeat Stay & Loyalty (VVRL)

Value and Volume Variables which relate to Customer Acquisition Strategies

Value Customers (Value1 High Order or Value2 Low Order Emphasis)

Variable description

Rationale

<p>Intermediate/Advanced CE data management involves specific hotel survey and firm-customer contacts to obtain:</p> <ul style="list-style-type: none"> *Segment3 Demographic/ Geographic customer information *Segment4 Customer Needs and Wants *Segment5 Psychographic aspects- lifestyles *DataManage3 Behavioural aspects of Service Delivery <p>Baseline/ CE data management</p> <ul style="list-style-type: none"> *Retain1 focus on customer Acquisition 	<p style="text-align: center;"><i>High Order Value Customers</i></p> <p>Hotels in this category show high to very high order use of customer-firm market segmentation levels of disaggregated CE data management and techniques. This gives indicators of a specialised or niche market (not necessarily a small market). Other connotations include selectivity based on a specialisation and possibly some exclusivity.</p> <p style="text-align: center;"><i>Low Order Value Customers</i></p> <p>Hotels in this category show high to very high order use of baseline levels of CE data management (segment level marketing). Low value order CE is not symptomatic of no value order. Factors that come into play with regard to low value CE management practices are:</p> <ul style="list-style-type: none"> • Ease with which to manage customers in the Hotel e.g. no frills • Lower costs of maintaining services and customer satisfaction • Off the radar competitively
---	--

Volume Customers (Volume1 High Order or Volume2 Low Order Emphasis)

Variable description

Rationale

<p>Highly specific customer data + medium to large data base of customers between 300-500 and 500-1000 managed daily, weekly = comprehensively managed</p> <p>Requires Intermediate/Advanced levels of CE data</p> <ul style="list-style-type: none"> * Resources1 separate budgets * Resources 2 same budget * DataManage4 Geog/Demographic * DataManage5 Office procedures * Data Manage 6 Allocate time <p>Non-specific customer data + a small data base of customers between 100-300 managed twice a year or annually = moderately managed</p> <p>Requires Baseline levels of CE data</p> <ul style="list-style-type: none"> *Resources 3 No particular budget *Linkages1 Room Rates Pricing *Linkages4 Customer Spend *Linkages5 Competitors offerings 	<p style="text-align: center;"><i>High Order Volume Customers</i></p> <p>Hotels in this category show a concern for managing high volume customers. Establishing and maintaining a large data base of customers assists with business sustainability. Shows evidence of effective resource utilisation and management. Links to turnover. This model appeals to a mass market more than a specialised market.</p> <p style="text-align: center;"><i>Low Order Volume Customers</i></p> <p>Hotels in this category show a concern for managing low volume customers. Establishing and maintaining a small data base of customers is characterised by special needs of the business, e.g. small business, location advantage. Specific needs of the customer may also apply, e.g. proximity to other services such as hospitals, schools, army barracks etc. This model appeals to a specialised or niche market, more than a mass market.</p>
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(to combat and reduce the defect rate and churn rate (lost customers))

Repeat and Loyal Variables which relate to Customer Retention Strategies

Repeat Customers (Repeat1 Strong or Repeat2 Weak)

Variable description

Rationale

<p>Acquiring customers for retention purposes = Intermediate levels of CE data CE Strategies CE & data techniques involved from the survey for retention purposes = * Acq1 Direct & on-line * Acq2 Media Advertising * Acq3 Sales Promotion * Acq4 Word-of-Mouth advertising * Ret2 Retention through price/quality</p> <p>Acquisition without retention = Baseline levels of CE data</p>	<p>Hotels in this category show a strong to weak concern for customer acquisition which leads to retention. By implication retention focuses on customer satisfaction. Acquiring and retaining a customer for satisfaction purposes does not make them a loyal customer of the hotel.</p> <p>There is a great deal of difference between satisfaction and loyalty. Companies which aim for satisfaction without also pursuing loyalty have been said to fall into the 'satisfaction trap', (Kotler, 2007:47). In a report by Reichheld and Sasser (1990), reducing customer defections by only 5% can improve profits anywhere from 25% -85%. In another example, repeat customers spent twice as much in 24-30 months of their relationships as they did in their first six months (Reichheld and Schefter, 2000).</p>
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Loyal Customers (Loyalty1 Strong or Loyalty2 Weak)

Variable description

Rationale

<p>Acquiring customers for loyalty purposes = Intermediate/Advanced levels of CE data CE strategies & data techniques involved from the survey for retention purposes = * Segment1 Customer Profiling with data mining * Segment 2 Spend rate– size and share of wallet known * Datamange2 highly specific customer data * Linkages2 Advertising spend * Linkages3 strength indicator of Loyal customers</p>	<p>Hotels in this category show a strong to weak concern for both customer satisfaction and loyalty. As satisfaction increases, so does loyalty. In one study of highly competitive markets, there is surprisingly little difference between the loyalty of less satisfied customers and those who are merely satisfied.</p> <p>However, there is great difference between the loyalty of satisfied customers and completely satisfied customers, (Kotler, 2007:48). Even a slight drop from complete satisfaction can create an enormous drop in loyalty.</p>
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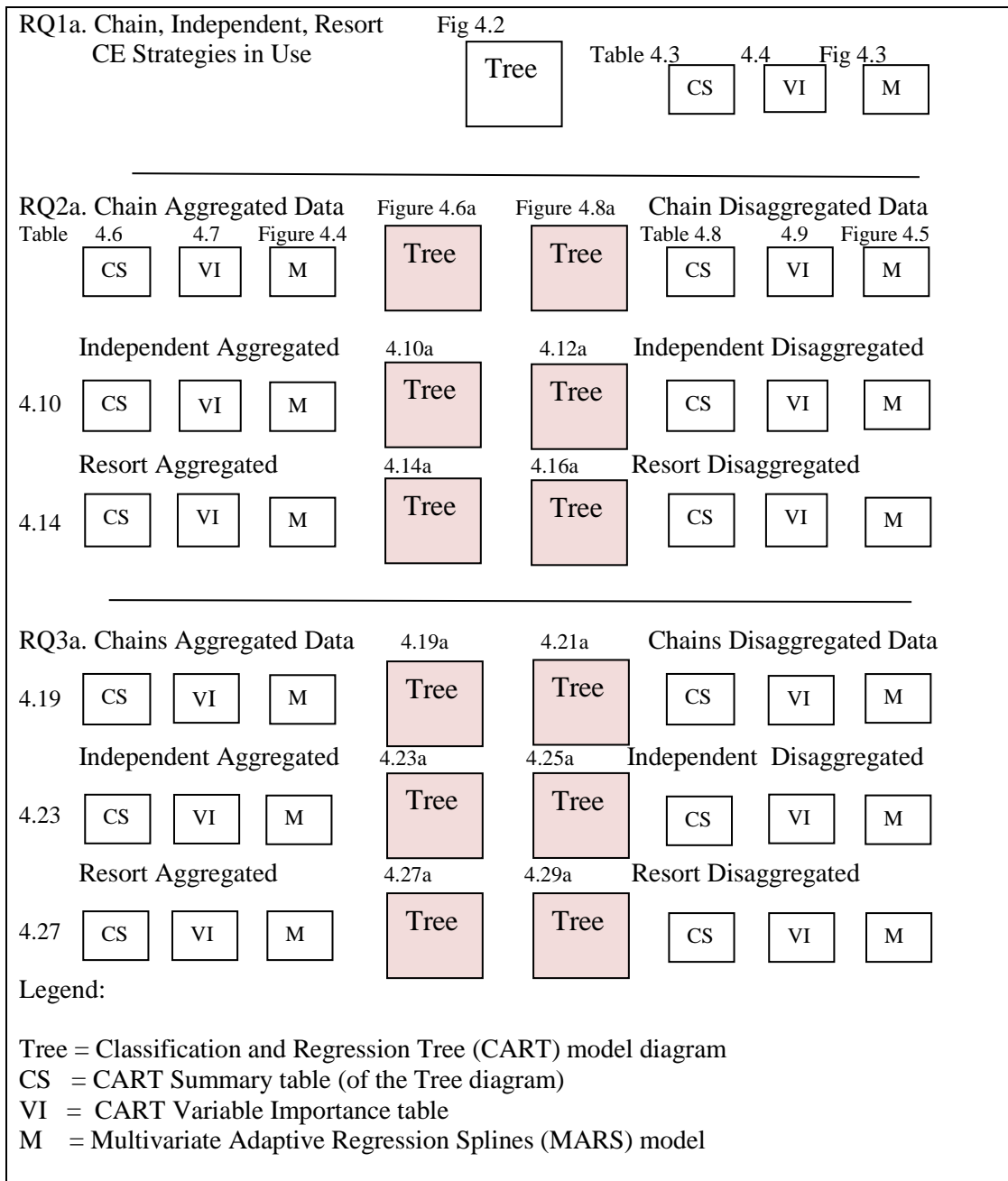
Source: Produced for this Research

Appendix H

CART Diagrams on RQ2 and RQ3 for the Chain, Independent and Resort Hotels

There are 12 CART models with tree structured classifiers that show the variables examined in the thesis visually represented here. All diagrams showing results for RQ1 were detailed first in the thesis as shown by the non-shaded areas in the table below (reproduced from Table 4.2). The 12 remaining shaded trees are located here in visual representation only with discussion of each Tree in CART summary (CS) tables, CART Variable Importance (VI) tables and MARS (M) models in each case as shown below in the thesis.

The CART diagrams presented here are the tree structured classifiers discussed in the same way as those in the CS tables in the thesis, that is node1 the top most important node first, down to where there is no further support for the variables, the terminal node. Each tree diagram here is placed in alignment with its thesis “partner”. For example, CS Table 4.6 in the thesis for the Chain hotels with aggregated data aligns with Figure 4.6a here. Similarly, CS Table 4.8 for the Chain hotels with disaggregated data in the text aligns with Figure 4.8a here. This process continues for all 12 trees as listed.



The first illustration shows Figure 4.6a for the Chain hotels with Aggregated data followed by Figure 4.8a for the Chain hotels with Disaggregated data.

Figure 4.6a CART Analysis RQ2a Chain Hotels: Aggregated data

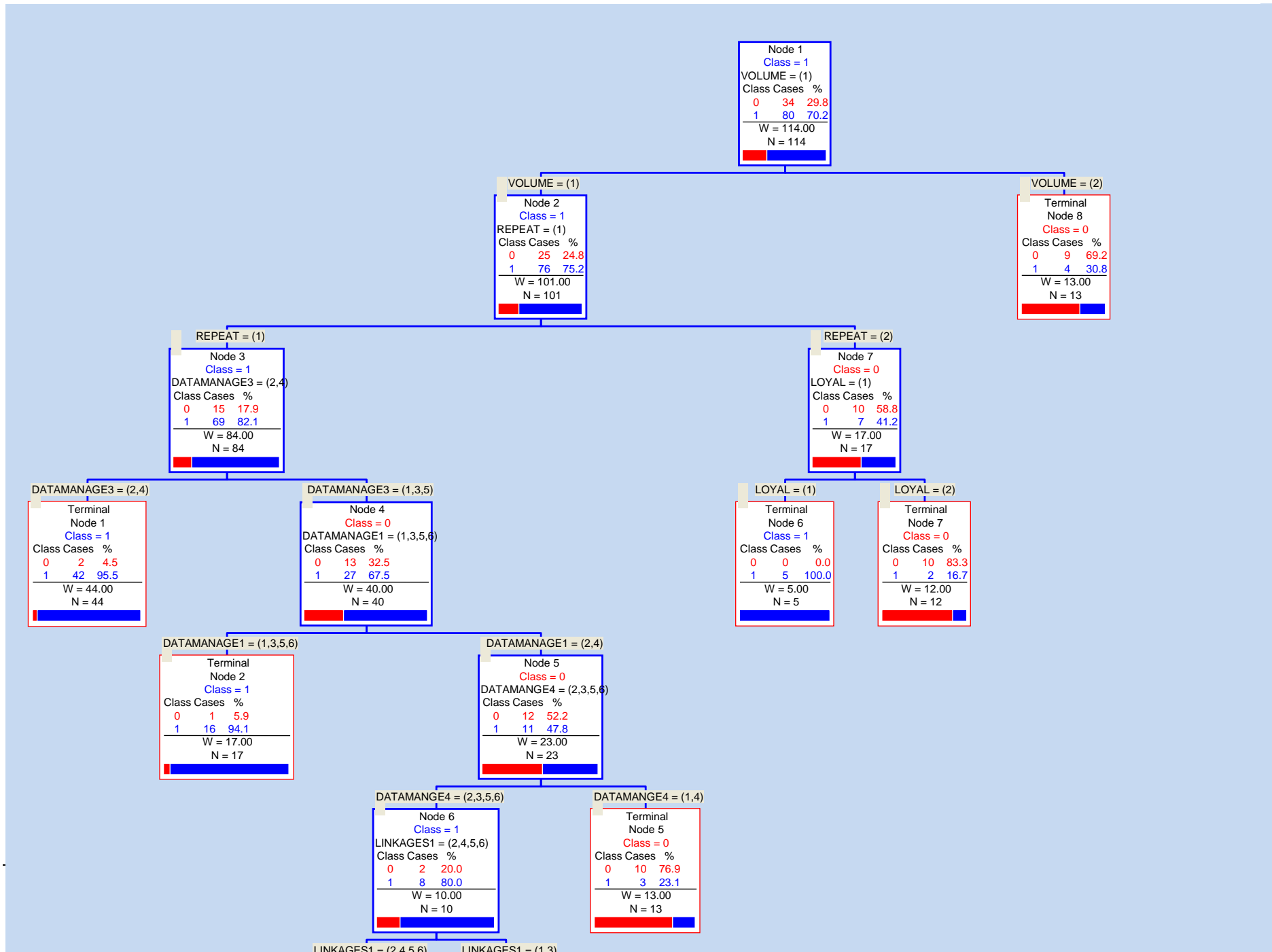


Figure 4.8a CART Analysis RQ2a Chain Hotels: Disaggregated Data

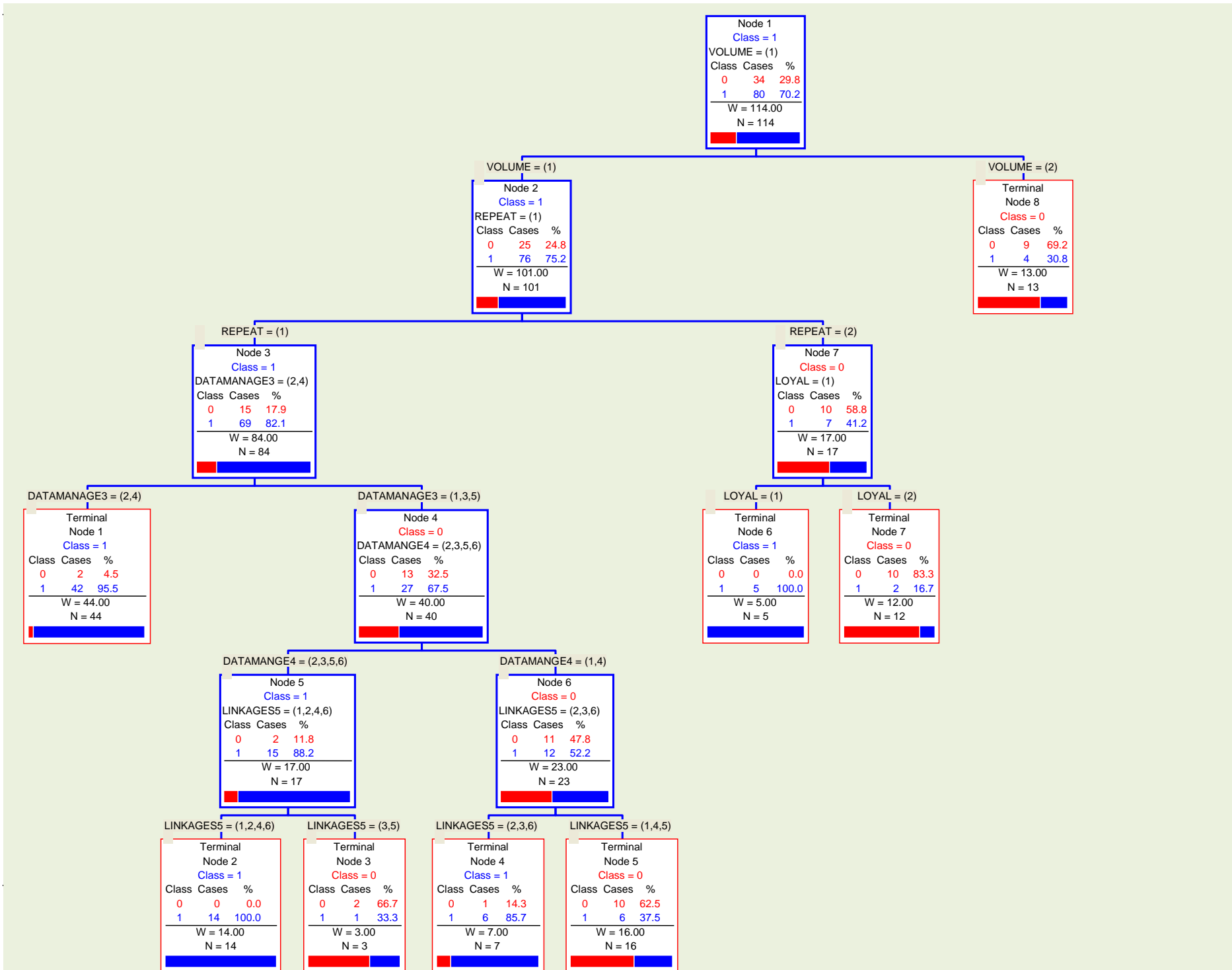


Figure 4.10a CART Analysis RQ2a Independent Hotels: Aggregated Data

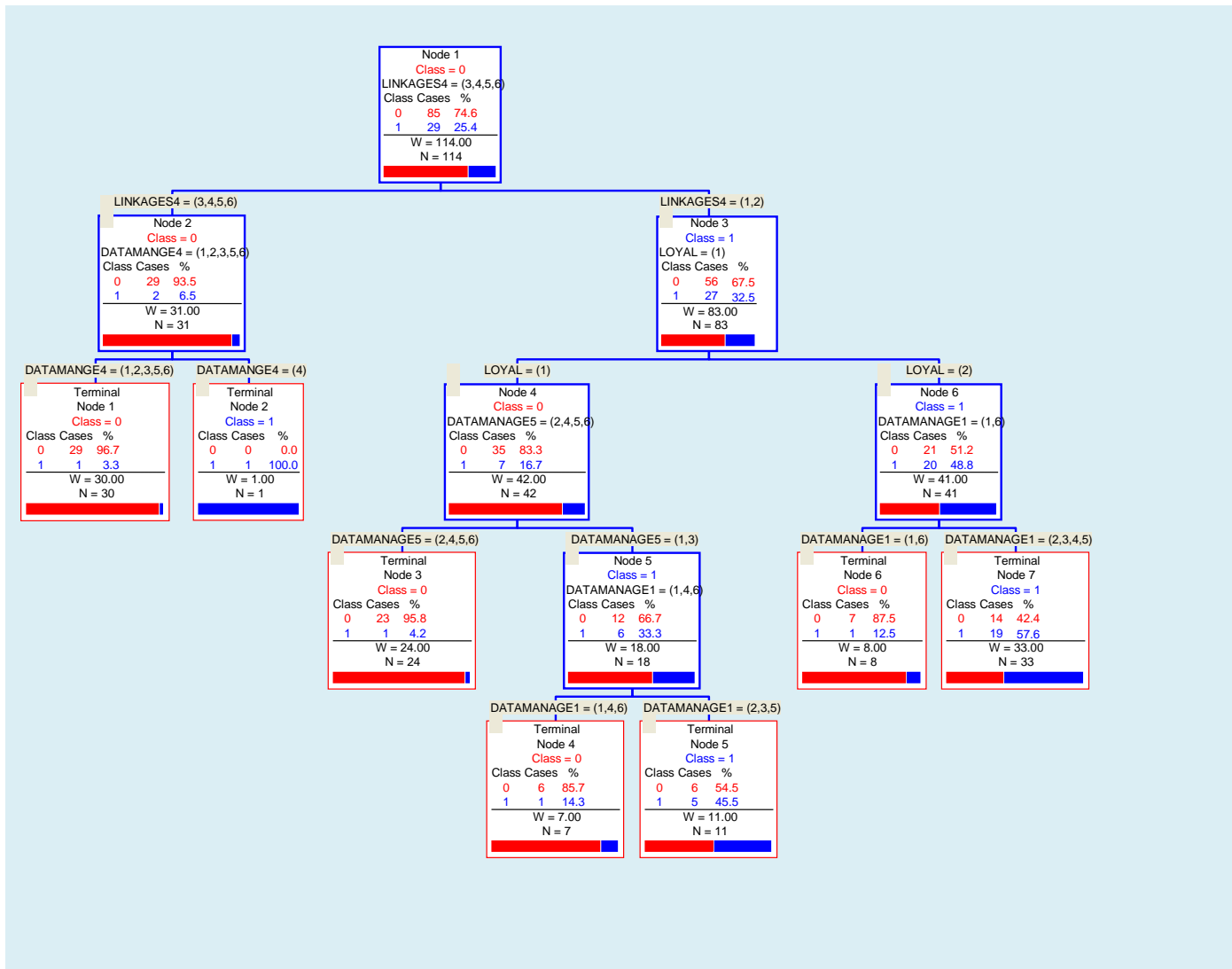


Figure 4.12a CART Analysis RQ2a Independent Hotels: Disaggregated Data

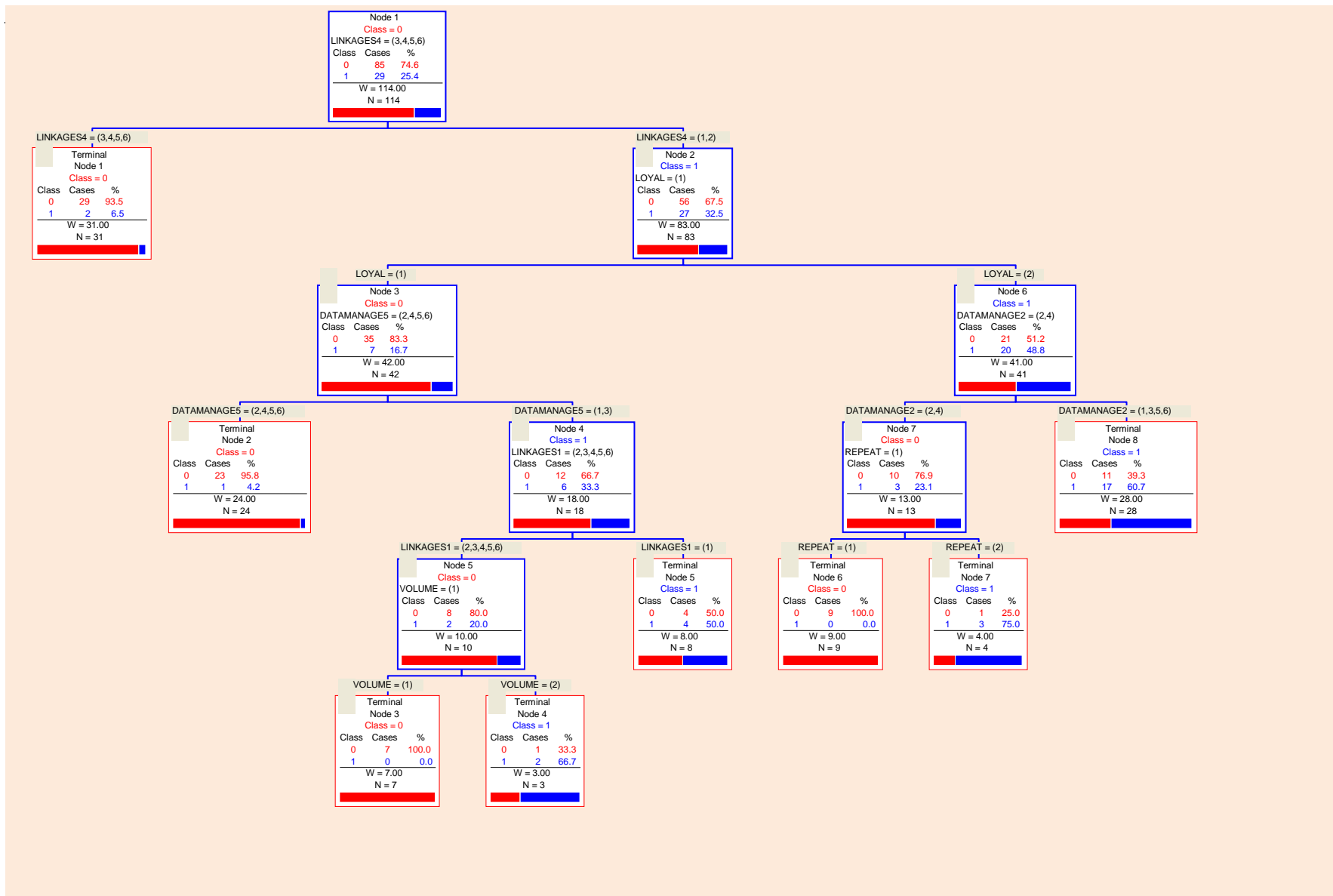


Figure 4.14a CART Analysis on RQ2a Resort Hotels: Aggregated Data

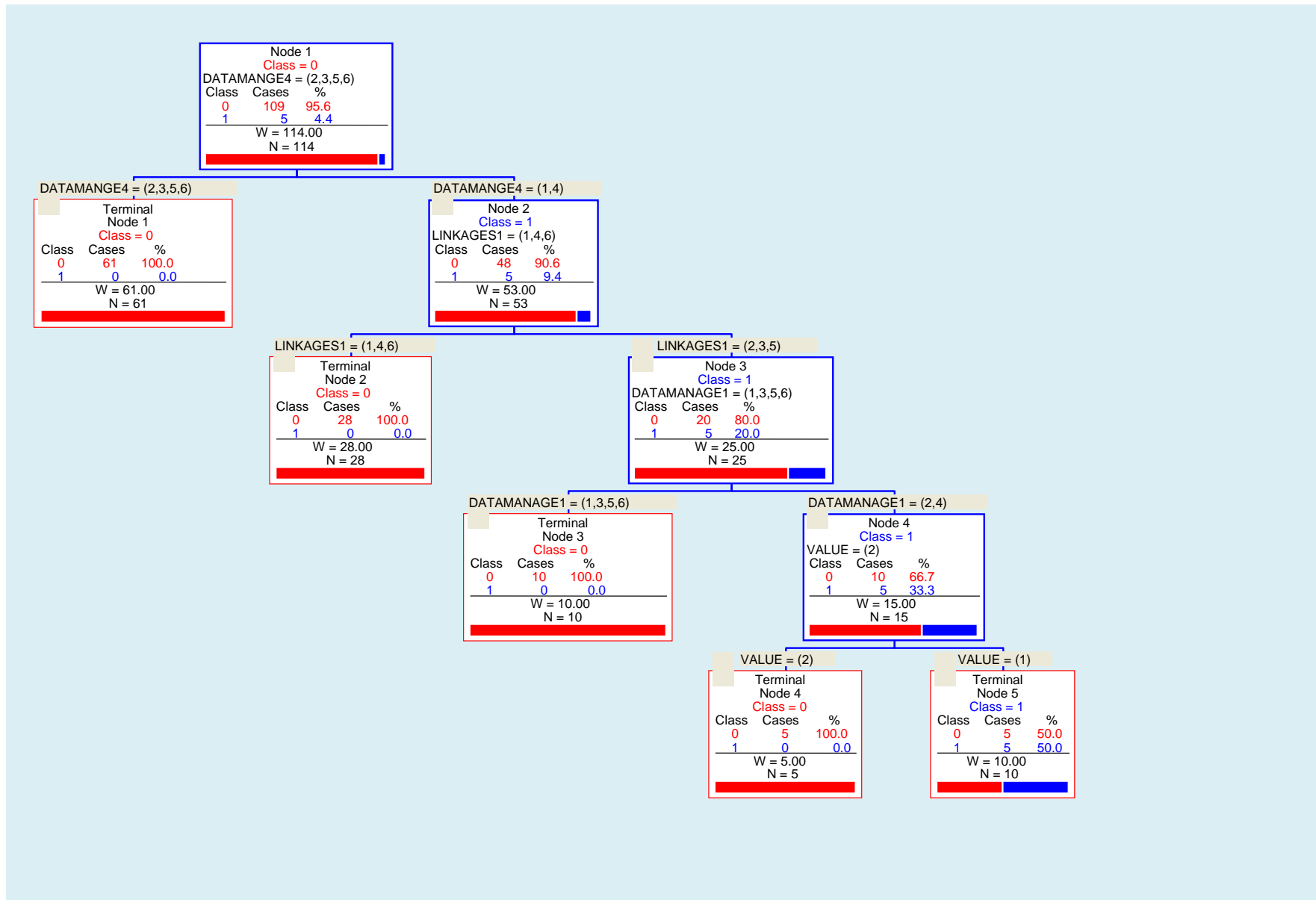


Figure 4.16a CART Analysis on RQ2a Resort Hotels: Disaggregated Data

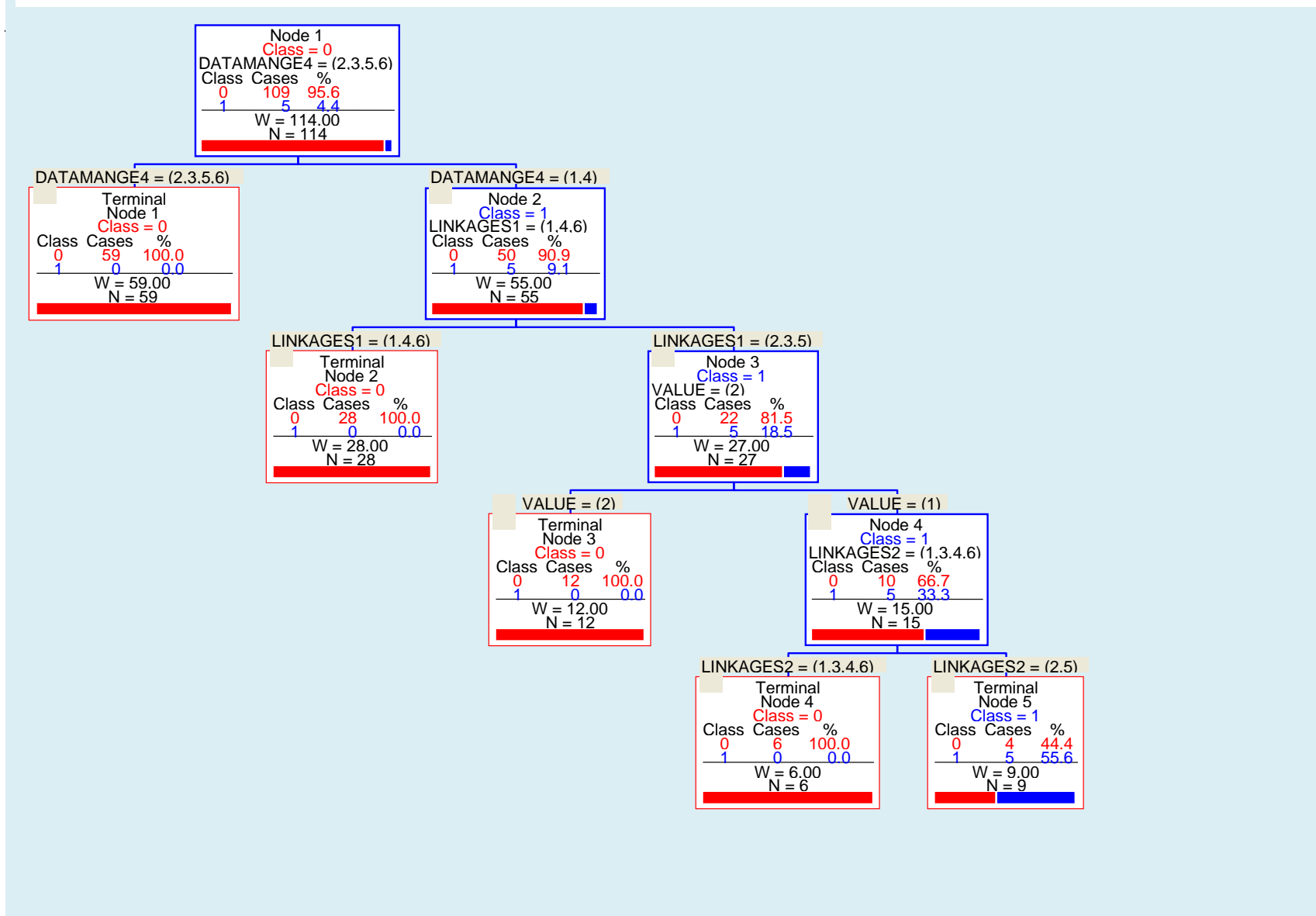


Figure 4.19a CART Analysis on RQ3a Chain Hotels: Aggregated Data

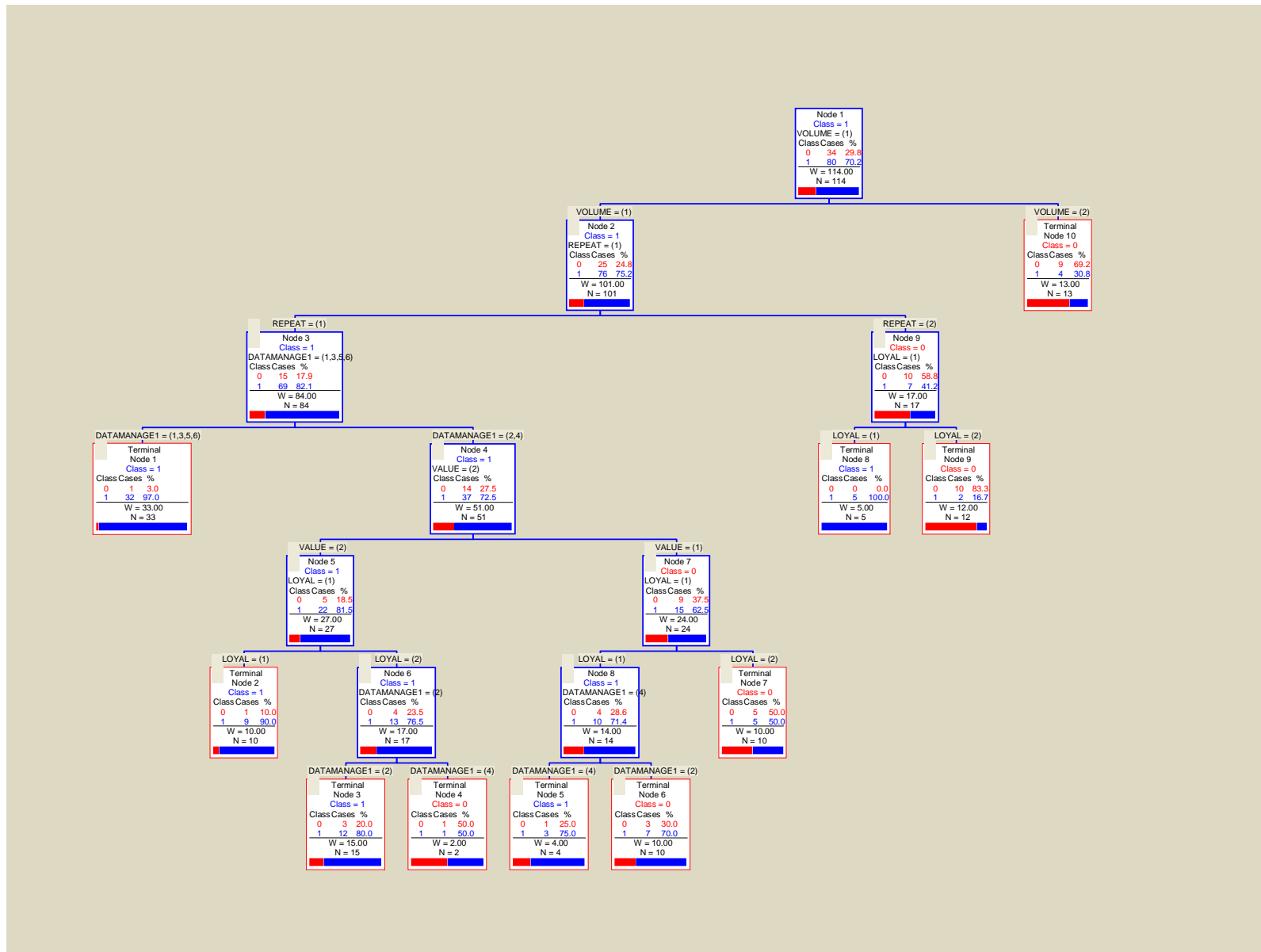


Figure 4.21a CART Analysis on RQ3a Chain Hotels: Disaggregated Data

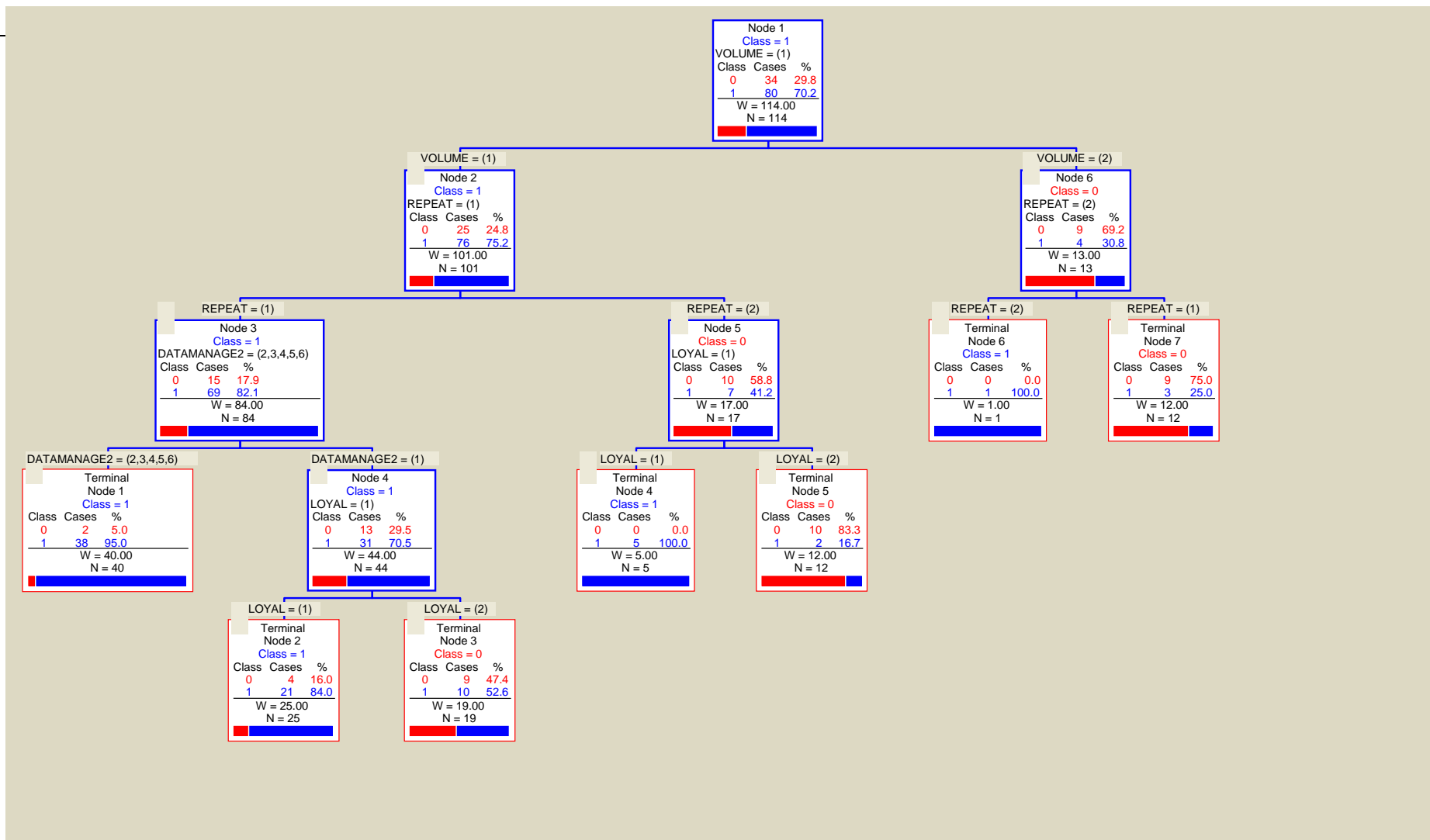


Figure 4.23a. CART Analysis on RQ3a Independent Hotels: Aggregated Data

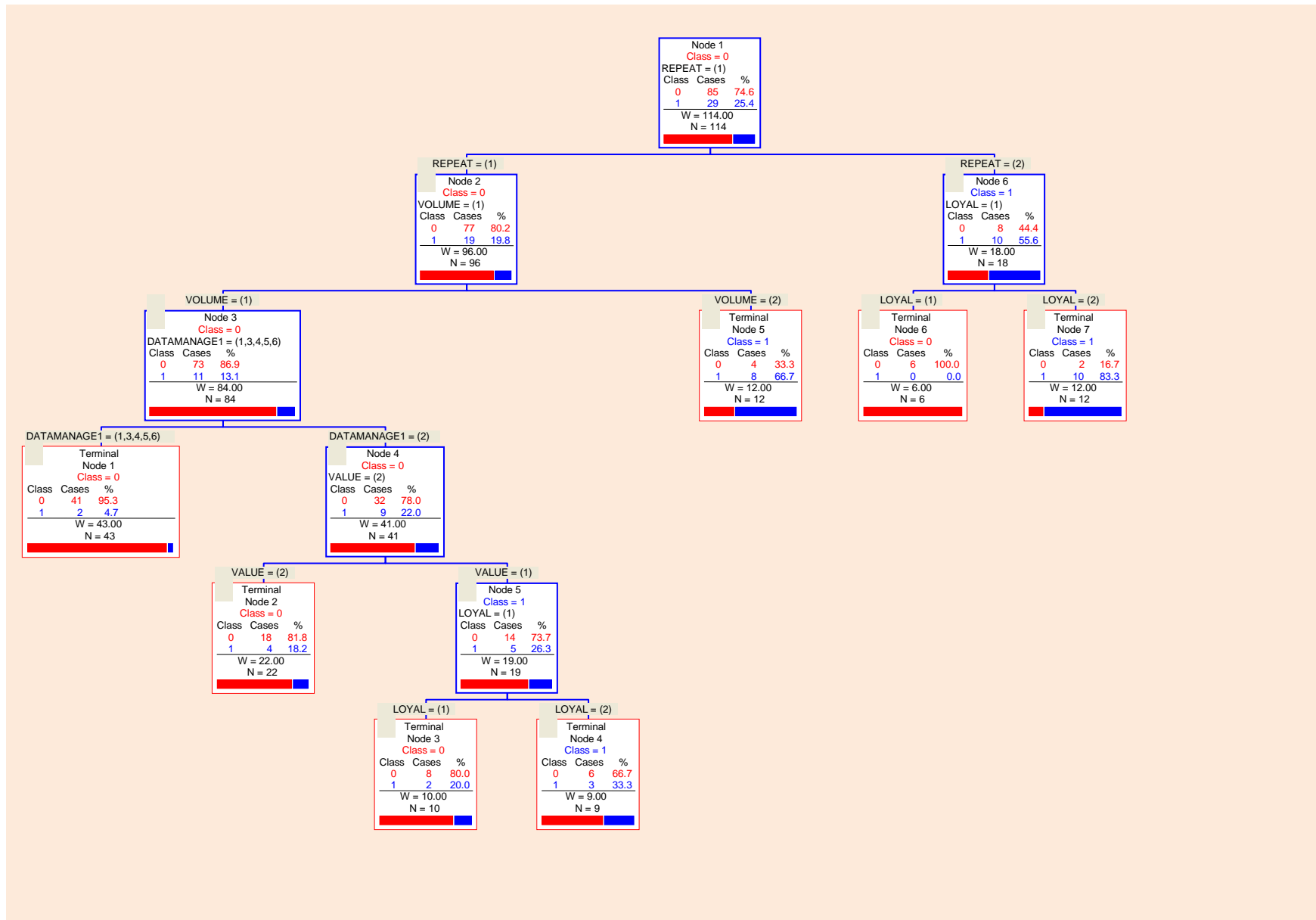


Figure 4.25a. CART Analysis RQ3 Independent Hotels: Disaggregated Data

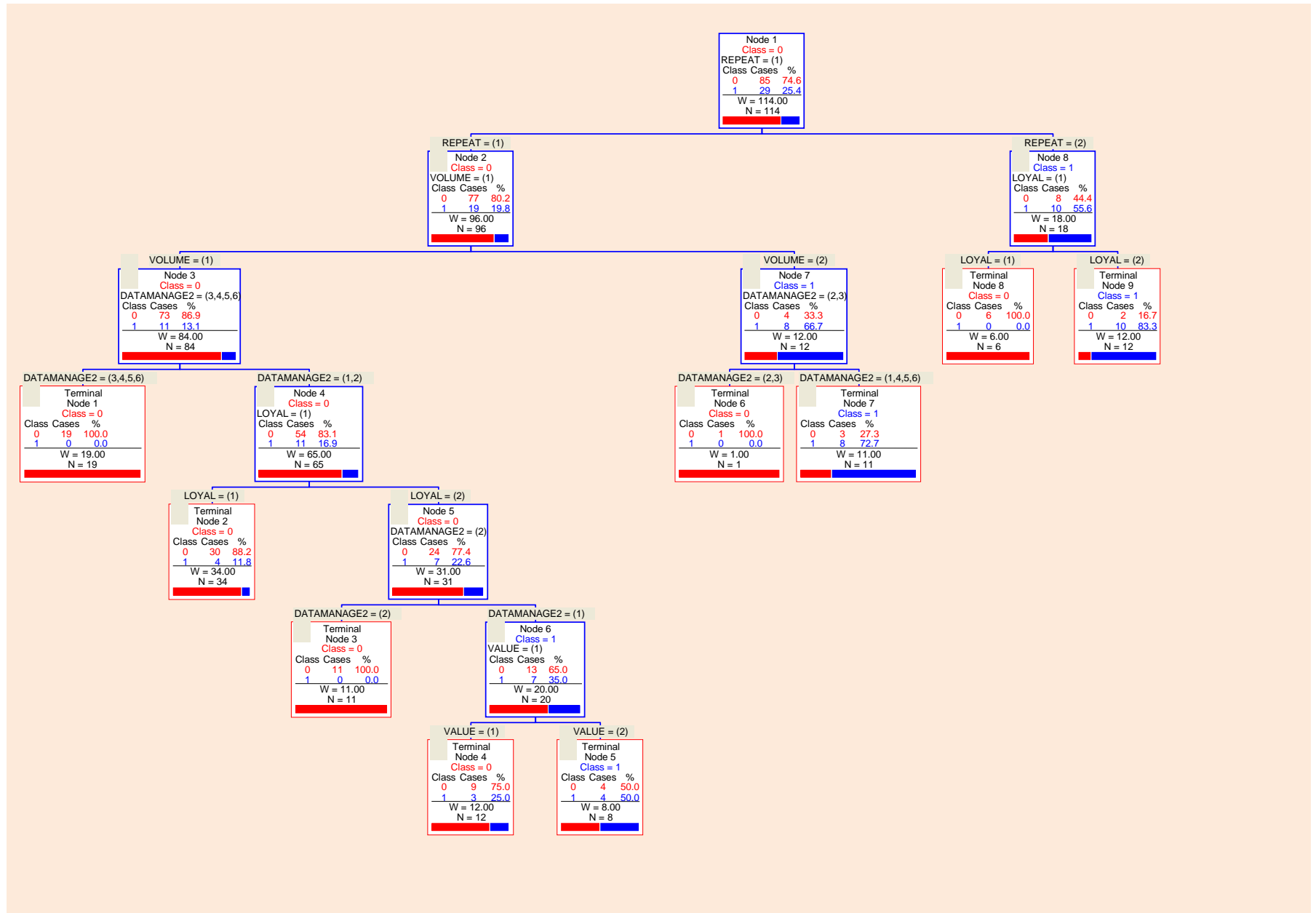


Figure 4.27a. CART Analysis RQ3a Resort Hotels: Aggregated Data

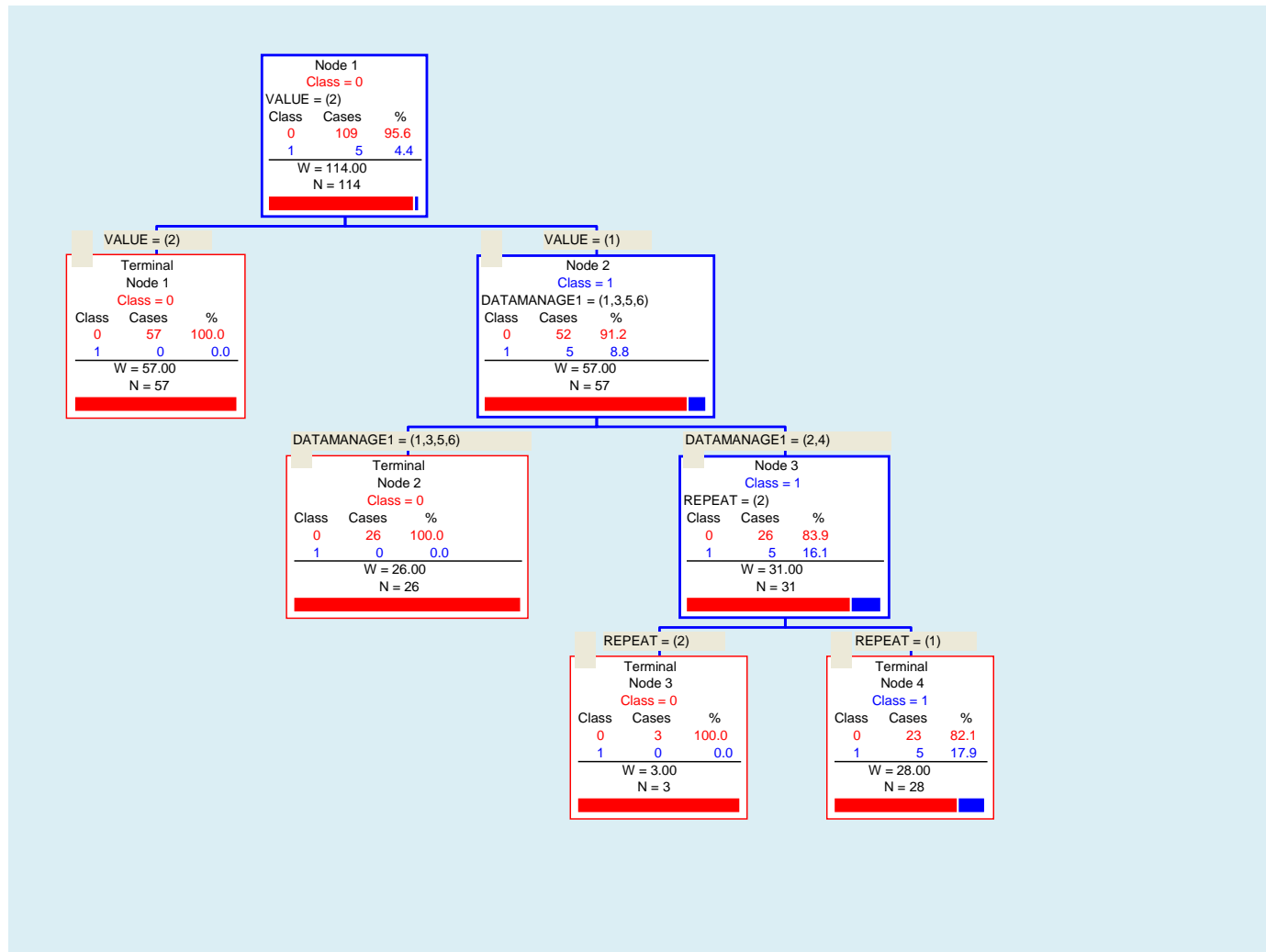
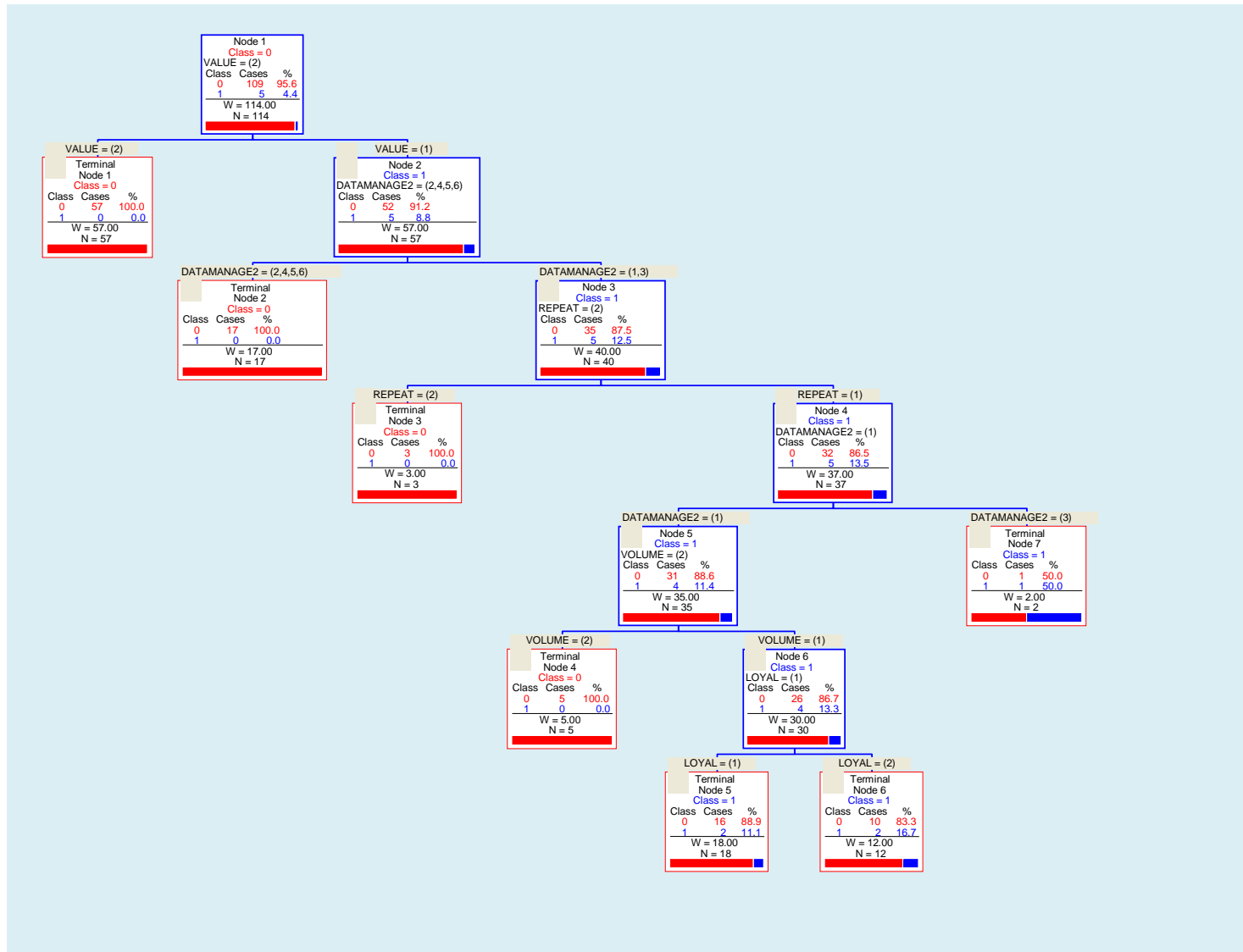


Figure 4.29 a CART Analysis RQ3a Resort Hotels: Disaggregated Data



Appendix I

RevPar and its use in Accommodation Hotels Management

With Cost/Plus pricing, the fixed and variable costs of a room are estimated to be worth say \$100 per room per night. RevPar then becomes the \$100 per room rate x occupier rate x 6 or 12 months period of occupancy as the benchmark standard to achieve. A given example, evidenced in interview follows:

Say 250 rooms were let from 500 on offer last night. This means a 50% occupancy was achieved. Each room was let for an average of \$100 = \$25,000 revenue. Each day of each week the RevPar can be recorded, but the hotel needs to be careful in reporting the results over 6 or 12 months as averages, as this data transfers into Gross Operating Profit. The hotel in this example recorded an 87% occupancy rate March to September 2011, with Easter and Christmas the weakest part of the year, (Chain-International/4).

There are more deeper precise calculations conducted given the level(s) of operating within the hotels. For example, in the Woodworth and Walls (2009) study, they did a comparison of New York City hotels RevPar performance perspectives with that of hotels in Atlanta. To establish a comparison between the two cities, they first assessed information in inflation-adjusted (real) terms. This allowed for accurate understanding of prices in different time frames. Next, they needed to look at market differences for example real RevPar change for the two cities. They found that New York City was expected to lose 30.8 percent of its real RevPar in 2009, compared to 16 percent in Atlanta. On face value it appeared that New York City was worse off. In raw percentages, this assessment is correct.

However, when they analysed the relative movement in real RevPar values compared to the market's actual history from 1998-2008, it revealed a different outcome. In their assessment, they used a calculation with a z statistic (analogous to the z -score in the field of statistics), where:

$$z - \text{statistic}_{\text{Real Rev PAR}} = \frac{\text{Real RevPAR Level}_n - \text{Average Real RevPAR Level}_{1988-2008}}{\text{Standard Deviation of Real RevPAR Levels}_{1988-2008}}$$

The symbol n was the period they were evaluating. In practical usage, the standard deviation scores (z) range from -3 through to + 3. If z scores are used, the total area under the curve is set equal to 1.00 and the curve is said to be in standard form, (Davis and Cosenza, 1985). Consequently, in the Woodworth and Walls (2009) study, the real RevPar in 2009 in Atlanta with its 16 percent decline was so far out of the ordinary for that market, it achieved a z -statistic of -2.18, whereas in New York City's 30.8 percent decline yields a -0.57 z -statistic. This level of RevPar analysis was not canvassed in interview. However, with discussion in post interview with two hotels that use the highest form of disaggregated data and have separate teams for customer acquisition and retention, they did not demonstrate use of RevPar to the degree illustrated in the Woodworth and Walls (2009) study.

Appendix J Thesis Contributions for Theory, Methodology and Practice

The thesis contributions in summary are as follows:

Contributions to Theory – Phase One research

1. Two discrete areas of difference, namely CLV and CRM, known more contemporaneously as CE, were uniquely examined in combination, which is shown contributes greatly to the research on CEM.
2. The theory of CE was defined specifically for the research in this thesis as the conceptual framework combined both CLV measurement and CRM value or worth aspects to the company in the formula.
3. Careful selection of the marketing variables that comprise the CE strategies and customer data types, that were used in the Phase One - quantitative survey, were framed in a unique way – not unlike an experimental design; that which examined the variables uniformly and consistently.
4. Individual managerial findings from the Phase One survey were taken up to a synthesised level, in a VVRL matrix developed, which examines the extent of use of the data (aggregate and disaggregate customer data) and shows how the CE strategies can be managed in an integrated context to achieve holistic CE outcomes.

Contributions to Theory- Phase Two research

1. Provides a detailed qualitative examination of how hotel managers practice CE in their respective organisations with a focus on their systems and processes to achieve individual CE outcomes.
2. Influential are how convergent interviews conducted are conveyed particularly with regard to the three distinct category types of hotel-the chain, independent and resorts.
3. Building on the work of the VVRL matrix findings completed in Phase One research, the second iteration advances the VVRL matrix further to incorporate costs associated with customer acquisition and retention and customer relationship duration issues. The VVRL matrix in total accumulation now becomes a multi-faceted approach to managing CE.

-
4. Eight individual hotel case studies were then addressed as a collective in cross-case analysis. The contribution this makes to the literature in CEM is in pseudo experimental design. Specifically, the research design in cross-case analysis took the approach similar to the way a laboratory technician selects a topic for a new experiment, that is, multiple cases = multiple experiments (Yin, 2003a). The eight individual cases were divided into two streams for comparison purposes. The two categories were Chain/Resort as one stream, and the Independent hotels the other stream. This enabled comparisons to be made in CEM more clear, more objective and definitive than would otherwise be the case analysing eight cases on their own.

Contributions to Methodology in CE Research- Phase One

1. Adoption of the Classification and Regression Tree (CART) and Multivariate Adaptive Regression Splines (MARS) approaches to analysis of the data in Phase One demonstrates very powerful analytical tools. Decision tree models with regression analyses as applied in this study, could reignite the use of these tools once the domain of marketing research, which were 'lost' to the fields of econometrics and operations research in the 1980s.
2. With CART and MARS used in this study in non-parametric form (for statistical studies with research propositions), both forms are equally 'at home' with studies conducted in parametric form (for statistical studies with hypotheses). The correct decision is in the nature of the research to be undertaken and approach(es) to the research design.

Contributions to Methodology in CE Research- Phase Two

1. The special way manager's experiences with their CE strategies and customer data types were examined was in a *systems* study, by contrast to a *behavioural management* study. Consequently, the contribution this part of the study makes to methodology in CEM is with regard to systems with managerial behavioural inputs as distinct from behavioural theory with systems inputs for reasons of clarity, distinction and purpose.
2. A deeper understanding is achieved of how to theorise and conceptualise when different approaches to traditional ways of research in CE that will inform theory and practice. In this case a mixed methods approach in the design of the research program.

Contributions to CEM Practice

1. Table 7.1a shows distinctly how managers address and achieve CE outcomes when activities are conducted in a linear, somewhat restricted way through the models produced in this research (ie the VVRL and the

General Model of CEM Practice). This is managing CE efficiently, but not effectively.

2. Table 7.2a shows distinctly how managers address and achieve CE outcomes when activities are conducted in matrix management in a more unrestricted way, again through the same models produced in this research. This is managing CE both efficiently and effectively as it involves embracing all facets uniformly in a holistic integrated way.
3. As a *systems* study, this is not to neglect the *people* component as less important. Therefore, a model to address the complexities in a CE systems implementation is shown in an A and B type structure for managing customer data and CEM strategies as illustrated in Figure 7.4.