THE IMPACT OF ONLINE ACCOUNTING SOFTWARE AS A CREDIT MANAGEMENT TOOL ON SMALL BUSINESS CASH FLOW.

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DEDICATION

I dedicate this thesis to the Almighty God who kept me going on and made the completion of this research project possible. I also dedicate this thesis to my lovely mother, Princess Anthonia Osinowo, who has always provided me with all the resources I needed towards the completion of this research project. I love you mom ♥♥♥
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GLOSSARY

AIS - Accounting Information Systems
AR - Account Receivables
BCP - Business Continuity Plan
B2B – Business-to-Business
BNI - Business Network International
CAPITA - Competitive Advantage Provided by an Information Technology Application
CMAM – Credit Management Activity Model
CMVC - Credit Management Value Chain
CRM - Customer Relations Management
CSFs - Critical success factors
CSPs - Cloud Service Providers
EFG scheme – Enterprise Finance Guarantee scheme
EOQ - Economic Order Quantity
ERP – Enterprise Resource Planning systems
ES - Enterprise Systems
EU - European Union
ESBC - Evening Standard Business Connections
GDPR - General Data Protection Regulation
GVA - Gross Value Added
aGVA - approximate Gross Value Added
HGSBs - High Growth Small Businesses
IASB - International Accounting Standard Board
IT - Information Technology
IS - Information Systems
OAS - Online Accounting Software/Systems
SBC - Sutton Business Club
SBN - Sterling Business Network
SCM - Supply Chain Management
SMEs - Small and Medium-sized Enterprises
WC - Working Capital
WCM - Working Capital Management
ABSTRACT

Late payments occur frequently amongst businesses, and poor credit management processes are part of the fundamental causes of late payment. However, small businesses lack sufficient debt collection procedures as they operate without a credit control department. As such, they tend to experience eccentrically late payments and defaults by debtors. This is a major concern for small business growth. Online Accounting Software is the latest development in management accounting and information systems, however, the leading vendors of this software claim that it can manage credit sales for small businesses and can help to improve their cash flow position. In addition, the software is distributed in a standard format and can be modified to include a credit management add-on (provided from other vendors) to further help small firms with their trade credit management efforts.

This study tests the claims of such standard software vendors in terms of the effectiveness of the standard software in helping to improve the cash flow of small firms. It also examines the extent to which small business respondents who have modified their standard software have experienced improvements to their cash flow using a unified framework; specifically the Credit Management Activity Model. A descriptive quantitative methodology using multivariate ordinal logistic (logit) regression was employed to analyse data which were collected using SPSS 24 with median-centered variables. The results showed that the standard software was very effective in terms of improving the cash flow of small firms, and this supports the claims of the vendors. Moreover, users of the standard software experienced delayed increases to their cash flows after the implementation of the software. Nonetheless, the modified software helped its users to cope with the increasing complexities of trade credit management.

This study has made trade credit management in small business to business relationships more understandable, and has also enriched the existing body of knowledge in relation to financial management information systems by providing information as to the use of Online Accounting Software using small businesses in the UK as a point of reference. Future research can investigate the relationship between Online Accounting Software and the length of the operating cycle of small businesses. Future research should also explore the impact of such software on short and medium-term productivity increases, and the control issues that emerge from the safety and security of business data in relation to this software.
CHAPTER ONE - INTRODUCTION

1.1 Theoretical Background

Small businesses play an important role in the economy throughout the world. They also play a vital role in sustaining the economy, and are known to be the driving force behind the engendering of productivity, economic growth and prosperity (Ali et al., 2012). In order to continuously develop and maintain value creation, small businesses are expected to create and actualise an innovation culture, which enables them to build the requisite competitive skills to compete effectively, now and in the future (Voelpel et al., 2005). However, the impact of the financial crisis in 2009 and the economic downturn that it entailed was substantial. Many small businesses suffered negative repercussions, such as reduced revenue. Some were even forced to close (Kitching et al., 2009; Ali et al., 2012). Small businesses are amongst the biggest risk takers and innovators who are already making massive contributions towards economic recovery and growth (Ali et al., 2012). As a result of the successful contributions made by small businesses to economic growth and prosperity in the new economy (Ali et al., 2012), it is imperative to assess their performance and to identify any problems leading to small business failure.

The success or failure of any business venture depends to a significant extent on its ability to make rational financial management decisions (Kwenda and Holden, 2013). These decisions include Working Capital Management (WCM). WCM is the organisation of a firm’s current assets and it includes an assessment of the financing needed to support its current assets (Horne and Wachowicz, 1998). Organisations need to make two important decisions to have a sound WCM. These are the determination of the optimal level of investment in current assets, and the establishment of an appropriate mix of short-term financing to support this investment in current assets (aimed at controlling the liquidity position of a firm) (Horne and Wachowicz, 1998). WCM is of importance to small as well as large businesses, as firms generally tend to rely notably on owner financing, trade credits and short-term bank loans to fund the investments they require in cash, Average Receivables (AR), and inventory (Chittenden et. al., 1998; Saccurato, 1994). Zakaria and Amin (2013) describe WC as the money or cash which small businesses have available at the bank for facilitating the day-to-
day running of their businesses, without the need to borrow from any third party. Thus, it is very important for small businesses to manage the WC components of their firm’s assets in order to maintain a favourable cash flow position. Efficient utilisation of WC leads to increased profitability and reduces volatility, which leads to a reduction in default risk which in turn improves a firm’s value (Charitou et al., 2010). WCM decisions present a major challenge for small businesses as a consequence of a number of macro and micro environmental factors. These include the rapidly changing nature of short-term markets, the level of competition, inflation, the cost of capital and pressure to deliver maximum shareholder value (Salawu, 2007).

The 2008 global financial crisis that led to the collapse of Lehman Brothers, Northern Rock, and Abbey National, amongst others stimulated further interest in the importance of WCM (Charitou et al., 2010; Rubython, 2010). The crisis negatively impacted on the financial markets to the extent that the ability of small business to access funds were significantly affected as increasingly stringent sanctions were applied to small business borrowers by banks (Kitching et al., 2009). The crisis served to re-emphasise the overwhelming need, particularly for small businesses, to access short-term financing for the sustainability of their businesses (as going concerns), not only in times of financial crises but more generally (Kitching et al., 2009; Cole, 2012; Fosberg, 2013). The collapse of large companies during the financial crisis was a costly lesson for the heads of businesses and financial institutions across the globe. In fact, it meant that no business, large or small, could ignore the importance and the need for effective and efficient financial management (Arasti, 2011). The need to make sound management decisions, as well as to avoid a cash bail out by the government to rescue financial institutions in the way they did came into the spotlight during the latter stages of the recent financial crisis (Rubython, 2010). Moreover, the failures of these financial institutions also pointed to a lack of transparency, and were indicative of the lack of efficiency in the management and operations of these businesses.

Three large multinational automobile companies, namely: Chrysler; Ford Motors and General Motors had to request a bail out from the US government to meet overheads including day-to-day expenses to save them from collapse. Their collapse would have resulted in almost
350,000 direct job losses and approximately four-and-a-half million indirect job losses (Healey et al., 2008). These cases serve to highlight the ripple effect caused by corporate failure; hence the need to focus on the subject of WCM as an important area of financial management. Despite the fact that small businesses are seen to be the driving force behind the recovery and sustainability of the UK economy (Ali et al., 2012), small businesses are still experiencing enormous challenges in terms of securing adequate levels of cash flow from banks due to low Working Capital (WC) and a failure to obtain funding using existing forms of finance sourced from conventional banks (Bellouma, 2011). Consequently, Small and Medium-sized Enterprises (SMEs) are continuing to face challenges in terms of seeking alternative sources to fund their businesses in order to avoid bankruptcy (Bellouma, 2011). The year 2012 was a tough year for some UK businesses financially and this was due to the state of the economy. Many businesses were unable to secure adequate funding for their operations (Mills and McCarthy, 2014). As small businesses continued to be affected by the financial crisis, they faced growing financial pressure as they were less able to raise the necessary level of business finance required to operate effectively and efficiently Bellouma (2011). Ultimately, this directly and indirectly affected the performance of small businesses, not only within the UK, but also globally.

The first two years (2008-2010) of the financial crisis were characterised by two phases: a liquidity crisis, followed by a more severe insolvency crisis. During this period, banks were beginning to show nervousness as they experienced signs of liquidity problems as early as 2007 (Fraser, 2012). As a result, they became increasingly reluctant and unwilling to lend to each other due to rising default rates on sub-prime loans, and uncertainty about each other’s vulnerability to these bad debts (Stegman, 2007; Fraser, 2012). Small businesses which traditionally relied upon sources of funding from banks in the form of overdrafts and short-term loans as their basic sources of external financing needs were partially at risk from collapse during the financial crisis (Fraser, 2012). Small businesses were increasingly finding it challenging to obtain new finance and to absorb the disappearance or cancellation of loans/overdrafts that were already agreed. This, coupled with re-adjustments and/or sharp increases in existing loan interest rates, as well as an imposition of extra fees made the risk of collapse all the more realistic (Fraser, 2012; Stegman, 2007).
The need for finance amongst small businesses was never greater than during the crisis years. Nonetheless, attempts by successive governments for small businesses to easily develop and grow have presented a range of challenges (Hansford and Hasseldine, 2012). Small businesses continued to close down despite government lending support. These closures were attributed to liquidity problems, and as a result, small business owners were looking at alternative sources of funding (O’Keefe, 2014). According to a press release by the Federation of Small Businesses (FSB, 2013) as at the third quarter of 2011, a third (34%) of small businesses were in desperate need of credit financing to cover cash-flow. A further 21 per cent needed the facility to upgrade machinery and equipment and 17 per cent required funds for business expansion. At a time when the private sector usually helps boost economic recovery and creates jobs, it was imperative that small firms got the finance they need to be able to do that. The Federation of Small Businesses (FSB, 2013) also reported that of the 33 per cent that had their loan request turned down, some 26 percent were rejected due to a lack of security or collateral. On the other hand, a few others could not meet the banks’ terms and conditions, and therefore resorted to seeking funds elsewhere, including financial support from families and friends. Furthermore, others indicted that their own banks would not lend them credit to acquire additional business stock for their businesses. Worse still, about 16 per cent of businesses even indicated that the banks were not prepared to explain why they were refused support.

Fraser (2012) revealed that loan rejection rates and the cost of loans relative to the Bank of England base rate actually increased during the period of the financial crisis due to a lack of collateral by small businesses. Moreover, credit ratings for small businesses were deteriorating rather than improving, and banks were facing a higher level of credit risk than before the financial crisis (Fraser, 2012). This meant that as the banks faced more risky challenges, the vulnerability of small businesses was getting increasingly getting because bank risk was transferred to small businesses owners. Ultimately, this trend made it harder for small businesses to obtain loans as a consequence of having insufficient collateral (Fraser, 2012). The inability to raise internal capital meant that small businesses had to look elsewhere for the provision of finance. Small business owners and managers became increasingly imaginative and adventurous in terms of how they secured funding by opting for alternative short-term lending. Under these circumstances, the industry was said to be
moving away from a model of financial services marketing, as finance became scarcer, towards proactive financial services sourcing. Small business owners devoted more time and effort to sourcing the financial services that they needed to operate and grow (Banfield, 2012).

Small business owners increasingly turned to alternative short-term loan providers (non-traditional banking institutions) in order to source finance to meet their cash flow needs. Such alternative short-term loan providers became popular amongst small business owners (Mills and McCarthy, 2014). Instead of dealing with the stress that comes with accepting loans from traditional banks, many small businesses opted for alternative short-term loans instead. Over 60% of people in the UK at this time did not trust big name banks, and this might explains why alternative short-term loan providers became popular among small businesses (Carleton, 2011). The rapid growth of the alternative short-term lending industry suggests that this industry evolved to fill a gap in the consumer credit market which was not served by traditional banks at this time. However, the alternative short-term lending business model has been described as predatory in nature, often producing a cycle of debt which quickly gets out of control (Distelberg et al., 2009).

Schemes such as the Enterprise Finance Guarantee (EFG) scheme were set up by the UK government with the goal of making financial markets work better for small businesses. Such schemes exclusively targeted sole traders and owner-managers who were borrowing for business purposes (Owen, 2014). Further to this, the loan is secured against the individual borrower, rather than the business and this is something that banks have been criticised for in the past (Owen, 2014). Furthermore, (Owen, 2014) explained that the British Business Bank was set up to offer loans to SMEs through the peer to peer platform Ratesetter. The British Business Bank (BBB, 2014) website demonstrates this characteristic of the bank by clearly stating that it does not provide funding directly to smaller businesses; but works with private sector partners to enable borrowers to access more finance from a greater number of providers through a wider range of products.
Not surprisingly, the schemes came under fire from industry experts because neither the government nor the banks were prepared to take risks due to the high level of personal guarantees required by borrowers. In addition, the cost of securing funding under the UK government’s EFG scheme was severely restrictive to small businesses (Mitting, 2009; Sheahan, 2009). In addition, Moules (2011) reported that the Asset-Based Finance Association interviewed 21 of its 48 member organisations, including all the main UK clearing banks, and asked their opinions on the EFG scheme. Most said it provided little benefit. To this end, small businesses need to be able to make sound financial management decisions in order to be able to secure adequate levels of cash flow to efficiently manage WC (De la Torre et al., 2010). This would in turn enable these small businesses to obtain the financial support that need to enable them to continue to play a critical role in the economy.

Cash flow management is not simply an operational or tactical activity; it is also a strategic one (Rigby and Sweig, 2009). Failure to perceive cash flow management as an ongoing discipline that requires a collaborative effort can ultimately lead to lower sales growth and, ultimately, business failure. This could have evolved from an undue interplay of macro and micro environmental pressures, and these pressures seem to have posed undue financial constraints on firm performance, prior to and/or leading up to the heat of the credit crunch in 2008-9. Nevertheless, small businesses suffered more from these pressures, because larger organisations with higher returns have market dominance as they have better bargaining power with suppliers and customers, compared to small businesses (Shien and Soevien, 1998). Cash flow is generally acknowledged as the single most pressing concern of most small businesses. In addition, cash management is critical to small business survival (CIMA, 2010). It is also important to note that, just as small businesses are the lifeblood of an economy, cash flow is the lifeblood of all businesses and is the primary indicator of business health.

In a study conducted for the Department for Business, Innovation and Skills (DfBIS) (Lomax et al, 2013), respondents were presented with a list of issues, and were asked which, if any of these represented obstacles to the success of their businesses. The issues included the
economy, taxation (including VAT, PAYE, NI and rates), competition in the market, regulations, cash flow, obtaining finance, general skills shortages and the recruitment of staff, the availability of suitable premises, pensions, and the lack of managerial skills and expertise in the organisation. From this list of needs, concerns, obstacles, and barriers that prevent small businesses fulfilling their potential, cash flow is perceived to be a crucial factor which attracts bankers to accept the creditworthiness of small businesses when assessing loan applications or overdraft requests from these small businesses. Thus, it is important for small businesses to be aware of the significance of effective cash flow management (Amburgy, 2009; Kitching, 2009). Bellouma (2011) further added that when the cash flow position of a small business is positive, they have the potential to grow without necessarily needing extra financial support from banks or other third party investment sources. In other words, cash flow is a powerful financial instrument and it ensures flexibility for small business and an effective cash flow position will certainly enable small businesses to become competitive (Winborg and Landstrom, 2001; Ebben and Johnson, 2006).

Small businesses generally tend to rely more heavily on owner financing, trade credits and short-term bank loans to fund their investments in inventory, cash, and AR (Chittenden et al., 1998; Saccurato, 1994). Firms sell goods and/or services; and these sales could also either take the form of cash sales or credit sales. The latter is the supply of goods or services to another firm without demanding immediate payment. Whenever a credit sale is made, it increases the firm’s account receivables. As such, account receivable management depends upon the degree to which a firm sells without receiving payment (Martin et al., 1991). Trade credit has now become an important source of short-term funding among small businesses. However, the granting of trade credit by non-financial (B2B) firms is a general practice in the UK and in many other countries and has continued for as long as B2B trade has been recognised.

Credit terms (including expected payment period) are usually agreed between the business supplier and their customers prior to sales. The terms and period of credit agreed between businesses differ in terms of product features, characteristics of customers, location of customers, trading arrangements, market formation and the associated negotiating strength of
buyers and suppliers (Wilson, 2008). An observation of inter-firm and intra-industry credit periods was carried out to demonstrate the divergence of industries, products and B2B relationships (Wilson, 2008). Usually, agreements made on credit sales are not regularly fulfilled and periods of credit are not agreed to officially. These are sometimes misinterpreted, disputed or utterly exploited. Consequently, users of trade credit may make payment outside of the date agreed and this equates to late payment (Wilson, 2008).

It is common practice that companies may decide to delay payment times for invoices for as long as possible, as such a delay forms an important part of maintaining cash flow for the benefitting company, whilst also representing the unauthorised credit financing or accumulation of debts for the financial company (Rodríguez-Rodríguez, 2008; Wilson, 2008). A major advantage for the supplier of trade credit as a form of financing is that it enables the supplier to build strong customer relationships on a longer-term basis (Rodríguez-Rodríguez, 2008; Wilson, 2008). Additionally, it allows the credit supplying firm to retain their customers, and whilst enabling the credit-receiving or beneficiary company to operate with improved or sustained cash flow or working capital. Furthermore, it reduces operating costs for the credit receiving firm (Rodríguez-Rodríguez, 2008; Wilson, 2008). According to Rodríguez-Rodríguez (2008), trade credit forms about 20-40% of funding for small and medium-sized firms, which is comparable to other forms of business financing such as bank overdraft or loan facilities.

Schwartz (1974) suggested that trade credit, as a form of financing, is motivated by the economic theory in which suppliers of trade credit have easy access to capital markets than their customers, allowing the former to pass on cheaper credit to their customers via trade credit. Longhofer and Santos (2003) argued that trade credit suppliers have the advantage of being able to liquidate goods in the event of their buyers defaulting. Similarly, the supply of trade credit is indicative of the supplying firm offering help when their customers are faced with challenges relating to liquidity shortages (Wilner, 2000; Cunat, 2007). In other words, trade credit could be seen as a tool which the supplying firm uses to keep their customers afloat when they are going through challenging times (Wilson, 2008).
Cash being tied up in the supply of trade credit is also critical to small business. Atrill (2002) suggested that credit management is a particular problem amongst small businesses as poor credit management skills appear to be a significant issue affecting small businesses in the course of running their businesses. Therefore, improving the credit management skills of small business owners is more likely to help them improve their WC situation (Chittenden and Bragg, 1997; Peel et al., 2000). Kitching (2009) argued that small business owners need to effectively manage their working capital. However, reliable information sources are the basis for decision-making and also assist external parties as a good source of evaluating the performance of borrowers. Such a practice is also considered to be a good source of monitoring and evaluating activities, and an effective measure for policy and regulatory purposes (Hall, 2011; Hansen et al., 1995).

In addition, Kieso et al. (2012) added that cash flow data can be accepted as an important form of accounting information which is generally presented in the form of financial statements. Such data is generally useful for assessing business performance. However, since the fundamental role of accounting is the dispensation of correct, useful and relevant data on a timely basis (within strict financial and time factors over a period of time), such a traditional method is considered rigid. This traditional method delays the availability of valuable financial data for accessing business performances over time. However, Rezaee et al. (2000) suggested that the changes that computerised accounting systems have brought about mean that traditional methods of preparing accounting data could now be changed and made more flexible. This can be seen as a major advantage for small businesses, as these sources are relatively more affordable and easily accessible. Moreover, with these advances in information technology, basic and more flexible methods of preparing finance and accounting information are now possible, and this flexibility gives rise to competitive advantages for small businesses (Rezaee et al., 2000).

ERP systems have drawn the attention of researchers from the Information Technology (IT) / Information Systems (IS) discipline and also form all of every important field of study in business research – inclusive of accounting and financial management. The evolution of ERP systems in the 1990s has increasingly relocated the topic of computerised business information systems away from the IT/IS discipline towards the business discipline, including
accounting and financial management (Markus et al., 2000; Shang and Seddon, 2002). ERP systems are a type of Enterprise Systems (ES) which explain the generally known characteristics of enterprise software (commonly linked to ERP systems) serving as a collection of packaged application software programs that support real-time information processing. These are established a comprehensive understanding of business practices acquired by the suppliers of ERP systems from the system users, or as a nearly-finished product that needs to be designed (Markus et al., 2000; Shang and Seddon, 2002).

The implementation of ERP systems has been the most important and substantial IT to interact with the Accounting Information System (AIS) functions in the last two decades (Kanellou and Spathis, 2013). ERP systems are designed to address the problem of fragmentation by integrating and streamlining business processes using a suite of software modules (Amid et al., 2012). These modules cover all functional areas of an enterprise to improve and simplify internal organizational processes to provide real-time information for better decision making (Amid et al., 2012). The idea is to combine various disintegrated systems into a single and common database. However, small and medium-sized enterprise research on the implementation and success of the AIS has focused on the relationship between the performance of SMEs and the use of the AIS. Such research has suggested that there is a positive relationship between these variables (Ismail, 2007).

Technology-based business software (ERPs and AIS) can play a dominant role in assisting small businesses to perform better and stronger (Ismail, 2007; Amidu et al., 2011; Grande et al., 2011). Certain aspects of business such as cash and credit management processes, IT platforms and applications are varied and might be complex for small businesses to comprehend. However, web-based business technologies have been able to harmonise management accounting processes by automating many functions and procedures (Zarzycka, 2012). Nonetheless, the author has identified two enterprises that have enabled process modifications (a new cost accounting system) to ensure that consistent management accounting tools and methods were used across their diverse structures. The modifications did not encourage the use of modern and innovative solutions supporting cost accounting, budgeting or measurement of performance either.
Studies conducted by Ismail, (2007), Amidu et al. (2011), and Grande et al. (2011) showed that the most widespread use of information systems is AIS which is specifically valued for its financial reporting aspects. The authors suggest that there is a positive relationship between AIS and small business performance. In addition, Ali et al. (2012) highlighted the importance of establishing a good fit between the use of AIS and small business performance. A mismatch between what is needed by firms and the functionality of the AIS will yield poor performance. Nevertheless, Ismail and King (2005) also added that the advanced use of the AIS, aligned with ineffective performance measures will yield lower performance outcomes. According to CIMA (2010), cash flow management is concerned with balancing the cash coming into the business and the cash going out. The danger is that demands for cash from suppliers, such as HMRC arrive before cash owed by customers is collected. Keeping clients on top of their outstanding debts can be a challenge. The longer it takes customers to pay, the worse the firm’s cash flow forecast will look over time. More often than not, cash inflows tend to lag behind outflows, leaving the small business short. This money shortage leaves a cash flow gap. It is interesting to appreciate how small business owners operate within the uncertain environment of externally-defined standards of behaviour. However, managing cash flow is a skill, and results can only be yielded by maintaining a firm grip on the cash conversion process (CIMA, 2010).

In an age of growing globalisation and intensified competition, modern businesses demand timely and accurate financial information. Current accounting practices in the business world have shifted radically as a result of advancements in information technology, and this has affected the role of the traditional accountant. With the advent of globalisation bringing about increases to competition, the advancement of technology and pressure to get information much sooner has never been felt more keenly (Siegel and Sorensen, 1999). Indeed, the management accountant’s role as an information provider and a participant in helping to make better decisions is changing. As a strategist, the management accountant is critically involved in taking and negotiating appropriate strategic moves, including ensuring the adequacy of cash to fund to a strategy. The management accountant must also help managers to determine their most important customers (Horngren et al., 2009).
OAS is the latest development in management accounting and Information Systems, after ERPs and AIS. OAS is sold as a standardised software package that can be integrated (i.e. modified) with other systems/add-ons (performing all other logistic functions within the firm). It is designed to support other inter-organisational business processes. For the purpose of this study, the logistic functions are credit management functions. IT is changing management accounting systems to become integrated with regular and standard business information in a simplified format (Caglio, 2003; Granlund, 2007). The leading vendors of OAS argue that the software is able to create a platform for different opportunities for and enterprise productivity, such as providing real time transaction and tax planning advice. The software is most especially helpful for managing the working capital of client, and offering a range of virtual services.

This means that OAS is causing a change in managerial accounting practices by performing the role of the traditional financial management accountant. In addition to this, the credit management solution has been described as having the ability to automatically email customers when an online invoice becomes overdue. This credit control solution allows small businesses to speed up payment times by automating the firm’s credit control process. This means less time must be spent on chasing payments. Also, the software offers a forecasting tool that allows the firm to accurately predict cash flow and plan ahead for seasonal dips, and any lean months that might lie ahead. Further to this, the software enables the prioritisation of the customer’s oldest debts, as well as highlighting high-risk customers. It can also automatically monitor customer credit limits (Salek, 2005; Bullivant, 2010; IoMA, 2010).

1.2 Problem Statement

As small businesses experience capital constraints, effective and efficient cash flow management is critical to their sustainability. In other words, delaying payments relating to invoices or supplies as far as possible is one way of effectively maintaining WC and cash flow, but so is mitigating the requirement for external financial support in the first place (Winborg and Landstrom, 2001; Ebben and Johnson, 2006). More importantly, a series of informational interviews conducted by the researcher revealed that some small businesses
are open to potential business losses and have become financially vulnerable as customers are holding back payments for as long as possible. This has led to unforeseen interruptions to their normal business operations. In fact, this is seen as one of the critical challenges facing small businesses (Lomax et al., 2013).

According to research conducted in 2012 by the Local Data Company on behalf of Price Waterhouse Coopers (PwC, 2012), the number of business closures in the first-half of 2012 amounts to 20 per day, and this has accelerated to 32 per day since the end of June 2012, following the demise of JJB sports (a large company) and other retailers. These closures have been attributed to liquidity problems. Cash that is tied up in the supply of trade credit often ends up uncollected and this affects the cash inflow of the supplier which ultimately leads to insolvency. Solid cash flow management requires information. For example, a firm needs to have immediate access to data on their customers’ creditworthiness, their current track record on payments, their outstanding receipts, their payment terms, their short-term credit demands and their current debt capacity for longer-term projections. Notwithstanding, small business failure resulting from a lack of cash flow (a part of WCM) has been the subject of considerable research. Studies of business and financial management by Pike and Cheng (2001) and Drever and Harcher (2003) have found evidence relating to WC (and credit management) and its relationship to the failure of small businesses. Late payments, i.e. payments not made within the agreed or the usual period of credit happen regularly amongst businesses (Wilson, 2008) and can lead to financial distress and failure.

In an economy where small businesses go out of business in short order, there is no greater driver for corporate prosperity than the need for effective credit management (Atradius, 2009). Despite the lack of clarity about the role of credit management, finding the right method to release the funds tied up in unpaid invoices is often onerous (Atradius, 2009). Some business owners may find the process of managing credit and chasing late payments time consuming and often frustrating (Edwards, 2004). In recent times, theories on trade credit have not been able to identify why late payment is a perennial problem among firms; hence, this leaves room for empirical evidence to take place to put existing theories to test. An empirical study by Wilson et al., (1997) looking at the demand for trade credit by UK small businesses confirmed that small businesses pay late when they become credit-restricted
and unable to take any further short-term finance from banks. However, these credit-restricted businesses were mainly expanding and depended on trade credit; therefore, imposing statutory interest charges on these small businesses may cause serious liquidity issues and high incidence of failure - except some other type of finance is accessible immediately.

Wilson et al. (1995) identified some fundamental reasons for late payment including poor credit management practices, an over-dependence on trade credit and short-term finance as well as greater sensitivity to late payments. Collis et al. (2013, p.13) found that “large companies are using small firms as their banks and exploiting their negotiation power and small businesses very often have to accept the trade credit terms of a large customer”. The UK government’s response (as part of ‘Building a Responsible Payment Culture’) introduced the Late Payment of Commercial Debts (interest) Act (1997) (Wilson, 2008). However, even though the UK legislation gives businesses a statutory right to claim interest if another business pays its bills late, Howorth and Wetherhill (2000) found that suppliers would probably not charge penalty interest on late payments in situations where the relationship between the supplier and the customer were considered to be substantially important. Small businesses were reluctant to enforce late payment charges on a late paying customer. However, a study conducted by Wilson (2008) suggested the following to explain why late payments occur:

- the competitive course of action that displaces businesses without the relevant financial substance to oversee trade credit and/or its ineffective administration. This includes financial and credit mismanagement and/or products or services that are of poor quality; and after-sale service;
- financial difficulties as a result of dwindling economic situation and decrease in sales when the suppliers of trade credit are at the bottom of the payment pecking order. This covers financial distress due to under-capitalisation and unsuitable financial frameworks as well as insufficient institutional finance;
- multiple value chains where sub-contracting and layered (pay when get paid) payments are frequent and causes a ripple effect through the chain;
• imperfect competition and unbalanced negotiating power between buyers and suppliers leading to buyer advantage;
• difficulties in connecting with the managing growth, exporting and trading beyond one’s capital, managing risk defectively or inadequate credit information to evaluate the payment expectations of the buyer.

The management of WC (most especially AR), is important to the financial health of businesses from all industries. To reduce AR, a firm may have strict collections policies and limited credit sales for its customers. This can increase cash inflow. However, the strict collection policies and reduced sales credits could lead to lost sales, thus reducing profit. Lazaridis and Dimitrios (2005) explained that firms which aim for growth in AR to the maximum level consequently grow in profitability due to gains in sales and market share. However, this approach to increased profitability may lead the firm into a troublesome situation. Such firms can very often chase payments from their customers, and if overdue payments are not collected, the firm may have to rely on very specific financing tools like leasing and factoring (De Loof et al., 2007). In addition to this, such firms are found to rely on informal sources of finance like the use of personal credit cards and personal loans (Wingborg and Landstrom, 2000). However, these sources can typically cover only a small proportion of the financial needs and very often last for a very short period of time. The issues seen as obstacles for small businesses are nonetheless critical to their success. However, late payment is unavoidably a huge problem for businesses - especially small businesses. Small businesses need a good cash flow and credit management in order to achieve a balance between liquidity and profitability. This is achievable via a solid system that can effectively manage and monitor cash flow (Wilson, 2008; Grabski et al., 2011).

Late payment of trade credit is an extension of the demand for trade credit. The key to improving a firm’s ability to collect overdue accounts is to become more organised. According to Wilner (2000), even though the economic theory of transactions demand for money and credit offer some justification as to why supplying firms allow the demand for trade credit, they do not truly explain why buying firms do not pay within contracted credit terms, with the buying firms ending up paying implicit interest charges when early payment discounts are not taken. Howorth and Wilson’s (1999) study of late
payments and small firms explored whether late payments emanate from dominant suppliers, or poor financial management, or from the firm’s financing strategy. They further found that the dominant influence of customers was not a major problem, and the issue of late payments as far as small firms are concerned were portrayed by under-capitalisation and poor credit management. Poorly-managed trade credit can mean delays in converting sales to cash or trading with customers who are unable or unwilling to pay (CIMA, 2010). It can therefore be argued that the effectiveness of a supplier’s control systems can lead to a reduction in late or non payment by buying firms.

Businesses that experienced financial stress even before the 2008/2010 global financial crisis encountered a reduction in available capital and revenue (Cohen, 2005). This has caused business owner-managers to focus on trying to improve payment collection, thereby enhancing free cash flow. A healthy free cash flow helps an organisation to avoid drawing down expensive lines of credit (Cohen, 2005). In today's real-time business environment, better communication with customers is essential (Laketa et al., 2015). Solutions for managing collections and disputes are evolving to place an increased focus on optimising both internal and external relationships and procedures (Burnett, 2005). IS has gained a place in standard accounting and financial information management. IS are being used largely to manage, or at least trigger, order tracking and payment management, with only serious problems (exceptions) escalated for priority manual attention (Cohen, 2005).

The phenomenon of information system technology development is a topical issue. The advance in IT makes it easier for users to perform various activities in all areas of life, including simplifying various aspects of business activity (Indriantoro, 2000). The ease resulting from the use of IT could help users to achieve efficiency and effectiveness in their activities. An important aspect of the use of IT is the process of technology adoption and transfer to enhance the user’s competency. Humans interact with information systems, and these interactions can cause behavioural problems. Although the technical quality of IS technology implementation is getting better, the IT systems may still fail for various reasons. Nasution (2007) stated that the use of IT is determined by various factors, including the characteristics of IT users. The characteristic differences of IT users are also influenced by many factors, amongst which are behavioural aspects. The behavioural aspects of users that
affect the success of IS technology acceptance include perceptions (Davis et al., 1989; Ferguson, 1997) and attitudes towards the use of information technology.

This study sets out to specifically look into aspects of the perceived usefulness of OAS technology; as the implementation of a system and the IT which enables it cannot be separated from the behavioural aspects. This is because system development is related to individuals and organisational problems as the system users, and, therefore, the system developed must be oriented to the users. Perceived usefulness is the degree to which a person believes that using a particular system can enhance his or her job performance (Davis, 1989). A system with a high perception of usefulness would make users believe there is a positive relationship between the system’s usage and performance. Wibowo (2008) opined that using technology can increase a user’s productivity and can improve job performance whilst enhancing job effectiveness. Shin and Edington (2007) suggested that user behaviour, and personal development systems are essential in relation to understanding the views of system users. As a result, the perception of the users involved in the implementation of the system will have an effect on the system outcome, whether the system is successful or not, acceptable or not, beneficial or not, and applicable or not. Therefore, this study looks into perceptions of the usefulness of OAS according to UK small business owners who value such systems for effectively collecting late payments to ultimately improve cash flow.

1.3 Research Rationale

The sound management of cash and credit sales can enable small businesses to forecast future cash incomings effectively. Proper cash flow forecasting can enable small businesses to foresee up to a year’s worth of income, sales turnover and expenses. They can therefore avoid certain risks associated with liquidity and profitability, as well as save unnecessary costs. As a consequence they can improve efficiency, make better and more informed decision making and become more competitive (Evans and Smith, 2004; O’ Brien and Marakas, 2008; Grabski et al., 2011). While the importance managing cash and credit sales soundly is increasingly recognised, there is a need for firms to investigate the use of financial technology in terms of its ability to effectively deal with late payments.
The interaction of ERP systems with the AIS functions (and the emergence of OAS) - all parts of enterprise systems (ES) - and the effect of these on organisational performance was discussed by Wieder et al. (2006). The authors explained the significance of the alignment of other elements of ES, for example, specialised Supply Chain Management systems (SCM systems) on this context. Tarn et al. (2002) explained that SCM-software packages are specially designed types of ES which combines all logistical activities within business establishments, and also backs up inter-organisational business and systems unification. In comparison with ERP systems, SCM systems generally include Advanced Planning Systems (APS) as a component that backs up mathematical development operations. When used together with ERP systems, SCM systems partially substitute and partly complement the functionality of ERP systems with a level of substitution/complementation that is driven by the functionality of the packaged system (ERP and SCM systems combined). This can be custom built according to the preferences and requirements of the organisation (Davenport and Brooks, 2004; Stefanou, 2001). Further to this, Wierder et al. (2006) predicted that the advanced attributes of SCM systems and their core components can give rise to an increase in performance along the value chain’s primary activities (Porter, 1985), and when used with ERP systems, can lead to higher internal performance.

A study by Wieder et al. (2006) sets the tone for this research in the sense that it speaks to the co-existence of specialised credit management systems. These credit management systems come in the form of stand-alone software packages, but can be integrated with OAS to support inter-organisational business functions as stated on page 21. Moreover, the vendors of OAS have only presented the software in its standard form. However, these vendors suggest that the standard software was designed to facilitate the efficient running of small businesses and larger companies. Be that as it may, their affirmation depends on the software’s ability to effectively manage its user’s cash flow income. Consequent to this, the leading vendors of OAS stated that their software integrates with other systems (add-ons) and shares data, allowing customers to create a solution that is right for them. It therefore makes it even easier for small businesses to run their organisations. From the perspective of trade credit management, this suggests that OAS provides a match between what is needed by the firms and the service offered by the new technology in yielding the best performance.
Although one of the assertions put forward by Wilson (2008) to explain the reason behind late payments is contingent on a chain of events that occurs through the value chain, caused by complex value chains where partial payments and sub-contracting are constant as firms make payments when they get paid; the researcher has identified the significance of the value chain in relation to the use of technology as re-emphasised by Porter (2001). However, Wieder et al. (2006) introduced a caveat to the value chain to explain the co-existence of SCM-software packages with ERP systems. Evans and Smith (2004) unified the value chain to include technology and specifically the internet as central considerations in the value chain. Evans and Smith (2004) referred to Sethi and King (1994) and their discussions of the Competitive Advantage Provided by an Information Technology Application (CAPITA) to lend conceptual additions to the value chain to better understand the effect of the internet as a new business channel. Hence, they proposed a model that could assist business managers in recognising further competitive advantages. Evans and Smith (2004) went further and identified several potential business opportunities for firms. Furthermore, Matolcsy et al. (2005) modified the value chain and extended its applicability to ERP systems with added values, such as improvements to profitability and liquidity management which the value chain in its original form was not able to illuminate. Theoretical perspectives put forward by Evans and Smith (2004), Matolcsy et al. (2005), and Wieder et al. (2006) will be used to create an appropriate framework to analyse the extent of the effectiveness of the use of OAS (standard and integrated) in helping UK small businesses better manage cash flow.

1.4 Research Aim

The aim of this study is to challenge existing claims propounded by the leading OAS vendors as to the effectiveness of the standard OAS in helping to improve the cash flow position of UK small businesses. The study will also examine the extent to which small business owners who have integrated their standard OAS with credit management add-on experienced an overall improvement in their cash flow situation. A unified strategic framework was developed to determine the effectiveness of the standard OAS in terms of its ability to improve the cash flow position of firms, and to explore the extent to which this is enhanced when it is integrated with the credit management add-on.
1.5 Research Objectives

Based on the aim highlighted above, the research objectives are outlined below:

1.) To examine the capabilities of OAS in managing the supply of trade credit by UK small business owners to their B2B customers using CMAM.

2.) To identify the extensive application possibilities of OAS as an integrated solution for managing trade credit.

3.) To demonstrate the efficiency levels of OAS in strengthening the cash flow position of UK small businesses through the interactions among the core firm and credit decision activities involved in the organisations’ trade credit supply process.

The above research objectives were fulfilled by borrowing from the theoretical perspectives of Evans and Smith (2004), Matolcsy et al. (2005) and Wieder et al. (2006) in identifying potential business opportunities for firms, as well as improvements in profitability and liquidity management. The study has applied the value chain to identify potential business opportunities and improvements in credit management practices with the potential to improve cash flow. Therefore, this research combines both academic and practitioner perspectives to highlight several issues and emerging trends relative to trade credit management and the use of Porter’s (1985) value chain model in which are used to understand the benefits of using a single IT application as presented by Sethi and King (1994); and producing CMAM (as stated in section 1.3). Building on this fusion (i.e. the integration of the Online Credit Management functions and the seven dimensions of competitive advantage with the value chain in creating the CMAM), the researcher established a conceptual framework to identify several financial productivity possibilities for UK small businesses to effectively collect payment from credit sales.

The discussion above explores the relevance of using OAS to better manage business processes and make better decisions which will positively impact on the future business operations and financial management control of organisations (Grabski et al., 2011). Accordingly, an opportunity has been created to use OAS research to enhance the financial
management literature. Therefore, online credit management practices are used to examine OAS in UK small businesses. Research concerning the management of WC by small businesses centres on best practices and explaining behaviour based on an examination of the theoretical concepts from general practices that serves as precedence. As a consequence, the CMAM is used to investigate this knowledge gap in the business and financial management literature.

1.6 Research Questions

The development of CMAM is an attempt to identify the relationship between a firm's activities and the potential opportunities for acquiring financial gains (cash flow income). The following research questions give direction to the study:

1.) What credit management structure does the standard OAS and modified OAS impose on the dynamic nature of many small businesses in effectively managing cash flow?

2.) What constituents of the standard OAS can help to accurately process financial management information to improve the cash flow position of small businesses?

3.) How has the use of OAS (standard and modified) offset weaknesses in the practice-performance situation of small businesses?

As organisational fit and business process reengineering are significantly related to business success (Kamhawi, 2007), the extensive application possibilities of OAS as an integrated solution for both internal and third parties to suit specific needs (Florin et al., 2011) need to be considered. As the real-time connection to key AR information is ideal for speeding up the business and financial operations of small firms to free up cash, this study expects that the Credit Management add-on can radically streamline clients’ (and the small firm’s own) business processes in creating a solid credit management structure. This should include effecting improvements to the small firms’ cash and credit management capabilities. Firms choose to purchase technology-based business software since they need to have an efficient
system for handling all business processes to obtain the necessary support to solve various business-management problems (Granlund and Malmi, 2002).

The above research aims, objectives and questions will be achieved by analysing the perceptions of small business owner-managers who have used OAS in its standard form. Those who have integrated their credit management software with the standard OAS (a.k.a. the modified OAS) using self-reporting indices to measure the efficacy of the standard and modified OAS will also be evaluated. A set of hypotheses (see section 3.5) to test the interactions amongst the core firm and credit decision activities involved in an organisation’s trade credit supply process were developed to address the research aims and objectives. This study investigates the extent to which the efficiency levels of UK small business, and their online credit management practices and cash flow performances are enhanced where the OAS has been modified. The study is focused only on the impact of the standard OAS and the modified OAS on the level of cash flow income of the responding firms. The credit management add-on was only included for exploratory purposes. However, the modified OAS is expected to have a magnifying effect on the cash flow situation of the small businesses in this study.

1.7 Research Structure

The research is divided into seven chapters. These include an introductory chapter, a review of literature, a methodology, a data analysis chapter, an interrelation and discussion section and a conclusion. The structure is set out below:

Chapter 1 contains the introduction and background to the research. It sets out the research problem and the research rationale as well as the research aims, objectives and questions.

Chapter 2 reviews literature on credit management and web-based accounting systems relevant to the practice-performance inquiry.
Chapter 3 comprises of the conceptual framework chapter. This chapter highlights the research hypotheses developed from the literature, and presents the structure that guides the research study.

Chapter 4 describes the methodology used for the research. This constitutes how data were collected and analysed. It discusses the research population and sample selection and sets out the research design, research methods, approaches, and justifications.

Chapter 5 reports on the descriptive findings (feedback) of the research survey using the CMAM as a tool for strategic analysis associated with the match between strategy and the appropriateness of OAS.

Chapter 6 presents an analysis of test results aimed at establishing the statistically significant associations between the utility of OAS and the explanatory variables gathered from CMAM.

Chapter 7 discusses the findings of the study. This chapter also presents the conclusions of the research. It addresses the objectives of the research, and offers directions for future research.
CHAPTER TWO - LITERATURE REVIEW

2.1 Introduction

This chapter analyses literature on the management of cash flow and trade credit as components of working capital in the context of small businesses. The supply side of trade credit management, with an emphasis on the use of the OAS in effectively handling trade credit to better manage late payments is explored. From the perspective of trade credit management, this chapter demonstrates the importance of having a match between what is needed by the firms and the service offered by OAS in yielding improvements to cash flow income. This is based on the belief that the ability to effectively manage cash flow and credit sales is critical (Bullivant, 2010). A major element that banks are considering to win funding approval is the ability to collect payments from customers (Berger and Udell, 2006). However, simply supplying a good product/service does not guarantee being paid on time, as suppliers of trade credit still experience problems with collecting payments from their customers. This causes small business bankruptcies (Bradley and Rubach, 2002). Surprisingly, customers may demand a greater deal for a small firm’s product/service, thus, the firm needs to ensure timely payment (Bullivant, 2010). Technology, however, has provided new options for managing internal processes. Therefore, this chapter acknowledges the significance of technology in business decision making by analysing the impact of computerised accounting systems on financial performance and the impact of OAS (in its standard form and when it is complemented with a credit management add-on) on the efficiency of small UK businesses.

2.2 SME Financing and Bank Credit Constraint

Small and Medium-sized Enterprises (SMEs) with greater profits and good financial performance face fewer credit constraints, while those with poor financial performance have been found to have very limited access to business credit, especially from banks (Pandula, 2011). Events after the 2008 global financial crisis have retrospectively rendered this assertion inaccurate, as even profitable firms were denied access to bank credit. The
economic impact of credit constraints were widely discussed in the media and among academic researchers after the break-out of the financial crisis. According to De Young et al. (2012), banks are inclined to withdraw credit supplies to SMEs which are already facing financial challenges. Ironically, that is their neediest moment since they are in financial distress, and it is during such a crucial moment that they are more likely to experience distress.

Earlier studies found that lowering the constraints to external financing for SMEs contributes to economic growth, reduced income inequality and reduced poverty (Levine, 2005). At the firm level, increasing the channels of financing can enhance entrepreneurial activity, contributing to employment, innovation and income (Beck et al., 2005). However, there is a widely-held consensus that SMEs experience more difficulty in accessing finance compared with larger firms. The lack of access to external finance they experience is a key obstacle hindering innovation and growth. In addition, the absence of internal capital as well as their inability to employ new staff and develop new products mean that they find growth and/or expansion challenging (Beck et al., 2005; Levine, 2005). Other obstacles include an inability to employ new staff and to acquire new machinery. SMEs not only perceive of access to finance and credit to be obstacles, but these factors affect their performances far more than they affect large firms (Beck et al., 2005).

SMEs are less likely to be allowed to raise capital through the stock or capital market. As a result of this, SMEs have had to develop special banking relationships with their banks, as an alternative strategy to overcome their barriers or weaknesses. On the other hand, banks have found SMEs to be very critical profit centres for their day-to-day operations (Beck et al., 2008). This suggests the special relationship between banks and SMEs entail a two-way flow, which is beneficial to both sides. However, the degrees to which these benefits are valued are of unequal nature. This arises from the fact that SMEs and banks have unequal bargaining powers (Hyytinen and Pajarinen, 2008). The unequal bargaining power between banks and SMEs arises from the fact that banks are able to levy conditions on SMEs, whereas SMEs cannot reciprocate. Therefore, while the relationship is critical and significant, the benefits and bargaining parity of these stakeholders can be described as unbalanced.
The demand for collateral assets as a precondition for loan credit is one that not many SMEs are able to meet, and their request for credit are often rejected or refused. This could be very devastating for SMEs, but this is especially the case for newly-established SMEs (Fraser, 2004; Buckley, 2011). To the banks, collaterals are critical requirements due to the default rate in loan repayments, which was one of the critical factors that caused the recent world financial crisis or credit crunch which emerged in 2007 (Buckley, 2011). During 2008/2009 the world experienced a complete credit breakdown, and banks became unable to give out loans and overdrafts, even to allow cash withdrawals (Buckley, 2011). Banks got even tougher with SMEs in terms of their borrowing requests. As a result, requests for credit by SMEs were rejected by banks (Fraser, 2004). SMEs were seen as higher risk with regards to borrowing due to their inability to pay back credit facilities when asked to and due to the absence of their collateral (Fraser, 2009).

SMEs are important segments of society, owing to the fact that they are seen as critical sources of employment, which is good for the economy in particular, and society at large. To this end, support for the growth of the SME sector in the economy should be encouraged by society by every means possible (Ciampi and Gordini, 2013). Roggoff et al. (2004) also saw SMEs as potential entrepreneurs that are critical to society and should be supported as such. Chatterjee (2010) suggested that a high level of debt use is unhealthy for the financial success of the firm, whereas increases in sales encourage firm profitability. Firms are required to maintain an adequate level of liquidity to meet demands and to make sure of uninterrupted business activities. As sales grow, firms need to invest more in inventories and debtors. These needs become very frequent and fast when sales grow continuously. Therefore, the business owner-manager should be aware of such needs and should finance them quickly (Niresh, 2012).

Ironically, a study of the relationship between liquidity and profitability by Niresh (2012) revealed that changes in the liquidity position of the firms they investigated exerted no remarkable change to their profitability, yet, other factors such as seasonal changes in demand, firm size, operating cycle and technological changes may exert a greater influence on the profitability of such firms. A key limitation of the study was that it covered only a finite list of manufacturing firms in the sector. For many years, business enterprises
worldwide have become increasingly concerned with the maximisation of profit. Profits are necessary for survival in the long run in a competitive environment, as a low-profit firm will lack the finance for expansion (Foreman-Peck et al., 2006). Profit maximisation for any firm (however large or small) depends on the efficient management of cost and process of production as well as increases in sales. However, one factor that is considered to influence a firm’s profitability grossly is the firm’s WC (Awasthi et al., 2006).

Businesses need funds for short-term purposes in order to finance current operations. Investments in short-term assets, like cash, inventories, average receivables, are called Short-term Funds or Working Capital (WC) and are needed for carrying out the day-to-day operations of the business smoothly (Awasthi et al., 2006). WC is so important that even a business which is fully equipped with all types of fixed assets required is bound to collapse without cash to pay for wages, and other costs. Such a firm will not be able to grant credit to its customers. In addition, the firm will not be able to supply its customers regularly and will struggle to carry on day-to-day activities without the availability of adequate WC (Awasthi et al., 2006). A company’s assets are divided into two major types: fixed assets and current assets. Fixed assets are long-term assets from which a company expects to derive benefit over several periods. Examples are factory buildings and production machinery. Fixed assets are usually financed long-term, either with equity or with long-term debt, since the assets are long-term and therefore need to be financed long-term (Cheatham, 1989).

Owing to the fact that WC takes the form of current assets (which, unlike fixed assets change their forms rapidly), current assets are usually financed through short-term funds. Short-term funds are also called current liabilities. Short-term sources of finance include overdrafts, short-term bank loans and trade credit (outflow and inflow). Current assets include inventory, account receivables, cash and short-term investments. According to Arnold (2008, p. 515) WC can be defined as “the difference between current assets and current liabilities”. Current liabilities involve account payables and short-term borrowings. However, WCM refers to the way that firms manage their current assets and their current liabilities. If a company manages its WC effectively by finding the optimal balance between current assets and current liabilities, it is likely to increase its profitability and have a continuous flow of cash (Maness and Zietlow, 2005).
Studies found that smaller and younger firms more often encounter liquidity constraints from a lack of outside financing, and that smaller and younger firms are less likely to receive bank financing (Levenson and Willard, 2000). In addition, small business owners seldom desire outside finance because of the control requirements that banks and investors demand. This is the case because they are inexperienced in raising capital, and because they are risk averse when it comes to taking on debt (Cassar, 2004). Bank financing alone may not be sufficient to finance the innovation or growth of SMEs (Bruns and Fletcher, 2008; Avnimelech and Teubal, 2008). According to a report by Grant Thornton UK LLP on Alternative Lending (Grant Thornton, 2014), UK businesses have consistently heavily relied upon banks to meet their funding needs. It is estimated that 91% of SMEs seek funding from the UK’s largest five banks. Historically, the lack of alternative funding options has proven a hindrance to such businesses. Nevertheless, since the financial crisis, and despite political efforts, SMEs struggle to access the finance they need.

SMEs can generate finance either internally or externally. Internally, SMEs can rely on their own financial resources. If the firm has been operating for some time and is profitable, it can support its own expansion using its own resources. If the firm is not profitable, it can manage its WC in such a way that it is able to pay for liabilities and investments on time (Bruns and Fletcher, 2008). Internal funding sources help preserve the independence and financial autonomy of a firm, because it creates no additional binding (interest, guarantees). Such funding maintains a borrowing capacity and is reliable mean of financial support to meet the enterprise's needs. They also bear disadvantages because the owners have fewer funds to invest in other, more profitable activities than the activity which generated the financial overflow (alternative cost) (Oncioiu, 2012). External capital to the SME sector can come from three basic sources: banks, alternative lending channels, and the government.

Commercial banks traditionally represent the most important source of SME financing, and can satisfy up to 80 percent of SME capital needs (Bruns and Fletcher, 2008). However, obtaining external finance from a bank can be challenging for firms operating within the SME sector. Banks do not tolerate risk well, and risk is inherent to the SME sector (Bruns and Fletcher, 2008). In addition, banks may not be receptive to business owners, and
particularly the owners of new firms that want to expand their products, build new facilities, or develop markets outside of their home territory (Bruns and Fletcher, 2008). Further to this, banks require collateral that can exceed the value of the initial loan by two-to-three times. If firms from the SME sector experience financial or operational troubles, banks may cease to assist.

In fact, very many SMEs rely mainly on banks and trade credit to finance their operations (Summers and Wilson, 2002). Bank credit is one of the most important sources of finance for firms, and is granted according to different lending technologies (Berger and Udell, 2006). Heyman et al. (2008) suggest that maturity matching between debt and the life of assets plays an important role in deciding the length of the debt used to finance the firm, since such matching provides the minimum risk maturity structure. Short-term debt is positively correlated with a firm's growth opportunities (Garcia-Teruel and Martinez-Solano, 2007). All in all, SMEs rely heavily on bank finance, and even though SMEs use the finance obtained from banks for various reasons (including fulfilling WC requirements), it is not clear whether SMEs optimise this type of finance. Further to this, as firms rely on trade credit to finance their operation, WC is a function of both AR (trade credit outflow) and Account Payables (trade credit inflow). This research study is focused on AR management (also termed as trade credit management), and the discussion will now consider research specifically concerned with this practice.

2.3 WCM and Short-Term Financing

Every business has various options when a decision to aggregate short-term financing is taken. According to Gitman (2009), the financing of WC enhances the composition and the structure of the short-term and long-term financing of the business. WCM involves the relationship between a firm's short-term assets and its short-term liabilities. The level of current assets is a key factor in a company’s liquidity position. A company must have, or must be able to generate enough cash to meet its short-term needs if it is to continue in business. The more prominent the degree to which current assets surpass current liabilities, the more liquid an organisation is probably going to be. This depends on the present state of
its current assets. Excessive levels of current assets may have a negative effect on the firm’s profitability, whereas a low level of current assets may lead to a lower level of liquidity and stockouts resulting in difficulties in maintaining smooth operations (Gitman, 2009; Van Horne and Wachowicz, 2009).

Suppliers of business finance have both the information and liquidation advantage. The former consists of observing input transactions in a less costly manner, enabling these suppliers of finance to provide credit in helping to relax the borrowing firm’s financial constraints. The latter is derived from the supplier’s ability to extract a greater monetary value from the inputs financed in the case of default (Fabbri and Menichini, 2009). The two main objectives of WCM are to increase the profitability of a company and to ensure that it has sufficient liquidity to meet its short-term obligations as they fall due, and to continue to trade (Pass and Pike, 1984). Profitability is related to the goal of owner(s) wealth maximisation, so investment in current assets should be made only if an acceptable return is obtained (Pass and Pike, 1984). A small firm that wishes to maximise profit must strike a balance between current assets and current liabilities. However, it is imperative to be aware of the liquidity and profitability trade-off (Pass and Pike, 1984). Preserving the liquidity and profitability of the firm is an important objective, as increasing profit at the expense of liquidity can pose serious problems to the firm, and vice-versa. WCM is considered to be a very important element to analyse the firm’s performance while conducting day to day operations. There are implications for the firm’s profitability, risk and, consequently, its value (Smith, 1980).

One reason why some small business owner/managers spend considerable time on the day-to-day management of WC is that current assets are short-lived investments that are continually being converted into other asset types (Rao, 1989). Liquidity for the on-going small business is not dependent on the liquidation value of its assets, but rather on the operating cash flows generated by those assets (Soenen, 1993). WCM is therefore a sensitive area in the field of financial management as it involves decisions about the amount and composition of current assets, and the financing of these assets. The management of WC involves managing inventories. However, according to Cote and Latham (1999), firms purchase inventory,
generally, using trade credit. Nonetheless, it is typically not in the nature of a small service business to have a finished goods inventory. As soon as the service (e.g., the accountant’s audit, the doctor’s office visit, the trucking company’s transportation contract) has been completed, it generates cash which is paid immediately, or paid at a later date as account receivables. Service industries do not rely on non-current assets to manufacture products. Thus, for small service firms, WC (accounting for current assets) may represent a significant proportion of a firm’s asset base. Moreover, in service industries, inventories do not play a significant role in WC (Huda, 2015). A sound management of cash and credit sales can enable small businesses to forecast future cash incomings effectively. Cash that is tied up in the supply of trade credit is also critical to small business. Cash flow is perceived to be one of the crucial factors which attract bankers to accept the creditworthiness of small businesses when assessing the loan application or overdraft of these small businesses. Thus, it is important for small businesses to be aware of the significance of impressive liquid assets management (Amburgy, 2009; Kitching, 2009).

2.3.1 Liquid Assets Management (Cash and Account Receivables)

Liquidity and profitability are two important and major aspects of corporate business existence (Vataliya, 2009). In business, cash is king and relying heavily on sales that have not been collected can lead to problems. A company may be profitable but can still have cash-flow problems if customers make late payments (Amburgy, 2009). One major purpose for accessing external finance is for working capital, although a number of firms also used external funding to buy fixed assets to develop new products and services, or to undertake a marketing campaign. However, without the ability to buy merchandise and pay employees, a business cannot survive. SME owners might increase the demand for external finance in order to deal with actual, or anticipated, cash flow difficulties (Kitching, 2009). Projecting cash flow is a delicate relationship between readily-available funds, upcoming fixed expenses, upcoming unanticipated expenses, and projected income. Business owners monitor cash flow more closely these days because customers take longer to pay, and suppliers want to be paid sooner. Cash flow issues are growing amongst small businesses, and therefore cash can be generated by shifting inventories faster or by collecting receivables
faster and extending the payable period. They can also be expedited by shortening the operating cycle (Lawrence, 2010).

Cash flow provides an incisive financial benchmark for small firm performance, and it is used to gauge short-term liquidity and predict long-term solvency (Stockstill et al., 1989). Highly-profitable firms can become insolvent if they are without cash. Cash is the small business entrepreneur's basic frame of reference; the discretionary resource that serves as the standard measure for financial wealth and progress. Cash flow from operations influences management because adequate funds must be generated for an enterprise to maintain its operating capabilities and provide for future growth. A firm's success is measured by its capacity to generate sufficient cash flow from operations to pay its obligations and to enhance its credit rating whilst maximising shareholder value (Scott, 2007; Lawrence, 2010). Cash management models and techniques have been defined in business literature by scholars such as Baumol (1952), Miller and Orr (1966), Stone (1972) Srinivasan and Kim (1986) Ogden and Sundaram (1998), Hinderer and Waldmann (2001), Liu and Xin (2008), Nascimento and Powell (2010), among others. Financial managers are presumed to be knowledgeable of the cash management techniques needed in realising higher outcomes of financial performance. Information about future cash inflows and outflows are used by these financial managers - via the application of models developed by Baumol (1952) and/or Miller and Orr (1966) - in arriving at an optimal (target) cash balance that counterbalances liquidity and profitability (Gamsakhurdia and Batiashvili, 2016).

According to Baumol (1952), cash balances are the same as inventory levels. Baumol's (1952) Economic Order Quantity (EOQ) model evaluated the costs relating to holding cash, describing opportunity costs as interest payments that are no longer paid to firms for not investing their cash, as well as the costs associated with exchanging the investments back to cash (Ross et al., 2002 ). Correspondingly, transaction and transfer costs spent in financing or liquidating these investments are presumed to be constant. The EOQ model by Baumol (1952) pointed out that the use of cash is regular and foreseeable; the amount of cash inflows are known and consistent; routine/daily cash demands are financed using cash from current accounts; and emergency cash are in the form of short-term investments. Furthermore, the model determines the amount of money to be transferred into
the current account or to be converted into short-term investments at any given time. Moreover, the model implies that a small amount of cash should be held in current accounts (as they yield no earnings) when interest rates are high (Michalski, 2009). Even so, the model can only be adapted in situations where the cash needs of a firm can be determined in advance, and where there is a high level of predictability in forecasting the cash flow activities. In like manner, the model recommended marketable securities can be traded without restrictions. (Slack et al., 1997; Waweru, 2011)

Finding the ideal cash quantity that minimises expected costs is a problem of cash management when there is unpredictable demand. With this in mind, the finance manager is considered to be responsible for handling assets that yields interest (e.g. securities) and cash (which yields no interest) (Liu and Xin, 2008). Notably, the assumptions presented by Baumol (1952) were not feasible as it is sometimes beyond the bounds of possibility to predict future cash inflows and outflows. To this end, Miller and Orr (1966) developed the Miller-Orr model which indicated that cash flows are unpredictable, and is ordinarily used by firms to set their target cash balance (Liu and Xin, 2008). Figure 1 below presents an illustration of Miller and Orr's (1966) variation of cash flows.

Figure 1 - Miller and Orr's (1966) Variation of Cash Flows

Source: Adapted from Michalski (2009) and Da Costa Moraes and Nagano (2012).
From the figure above, the higher (H) and lower (L) control limits and a target cash balance (Z) are pre-determined. Whenever the cash balance rises to point H, the £ value of H-Z is converted from cash to marketable securities. In the same way, whenever the cash balance dips to point L, the £ value of Z-L is converted from marketable securities to cash (Michalski, 2009). The lower limit (L) is fixed based on the level of risk (of a cash deficit) the business owner is prepared to take, with attention to the impact of the cash deficit and the firm's ability to access external finance (Michalski, 2009). Not only does the Miller and Orr (1966) model assume there is no specified movement of cash balance at any given period, it also assume the optimal values of 'H' and 'Z' hinges on opportunity costs and the extent to which cash balances fluctuates (Slack et al., 1997; Waweru, 2011).

It is important to mention that the Miller and Orr (1966) model is rooted on the basis of introducing control limits and a target balance that prompts the exchange of cash for marketable securities (or vice versa) once the target is reached, and useful during periods of unpredictability and irregular cash flows. The control limits depends on the constant irregularity in cash flows including the fixed costs of trading securities; however, the greater the irregularity in cash flows and transaction costs, the greater and extensive the control limits. That is to say, the cash balance changes frequently between the control limits. To put it in another way, the moment the cash balance reaches the upper or lower limit, an exchange of cash for marketable securities (or vice versa) is completed in order to bring back the cash balance to its usual position within the control limit (Slack et al., 1997; Waweru, 2011).

In view of the practicality and appropriateness of the Miller and Orr (1966) model to cash management, various research studies using the model have been conducted in many different ways (Ock and Park, 2016). Under these circumstances, subsequent research studies in the area of operations management, economics and finance have examined problems relating to making decisions when managing cash (Jiang and Powell, 2015). Extensions of the cash problem under demand approach by Miller and Orr (1966) were presented by Liu and Xin (2008) and Nascimento and Powell (2010) using online algorithms. Online algorithms have become renowned for having coordinated capabilities in decision making during periods of uncertainty (Liu and Xin, 2008). Algorithms are able to figure out the
optimal value function for small, manageable problems. In effect, they assist (most favourably) in decision making (Puterman, 1994). For example, fund managers have to deal with the problem of mutual fund cash balancing by deciding on the amount of cash to withhold, and at the same time consider the numerous investment opportunities that are available (and on demand) Nascimento and Powell (2010).

Liu and Xin's (2008) study on the cash balance problem revealed that in as much as cash demand can change for various reasons that are ambiguous and non-foreseeable, decision-makers use online algorithms. Liu and Xin (2008) devised an online cash management technique that embodied the lower bound and upper bound of future demand \([m, M]\), and reviewed its efficacy with that of the optimal offline technique. Thus, their study presented the theoretical evidence of the 'conflicting results' of online strategy that can be beneficial to decision-makers in many ways. Nascimento and Powell (2010) also investigated the cash balance problem and suggested static and dynamic models. They also introduced online algorithms to literally figure out the decisions inferred by every cash holding model. Furthermore, they provided empirical evidence in the way algorithms administer policy decisions that are not far from the optimal conclusions without much delay. Online algorithms, in a few words, is an online strategy framework designed to solve cash demand problems when the future demand is unknown; and despite the fact that the optimal offline strategy produces excellent results, the results of the online strategy are reviewed alongside the results of the optimal offline strategy. Accordingly, this technique allows the investigation of the conflicting results of the strategy free of presumptions regarding future events (Liu and Xin 2008).

Research by Liu and Xin (2008) and Nascimento and Powell (2010) extended the Miller and Orr (1966) model by testing whether or not the algorithms developed would understand the three levels of the cash balance policy: the upper bound \((H)\), lower bound \((L)\) and the optimal level of cash \((Z)\). The findings of their research study showed that decisions supported by the use of computer algorithms led to a decrease in the costs associated with cash strategy compared with the decisions administered using the Miller and Orr (1966) model (Da Costa Moraes and Nagano, 2013). Still on the subject of finding the optimal cash balance, these
Cash management models were intended at reducing the costs inherent in moving cash into the current account (which is readily available but does not yield any interest) or converting the cash into short-term investments (which is not readily available but yields interest) at any given time. Therefore, the cash management models were formulated to solve the problem of when to move funds and whether enough funds have been moved at the same time (Michalski, 2009). Generally speaking, recent studies substantiates the belief that online algorithms provide the means for finance managers to estimate the appropriate level of cash flow, allowing the conception of cash management policies that are substantive and suitable for managing the cash balance problem (Da Costa Moraes and Nagano, 2012; Ock and Park, 2016). Even though these models addressed the issue of the efficacy of estimating the optimal cash balance using algorithms, they failed to address the area of managing cash from credit sales (Gamsakhurdia and Batiashvili, 2016).

On account of the above, efficient cash management relates to decisions about the greatest amount of cash to hold by considering the trade-off between the opportunity cost of holding too much cash and the trading cost of holding too little cash (Ross et al., 2008). The type and amount of these costs is to a certain extent controlled by the specific financial policy enforced by the firm (Michalski, 2009). Atrill (2006) stated that careful planning and monitoring of cash flow at a particular period of time is useful in order to decide the maximum amount of cash to hold. Kwame’s (2007) study concluded that arranging a cash balance policy guarantees sound cash management and the investment of surplus cash. The finding accords with findings put forward by Kotut (2003), indicating that cash management is beneficial to the preparation of a cash shortage (and also for the surplus) and this influences the financial performance of firms. AR, or trade receivables are monies customers owe a firm after the seller has delivered a good or service on credit (Horngren et al., 2012). Organisations allow sales on credit so as to protect their market share from competitors and attract potential customers. Credit sales can be risky since cash is not obtained immediately from the sale. The main benefit for firms offering trade credit is that of having a boost in their sales (Horngren et al., 2012).
Trade credit is two-sided consisting of outflow and inflow. However, trade credit is measured in the balance sheet as AR (for the supplying firm) and accounts payable (for the buying firm) and is an arrangement that allow firms to buy goods or services without making an immediate payment (Vaidya, 2011). AR (trade credit outflow/supply) is one of the biggest components of current assets and should be very carefully managed. It is common that today's companies have large investments in receivables, yet there is evidence that a lot of companies lack formal policies relating to how to manage their receivables and credit extension policy (Maness and Zietlow, 2005). Therefore, a firm needs to properly control their investment in AR, including the credit terms, and the credit process (Maness and Zietlow, 2005). Offering customers trade credit is an opportunity cost since the money could be invested elsewhere with the possibility of creating a higher firm value. However, if the firm reduces the level of their account receivables, there is a risk of reporting lower profitability since some customers might turn to competitors that offer trade credit (Maness and Zietlow, 2005).

Table 1 - The relative size of supplier and customer’s influence on trade credit decisions

<table>
<thead>
<tr>
<th>Small supplier</th>
<th>Medium supplier</th>
<th>Large supplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large customer</td>
<td>Customer demands credit and extended payment deadlines</td>
<td>Customer demands credit and extended payment deadlines</td>
</tr>
<tr>
<td>Medium customer</td>
<td>Supplier has some procedures in place for assessing credit risk and uses what information is available</td>
<td>Partial information available and the parties have equal market power. A range of transaction technologies are available</td>
</tr>
<tr>
<td>Small customer</td>
<td>Relationship-based credit: credit decisions are based on trust, personal relationships and reputation</td>
<td>Customer is ‘opaque’ to the supplier, who may refuse credit or impose onerous terms</td>
</tr>
</tbody>
</table>

Source: ACCA (2013)

The above table shows the effect of company size on trade credit decisions in B2B relationships. The supply of trade credit amongst small and medium-sized firms is usually personal, based on trust and reputation, mainly because there is no procedure in place for assessing credit risk. However, the relationship between small firms and large suppliers of trade credit is uneven as the large supplier has the dominant position and can decline credit or lay down excessive credit terms.
2.3.2 Trade Credit Management

Trade credit is used by SMEs since it is easily accessible and is also considered to be a signalling device about the firm, its products and future prospects (Paul and Wilson, 2006). Firms procure funds not only from specialised financial institutions and intermediaries but also from other firms (suppliers), generally by delaying payments. The literature on trade credit has sought to explain why firms opt to borrow from other firms rather than from financial institutions and intermediaries. The traditional explanation is that trade credit plays a non-financial role, i.e., it reduces transaction costs, allows price discrimination between customers with different creditworthiness, fosters long-term relationships with customers, and even provides a warranty for quality when customers cannot observe product characteristics (Summers and Wilson, 2002). These traditional theories explain the existence of trade credit, but they do not offer any explanation as to how financial constraints cause firms to supply trade credit. Financial theories have attempted to fill this gap, with Burkart and Ellingsen (2004) explaining that, in lending, the supplying firm has an advantage over financial institutions. According to Burkart and Ellingsen (2004), supplying firms have an informational advantage that mitigates their exposure to borrowers’ opportunism when it exceeds the bank’s intermediation advantage.

Ideally, wealthy firms without incentive problems, should not need trade credit. Credit constrained firms face credit rationing by banks, and therefore need trade credit. However, both wealthy and poor firms engage in the demand and supply of trade credit. Burkart and Ellingsen’s (2004) liquidation advantage of supplying firms offers some explanation as to why wealthy firms may wish to take up trade credit. It also justifies the use of trade credit by credit constrained and unconstrained firms alike, establishing the fact that firms facing different degrees of credit rationing tend to rely on trade credit to the same extent. This also helps organisations ease borrowing constraints by extending trade credit to their customers. However, Biais and Gollier (1997) propose a credit checking framework in which the supply of trade credit signals the creditworthiness of the buyer. The provision of trade credit is normally used by businesses as a marketing strategy to expand or maintain sales (Pandey, 2005).
For a firm to efficiently collect cash from its overdue debtors, as well as to ensure regular cash flow, the management of trade credit plays a key role. Trade Credit is a more flexible form of financing; and the advantages of using trade credit must be weighed up against the cost. The cost may be high when all factors are considered. Many firms utilise other sources of short-term financing to be able to take advantage of discounts. The savings in the costs associated with trade credit over (compared with other forms of short-term financing) must offset the loss of the flexibility and convenience when there are no alternative sources of short-term credit (Horne and Wachowicz, 2008). Repeated interactions between suppliers and customers can result in sunk costs, which can drive trade credit provision. According to Ross et al. (2008), firms that are proficient in receivables management should dictate their maximum allowable credit which reduces the total costs of offering credit. Moreover, as observed by Michalski (2007), a rise in the AR level of a firm builds up the net WC and the cost of holding (and managing) AR, results in a decline in the value of the firm.

Another study by Lazaridis and Dimitrios (2006) found that firms that seek to boost their AR to a maximum level benefit from increased sales and market share, and thereby strengthen their profitability. Juan and Martinez (2002) emphasised that firms can create value by decreasing their AR activity, thus validating the finding of De Loof (2003) who concluded that having a longer receivables collection period has an adverse effect on a firm’s performance. In addition, a study by Sushma and Bhupesh (2007) also affirmed that setting up a solid credit policy enables correct debt collection procedures and is crucial for improving efficiency in receivables management as well as the performance of firms. Efficient AR management augmented by a shortened creditor’s collection period, lower levels of bad debts and a sound credit policy often improves a businesses’ ability to attract new customers and to increase its financial performance. This explains the need for a sound credit policy that will ensure SME value is optimised (Ross et al., 2008).

The basic goal of credit management is to maximise the value of the firm by achieving a balance between liquidity and profitability. However, the firm should manage its credit offering in such a way that sales are expanded to the extent that risk remains within an acceptable limit. There is need to maintain a reasonably balanced working capital. For such a
policy to be implemented, management must give thought to the total investment required in current assets (i.e. the overall amount and level of investment needed in every type or mix of current asset and the way in which current assets would be financed). Smith (1980) argued that WC policies should look upon the structure of the firm’s business dealings since various firms will have varied WC requirements. The next section looks into the traditional relationship between WCM policies and a firm's profitability. The management of short-term assets and liabilities (working capital) plays a crucial role in a firm's profitability and risk as well as its value (Smith, 1980).

2.3.2.1 Types of Working Capital Policies

The efficient management of WC is a fundamental part of the overall corporate strategy in creating shareholder value. Firms try to keep an optimal level of WC that maximises their value (De Loof, 2003; Afza and Nazir, 2007). WCM is a simple and straightforward concept of ensuring the ability of an organisation to fund the difference between its short-term assets and short-term liabilities. In practice, WCM has become one of the most important issues for organisations in which many financial executives are struggling to identify the basic WC drivers and an appropriate level of WC (Lamberson, 1995). As a result, companies can minimise risk and improve their internal performance by understanding the role and drivers of WC management. Filbeck and Krueger (2005) highlighted the importance of efficient WCM by analysing the WCM policies of some non-financial firms in the United States. According to their findings, significant differences exist among industries in WC practices overtime. Moreover, these WC practices change significantly within industries over time. WC policies are associated with a firm’s level of WC management, and these can be described as aggressive, conservative, and moderate.

With regards to levels of investment in WC, an aggressive policy relates to a situation whereby the firm decides to trade with lower levels of inventory and trades receivables for a given level of activity or sales. This results in an improvement in profitability as little cash will be combined in current assets and this increases the risk of being out of inventories (Bratland and Hornbrinck, 2013). The conservative policy is flexible for a given level of
turnover, and is related to keeping large cash balances, whilst investing in short-term securities. It grants more liberal credit terms to customers and means a higher level of inventory can be held. This type of policy brings about a minimal risk of financial or inventory issues at the detriment of lowering profit. A moderate policy finds a balance between an aggressive policy and a conservative policy (Bratland and Hornbrinck, 2013). Weinraub and Visscher (1998) discussed the issue of aggressive and conservative WCM policies in US firms. Their study considered 10 diverse industry groups to examine the relative relationship between their aggressive/conservative WC policies. Their study concluded that the industries had distinctive and significantly different WCM policies. Moreover, the nature of the WCM policies exhibited remarkable stability. In addition, the study found that when relatively aggressive WC asset policies are followed, they are balanced by relatively conservative WC financial policies.

There is a long standing debate about the risk/return trade-off among different WC policies (Brigham and Ehrhardt, 2004). More aggressive WC policies are associated with higher return and risk, while conservative WC policies are associated with lower risk and return (Weinraub and Visscher, 1998). Afza and Nazir (2007) investigated the relationship between aggressive and conservative WC policies, and found significant differences among their WC investment and financing policies across different industries. They identified a negative relationship between the profitability measures of firms and the degree of aggressiveness of WC investment and financing policies. It should be noted that there are no certain reference points in terms of what depicts a standard, aggressive or conservative policy, but identifying the above characteristics will assist companies in analysing the various approaches they use in dealing with WCM problems.

Financing WC policies is also an important aspect of WC management, as the difference between business continuities is central to this. In order to help analyse policy decisions in terms of the financing of working capital, it is important to understand that a company’s current assets can be broken down into two portions: permanent current assets and fluctuating current assets (Cheatham, 1989). Permanent current assets represent the core level of investment needed to sustain normal levels of business or trading activity, such as investment in inventories and investment in the average level of a company’s trade receivables. The
permanent current assets are individually short-lived assets, and they are always there - hence, ‘permanent’ assets will always need to be financed. Fluctuating current assets relate to the differences in the level of current assets from ordinary business operations. That is, they are assets that represent the seasonal build-ups that occur (e.g. inventories) before Christmas and (receivables) after Christmas. The fluctuating current asset levels should be financed on a short-term basis since firms do not want to pay financing charges all year round if the funding is only needed for a four-month period (Cheatham, 1989).

An SME’s policy on financing WC is either based on an aggressive, conservative or matching funding policy. An aggressive funding policy utilises short-term funds to finance fluctuating current assets as well as some permanent current assets. It provided increases in profits and shareholder value but it is risky in terms of financial competence (Brigham and Ehrhardt, 2008).

**Figure 2 - Financing Current Assets under the Aggressive Policy**

![Financing Current Assets under the Aggressive Policy](image)

*Source: Ogilvie (2009).*

A conservative funding policy uses long-term funds to finance permanent current assets and some fluctuating current assets (seasonal needs) as well; therefore, there is less reliance on short-term funding. The financing is available when it is needed, but it costs more during the times when it is not needed. Consequently, the profit and risk attached to such a policy is more pronounced due to the higher cost of long-term financing (Brigham and Ehrhardt, 2008).
A matching funding policy uses short-term finance to fund fluctuating current assets while permanent current assets and fixed assets are funded by long-term finances. The maturity of the funds effectively equals the maturity of the various kinds of assets (Brigham and Ehrhardt, 2008).

Source: Ogilvie (2009).
De Loof (2003) found that the way in which WC is managed has a significant impact on the profitability of businesses. However, used trade credit policy and inventory policy are measured by the number of days of AR, accounts payable and inventories, and the operating cycle as a comprehensive measure of WC management. De Loof (2003) also found a significant negative relationship between gross operating income and the number of day’s AR, inventories and accounts payable. Thus, the study suggests that managers can create value for their shareholders by reducing the number of day’s AR and inventories to a reasonable minimum, and also that less profitable firms wait longer to pay their bills.

Zariyawati et al. (2009) studied the relationship between profitability and the length of the operating cycle. Their analysis suggested a strong negative significant relationship between operating cycle and firm profitability. The traditional view of the relationship between the operating cycle and firms’ profitability is that, all things being equal, a longer operating cycle hurts the profitability of a firm. Shin and Soenen (1998) argued that firms can have larger sales with a generous credit policy, which extends the operating cycle. This discourse reflects the significance of the WC and the need to manage cash flow as effectively and efficiently as possible. By and large, the goal of effective cash management is to maintain an adequate level of cash reserves that produces a trade-off between the costs of managing cash balances and the costs of retaining insufficient cash balances. As mentioned in page 45, the type and amount of these costs is to a certain extent controlled by the specific financial policy enforced by the firm (Michalski, 2009). By all means, Gamsakhurdia and Batiashvili (2016, p.39) noted that "there is no generally accepted definition of cash flow management method that can be widely used by corporations for achieving the best result of financial performance". Their study ultimately mentioned the enhancement of the knowledge and skills needed to manage cash flows as the prerequisite for any business survival and developmental growth.
2.3.2.2 The operating cycle

Figure 5 - The Operating Cycle of a Firm (showing Cash-to-Cash Period)

The operating cycle is much like managing sales credit (i.e. trade credit management). Moti et al. (2012) pointed out that credit management starts with the sale and does not stop until the full and final payment has been received. It is as important a part of the deal as closing the sale. In fact, a sale is not a sale until the money has been collected. Cash flow and the operating cycle are critical components of overall financial management for all firms, particularly for those who are capital rationed and more reliant on short-term sources of finance (Garcia-Teruel and Martinez-Solano, 2011). The operating cycle begins and ends with cash: there is no alternative way. Cash can be converted into inventories, which are then sold and become AR. When these invoices are paid, it automatically turns into cash again. This received cash now re-enters the books, with a view to repeating the whole cyclical process. The ultimate goal of the firm is to ensure there is more cash at the end of the process than is spent at the beginning. This represents the concept of the gross profit (Garcia-Teruel and Martinez-Solano, 2011).

As mentioned earlier, some large companies can effectively dictate the terms of their relationships to their B2B customers and, in the process, can extend their due payment
This might be detrimental to small firms as they lack the market power to bargain with large firms, forcing SMEs to accept settlements at a later date (Atrill, 2006). However, aside from the illustration of both WC and the cash conversion cycle shown above, Sayed and Sayed’s (2013) position seems to simplify the relationship between the WC Cycle and operating cycle by connecting the two concepts into one interpretation. Therefore, the working (operating) capital cycle is the time that elapses between investing in a product or service and receiving payment for that product or service. The starting point of the operating cycle is usually when the business purchase raw materials or hires people for the service, and the ending point of the operating cycle is when the customer makes the payment regardless of whether the payment is made in advance, or at the time of purchase or if it is made later owing to a sale on credit (Sayed and Sayed, 2013).

In Pakistan, Rehman (2006) examined the impact of WCM on the profitability of Pakistani firms, studying the impact of the different variables of WC management, including average collection period, inventory turnover in days, average payment period and operating cycle. The author explored these in terms of their impact on the net operating profitability of firms. Rehman (2006) found a negative relationship between the WC ratios mentioned above and the profitability of firms. Additionally, he suggested that managers can create positive value for the shareholders by reducing the operating cycle to reach an optimal level. Previous studies examining the impact of WCM on the profitability of firms using the operating cycle (where a shorter operating cycle represents the aggressiveness of WCM) indicated a significant negative relationship between the operating cycle and profitability. All of these studies point to the fact that the more aggressive a firm’s WC is managed, the higher its profitability. De Loof (2003) analysed a sample of large Belgian firms, and demonstrated their ability to improve profitability by reducing the number of days AR are outstanding. They also reduced inventories towards better profitability. Teruel and Solano (2005) suggested that managers can create value by reducing the number of days they carry out AR and inventories. Similarly, shortening the operating cycle also improves profitability.

The empirical question as to whether a short operating cycle is beneficial for profitability has been approached in previous literature. Azam and Haider (2011) investigated the impact of
WCM on the performance of non-financial institutions. The findings show that WCM has a significant positive impact on performance. They concluded that managers can increase the value of shareholders and returns on assets by reducing their inventory size, operating cycle and net trading cycle. Furthermore, Lazaridis and Tryfonidis (2006) investigated the relationship between corporate profitability and WCM, and discovered that a statistically-significant relationship existed between profitability and the operating cycle. They found that businesses can create profits for their companies by correctly handling the operating cycle and keeping each component of it (that is AR, accounts payable and inventory) to an optimum level. Ross et al. (2008) explained that shortening time-cash is confined within the operating cycle to improve the output of the firm and its market value. Hence, this affirms the importance of an effective cash management procedure in improving small business cash flow.

2.3.2.3 The cost of trade credit

Trade credit involves a cost for the use of funds over time, so it is important to consider who bears the cost. The burden may fall on the supplier, the buyer, or both parties. The supplier may be able to pass the cost on to the buyer in the form of higher prices. There are other circumstances under which the supplier is able to pass costs onto the buyer (Horne and Wachowicz, 2008), and these are explained below:

Banks are important finance suppliers or intermediaries and have a cost advantage in providing finance. In terms of demand, trade credit appears to be an interest-free loan from suppliers, but it carries an implicit cost. Emery (1987) states that suppliers may pass on costs to buyers in the form of higher purchase prices. Therefore, buying firms should negotiate a good purchase price and decide whether to take advantage of cash discounts offered by the suppliers. Furthermore, the buyer negotiates satisfactory credit terms with suppliers in terms of the length of the credit period allowed. Having come to an agreement over the credit period, a firm should not try to make payments outside of the agreed time. Delaying payment to suppliers is not an advisable option if a firm wants to improve its working capital. Rafuse (1996) argues that such a tactic is inefficient, both for the individual firm and the economy at
large. Organisations that go beyond agreed credit limits may run into trouble since they can lose out on cash discounts, incur interest charges and upset their suppliers who may refuse future orders (Dunn, 2001).

Firms that sell on credit have a policy that includes their terms of credit. For example, ABM Auto Parts and Accessories sells to auto garages (e.g. McMillan Auto and Recovery Services) on the terms of 2/10, net 30. This means that the supplier gives customers a 2% discount if payment is made within 10 days of the invoice date, but the full invoice amount is due and payable within 30 days if the discount is not taken. If an item that costs £100 is supplied under the terms 2/10, net 30, the price of the goods is £98, and the customer has 10 days in which to pay. If the firm does not pay within 10 days, there is a finance charge of £2 for the use of the goods for the next 20 days. When expressed in those terms, the interest charge becomes evident (Brigham and Ehrhardt, 2004; Mayo, 2012). Therefore, trade credit is not free, since the supplier permits the buyer to use goods for no explicit charge. However, there is a misconception in terms of what constitutes the price of the goods and the interest charged. In finance, the price of a product is the discounted price, since that is the price the buyer pays if cash is available. The full price therefore includes the discounted price plus a penalty for not paying the bill promptly. This penalty should be treated as the interest charge for the use of the goods (Mayo, 2012).

According to Brigham and Ehrhardt (2004), the true price of ABM’s products is the net price, or 0.98 times the list price, because any customer can purchase an item at that price, as long as payment is made within 10 days. As the items supplied are listed at £100, the true price to the customer is £98. If the customer wants an additional 20 days of credit beyond the 10-day discount period, they must incur a finance charge of £2 per item supplied on credit, thus, the £100 list price consists of two components:

\[ \text{List price} = \£98 \text{ true price} + \£2 \text{ finance charge}. \]

McMillan Auto and Recovery Services should determine who is bearing the cost of trade credit and should shop around for a better deal before turning down discount to obtain the additional 20 days of credit. For instance, if McMillan Auto and Recovery Services buys £650,000 worth of automobile parts and accessories on credit from ABM Autos and
Accessories each year at the net, or true price the credit offered by ABM Autos has a cost. Specifically, McMillan Auto and Recovery Services must pay a finance charge equal to the 2% discount which is foregone. McMillan Auto and Recovery Services buys £650,000 worth of automobile parts and accessories at the true price, so the added finance charge would increase the total cost to £650,000/0.98 = £663,265. Therefore, the annual financing cost is £663,265 - £650,000 = £13,265 (Brigham and Ehrhardt, 2004). The customer should recognise that the cost of trade credit changes over time. In periods of rising interest rates and tight money, suppliers may raise the price of their products to take account of the rising cost of carrying receivables. This rise should not be confused with other rises caused by changing supply and demand conditions in the market (Horne and Wachowicz, 2008).

As stated earlier, if a firm that has a product for which demand is slow and decides to offer trade credit to their customers, they may be reluctant to increase the price of the product. Such a supplier may end up absorbing most of the cost of trade credit. The granting of credit, and the costs involved in managing credit, such as cash discounts, losses caused by bad debts, credit collection and management costs make up the additional costs connected with giving out trade credit likely to rise, as the amount of trade credit allowed goes up. Losses incurred due to a refusal to give out credit are opportunity costs which diminish when there are increases in the amounts of AR (Mathur et al., 2010). To maximise the value of the firm, these costs must be controlled. These costs thus include the credit administration expenses, bad debt losses and the opportunity costs of the funds tied up in account receivables. The aim of credit management should be to regulate and control these costs, and not to eliminate them altogether. The cost can be reduced to zero, if no credit is granted, but the profit is foregone against the expected volume of sales arising due to the extension of credit (Mathur et al., 2010).

Extending liberal credit pushes sales up, and thus results in higher profitability. However, the increasing investment in AR results in increasing costs, and therefore, a trade off should be sought between the cost and benefits of granting trade credit to bring investment in AR to an optimum level (Mathur et al., 2010). Cunat (2007) revealed a supplier-customer relationship that involves tailor-made products, learning by doing, and other sources of sunk costs which
generate a surplus that increases with the length of the relationship. This surplus increases the amount of credit that suppliers are willing to provide because it ties buying firms to particular suppliers, thereby increasing the scope to punish non-payment and/or late payment.

2.3.3 Late Payment of Trade Credit: A drag on firm liquidity

According to Cosh and Hughes (1994), small businesses use short-term sources of finance as well as trade credit instead of long-term sources of finance since these options provide flexibility. However, Pike and Cheng (2001) suggested that customers are likely to pay late when they experience a shortage in liquidity. Moreover, where firms are insufficiently solvent to be able to operate effectively owing to constraints in supply or demand, or both, they will be incapable of managing cash flow problems. Under such circumstances they become conscious of being paid late by their own customers, although late payments will present a knock-on effect as they are handed down from one customer to another (Wynarczyk, 2000). This can lead to some buying firms habitually paying late, while some others occasionally pay late. The habitual late payment may result in strained relationships with suppliers (Howorth and Reber, 2003).

As mentioned in Chapter 1, empirical evidence in relation to trade credit raises a question that is hard to reconcile with existing theories; that is, why are late payments a perennial problem amongst firms? In 1997, the UK Government intervened to sort out the late payment problem with the aim of improving the payment culture amongst UK businesses by introducing the Late Payment of Commercial Debts (interest) Act (1997) (Wilson, 2008). A payment is regarded as late when it is paid after the due date of the contractually-agreed credit period. It is also considered late when the credit period in agreement with local trade procedures between the parties involved is breached, or where the default credit period as stated in the regulation is not adhered to. The regulation relates to money owed from a contract for goods or services supplied commercially. In a situation where the contract agreement outlined no credit period, or where no contract agreement was drawn up, the regulation suggests 30 days as the default credit period after the dispatch of the payment invoice (Wilson, 2008).
Even though the UK Late Payment of Commercial Debts (interest) Act (1997) gives businesses a statutory right to claim interest if another business pays its bills late (CIMA, 2010), Howorth and Wetherhill (2000) discovered that suppliers are unlikely to charge interest on late payments where the association between suppliers and buyers is thought to be necessary. From a trade supply point of view, smaller firms struggle to apply credit terms because of irregularities in relation to bargaining power. This is specifically the case when they rely on the patronage of one customer, or a small group of influential customers (Howorth and Wilson, 1999; Wilner, 2000; Wilson and Summers, 2002). Generally, small businesses are, to a greater extent, risky and usually pay late. Therefore, suppliers to small growing firms may be unwilling to impose credit terms because of the possibilities of doing more business in the future (Wilner, 2000).

Small firms pay late when their affiliation with suppliers are un-substantial. This is especially the case where there is a diverse choice of suppliers, or in cases where there is a weak relationship between the two parties (Howorth and Wilson, 1999; Pike and Cheng, 2001). Where customer concentration is evident – suppliers have very few customers, and with a significant proportion of sales concentrated in very few customers – sellers can be at a serious disadvantage when it comes to trade credit (Blome and Schoenherr, 2011). Dominant customers can make excessive demands for trade credit in the knowledge that the supplier cannot afford to lose them as buyers (Paul and Wilson, 2006). Thus, suppliers are left bearing disproportionate late or non-payment costs. Collis et al., (2013, p.13) found that “large companies are using small firms as their banks and exploiting their negotiation power and small businesses very often have ‘to accept the trade credit terms of a large customer’.

The UK government’s response to the consultation paper ‘Building a Responsible Payment Culture’ published by the Department for Business, Innovation and Skills (DfBIS, 2013) opined that although most companies say they value good relationships with their suppliers and seek sustainable supply chains as an important part of their business strategy, evidence suggests that large companies at the top of supply chains are amongst the worst late payment offenders. According to the Chartered Institute of Management Accountants (CIMA, 2010), the amount owed to smaller firms in the UK increased to more than £8.3bn even before the worst of the credit crunch hit. This observation was made by a Barclays Local Business
survey conducted early in 2008. Further to this, CIMA (2010) disclosed that late payment is not a problem that is unique to the UK. In Australia, a Dun & Bradstreet report published in April 2008 revealed that the average payment period across all industries had reached 55.8 days.

In addition to the above, Pike and Cheng (2001) suggested that customers are likely to default on paying within the credit period when operating on a low cash flow level. Besides, the procedure for seeking extra funds to manage a small business may be onerous due to the lack of administrative expertise and less effective financial management systems peculiar to the small business (Howorth, 1999). Even though transaction demand helps to explain the rationale behind decisions to supply and demand trade credit, this does not explain why firms decline to pay within contracted credit terms, missing out on early payment discounts and eventually paying high interest rates (Wilner, 2000). Small firms with insufficient financial management skills may not know that there is a high cost associate with trade credit inherent in foregone discounts. Therefore, firms that miss early payment discounts pay the full price of trade credit. However, late payment makes the price of trade credit become inexpensive as late payment charges are rarely imposed (Wilson and Summers, 2002). Moreover, the supplier of a product/service may include the charge for late payment in the price of their product/service.

According to Wilson et al., (1995), poor credit management practices are one of the fundamental reasons for late payment, however, dependence on trade credit and short-term finance and a heightened consciousness of customers defaulting on their payments are amongst the other acknowledged reasons for late payments. According to Atrill (2006), there is evidence that many small firms are not very good at managing their WC despite investing significantly in current assets in proportion to their total assets. Most small businesses are managed without a credit control department, suggesting that they may lack the knowledge and capability to make robust decisions. They may not have the right processes/systems to collect money owed by customers. Nonetheless, Atrill (2006) suggested that small businesses are exposed to higher risks from late payment when there is a rise in the number of defaulting customers. As a result, they may refuse to grant credit to customers with credit risks.
Also, Bowen et al. (2009) revealed that 55% of the population surveyed identified debt collection as one of the top five main concerns that are faced by micro and small businesses. The relationship between customer and supplier is a very crucial component of trade credit (Pike and Cheng, 2001; Wilson and Summers, 2002). Firms that are generous when it comes to offering trade credit increase their profitability, but this can lead to cash flow problems. Such firms would have to rely on very specific financing tools like leasing and factoring, and may end up having to chase payments from customers if overdue payments are not collected. In addition to this, such firms tend to rely on informal sources of finance including personal credit cards and loans (Wingborg and Landstrom, 2000; Lazaridis and Dimitrios, 2005; De Loof et al., 2007). However, these sources can typically cover only a small proportion of the financial needs of small businesses, and very often only last for a very short period.

The key to improving a firm’s ability to collect overdue accounts is to get organised. For many businesses, credit management is important when it comes to collection, Credit management is linked to activities such as establishing clear credit policies, negotiating, risk screening, and the use of credit information. Even though the level of success with trade credit management practices is, to a great extent, influenced by external factors such as industry norms, the level of business activity, and seasonal factors, there are a lot of internal factors which include credit terms, standards, limits and collection procedures that influence the level of average receivables (Mathur et al., 2010). These internal factors should be well administered to optimise investments in average receivables, and this type of activity is focussed upon in particular in this research. Many measures have been put in place to try to alleviate the effects of late (or non-payment), but to date these have been regarded as ineffective, as small businesses find it more difficult to exercise their statutory rights or enforce payment codes of conduct (Paul and Boden, 2011).

It has been argued that credit terms are heterogeneous between sectors as they can be contingent upon particular structural characteristics and habits (Paul, 2010). For instance, Paul and Boden (2012) found that in the construction sector, the complexity of supply chain relationships meant that respondents in this sector were a very fruitful source of further
contacts under the snowball sampling approach. This is an industry in which owners network extensively with each other. Given the nature of this sector, suppliers tend to agree on a pay-when-paid system which increases the risk associated with the supply chain collapsing in a domino-effect. Even when a pay-when-paid clause is not in the contractual details, some customers literally cannot pay their suppliers unless they collect the cash from their own customers themselves, with the same result (Paul and Boden, 2012). However, others find that firms may prefer to pay within the agreed terms to support the supply chain and this helps the suppliers stay in business and carry on supplying the buyers (Paul and Boden, 2012).

As pointed out above, putting in place a sound credit policy ensures proper debt collection procedures and is pivotal in improving efficiency in receivables management, hence the performance of firms (Sushma and Bhupesh, 2007). Fabbri and Menichini (2009) suggested that firms with unused lines of bank credit also demand trade credit. This suggests that suppliers of trade credit are able to observe their own transactions with buying firms, and can therefore become better equipped with knowledge of the latter’s payment pattern. It can be said that the effectiveness of the suppliers’ credit control procedures can lead to a reduction in late or non payment by buying firms. As such, this study examines the credit management practices, including the levels of the financial management skills of UK small business owners in order to better understand how credit control practices and skills can improve their firm’s cash flow and internal performance.

The literature on WCM methods recognises the efficiencies of inventory management, receivables management, and cash management as grounds for financial performance. An increase in the efficiency levels of cash, receivables and inventory management practices can lead to improved financial performance. As seen above, firms supplying trade credit require credible information from borrowing firms in order to meet credit requests, and in order to ensure the repayment of the credit offered. Both sides need reliable information to make sure that their needs are satisfactorily met (Giddens, 1984). Bradley and Rubback (2001) emphasised the need for financial knowledge and access to relevant financial information to support informed decision making. Such decision making is crucial to SME success; and it is
therefore imperative for small businesses to make sound financial management decisions in order to be able to secure adequate levels of cash flow.

2.4 The Role of IT in Business

There are various motives to carry out research into IT in business, and it is not difficult to understand why firms have started to use Management Information Systems. Some of the motives include the uncertain business environment; the extended usage of IS and improvements in IT; increases in complex business practices and networks, problems of globalisation, decreases in the life cycle of products and the demand to effectively manage cross-functional processes. There is a large body of literature on the role of IT in business. Clarke (1994) describes how IT has evolved over the years — from its initial role 1960's as a way of automating business processes, through to its recognition in the 1970's as way of helping to better manage and control an organisation. IT in the 1980's was about using technology for strategic advantage. Over the last decade, these studies have emphasised the role of IT in fundamentally changing the way firms operate to generate a strategic impact. One of the more important roles of IT is to transform organisational boundaries, inter-organisational relations, the competitive marketplace and cooperative practices (Konsynski, 1993; Simon and Grover, 1993, cited in Dandago and Usman, 2012).

IT vendors, and consultants have concentrated on the increased uses of IS, hence, there is currently a large expansion of integrated IS which has emerged to help its users make decisions to improve performance management and control. However, these systems were regarded as management accounting innovations. Advances in IT have led to changes in information gathering, evaluation and analysis, and also changes to the transmission of information inside and outside of organisations (Burns and Vaivio, 2001). The introduction of ERP systems in the 1990s brought about changes that combined the entire business cycle into a single system, allowing firms to manage and monitor their operations more efficiently. ERP vendors proclaimed that an ERP system could assist in the strategy process of its users. This proclamation did not come to pass, however, and the ERP systems turned out to be efficient but not effective (Davenport, 1998). Despite the fact that ERPs were acknowledged as useful
for supporting business management accounting and operational activities, such as data collection and transaction administration, the system lacked the advanced mechanisms needed to assist in management accounting and control (Booth et al., 2000; Rom and Rhode, 2004).

In addition to this, these studies addressed the use of ERPs in a general way, without explicit consideration of their impact on the fitness of the firm (including increase in performance). Computerised accounting technologies are electronic-based systems that prepare and process economic information. They assist with decision tasks relating to financial management and the control of business operations (Nicolaou, 2000). Acceptance of this technology is driven by five factors which are trialability, compatibility, complexity, observability, and relative advantage (Rogers, 1995). The implementation and success of accounting information systems amongst SMEs have been extensively researched. Previous research has focused on the relationship between the alignment of strategies with information systems. Such studies have found a positive relationship between strategy and strategic IT (Li and Ye, 1999). A study conducted by Shin (2001) found that investments in IT systems will be more effective if the utilisation of the system is matched with the firms’ strategy.

Cragg et al. (2002) supported the above argument, stating that the use of IT systems that is matched with a business strategy has a positive influence on a firm’s performance. In addition, Davenport (1998) highlighted the relevance of an appropriate match between the requirements of firms and the capabilities of the IT system. Computerised accounting technologies that improve the planning and assessment of the enterprise’s financial situation and performance by converting financial data into a suitable, dependable, applicable, acceptable and comparable format to both internal and external stakeholders are usually adopted and implemented by firms (Wood and Sangster, 2008). Computerised accounting technology improves cost-effectiveness, and helps to simplify knowledge delivery, thereby strengthening business operations and the decision-making processes (Romney and Steinbart, 2009; Sajady et al., 2012).
Computerised accounting technology should be appraised through managerial, organisational and environmental contexts, suggesting that the effectiveness of the system is based on each firm’s purpose and situation (Otley, 1980; Sajady et. al, 2012). As a result, systems appraisal should be based on the satisfaction of its users, the reliability of the system, and the quality and enhancement of tasks. Stefanou (2006) suggests a fit between the technology, the firm, and its environment, together with the social and ethical factors needed to assist in the selection and efficient application of the technology. In addition to the above, Nicolaou (2000) pointed out that the perceived satisfaction of users of the technology is demonstrated by system suitability in terms of their ability to effectively monitor situations and provide accurate output information. Also, the impact of system suitability on the perceived quality of information content in system outputs and user satisfaction is somewhat substantial.

This indicates that, compatibility with organisational and professional norms, values, and culture is critical to the perceived effectiveness of the technology (Nicolaou, 2000). Bruque and Moyano (2007) investigated factors that influence the adoption of IT in SMEs, and concluded that the adoption of IT by SMEs was mainly influenced by the perceived benefits of implementing the systems. This stems from pressure exerted upon businesses by competitors, customers, and suppliers to ensure business continuity and survival in an increasingly competitive environment. There are various studies that have explored the effect of ERPs on management accounting and management accountants (Granlund and Malmi, 2002); but the acquired understanding is entirely diverse (Granlund, 2010).

As mentioned in chapter 1, Evans and Smith (2004) produced research about competitive advantage that can be gained from using the internet, and the relationship of such a strategy to the value chain. They developed a model that summarises the importance of the internet as a business channel, and demonstrated that the internet is an essential new business channel that creates a rational enhancement to the value chain. Matolcsy et al. (2005) used a modified value chain to identify financial ratios for each part of the value chain to indicate advancement due to the adoption of ERP systems. The financial ratios were followed up on for two years for the group of companies that adopted ERP systems on the one hand, and the group of companies that did not adopt ERP systems on the other hand.
Additionally, a study by Wieder et al. (2006) challenged the claims of vendors of ERP systems on the benefits of the ERP system, whilst at the same time providing evidence of the benefits of packaging ERP systems with SCMS. They collected data on many different areas of performance in organisations that used ERP systems and/or SCM systems and, the relevant control groups. They used financial key performance indicators to evaluate total firm performance, and the supply-chain activity model to evaluate performance at the business process (supply chain) level. Even though these studies demonstrate the influence of information systems on organisational performance, revised versions of the ERP systems, i.e. the AIS were later introduced, but were marked as out-of-date or overly-simplified perceptions of technology and accounting practice (Dechow and Mouritsen, 2005; Granlund, 2010).

There has been considerable evidence that, within SMEs, financial accounting has remained the principal source of information for managers (Saira et al., 2010). These studies have also found that SMEs continue to be compromised by ineffective information management and poor system controls. They also suggest that most decision making takes place on an ad hoc basis despite having used AIS. Marriottt and Marriottt (2000) however explained that financial awareness among SME managers varies considerably, and the use of technology for the preparation of management accounting information has not reached its full potential. Therefore, small business owners and managers need updated, accurate and timely accounting information (Amidu, 2005). However, a new set of benefits have been highlighted in respect of AIS: for example, improvements in costing and facilitates monitoring and control systems (Ismail and King, 2005). On the other hand, further disadvantages that are associated with AIS have also been highlighted; for example, the use and scope of AIS is understood to be limited or narrow, compared to the ERP, which is a relatively newer system that offers a wider scope and greater functionality (Liu, 2012).

Previous studies have shown that firms that acquire extensive IT resources are able to create competitive advantage (King, 1989). As explained earlier, Granlund (2010) identified AIS as an area with hardly any influence over either the accounting or the IS fields. Granlund (2010) and Dillard (2008) agreed upon various helpful and relevant outcomes that might serve as the
groundwork for an extended research plan. However, a critical point that was raised was that of relevance versus rigor. It was argued that research focused on AIS was overshadowed by rigor at the expense of relevance. This depiction of the absence of relevance reiterated in a critique of research into AIS which suggests AIS is bound in perceptions of technology, as well as accounting practices that are out-of-date (Granlund, 2010). In any case, research shifted gradually away from the belief that ERP systems contained all the procedural techniques required to assist an organisation (Rom and Rhode, 2004). Berry et al. (2009) suggested that management accounting and IT is an emerging and under-researched area within management accounting. They called for more research on how new technology generates advanced capabilities for management accounting. They suggested that the impact of the task on accounting and controlling required further investigation. There is evidence of the increased use of new technology within AIS. Researchers have therefore called for additional research to be conducted in the areas of management accounting and control, and the relationship between the ERP and AIS (Sutton, 2006; Rom and Rohde, 2007; Granlund, 2010).

It is fair to say that currently no research has been conducted into online accounting technology, and research has yet to explain the use of this new technology in real-world companies. This chapter therefore looks into the use of OAS (an area relating to AIS) and will attempt to add empirical evidence to knowledge of online accounting practices, thereby partially addressing some of the calls for new research in the area of IS and management accounting and control (Jordan et al, 2008; Granlund, 2010). As information technologies increasingly evolve, manual accounting systems have become somewhat unsuitable for decision making requirements. Consequently, computerised accounting systems are viewed as vehicles to provide efficient and effective flows of information in the recording, processing, and analysis of financial data. Such efforts improve the decision-making process and broaden the capacity of firms to fulfil their business strategy objectives – which may extend their survival chances (Platt and Platt, 2012).

In the modern business environment, information system for communicating with customers and managing AR collections and disputes are emerging and are increasingly targeted towards trying to improve payment collections (cash flow) as well as optimising both internal
and external relationships and procedures. This helps small firms to avoid drawing down on expensive lines of credit (Cohen, 2005; Burnett, 2005). Financial Management Information Systems have gained a place in standard accounting and financial information management. These systems are being used largely to manage (or at least, trigger) order tracking and payment management (Cohen, 2005). The systems can be purchased from various online distribution outlets, saving time and cost for small businesses (Carmel, 1997; Caldeira and Ward, 2002). The next section discusses the latest financial management technologies (OAS) and, as stated earlier in this section, the section partially addresses some of the calls for new research in the area of IS and management accounting and control.

2.5 OAS – A New Form of Computerised Accounting Information System

OAS is the latest development in management accounting and Information Systems, after ERPs and AIS. They are cloud-based application systems that use the internet to access and maintain business accounting records. They conduct tasks such as bookkeeping, accounts production, and payroll administration and they ensure compliance with associated statutory regulatory responsibilities. This makes it much easier for SMEs and associated parties to remain in compliance (ICAEW, 2010). This system combines the methodologies, controls and accounting (management and financial) techniques with technology, user interfaces, and sophisticated software. According to Greenberg et al. (2012), an OAS is a web-based application aimed at small and middle-sized businesses.

In order to use the OAS, a business pays a monthly subscription fee to the online accounting service provider. Authorised users, including the business owner (and employees), can visit the web site of the OAS provider, log into the system, and process accounting transactions. OAS has several advantages. Firstly, multiple authorised users can access these systems from anywhere, and at any time to consolidate accounting and financial management data across departments, offices or territories instantaneously. In this way they can generate updated reports in real-time. Secondly, the user’s data are stored in a central database operated and maintained by the service provider. The service provider is responsible for data back-ups and security. Thirdly, the client need not be concerned about upgrading the software, since the service provider automatically updates the software regularly (ICAEW, 2010; Greenberg et
al., 2012). This raises concerns about security and the safety of business, and the safety of financial data belonging to the small businesses who implemented the OAS.

Information security threats include wreckage as a result of fire incidents and natural disasters as well as access by unauthorised persons, divulgence, and the alteration or elimination of accounting data (Loch et al., 1992). Abu-Musa (2006) suggested that incorrect data entry, together with the elimination of reliable data, the initiation of computer viruses, password disclosure by employees, and mishandling and divulging information and prints to unauthorised persons can be seen as consequential security threats to Computerised Accounting Technology. Romney and Steinbart (2009) also suggested that natural and political disasters as well as software blunders and defects in equipment are threats to computerised accounting technology. Hood and Yang (1998) also emphasised the risk of malicious attacks from unauthorised persons as the biggest consequential security threat since these are caused by authorised persons who appear to be carrying out lawful interactions. This means that one of the main risks to security is the firm’s employees (Abu-Musa, 2004). The effects of these incidents are disorganised business operations to losses and failure in financial performance (Loch et al., 1992; Abu-Musa, 2004). As a consequence, organisations use firewalls, encryption techniques, access control mechanisms and intrusion detection systems to deal with security threats (Gordon et al., 2003).

Security mechanisms assist in improving the quality of Computerised Accounting Technology as the technology produces useful and reliable financial and managerial accounting information relevant for decision-making. According to White and Pearson (2001), the majority of US firms implement security safeguards after they adopt computer technology. However, control concerns are regularly articulated as well as problems with the safety and security of OAS data that is located with the vendors. However, the service provider takes responsibility for the safety and security of the client’s accounts data (ICAEW, 2010). Moreover, since the user-firm is not responsible for the installation, upgrade and maintenance of the system, the introduction of a new version of the system or an upgrade or change to functionality which comes with ‘teething troubles’ might have a negative impact on the firm (ICAEW, 2010). A possible drawback is the simplicity in the distribution of data by authorised persons, as there is always the possibility that firms that provide financial
institutions and other authorised third party companies with access to live financial data (as an approach to strengthen relationships or maintain liquidity) are susceptible to internal and external threats (Hood and Yang, 1998; Abu-Musa, 2004). It is also worth considering the possibility that HM Revenue and Customs might eventually request access a firm’s live accounting data because the electronic filing of statutory information is fast becoming compulsory (ICAEW, 2010).

2.5.1 OAS as a source of financial and management accounting knowledge

Kirby and King’s (1997) UK study found that SMEs regularly turn to external agencies (e.g. solicitors, accountants, banks, consultants and academics) for advice, and are very dependent on these external agencies. This could be a consequence of a lack of financial literacy amongst SME owners. As mentioned earlier, more established and experienced small business owner-managers feel that such software can carry out their business functions efficiently without the need for external agencies or advisors (Kirby and King, 1997). Hussain et al. (2008) conducted a study of financial education amongst small ethnic businesses in the UK. Their findings suggest that owner/managers of micro-businesses have lower educational achievements as well as higher financial educational needs compared to their counterparts in small and medium-sized firms. In contrast, owner/managers in small and medium-sized businesses have relatively higher educational achievements, and a better appreciation of the role of financial education. Similar trends were observed in non-ethnic SMEs in the control sample. However, Walker et al. (2007) suggest that small business owners are interested in skills development and training opportunities, provided that they are directly applicable to the current situation in their business, and as long as the delivery process is carefully structured. Research has further demonstrated that less literate small business owner-managers are in favour of receiving accounting information that appears as diagrams, charts, figures, graphs, ratios, tables and associated descriptions, to assist in effectively understanding the state of affairs of their firms in order to become better over the course of time (Nandan, 2010; Stone and Fiedler, 2010).
Kirby and King (1997) stated that small business owner/managers prefer accountants as providers of advice in regards to broad-based management problems owing to a shortfall of knowledge amongst accountants in relation to the unique situation of businesses and the complexity of cost factors. The previous business experience of the small business owner-managers, together with their knowledge of management accounting, and the use of accounting software packages (such as from ERPS, AIS) are sources of management accounting skills for small business owners-managers (Perren and Grant, 2000). A little bit of management accounting activity may be satisfactory for some small businesses (Greenhalgh, 2000), yet in other businesses with complex activities, the shortage of expert accounting advice can cause incidences of purposeful accounting within the scope of traditional accounting (Collier, 2005).

OAS can be a boon for SMEs as they no longer need to rely consistently on their accountants, or the filing of statutory returns. They need no longer be concerned about the consequences of incorrectly performing the task. In addition to this, OAS can have a beneficial effect on time management, productivity and the flexible working practices of small businesses. The ability of OAS users casually retrieving their financial data stored on the vendor’s server and accounts can be processed by the software user anytime and anywhere, using any device with internet access – even on a mobile phone. This means that information can be distributed seamlessly and instantly, reducing the possibility of errors and confusion (ICAEW, 2010). This also means that the firm’s external accounts consultant can conveniently access the information required to process management reports and accounts. They can and also make any necessary corrections without difficulty (ICAEW, 2010). This can help SMEs identify cash flow gaps and can help them to collect unpaid invoices, thereby alleviating the problem of late payments.

2.5.2 OAS and the role of Management Accountants

The application of computerised systems in business information processing has been very significant to the accounting profession. This has long been the case, particularly in relation to financial transactions. Small businesses, like any other profit-seeking establishment must
strive for survival through business performance enhancement. They must engage in business strategies aimed at providing competitive advantages in the highly competitive societies in which they exist. To achieve this, they must continually deploy relevant tools and techniques and take cognizance of cost comparativeness and properly utilised opportunities (El Louadi, 1998). Technologies provide the relevant prospects required to convert resource utilisation into a productive, quality and performance-oriented business (Ismail et al., 2003). Developments in business information technologies (for example, ERPs) over time have rapidly transforming this once luxurious business resource into an essential asset, as firms have now acknowledged the position of IT as a business facilitator and supporter of business processes and procedures (Runge and Lee, 2002).

In particular, the introduction of various IT platforms has formulated a range of strategic opportunities for small businesses and professional accountants alike. The progressively cut-rate prices of generalised commercial accounting packages together with the rise of vendors who supply enterprise-specific packages and the increasing number of small businesses that are not able to employ in-house systems development experts has meant that small businesses increasingly embrace commercial software. Other conditions that have led to this include the current shift concerning cutting down structures into strategic business units (SBU’s); and the development of a shared data processing systems environment (Hall, 2011). Accountants understand the need for AIS to be capable of capturing data from non-accounting platforms in order to support data from financial platforms for enhanced business decisions (Brecht et al., 1996).

The function of financial management accounting is very important during the process of planning and decision-making. The conventional duty of an accountant was primarily to conduct budgeting and reporting activities for the enterprise. The use of IT in management accounting has shifted the viewpoint of traditional management accounting. The fundamental change in financial platforms took place as a result of the influence of advanced technologies over production systems, and consequently, the transformation of financial systems. IT is changing management accounting systems to become integrated with regular and standard business information in a simplified format (Caglio, 2003; Granlund, 2007). Additionally, computerised accounting systems have influenced managerial accounting applications
especially in SMEs. These systems have radically changed the nature of managerial accounting as Scapens and Jazayeri (2003) stated that the ERP system causes a change in managerial accounting practices, in terms of providing global information flow and standardisation. They suggest that conventional managerial accounting procedures are eliminated after the implementation of this accounting technology.

Although it is not clear if the need for employed managerial accountants and consultants has dramatically decreased, the ICAEW (2010) explained that accountants are able to work concurrently with their clients, and on their clients’ data without being concerned about differences in the individual party’s version of OAS. Accounting practitioners are also able to take advantage of OAS to open out a more pro-active avenue to giving advice and offering their services. Errors made by clients become evident when clients have compromised operations as a result of the accountant being able to log onto the clients’ accounts at any time. This enables consultations on important business dealings. Therefore, OAS can expedite greater book-keeping support. As discussed earlier, OAS can also generate various opportunities for business productivity, such as the provision of real time transactions and tax planning advice. This is particularly the case when it comes to the management of the client’s working capital, and offering a range of virtual services.

Regardless, an investigation by Sian and Roberts (2009) of the accounting and financial reporting needs of UK small owner-managed businesses found that most SMEs produce accounting records, often based on computerised packages. They argued that financial awareness varies significantly, and that there is evidence that most small enterprise owners rely on their accountants to prepare financial statements. They are often left bewildered by the complexity of the information provided. Since the UK and future International Accounting Standard Board (IASB) standards have been designed to meet the needs of the largest SMEs, there appears to be a relatively high level of agreement that specific guidance for much smaller entities would be desirable. Based on Walker et al.’s (2007) assertion, OAS is targeted at small business owners with basic and/little or no book-keeping requirements and experience, while the advanced systems were developed for multiple users with financial knowledge, as well as for firms with more complex, multi-site set-ups. Therefore, the relevance and scope of training and support will vary. One of the vendors of OAS for
example, stated on their website that its entry-level system was designed for small business owners with no prior training, while users of the ERP systems may be required to undertake training (ICAEW, 2010)

OAS have a significant influence over the financial literacy of small business owners-managers, and upon recognising the value of financial management and accounting information and the costs at which they come, small business owners-managers may change their viewpoint about the increasing cost of financial management and accounting information. This is because online accounting applications allow the firm to effectively pay a service fee to access the system software, and the varied prices and pricing structures seem fair. Such prices include the annual maintenance charges of systems located on-site (ICAEW, 2010). Further to this, the ICAEW (2010) explained that some services are without charge to some users (although some vendors charge based on the estimate of users) but on varied terms. Some vendors charge a one-off fee; others allow users to subscribe monthly for their services (with the choice to opt out at any time and without losing money). Some vendors offer varied services for add-ons (and/or other services) on free and paid rates, whilst some others offer free storage space.

The maximum utilisation of OAS by small businesses suggest conformance to a dynamic business environment whilst exhibiting a high level of competitiveness, thus improving the dynamic nature of a firm. One of the leading OAS providers, for example, advertises its accounting software as offering users software that is accessible anywhere (especially on a mobile phone). It allows users to automate purchases, simplify banking and create invoices. It automatically sends reminder letters for credit control, and works well with other software (Kashflow, 2014). The websites of the leading OAS developers present a wealth of case studies on enterprises that have successfully implemented their packages. In other words, there are advancements in administrative management relating to accountancy and finance; and by using OAS, users are able to evaluate the risk of some of their business activities and forecast future earnings. The above advanced functions of OAS have been tested in bigger enterprises and have now been made available to SMEs.
The vendors of OAS assume that OAS provides reliable and accurate information. They also believe that it conforms to the optimum standards of transparency and fulfils varied legal and management reporting requirements. In addition to this, they suppose that OAS provides three pre-written reminder letters, which the system can send automatically to customers who are late paying the firm. Although small business owners are expected to know about the payment behaviour of their customers to ensure that they are targeting the right customers, as well as taking the right steps to contact customers about non-payment, this study challenges the claims of OAS vendors on the advantages of using their software. It challenges the idea that their software helps to develop a customer-focused culture that leads to effectively collecting late payment, thereby improving cash flow. The study critiques the supply side of trade credit amongst some UK small businesses trading to other small businesses. It determined the extent to which OAS has helped small businesses in their credit management and collection efforts in order to reduce the chances of incurring bad debts. Even though OAS has evolved, and vendors have targeted small businesses, there are currently no studies that have looked at the use of OAS in effectively dealing with late or non payment by buying firms.

### 2.6 Online Accounting System – The Integration/Modification Option

The structure of today's business context is changing rapidly, generating a great deal of uncertainty. This environment forces firms, particularly SMEs, to be innovative and to constantly review their processes and practices in order to survive on the market (Bahri et al., 2011). Many studies have linked the use of computerised accounting technologies to enhanced evaluation processes (Brynjolfsson and Hitt, 2003; Romney, and Steinbart, 2009; Sajady et al., 2012). Olsen and Saetre (2007) explained that in-house development makes it possible to remain flexible and dynamic, and to also conform to the needs of the customers. Likewise, firms can integrate standard systems with in-house systems. Granlund and Malmi (2002, p. 305) also hinted that “currently, integration is increasingly needed in the business environment. This need emerges from the efficiency and synergy requirements necessary in a complex and turbulent environment. In other words, integration is needed to facilitate coordination, which is again related to the building of competitive advantage”.

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Sorter (1969) proposed a method of organising and transforming accounting data to pick up single, but multi-dimensional data produced by economic events. The system they propose saves data in its raw and dispersed form into a single database that is available to all users. It can also examine saved raw data for users on a multi-dimensional level. As firms vary in context, the mechanisms of accounting systems integration must fit the organisational context of the company. Each operational component has a unique set of objectives, tasks, constraints, conduct and scope. The firm must therefore create integration mechanisms that fit its requirements (El-Orf and Tort, 2006; El-Orf, 2012). In order to efficiently manage its work environment, each component must bring about the right information systems. In addition, to overcome hitches, the owner/manager’s choice must seek systems designed for, by and with users in mind to improve the quality of work life of users. Such systems must carry out a technically efficient job with user satisfaction as a key concern (Hirschheim and Klein, 1994).

As stated by El-Orf (2012), an integrated accounting system is a system which enables the combination of various accounting (financial accounting, management accounting) mechanisms and the operations and decision mechanisms by enabling the multi-dimensional entry of economic events (Purchasing, Production, Sales). Such a system also supports the storage of raw financial data and distinct information into a single database that is available to all users. Grenier (2000, p. 1126) stated that ERPs "gather in the same set features previously contained in separate applications: purchasing, production, sales, human resources, accounting, treasury, etc. Most often designed around a central core of an accounting, these systems have the following characteristics: (1) they realise the integration of the different business processes: purchasing, manufacturing, shipping, invoicing, payments, (2) they realise the integration between business processes and management processes, (3) they rely on a single input event described in all their dimensions (hence the name of event-driven systems and multidimensional)". AIS also fulfil these conditions, and it is believed that OAS performs these functions, especially in regards to the management of credit sales and effectively collecting payments from credit sales (El-Orf, 2012).

Various stakeholders continue to engage in activities aimed at ensuring the survival of SMEs. Online accounting software packages that record and process accounting transactions within
functional modules, such as accounts payable, AR, payroll and trial balances have been introduced. These accounting solutions may be developed in-house by the firm that requires them, or may be purchased from a third party vendor (such as Kashflow, Xero, Financial Force, etc). A combination of a third-party application software package with local modifications may be preferred, and this varies greatly according to the complexity and cost of each option. Looking at the software industry from a small businesses perspective, small business owner-managers are inundated with information and power to select a software package. Decisions as to the choice of package are complex and create the possibility of producing a negative effect on the decision behaviour of the small businesses owner-manager (Mohamed, 2007). Due to lack of adequate financial resources, small businesses are usually unable to impartially assess their need for accounting software, and consequently, try hard to decide upon the specific software to adopt and put into effect (Thong et al., 1994). Unlike big firms, some small firms might be at a disadvantage with regards to the adoption of accounting software, as they do not have the resources to obtain independent advice on the selection and implementation of accounting software. This issue adds to the risk of choosing inappropriate software with implications for the extent to which software can be successfully implemented.

Despite the above, good accounting practices are crucial to the financial productivity of any company (whether a sole trader or a large multinational corporation) as they help to keep the company solvent. This is vital for end-of-year figures, fiscal forecasting and resource planning. However, given the sheer range of service providers and software developers offering online accounting solutions, it is often difficult to choose which one to use. Large companies with plenty of money at their disposal often choose an expensive ERP system, such as SAP or Infor. However, smaller companies seldom have the liberty of choice. Web-based accounting software seems – at least for the time being - to be the way forward for small businesses looking to keep their books in order. It offers them a way to save money from purchasing expensive, mainstream accounting solutions, such as SAGE (Cull, 2011).

OAS can do away with a lot of the tasks relating to the installation, update and maintenance of the hardware and software required to operate conventional on-premise applications (from back-ups to system upgrades). They can cut down on the need for in-house IT expertise (ICAEW, 2010). Nevertheless, OAS allows the user to upgrade and integrate the system at
their convenience, as opposed to having to upgrade when it is convenient for the vendor. However, this can reduce equipment costs. Likewise, the matter of efficiency and productivity gained from adopting the online accounting system depends on many factors, ranging from the firm’s choice of service provider, through to the system currently in use. Also implicated is the extent to which they allow this to influence the way they run their businesses (ICAEW, 2010). From the perspective of trade credit management, this suggests that OAS allows the integration of systematic processes and techniques that would enable an SME owner to effectively and efficiently manage the supply of trade credit. Some business owners may find the process of managing credit and chasing late payments time consuming and often frustrating (Edwards, 2004). However, OAS can be re-configured to enable the integration of a suite of software add-ons/modules, one of which is the credit management add-on.

These credit management modules also come in the form of a stand-alone software packages, and can be integrated with OAS to support inter-organisational business functions. Consequent to this, the vendors of OAS suppose that their software integrates with other systems (add-ons) and shares data, allowing customers to create a solution that is right for them. They have the impression that this makes it even easier for small businesses to run their organisations. OAS (usually sold as a standard software package) becomes modified after being integrated with the credit management module (referred to as the modified OAS for the purpose of this study) in order for users to experience an improvement in operational capabilities. This study is focused only on the impact of the standard OAS and the modified OAS on the level of cash flow income of the responding firms, as the OAS can be re-configured to enable the integration of a suite of software add-ons/modules. One of these is the credit management add-on. Firms whose operations are not diversified (or mono-activity) select accounting systems that are either stand-alone or integrated with stand-alone systems, while those with diversified activities opt for diversified integrated accounting systems that were built using an event-based multi-dimensional accounting approach (Sorter, 1969). The integration of accounting sub-systems appears to be founded upon mechanisms built for diverse business enterprises to manage/control their very distinct structures. Therefore, the theory of differentiation-integration by Lawrence and Lorsch (1969) supports the systematic integration of the accounting system examined in this study.
The idea of trade credit management suggests that OAS provides a match between what is needed by the firms and the service offered by the new technology in yielding the best performance. Thus, this study examines the perception of the users of the standard OAS compared to those of the users of the modified OAS. The study aims to determine the extent to which integrating OAS with the credit management module can lead to an increase in cash flow which is greater than might have been achieved if used as a standard OAS package. This study also examines whether the users of OAS (standard or modified) find the process of managing credit and chasing late payments less time consuming and less frustrating. As mentioned earlier, a mismatch between what is needed by the firms and the service offered by the new technology will yield poor performance, raising the need for careful planning and a strong justification process to be undertaken before the firm reaches the decision to implement an information system. Some small business owner-managers are yet to adopt computerised accounting technologies to deal with specific management problems such as Management Information Systems. This is consistent with the findings of Arnold et al. (1984).

One reason for this is the perception of owner-managers that computerised accounting technologies often provide 'canned' or 'packaged' solutions that have proved ineffective. It is important that OAS for SMEs are tailored to SME context-specific needs (Alam and Nandan, 2007). For this to happen, computerised accounting technologies need detailed knowledge of the operations of their clients' business, and must work closely with SME owner/managers (Scapens et al., 2003). The use of the standard small business accounting software has become popular among small and medium-sized enterprises in the UK as it has become inexpensive and technically influential. At the same time, selecting and implementing an appropriate accounting software from amongst the software packages available is usually complex and confusing for small businesses. It is therefore important to explore the extent to which integrating the standard OAS with the credit management add-on is important for small business owners/managers in order to manage their cash flow.
2.7 The Effect of Computerised Accounting Systems on Small Business Financial Performance

Research into the performance of computerised accounting technologies is more extensive in large-sized firms. Therefore, an investigation of its effect on smaller-sized firms is necessary, as the implementation of this technology by small businesses may bring about competitive advantages and the opportunity to effectively function and attain excellent results due to their flexibility and capability to better respond to economic shocks (Tanabe and Watanbe, 2005; Perez et al., 2010). As a result, this study is focused primarily on the supply of trade credit by small businesses in B2B relationships. A study into the use of computerised accounting software by SMEs conducted by Grande et al. (2011) revealed that there is no significant relationship between SME productivity and the use of computer-based accounting systems. The findings were characterised by an inherent bias in recognising the concept of productivity. Although the researchers ascertained the qualifications in the productivity of computer-based accounting systems to mean efficiency, technological change and change of scale, only staff-costs were connected with reviewing productivity in the course of the work.

Sajady et al. (2012) found no information to back up the belief that the use of computerised accounting technology is related to improved decision processes. The imbalance between the firm’s requirements and the service offered by the new technology will result in poor performance. Nevertheless, Hyvonen (2007) also added that advanced IT matched with inefficient performance measures will result in lower performance outcomes. Therefore, it is essential to carefully plan and justify the decision to implement an information system. This situation is common among SMEs because of inadequate resources and experience in the area of IT (Mitchell et al., 2000). Wah (2000) indicated that firm performance decreases shortly after implementing IT, and it might take many years to feel the advantages of adopting IT. Several studies have been carried out on the relationships between performance indicators and IT, and the impact of IT on firm performance. These studies produce inconclusive results.

The implementation and success of ERP systems has been extensively researched. Research into the effect of ERPs on performance found evidence to support improved efficiency.
accounting practices and performance. Poston and Grabski (2001) used univariate tests to examine four financial characteristics pre- and post-adoption of ERPs, and found that the adoption of ERPs generates improvements in efficiency measures by means of a reduction in the ratio of employees to revenues (and employee numbers) annually after the implementation of ERPs. Nicolaou et al. (2003) studied firms that adopted enterprise-wide systems and of a comparable control group and evaluated their financial data by conducting a univariate analysis of performance differences across time periods. Their results showed that firms that adopted the enterprise-wide systems had a considerably greater unrelated performance in their second year than the control group after the implementation of the system. Further to this, Ngongang (2005) stated that there is a statistically significant association between accounting practices and performance via the firm’s independence from external agencies. This led to an increase in turnover and a decrease in the level of costs. Additionally, Rom (2008) suggested that these technologies impacted on business processes, which in turn impacted on business performance. These processes will be represented by the accounting practices adopted by firms after the implementation of an ERP.

In this sense, IT can change the adoption strategy of accounting practices, which can lead to better performance. The same author stated that performance could be assessed by the degree to which accounting techniques can be facilitators of performance. A study by Matolcsy et al. (2005) that looked specifically at the financial performance indicators of core business processes in the value chain revealed that ERP adoption generates efficiencies in business operations that are constant as well as enhanced liquidity in the long run. Also, the study upheld the end result of firms experiencing higher profitability at some point after the ERP system adoption, as well as experiencing better AR management. Furthermore, Wieder et al. (2006) investigated the affirmation of ERP vendors and the benefits of their products. They explored the extent to which there was some advantage to bundling ERP systems with SCM systems. Their findings disprove the affirmations of ERP vendors as no significant performance differences were found between ERP systems adopters and non-adopters at the business process level, or at the overall firm level. However, only the adopters of ERP system that also adopted SCMs gained significantly greater performance at the business process level.
Studies by Poston and Grabski, 2001; Matolcsy et al., 2002; Hunton et al., 2003; Nicolaou et al., 2003; Matolcsy et al., (2005) are examples of research in the area of accounting that has explored the effect of ERP systems on performance in organisations. They all revealed instant or deferred increases in firm performance after the ERP systems were adopted. However, each suggested that the performance increases established were only noticeable in a few of the financial KPIs examined. Research conducted by Matolcsy et al. (2002); Hunton et al. (2003); Nicolaou et al. (2003) and Matolcsy et al. (2005) that looked at the gap in the time between the adoption of an ERP system and the performance of organisations explained the presence of a time-lag of nearly two years between the ERP system adoption and the attainment of benefits. The accounting discipline has suddenly produced studies which demonstrate the economic impact of computerised accounting and IS (Wah, 2000; Poston and Grabski, 2001; Nicolaou et al., 2003; Matolcsy et al., 2005). The outcomes of these studies are inconsistent but point towards a similar standpoint. As such, ERPs are perhaps not as effective as their vendors suggest. ERP system adoption has largely marked the evolution of AIS. Research in IS focused on the relationship between small business performance and the use of the AIS. Ismail and King (2005) in their study found a positive relationship between AIS alignment, SME strategy and performance; and by contrast, research conducted by Naranjo-Gil (2004) revealed a rather negative relationship between performance and the use of the AIS.

Meanwhile, some scholars believe that companies are more likely to perform better during or after a new and better technology is introduced (Damanpour and Gopalakrishnan, 2001). Others suggest the performance of firms might be immediately and temporarily compromised following the introduction of new technology (Wah, 2000). Analysis suggests that there will be some linkage between existing organisation cultures and new AIS technology. However, it remains to be seen as to whether or not the relationship is positive or negative. Some studies reveal a positive relationship between investment in IT, economic profitability, financial profitability and value added (Ravichandran and Lertwongsatien, 2005; Menachemi et al., 2006). Ogah (2012) revealed that a high level of profitability is not dependent on the use of accounting information. The low variability in this study implies that other variables, apart from AIS positively impact on the bank’s profitability. This would seem feasible given that the employment of AIS, if not supported with necessary and enabling facilities to make it
functional becomes monumental, may affect the bank’s operational processes. Thus, the successful implementation of AIS will depend on how well other factors are efficiently put in place to facilitate its operation. Also, Markus and Pfeffer (1983) stated that the successful implementation of accounting systems requires a fit between the perception of the organisation concerning the [financial] situation and the norms and value system that characterises the organisation.

With regards to linkages between AIS and profitability, there is a contention between different schools of thought. For example, according Huang and Liu (2005) and Menachemi et al. (2006), there is a positive linkage between AIS and profitability. This suggests there is uncertainty or risk as to the need for investing in new technology such as AIS. It is not clear if such systems create profit from the investment over a short period of time (Dibrell et al., 2008). Additionally, several scholars have focused on research into the potential risk involved in investing in new technology and uncertainty over the propensity of profitability. The findings from these studies reveal that there might be some competitive advantage gained from investing in new technology, such as the AIS. Conversely, the findings also reveal that companies in jostling for competitive advantage, are more likely to trade or perform better than those companies that are less competitive (Tanabe and Watanbe, 2005; Pereze et al., 2010).

Furthermore, Dozier and Chang (2006) argued that there is a strong linkage between investing in the AIS and increases in productivity. On the contrary, Hitt and Brynjolfsson (1996) revealed that there is no direct relationship between these variables, and suggested that adopting the AIS will not necessarily lead to significant improvements in productivity. Their findings also revealed that firms not using the AIS are likely to suffer losses with threats from competition. This implies that there will be some benefit derived from using the AIS. Other studies revealed no clear relationship between computerised accounting systems and performance indicators (Dibrell et al., 2008; Grande et al. (2011). These authors argued that IT is readily available and that using ITs provides no competitive advantage or improved results. They argued that many firms have invested in IT but do not succeed in attaining the established performance goals they expected. This therefore implies that AIS can only be useful in organisational operations when appropriate factors are put in place and operated
harmoniously. Also, this reveals that the linkage between AIS and performance is seen to be rather blurred or unclear.

Modern AIS have great potential to influence business performance. However, as mentioned earlier, a mismatch between what is needed by the firms and the service offered by the new technology will yield poor performance, raising the need for careful planning and a strong justification process to be undertaken before the firm reaches the decision to implement an IS. Sutton (2006) earlier advocated for further research to be undertaken in the discipline to demonstrate the relationship between ERPs and AIS on performance. Nonetheless, many firms invested in advanced IT for the purposes of gathering additional economic information to help with decision making, and with expectations relating to improved efficiency and profitability. However, this reinforces earlier arguments; that the integration of the standard OAS with the credit management add-on will probably result in better financial performance and increases to cash flow income.

The OAS is a new technology designed to build advanced capabilities for management accounting. It offers a means to control and to facilitate the accounting and controlling function with the aim of helping SMEs to achieve a balance between liquidity and profitability (Liu, 2012). The call for further studies into the area of management accounting and control, and IS other than ERPs and AIS’s by some authors (Rom and Rohde, 2007; Granlund, 2010) has shifted focus to the relevance of using OAS by small businesses to help better manage cash flow. Financial indicators are absolutely valuable and are the most generally-used measures of firm performance. They can also render some useful information about business process performance. Such information is limited, particularly when only publicly accessible data from financial statements are used (Dhenning and Richardson, 2002; Matolcsy et al., 2005). However, obtaining the annual reports of small businesses is difficult, as they are not publicly available, and small businesses owners are seldom willing to release their financial data. Since the late 1980s, researchers, consulting firms and practitioners have stressed the need to place an increased emphasis on non-financial indicators in the performance measurement process (Lebans and Euske, 2006; Gavrea, 2011).
A company’s performance is determined by many factors, including the firm’s financial and technological resources, capabilities, processes and strategies (Gavrea, 2011). As stated in section 2.3.1, Cash flow provides an incisive financial benchmark for small firm performance, and it is used to gauge short-term liquidity and predict long-term solvency (Stockstill et al., 1989). Cash Flow is the small business entrepreneur's basic frame of reference; the discretionary resource that serves as the standard measure for financial wealth and progress. A firm's success is measured by its capacity to generate sufficient cash flow from operations to pay its obligations, enhance its credit rating and maximise shareholder value (Scott, 2007; Lawrence, 2010). Therefore, a financial performance determinant in the context of this study is the cash flow performance of the responding firms. As many of the firms in this study are in the service sector, and since obtaining the annual reports of small businesses is difficult, non-financial indicators were used in measuring the cash flow performance of participating businesses. This is the case for both businesses that maintained their standard OAS and those that integrated their standard OAS with the credit management add-on.

The impact of computerised accounting systems on firm performance usually forms the research objective of many business disciplines. Studies by Evans and Smith (2004), Matolcsy et al., (2005), and Wieder et al., (2006) have modified the value chain and focused on the relationship between the use of ERP systems and/or the impact of AIS on productivity and firm performance. However, to date no study has yet presented a unified framework using the value chain in testing the claims of the leading OAS vendors in identifying trade credit management opportunities and improvements in cash flow income by small businesses after the use of the standard OAS. In addition to this, research has yet to focus on the co-existence of specialised credit management add-ons to test whether the interaction of the standard OAS with the credit management add-on will have a magnifying effect on the cash flow situation of the small businesses. This study will address this gap by providing empirical evidence on the extent to which the small business users of OAS (in its standard form and after its integration with the credit management add-on) has helped them in their trade credit management and collection efforts in order to reduce the chances of incurring bad debts.
2.8 Chapter Summary

This chapter highlighted the issue of late payment as a result of the supply of trade credit by UK small businesses by providing insights into the characteristics and importance of WCM and practice. It underscored the relationship between WC Cycle and the operating cycle, as the ultimate goal of a firm is to ensure there is more cash at the end of the process than it is spend at the beginning. Trade Credit as a flexible form of financing was discussed in terms of its advantages, and the cost implications were discussed. In addition to this, the incidence of poor credit management practices as one of the underlying causes of late payment was identified. However, the chapter pointed out that efficient AR management augmented by a shortened creditor’s collection period, together with low levels of bad debts and a sound credit policy often improves the businesses’ ability to attract new customers and to ultimately increase its financial performance.

The chapter further explained the role of IT in business by presenting OAS as the latest developments in ES after ERPs and AIS. It pointed out that OAS are being used largely to manage order tracking and payment management, with only serious problems (exceptions) escalated for priority manual attention. The chapter also identified potential opportunities and improvements in credit management practices (in effectively collecting payment from credit sales) by way of providing an understanding of the possibility of integrating the standard OAS with the credit management add-on in order to help small firms cope with the increasing complexity of credit management. The next chapter presents the conceptual framework that is core to the study and which is based on the literature reviewed. It presents a combination of academic and practitioner perspectives on credit management using OAS to highlight the issues and emerging trends in relation to late payment by customers demanding trade credit in UK B2B relationships.
CHAPTER THREE - THE CONCEPTUAL FRAMEWORK AND RESEARCH HYPOTHESES

3.1 Introduction

This chapter presents a combination of both academic and the practitioner perspectives (professional accounting and AR management organisations) in relation to credit management. It uses OAS to highlight the issues and emerging trends in relation to late payment by customers demanding trade credit in B2B relationships. These have been useful in building up a picture of the use of OAS in reducing the incidence of late payment. Empirical evidence is provided in this chapter that specifically address the use of this software. For this reason, and in view of the scarcity of studies on the subject, this chapter presents a conceptual framework which is largely based on the development of a unified framework (the CMAM) from literature reviewed. It identifies the relationship between trade credit management practices, Porter’s (1985) value chain - incorporated in the dimensions of Sethi and King’s (1994) CAPITA construct - and OAS and explores the implications of these for cash flow performance. In this regard, the conceptual framework examines the effect of the online credit management function on the cash flow performance of UK small businesses. It makes a significant contribution to the financial management information systems literature. Here, the potentiality of small businesses to improve their cash flow using OAS in order to be financially productive will be discussed by way of developing research hypotheses. This will eventually focus specifically on an investigation to consider whether the efficiency levels of online credit management practices and the cash flow performance of the responding small businesses who maintained their standard OAS were enhanced more than those who modified their OAS.
3.2 The Credit Management Function of a Computerised Accounting System in a Small Business Environment

AR refers to the money owed to a company by its customers for goods and services sold on credit (Gedye, 2009). The AR function encompasses credit management, billing/invoicing, cash application, collections, including managing and minimising credit risk; creating and distributing invoices to customers; receiving payments on customer invoices (and making sure that the payments are applied correctly); handling deductions and resolving customer disputes. It also encompasses ensuring prompt payments; resolving overdue accounts, assigning accounts for outside collection, accounting for bad debt; and providing strategic information for forecasting cash flow (IOMA, 2010). The small business owner-manager needs to maintain a critical balance between nurturing customer relationships and effectively managing cash flows. AR management is therefore critical to better WCM. In order to be effective and efficient, the AR function of a computerised accounting system has to (CIMA, 2010; IOMA, 2010):

- reduce Days Sales Outstanding (DSO)
- accelerate cash flows from operations
- improve customer relationships
- drive down doubtful accounts and write-offs
- reduce the number of late-paying customers
- minimise paper work and automate non-value-added functions
- increase efficiency within the AR function, while lowering total AR costs
- meet HMRC and other regulatory requirements
3.3 The Typical Credit Management Cycle

The AR cycle refers to the average number of days a company takes to receive the amounts due from its customers. The broader operating cycle starts when the company receives the purchase order from its customer and ends when the company receives the payment (IOMA, 2010). A low operating cycle time is an indicator of operational efficiency, customer satisfaction, and asset optimisation (IOMA, 2010). Figure 6 depicts a typical operating cycle used to set and control credit limits for customers.

Figure 6 - A Typical Credit Management Cycle

Productivity is said to be increased with automation; and with the recent adoption of OAS by small business owner-managers to improve performance, productivity gains are pivotal to survival. Furthermore, while ERP-AR modules have proved inadequate, newer AR management solutions have grown steadily more sophisticated and have demonstrated their return on investment many times over. Credit management solutions streamline the operating process and cover the spectrum of credit advancement to collection tasks, including:
evaluating credit risk, assuring invoice accuracy, applying payments, managing collections, avoiding disputes, and analysing data (IOMA, 2010). However, Hirschheim and Klein (1994) suggested that firms should adopt systems that improve the quality of work/life of users, and provide a technically efficient job with user satisfaction. Also, Lawrence and Lorsch (1967), as cited in Otley (1980), opined that a firm’s automation systems, in order to be efficient, must fit the organisational context of the company. This suggests that compatibility with organisational values, norms, and practices is foremost to the perceived effectiveness of the technology.

Going by the suggestions from the authors mentioned above, the best way to justify the claims put forward by OAS vendors that they can improve administrative management regarding accountancy and finance amongst SMEs is to evaluate the activities and processes they follow in a credit management process. Such scrutiny can focus the role of the OAS. As such, it is expected that firms that integrate their OAS with the credit management add-on will experience an increase in payment collections, hence, an increase to their cash flow income. According to IOMA (2010), companies are constantly trying to reduce the operating cycle time and improve operational performance through the following methods:

- Employing automation technologies
- Streamlining the collection process
- Increasing order fulfilment accuracy and reducing billing errors
- Reducing customer disputes
- Effectively controlling and monitoring the work flow and information flow throughout the order-to-cash cycle
- Setting credit limits and tightening sales controls
- Setting standard discount policies.

The expected credit management function of OAS in effectively reducing the order-to-cash cycle time is outlined in the figure below.
Figure 7 - Credit Management Process Flowchart

START

Setting credit policies & Procedures

Goods and services are sold on credit & an invoice is generated and sent to customer

Credit period is allowed as per company credit policy for each customer

Invoice is paid on or before the due date?

Yes

OAS records the receipt of money and make accounting entries

No

Follow up if payment is not received & send reminders to customer?

Payment is received?

Yes

When payment is received, OAS enters it to account for interest on delayed payment, if any

No

Collection process starts and OAS takes over the responsibility to recover the amount from the customer

Payment is received?

Yes

Account for bad debts as per company policy if payment is not received at all

No

END

Generate periodical outstanding summaries and reports

Source: Controllers’ Guide to Managing Credit (IOMA, 2010).
The above illustration shows the major activities and processes expected to be followed in a credit management process (with the AR Collection/credit management module added-on) using the OAS. This would suggest that firms that integrate their OAS with the credit management add-on will experience an increase in payment collection, hence, an increase in financial productivity.

3.4 Online Accounting System (OAS) and the Credit Management Activity Model (CMAM)

The adoption or modification of OAS in combining business processes is expected to help identify and quantify the efficiencies to be gained from the software’s credit control capability as well as add value to the operating cycle. As explained earlier, there are many OAS vendors, and each solution claims to provide on-the-front-end functionality of the credit cycle, including customer credit control, invoice generation, remittance processing, pre-transaction reconciliation and reporting and analysis functionality. However, the researcher’s point of departure after a review of the functionalities of the major OAS available, is to test the effectiveness of OAS in the management and collection of AR, that is, to examine the possibility of seeing any improvement in the cash flow situation of small businesses following the addition of a Receivables Collection module (Credit Management add-on) to their accounting software. The literature on WCM practices describes the efficiency of cash, receivables and inventory management as essential to models of financial performance. Therefore, improvements in financial performance could be achieved when efficiency levels of cash, receivables and inventory management practices are enhanced.

Most research into the subject of IT stops short of looking at impact measures. Studies are often focused on analysing the correlation between economic performance/productivity and IT investment (Brynjolfsson and Hitt, 1996). Previous research indicates that the basic tool for understanding the impact of information technologies on firms is the value chain (Porter, 2001). As a result, the effect of information technologies on a firm can be determined by reviewing the effect of such technologies on the primary and support activities in the value chain. This approach is therefore used in this study to understand the impact of OAS.
technology in helping SMEs better manage their finance (Coursaris et al., 2008). Technologies such as those supporting business operations are being used across organisations, mainly to boost operations and latterly translate their operations into financial gains and/or strategic advantages. An examination of a firm’s value chain can help identify opportunities for realising financial gains and/or strategic advantages [or both] (Coursaris et al., 2008). However, in this context, a business-centric interaction model that helps explain the interactions among the core firm and credit decision activities involved in an organisation’s trade credit supply process will be presented.

Porter (1985) explained that the value chain is formed of linked business activities that have an impact on competitiveness. The value chain consists of four support and five primary activities. This approach was adopted by adjusting the value chain, thereby developing the CMVC, and replacing the support and primary activities in the value chain with four Core Firm and five Credit Decision Activities. The Core Firm Activities include the functions of the standard OAS, whilst the Credit Decision Activities functions of the credit management add-on are integrated with the standard OAS. Margin Increment refers to the potential incremental earnings that an organisation could realise after the customer has paid and is retained.

The four Core Firm Activities are:

i) FINANCIAL FRAMEWORK: Statutory Reporting, and Regulatory Compliance, and Tax Submissions to the HMRC.

ii) SYSTEMS MANAGEMENT: Online Training/Video Tutorials, Reduces the need for in-house IT expertise.

iii) SYSTEMS INTEGRATION: Package Modifications (module ad-ons), Interaction with other banks and clearing houses.

iv) RESOURCE UTILITY: Software suitability and appropriateness.

The five Credit Decision Activities are:

i) CREDIT NOTIFICATION AND ARRANGEMENT: Credit Policy (terms & conditions).

ii) CREDIT ANALYSIS (RISK MGT.): Credit Scoring, Credit Limit Set-Up
iii) CREDIT SALES ADMINISTRATION: Special payment terms (Discounts), Due Balance Tracking.

iv) CREDIT CONTROL: Periodic Credit Review, Debtors Payment Review.

v) COLLECTION: Automatic Payment – no recovery needed Late Payment & recovery – reminder letters with acknowledgement of receipt.

MARGIN INCREMENT implies that firms realise financial gains that depend on their ability to manage the linkages between all activities in the value chain. In other words, the organisation is able to effectively and efficiently manage the flow of credit for which the customer ends up paying; thereby saving the firm the sum of the costs of all activities in the value chain. However, the value chain highlights activities where financial productivity opportunities can be found; and OAS serves both Core Firm and Credit Decision Activities.

Figure 8 - The Credit Management Value Chain (CMVC)

Source: Thesis Author.

From the above, the CMVC is derived from Porter’s (1985) value chain concept. The cash and trade credit management process in OAS are represented in the CMVC, and can be merged with an existing instrument known as CAPITA, as proposed by Sethi and King (1994). Their instrument helps to conceptualise 'virtual' activities in the value chain. Further to this, there are three studies that address the subject of measuring the strategic impact of IT on businesses, and these are Palvia (1997), Sethi and King (1994), and Mahmood and Soon (1991). These studies have shown that the strategic impact of IT is a multi-dimensional, latent
in construct and is worthy of more research. The study conducted by Sethi and King (1994) is the most comprehensive of the three, and provides the foundation for developing the instrument used in this study.

3.4.1 Competitive Advantage Provided by an IT Application (CAPITA)

Just as the Core Firm and Credit Decision Activities are individualised into nine related general financial management activities, a closer look at CAPITA, as introduced by Sethi and King (1994) disclosed seven specific dimensions of competitive advantage which are used to evaluate technological applications and competitive assessment. This evaluative capacity supplements the basic principle of the exemplar value chain. Sethi and King (1994) presented an extensive and key explanation of CAPITA as increases by addition or growth in the firm's competitive position as a result of using a single information technology application. The CAPITA construct is appropriate for a universal and comprehensive model of business activity that provides the relevant measurement for the examination of trade credit activities using OAS. Sethi and King’s (1994) seven distinct dimensions that can be used for evaluating applications (and competitive assessment) are as follows: (i) Credit Decision Activity Efficiency; (ii) Core Firm Activity Efficiency; (iii) Resource Management Functionality; (iv) Resource Acquisition Functionality; (v) Threat; (vi) Pre-emptiveness; (vii) Synergy. The seven distinct dimensions of CAPITA are discussed below:

-Credit Decision Activity Efficiency

This is termed ‘Primary Activity Efficiency' by Sethi and King (1994). The Credit Decision Activity Efficiency consists of the effect of OAS on the cost of all four credit decision value chain activities. In general, the credit decision activities are those that involve the agreement to grant trade credit to the buyer, checking of the buyer’s credit history, credit sales invoicing, credit control, and payment collection. These have been positioned accordingly in the Credit Management Activity Model.
-Core Firm Activity Efficiency

Originally known as the Support Activity Efficiency, this includes the set up of OAS on the system’s management, the financial framework and the co-ordination of different business management activities. All three are the core business value chain activities which help sustain the credit decision activities, also positioned accordingly in CMAM. The relationship to the above constituents of CMAM in achieving financial productivity is highly significant and needs to be understood. Efficiency in this domain may be a benefit towards achieving financial productivity advantage.

-Resource Acquisition Functionality

Resource Acquisition Functionality consists of the impact of the OAS on the acquisition phase of the technology’s life cycle (as a stand-alone technology or integrated with other systems). Specifically, this dimension identifies the impact of OAS on the user’s capability in acquiring the software and verifying its acceptability. Applications that provide a match between the operational requirements of firms and the usefulness of the new technology can lead to best performance. It is important that the relevance of resource acquisition support as the basis for realising financial productivity is reflected by this dimension.

-Resource Management Functionality

Resource Management Functionality looks into how well OAS helps its users to keep track of the technology’s implementation, upgrade and/or transfer. These activities are similar to the starting point of business expansion, helping to reduce the need for in-house IT expertise (ICAEW, 2010). Sethi and King (1994) used the term ‘Resource Management Functionality’ to explain these activities as they are related to the post-acquisition management of the software.

-Threat

This is a factor that is beyond the control of business owners/managers. Threat consists of the security and safety considerations linked to the use of software. It is important to exercise caution whilst using the OAS facility because firms handle adjustments as a result of the implementation of the new OAS tool differently. In addition they have the ability to select the
appropriate vendor/supplier and control costs, such as switching costs, up-front costs and monthly/yearly costs.

-Pre-emptiveness

This dimension highlights the benefits to be gained through being effective and efficient with credit and cash management, as it presents the firm with a competitive advantage. Pre-emptiveness consists of four items: the extent to which OAS provides unique access to external users, for example, the management accountant; its influence on the compliance with industry standards and practices, and its capacity to control and protect the firm against security threats such as computer viruses and unauthorised access amongst others. According to Porter (1985), through the provision of beneficial routes to market positions, setting industry standards, and creating organisational and virtual security barriers, the technology can translate its technological edge into competitive advantages that prevail after the technology gap shuts off.

-Synergy

Synergy is a direct function of the adjustment of OAS to the organisation’s business strategy, credit management policies and practices, and its ability to regularly innovate and improve the software. It also adjusts to non-ambiguous technical expertise, and user support for the application. In fact it reinforces the theory that the effective and efficient utilisation of OAS will more than likely increase productivity and can have an impact or influence upon wealth and growth (Dozier and Chang, 2006). On the flip side, Brynjolfsson and Hitt (1996) indicated that the impact of IT (in this study, the OAS) on a firm’s productivity might have inconsistent outcomes, and not just successes. It is also important to unravel the existing comments of the leading OAS vendors regarding the many benefits of their software by underscoring evidence of the benefits of having OAS in its standard and packaged form. This can be achieved via the use of CMAM. Given that OAS is a system derived from Enterprise Systems in general, the main issue is whether administering this system contributes to improving the results of small businesses as a result of a synchronisation among account receivables, inventory, and trade payables.
The core firm activities and the credit decision activities of OAS are confined in the CMVC. However, the combination of the CMVC and CAPITA forms CMAM, which will be described in the next chapter. The next chapter describes the representation of the trade credit management processes identified in this section along with the seven specific dimensions of Sethi and King's (1994) CAPITA construct within the OAS. For this reason, and in view of the scarcity of studies on OAS, this study will attempt to address the issue of inconsistencies in the efficiency and suitability of using OAS in achieving financial productivity.

As illustrated in Figure 9, the credit decision and core firm activity efficiency dimensions of CAPITA occupy systematic spots outside of the value chain, whereas the other five dimensions represent the set up of the entire value chain. As can be seen in the diagram, aspects of financial gains or strategic advantages from using OAS close in on the typical value chain activities. This is a visual effort to boost the relationship between a firm's activities and the probable opportunities for achieving financial gains or strategic advantages that OAS can afford in each area of operations. While credit decision activity efficiency and core firm activity efficiency find systematic spots applicable to their counterparts within the value chain, the five added elements of OAS’s financial advantages reinforce all firm activities. In other words, Synergy, Resource Acquisition Functionality, Resource Management Functionality, Pre-emptiveness, and Threat-based financial advantages may be
found in credit decision activities or core firm activities. The main argument is that OAS brings about opportunities through its various elements that are not obvious in the typical value chain.

The CMAM is considered to assist in the identification of financial (and/or strategic) advantage possibilities. At this point, small business owner-managers are faced with concerns about sustaining OAS-based financial advantage, and the outstanding way to obtain value from recognised opportunities. This study intends to address this issue because it is believed that the model could allow owner-managers to think about opportunities for creating financial gains by using OAS. Some of these probable opportunities require a type of interdependent reasoning that is supported by a model that sees the dimensions of OAS in terms of financial productivity advantage characterised together with a firm's other activities. The conceptualised 'virtual' Core Firm and Credit Decision activities in OAS using the CMVC to highlight functions where opportunities for financial productivity can be found is presented below:

3.4.2 The Firm’s Core Activities

1.) **Financial Framework:** Statutory Reporting, and Regulatory Compliance (inc. the HMRC).

This falls under the category of CAPITA’s Core Firm Decision Activity Efficiency. This comprises the impact of OAS on the system’s management, financial framework and coordination of different activities. Efficiency in this domain may be a benefit towards achieving financial productivity advantage. Small businesses need accounting systems that supply impeccably precise information, and which conform to the highest principles of transparency and controls. These must comply with various legal and management reporting requirements. In order to achieve a competitive advantage, firms must reduce the costs associated with business operations by standardising and streamlining administrative processes. IT allows this by designating the generation of global accounting entries into centralised accounting rules. Traditional AIS have a tendency to mirror historically-developed manual accounting techniques (Mauldin and Ruchala, 1999) and, therefore, they are incapable of adjusting to change, supporting strategic business processes and models, and
satisfying users’ information requirements. All of these change constantly over time (Paul, 1994). Modern AIS, however, can produce different kinds of accounting and non-accounting information to help its users manage temporary issues. This can combine operational considerations with long-term strategic plans (Mitchell et al., 2000).

Firms are more likely to implement computerised accounting software that improves their ability to plan and assess their financial situation and performance by transforming business-related data in a more reliable, relatable, understandable and comparable form to both internal and external stakeholders (Wood and Sangster, 2008). Research suggests that computerised accounting software promotes cost-effectiveness, Brynjolfsson et al., (2003) simplifies the idea of information distribution, thereby improving business activities (Romney and Steinbart, 2009) and the decision-making processes of owner-managers (Sajady et al., 2012). Above all, OAS is expected to: accurately record all sales returns and allowances – that is, authorise credit memos by individuals independent of ARs function; pre-number and account for credit memos and receiving documents; match credit memos and receiving documents and resolve unmatched items by individuals independent of the AR function. It can also avoid unauthorised input for nonexistent returns, allowances, and write-offs and accurately calculate discounts allowed and interest on late payments based on company policies (IOMA, 2010). In addition to these, OAS is expected to: record sales invoices correctly – that is, record orders and invoice only for authorised and delivered orders; use standard billing or contract terms; communicate nonstandard billing or contract terms; verify billing or contract terms before invoice processing; record events in the proper accounting period; reconcile goods delivered to goods billed; match orders, delivery documents, and invoices, and follow through on missing or inconsistent information (IOMA, 2010).

Previous studies have revealed that small business owners have, to a certain degree discretion over whether to adjust to, or follow regulations based on business resources and market contexts (Blackburn et al., 2005, Edwards et al., 2003). There are varied reasons to follow regulations and/or adjust (Amodu, 2008). Regulation will directly affect small businesses through tax returns and will affect them indirectly through the repercussion of regulation on other firms and institutions including the suppliers, customers and infrastructure providers that these small businesses deal with (Kitching et al., 2008). It has been argued
that regulatory requirements on businesses, particularly those on SMEs, are burdensome and can be a constraint on their growth and success (Hansford and Hasseldine, 2012). One reason is that they firms may not comply, but in addition, such firms simply may not understand their tax obligations, especially those without access to expert professional advice (Hansford and Hasseldine, 2012). In fact, completing tax returns, and calculating and paying tax with VAT are routinely more time consuming than accounting for other taxes including income tax / corporation tax, PAYE and capital gains tax. Staying up-to-date with tax matters via various sources (most especially through the HMRC website) is tedious for small businesses (Hansford and Hasseldine, 2012). Additionally, being able to fulfil tax requirements helps improve record keeping and grows the entrepreneur’s knowledge of profitability. It provides business with useful up-to-date information (Hansford and Hasseldine, 2012).

2.) Systems Management: Online Training/Video Tutorials, Reduces the need for in-house IT expertise.

This falls under CAPITA’s Management Functionality. Like Synergy, it measures how well OAS assists primary users to meet resource needs. It corresponds to the early stages of business expansion, reducing the need for in-house IT expertise, i.e. the ability to continuously enhance the application with non-ambiguous technical expertise, whilst providing user support for the application (ICAEW, 2010). Small business management is sometimes unconventional and impromptu. Many of these small business owner-managers spend a lot of their time sourcing for and closing trade deals. Therefore, little time is devoted to reviewing and considering IT propositions. However, the use of computerised accounting systems has been observed to help with learning about book-keeping and accounting and payroll, amongst others, as the software vendors provide free online courses for their clients (Battisti et al., 2011).

A lack of acceptable software and user resistance can also hinder the use of web-based technology in small businesses. Burgess (2002) suggests that the absence of information about such technologies, and the lack of understanding of its advantages can be reduced through proper training, resulting in a successful application and performance. Igbaria et al. (1997) have also found that valuable technical support, training and the cordial working relationship provided by vendors and/or consultants can help mitigate the risk of web-based
technology deficiencies in small businesses. A thorough selection of vendors and/or consultants of accounting software when incorporating technology into the business and/or when filling the knowledge gap within the firm is therefore essential to the successful use of web-based technology in many small businesses (Burgess, 2002).

Even though the implementation of OAS is becoming popular among SMEs, there is currently no research published which has reviewed its usefulness. However, research into its predecessors was undertaken, but is now over a decade old from a time when packaged accounting software was in its early stages. Heikkila et al. (1991) conducted exploratory research into the benefits of software packages in small businesses, stating that small businesses have been repeatedly let down by their software packages on the grounds that they are either rigid (for businesses with less than 20 employees) or do not meet the requirements of the business (in businesses of more than 50 employees). Further to this, they suggested that small businesses should place more importance on the requirements specification of the software prior to acquisition. Further, developers should work on user-friendliness, the quality of support and documentation to fulfil the requirements of the smallest of small businesses. By the same token, Chau (2001) surveyed 68 small businesses who acquired packaged software during the early 1990s in Hong Kong in order to examine the characteristics of the importance given to the benchmark used in choosing packaged software by the stakeholder involved in the software selection. The results showed that there were differences in terms of the importance ascribed to the various selection criteria by the owners and the managers.

Interestingly, the small business owners and managers surveyed rated vendor technical support as highest out of the 21 software selection criteria examined. One vendor claimed that their software was intuitive and easy to learn, as it is designed to help make running small businesses (and larger companies) easy without needing any accounting or bookkeeping knowledge. The user will be able to pick it up quickly by the virtue of an online help section with video tutorials (including free email support). Another vendor claims to go beyond providing easy-to-use software, focusing on making it easy to get things done - with fewer clicks, while their intuitive design reduces learning time, making accounting accessible to all. They further intonated that their customers enjoy unlimited, free support delivered
through a range of options - including email, comprehensive online help and online communities.

3.) **Systems Integration:** Package Modifications (module add-ons), Interaction with other banking systems and clearing houses.

This also falls under CAPITA’s Management Functionality. Sethi and King (1994) referred to this factor as the Resource Management Functionality as these stages are concerned with the post-acquisition management of the resource. These include monitoring utilisation, upgrading, transferring or disposing, and accounting for the software. Small business owners should know about customer behaviour to ensure they are targeting the right prospects, as well as taking the right steps to contact customers about non-payment. Wherever the information comes from, putting it all in one place allows for greater empathy from employees - which will prompt better service to attract repeat business. As explained before, some small businesses opt for the standardised software, while others require sophisticated software, depending on their requirements. One vendor claims to offer software that gets invoices to customers quicker and ensures payments are received quicker. A further claim is that the software simplifies credit control and chasing payments, and identifies good and bad customers thereby giving the small business owner greater control over the cash flowing into the business. This ultimately saves time and increases the productivity of the small firm. Another vendor also claims that invoices can be sent anytime anywhere and financial transactions can be recorded in real-time, reducing the time to get paid, and thereby improving cash flow.

All the same, it is believed that linking credit management, that is, integrating AR management as an add-on to OAS gives every function of the standardised software access to relevant, current customer information as and when they need it. In turn, this helps to develop a customer-focused culture that leads to an increase in customer service levels as well as productivity. Olsen and Saetre (2007) indicated that standard systems impose a rigid structure on a firm, threatening the dynamic nature of many SMEs. Many firms have better alternatives, and have an accounting system with add-ons that makes it possible to become and remain flexible and dynamic whilst conforming to the needs of the customer. Granlund and Malmi (2002, p. 305) also hinted that “currently, integration is increasingly needed in the business environment. This need emerges from the efficiency and synergy requirements
necessary in a complex and turbulent environment. In other words, integration is needed to facilitate coordination, which is again related to the building of competitive advantage”.

Another important aspect of the use of OAS is to ensure business continuity in case of emergencies. Vendors of OAS are considered to be using the Software as a Service (SaaS), which is a model for delivering (or deploying) software and associated data using third party vendor-owned and operated software. Such software is made available over the internet. SaaS has become a popular way for small and medium businesses to have access to the same features and benefits as their larger competitors. Small business users who invest in the software are relieved of the burdens of daily maintenance, technical operation and support, and continuous upgrade cycles because the software applications live on their servers. As such, small business owner-managers can have some peace of mind in terms of business continuity and disaster recovery planning (ICAEW, 2010). OAS vendors are expected to have a Business Continuity Plan (BCP) in place, and also to ensure that this has been tested for work-ability at regular intervals. The vendor’s BCPs have to ensure regular off-site back-ups of all data generated, the availability of trained teams in alternate locations that can perform the process when required and the incorporation of instant transition to locations across geographies (IOMA, 2010). One of the vendors has a real-time backup terminal at a data centre in the north of the UK so that, in the event of a serious problem at the main data centre, operations are restored within minutes with zero data loss. They further stated that this has cost them tens of thousands of pounds to set up. The other vendor ensures that their investment in class-leading infrastructure provides high system uptime, ensuring their solutions are always available whilst customer data is safe.

4.) **Resource Utility**: *Software suitability and Appropriateness.*

This is set out under the Resource Acquisition Functionality which consists of the impact of OAS on the acquisition phase of the technology’s life cycle, either as a stand-alone technology or when integrated with other systems. Specifically, this dimension describes the effect of OAS on the ability of its users to procure and substantiate the acceptability of the software. Applications that meet a firm’s requirements as a result of the utility provided by the new technology can expect outstanding performance REF. It is important that the universality and importance of resource acquisition support as a source of achieving financial productivity is reflected by this dimension. Some small businesses may
opt for simple, standardised software, while others may require sophisticated, custom built software, depending on their requirements.

The importance of matching organisational requirements with technology capabilities was emphasised by Davenport (1998). This evaluation depends on user satisfaction, reliability of the technology and the quality and enhancement of tasks. Stefanou (2006) recommended a fit between technology and the corporate social and ethical environment needed to support the introduction, selection and efficient utilisation of the technology. Nicolaou (2000) pointed out that the suitability of the technology demonstrates the user’s observed satisfaction with the efficiency and monitoring proficiency of output information. Therefore, the observed effectiveness of the technology is paramount to its compatibility with organisational and professional norms, values, and ways of working.

Nevertheless, Hyvonen (2007) also added that advanced IT aligned with inadequate performance benchmarks will bring about lower performance results. Correspondingly, businesses should embark on thorough planning and a robust validation process before making the decision to implement any IS technology. The business environment is becoming more technologically focused. Current business processes rely heavily on business information systems. The standardisation of business IS promotes universality and communicates all kind of business information from different sources (Siahaan, 2013). However, with reference to the theory of differentiation-integration suggested by Lawrence and Lorsch (1967), in order for a firm’s automation system to be efficient, it must fit the organisational context of the firm. However, there is no single perfect way to achieve this. Since firms vary in context, the mechanisms of the integration of technology should be tailored to the company. Each operational unit has a unique function, purpose, set of constraints, conduct and culture of work horizons. The firm must acquire accounting systems with integration mechanisms that suit its specific needs (Lawrence and Lorsch, 1967). In addition, to overcome hitches, having to integrate a computerised accounting system with other systems (including add-ons) must be designed for, by and with users in mind in order to improve the quality of work-life users experience. This also provides a technically efficient job with user satisfaction, as proposed by Hirschheim and Klein (1994).
One of the vendors of OAS mentioned on their website that their software integrates with over 85 systems. Rather than cobbling together a bunch of second-rate, buggy applications to take care of CRM, time management and payment processing, they instead integrate with companies that are at the top of their game in each of these niches. They therefore target all the big names in CRM, ecommerce, email programme producers, payment processing organisations, payroll software producers and inventory management companies. Another vendor opined that more than 350 add-ons connect to their software and share data to allow customers to create a solution that is right for them. This makes it easier for small businesses to run their organisations. From the perspective of trade credit management, this suggests that OAS allows the integration of systematic processes and techniques that would enable a small business owner to effectively and efficiently manage the supply of trade credit.

3.4.3 The Firm’s Credit Decision Activities

The five Credit Decision Activities are termed under the Credit Decision Activity Efficiency section and consists of the effect of OAS on the cost of all five credit decision value chain activities. In general, the credit decision activities involve the process set in motion to help small businesses to shorten their Order-to-Cash Cycle. This means they can improve their cash flow and enhance profitability. The credit management process should not exist in a vacuum. Instead, it should work alongside other functions within the accounting system to ensure that customers get the best possible experience. By integrating credit management software with other systems, data duplication between systems can be eliminated. In addition, the hassle of importing and exporting data can be mitigated. Undoubtedly, the fact that information can be shared automatically also means that users have access to the most recent data, keeping the parties involved in the use of OAS up to date and fully aware of each customer’s needs. In view of the fact that all users have such a complete view of the customer experience, they can harness this to make sure that all communication between the customer and the company is positive.

1.) Credit Notification and Arrangement: Credit Policy (terms & conditions).

In the environment where competitive pressures require sales wherever and whenever they can be made, a clear and comprehensive credit policy is of paramount importance. If all
sales, regardless of the level of risk involved, are to be turned into cash as quickly as possible, then management must support the credit operation directly, not just with policy words, but also with all the necessary resources, both human and technological (Bullivant, 2010). Companies establish standard credit policies and procedures before extending credit to their customers. The range of written credit policies is also quite vast, from one-page documents of intent, to lengthy manuals setting out detailed policy aims, procedures and reports (Bullivant, 2010). Having credit terms and conditions that are simple, precise and complete is the starting point for the exemplary fulfilment of a customer order. Such conditions also support correct invoicing, and in the long run, early payment by a current or potential customer. However, unambiguous commercial terms and conditions need to be set and agreed to by both parties (Salek, 2005). Moreover, factors such as the unit and total price (including any form of trade discount), VAT (if applicable), delivery terms (actual versus allowance, and who pays for it) and payment terms (when is payment due) need to be clearly stated (Salek, 2005).

The credit terms and policies should set out whether to accept cheque and credit card payments. They should clarify the process for investigating new customers before extending credit and deciding the amount of advance that should be collected before delivering goods or services. They set out the processes for charging interest on late-paying customers and they eliminate poor-paying accounts. Such polices should be clearly stated (IOMA, 2010). In addition, a study by Sushma and Bhupesh (2007) also affirmed that the setting up of an excellent credit policy sets out a suitable debt collection procedure which is essential in improving efficiency in receivables management. There are clear implications for firm performance.

2.) Credit Analysis (Risk Management): Credit Scoring/Rating, Credit Limit Set-Up.

Managing a small business is constantly linked with different types of risks. Daily liquidity management usually covers up the potential for substantial savings. Simple structures, advanced capabilities and procedures, efficient reporting and comprehensive systems integration are the vital elements of this process. Small business owners and managers seek to create value by increasing net positions, WC and, as a consequence, cash inflows. Firms have to ensure that orders are processed and services are performed within the approved and assigned customer credit limits. Credit policies and procedures define the various conditions
for extending credit. They set out the amount of credit to be given, and specify who should be given credit. Firms use the services of credit-rating agencies that provide credit information to set credit terms for customers (IOMA, 2010). This is the situation when using the standardised accounting software, which does not require the owner-manager to pay a separate fee to access this credit information from credit-rating agencies.

In an economy in which yesterday’s creditworthy customer can become today’s defaulter, credit scoring becomes critical. This call for regular credit reviews of all significant accounts, and the automation of related labour-intensive functions can save organisations from encountering loss. As today’s business context is becoming complex, now is the time to invest in automating the risk assessment process to obtain rapid savings in the form of increased efficiencies and lower losses in bad debts (IOMA, 2010). A factor to be looked at is the cost of bundling credit scoring software with OAS as an add-on. Currently, stand-alone credit management is available (such as credit-scoring solutions, and specifically Credit Point, DRAYCIR and Sidetrade) and can be customised to fit a small firm’s AR portfolio (IOMA, 2010). These options are increasingly affordable. They are affordable in particular since the software is now priced as a subscription service, and because a greater number of providers are offering solutions and competing for patronage in a competitive market. The goal of credit scoring is to help with the more obvious approval and decline decisions such as the freeing up of credit analysts to focus their valuable time on the really complex and challenging decisions (IOMA, 2010).

The following can be achieved by integrating credit scoring software as an add-on to the standardised OAS to save time and cost:

- Profiling customer credit performances and identifying potential high-risk accounts
- Identifying the risk of non-payment for doubtful customers
- Understanding customers payment patterns
- Reviewing creditworthiness and credit limits on a real-time basis and at regular intervals
Ideally, credit providers first determine the credit worthiness of the customer as part of their role in the effective management of different financial and credit risks, as these credit providers are affected by economic environmental risks. Although this environmental credit risk presents significant risks to these credit providers, it also offers the possibility of valuable opportunities (Casu et al., 2006). An essential element of risk management is credit decision, and this is a critical decision that calls for a separation between customers with good and bad credit. The conduct of old and existing clients can supply the firm with an historical data-set, which is useful for anticipating new client behaviour. Credit scoring models are generally used by other financial institutions to grant credit to reliable clients, and to make a distinction between a reliable and an unreliable client. The major purpose of credit scoring is to supply credit decision-makers with a competent and productive credit tool to help discover the strengths; weaknesses opportunities and threats (SWOT) of the client, and to help to assess credit more accurately. Credit scoring can lower the expenses that are incurred through the credit process, as well as the expected risks that are coupled with a bad credit offering. This can improve the credit decision making process, and saves stakeholders time and effort (Lee et al., 2002; Ong et al., 2005). It also leads to better credit risk management and provides more precise and consistent decisions. It reduces operating costs due to the implementation of a consistent system for making credit decisions and managing credit policy in different locations for the population (McNab and Wynn, 2000; Al Amari, 2002).

In a credit scoring model, credit analysts commonly use their understanding and past experience of debtor payment histories to develop a quantitative model for the separation of satisfactory and unsatisfactory credit applications. However, a credit application is primarily a self-operating process that is routinely used in all credit decisions. The scoring system is formed on the inclusion or deduction of a statistically extracted number of points pertaining to the applicant’s score (given to the predictor variables). The variables include time in employment, or the sum of credit sources held. As a result, credit scoring allows credit providers to evaluate the creditworthiness of their clients instantly. Moreover, credit scoring offers credit providers the opportunity to boost customer services and retain good customers. A credit provider can distinguish between satisfactory and unsatisfactory credit applications using a statistically extracted cut-off score. On the flip side, credit scoring systems have been criticised because of their inherent limitations as a consequence of statistical problems, and as
a result of the statistical techniques used to derive the score point as detrimental. Despite these criticisms of credit scoring systems, such models can be considered as one of the most successful systems used in the area of business and finance (Sullivan, 1981; Bailey, 2004).

The credit worthiness of customers is usually assessed through credit reference agencies, after paying a small fee. The owner/manager will generally set up the credit limits that will be offered to the customer after establishing their credit worthiness. A credit period is then granted, and special payment terms established which include offering discounts for early payment and setting out charges for late payment. A dilemma for firms here is that they cannot set these credit terms independently, and in order to stay competitive in the industry, they must offer credit terms that can compete with other firms in the industry (Maness and Zietlow, 2005). Despite this dilemma, a good collection policy is important to be able to collect debts from overdue debtors (Rao, 1989). The collection procedures should be regularly revised since there is no perfect method to ensure zero bad debts. If the organisation uses the same collection strategy all the time, the customers may eventually find loopholes in the system. As a result, the organisation will incur losses in terms of bad debts and collection costs.

3.) Credit Sales Administration: Special Payment Terms (Discounts), Due Balance Tracking.

A lot of the administration intrinsic to purchasing and sales is unified into the cash management concept. A streamlined administration based on quotation and invoicing that clearly states the commercial specifications of the deal has a direct effect on both cash flows and working capital. The focus here is accounting for credit for pricing, discount, and interest-related adjustments. At periodic intervals, OAS is expected to prepare various reports, including posted invoices and pro-forma reports, posted receipts reports, credit hold reports and credit limit report. These are carried out for each customer account. The software can ostensibly accurately process invoice and payments accurately and can apply these to the correct customer accounts (IOMA, 2010).

Credit limits measure the extent of risk a firm is prepared to allow with an individual customer, and this concept is related to the amount of credit a firm is willing to extend to the customer (Salek, 2005). Once credit analysis and scoring is complete, the credit score converts the result into a pre-determined set of credit limits. The credit limit is assigned to the
customer with an expiry or a re-evaluation date. According to Salek (2005), some credit decision tools have an option to adjust an automatically-calculated credit limit with human judgment. The credit scoring/evaluation technique to determine a credit limit is expected to consider these factors:

- Financial strength (financial ratio analysis).
- Exposure computed by the addition of estimated monthly sales and customised inventory to be held for the customer, multiplied by the payment terms. The exposure to any connected parties (for example, corporate parent/child relationships) must be added to combine total exposure to the individual/corporate body.
- Payment history with other credit providers as recorded by credit rating agencies.
- The existence or non-existence of litigation, referrals to debt collection agencies, liens, Uniform Commercial Code-1 filings, County Court Judgments.
- Profitability of sales to customer.

Furthermore, Salek (2005) opined that if the credit limit identified is insufficient to back up the customer’s anticipated trading volumes, the risk of a higher limit can be reduced by:

- Collecting deposits/down payments/advance payments from the customer.
- Using security devices such as letters of credit, guarantees, and/or Uniform Commercial Code-1 filings.
- Setting up shorter payment terms.

However, for best practice credit controls, revising the current credit limits is very crucial. The financial strength and creditworthiness of firms can change very quickly, and regular updates to the customer credit position are almost impossible when using credit rating agencies. Any dependence upon these agencies can lead to exposure to bad debt losses. The appropriate credit controls must be tailored to an individual company, its strategy, profitability and appetite for risk. They must suit its customer typology base, and its products or services (Salek, 2005). The principle of best practice credit controls is to sell to the client under some kind of credit arrangement. Although it may not be economical to authorise the total amount of credit requested by the customer, some mixture of credit and security in the case of a default can be agreed upon, so that the credit supplying firm can prioritise, not just
their customer’s oldest debts, but also the highest-risk customers. In addition, credit security measures can also monitor customer credit limits (Salek, 2005).

**Special Discounts** - Discount programs vary widely by company, as they typically reward customers with a discount when payment is made prior to delivery. Firms, particularly in the services sector do allow any anticipation of payment discounts for their customers. Discount is typically computed using a formula that consists of a payment amount and date, a discount rate, and a delivery date for purchased goods. Such discount is used to accelerate cash flow while presenting customers with an opportunity to add value to their purchase. Anticipation discount programs can be tailored to each transaction, enabling changeable payment amounts as well as changeable payment dates (IOMA, 2010).

4.) **Credit Control**: *Periodic Credit Review, AR Ageing Schedule.*

A firm’s capacity to generate financial projections is a major signal of the quality of liquidity management, as this usually uncovers the effectiveness of the combination of the central functions and connected business units. OAS is expected to improve processes relating to net positions and cash flows. Automating credit management processes optimises internal control, that is, current position and risk. Furthermore, accurate, readily-accessible information improves the quality of decision-making. Therefore, maintaining an accurate AR ledger for each customer, and sending account statements at periodic intervals is an important function of the OAS. Customer accounts are maintained and weekly or monthly statements of account are mailed out to the customers. These statements contain up-to-date records of each customer’s charges, payments, and balances due. They serve as payment reminders to customers and also provide the required documentation if and when the account goes into collection (IOMA, 2010)

Further to the above, the tracking of current and past-due balances is a function of the OAS. The customer invoice aging report categorises receivables as current, or 30, 60, or 90 days or more past due. Receivables are tracked for payment status by period (for example monthly, quarterly or annually). This helps companies to identify delinquent accounts and take necessary action. For example, a company might want to hold off on a delivery to a customer who has a bill 90 days past due (IOMA, 2010). Preparing periodic (daily, weekly, monthly)
cash forecasts based on daily receipts from customers, and providing cash-flow-related information to the owner-manager for forecasting and budgeting needs is another function of OAS (IOMA, 2010).

5.) Collection: Automatic Payment (no recovery needed) or Late Payment & recovery efforts (reminder letters with acknowledgement of receipt).

Efficient payment procedures are dependent upon integration; linking internal and external information flows that are generated by purchases, sales and financial transactions. With the standardised OAS, firms currently make gains from a combination of their payment information with their sales and supplier ledgers, as well as their general ledger using Straight Through Processing (STP). This enables the firm to connect with other banking systems, clearing houses and, of course, the firm’s own financial and business systems when payments are made in due course and no recovery is needed. However, once the due date for payment has lapsed, notices are sent to customers at periodic intervals; and emails and phone calls are also made to reach the customer. Dunning is a process of methodically communicating with customers to ensure the collection of amounts due from them. Gentle reminders are sent to customers as accounts become past due. The basic dunning procedures are formulated by the company. If payments are not received despite the reminders and follow-up calls, companies may either turn the account over to a collection agency or take legal action. Many companies outsource AR collection to professional collection agencies, which act as third-party collectors (IOMA, 2010). This is seen as a last resort when the collection process fails.

A report published by IOMA (2010) revealed that trade credit serves as the largest use and source of WC for small businesses. The average turnover for AR is approximately 44 days, meaning that it generally takes over a month and a half for a small or medium-sized company to collect the cash that it is owed to them by its customers. Some companies allow 30 days of credit for their customers, including one month’s cost of borrowing in their prices. Others, perhaps those who are more cost-conscious, include not just one month’s interest, but the cost for the average debt payment period for all accounts. This may be seen to penalise prompt payers, who are in effect paying for the costs of late payment by the slow-paying customers. For that reason, some sellers invoke their right, under their conditions of sale, to charge extra interest for late payment (Bullivant, 2010).
**Margin Increment**: firms realise financial gains that depend on their ability to manage the linkages between all activities in the value chain. In other words, the organisation is able to effectively and efficiently manage the flow of credit for which the customer ends up paying. This saves the firm the sum of the costs of all activities in the value chain. OAS vendors argue that their software helps small businesses get paid quickly to keep their cash flow healthy. Credit has to be given on the shortest possible basis, all other factors being considered, because in the context of return on investment, net profit only comes from paid sales (Bullivant, 2010).

The combination of central functions and associated business units helps to optimise the management of the whole system of commercial relationship in effectively collecting payments from credit sales. Reducing the period when the customer makes the payment (i.e. the operating cycle) concerned is also a source of financial gain. In this study, it is essential to establish whether the integration of the standard OAS with the credit management add-on can help in the co-ordination and management of all financial processes in effectively collecting payment from credit sales.

### 3.5 The Development of the Conceptual Framework and Hypotheses

From discussions in the previous chapters, the main idea of the conceptual framework was deduced from the indispensable contents observed in Evans and Smith (2004), Matolcsy et al. (2005), and Wieder et al. (2006). As stated in chapters 1 and 2, Evans and Smith (2004) adjusted Porter’s (1985) value chain to adequately contain the use of technology (the internet) in the value chain, and at same time used Sethi and King’s (1994) CAPITA construct to present conceptual additions to the value chain in order to adequately include the effect of the internet as a new business channel. Matolcsy et al. (2005) also modified the value chain by shifting its applicability to ERP systems with improvements in profitability and liquidity management. Wieder et al. (2006) studied the adoption of ERP systems and their influence on the performance of organisations by investigating the declaration of ERP vendors with regards to the usefulness of the ERP. They presented proof of the advantages of packaging ERP systems with SCM systems.
Borrowing from the studies from Evans and Smith (2004), Matolcsy et al. (2005) and Wieder et al. (2006), a unified model called CMAM (see figure 9) was developed. The CMAM itself contained elements of OAS and took into consideration the divergent views from OAS vendors on the effect of the software’s AR function in helping small businesses better manage cash flow. The CMAM assisted the researcher in setting up the conceptual framework in order to achieve the aim of this study, which is to challenge the existing claims put forward by leading OAS vendors by examining whether the efficiency levels of online credit management practices and the cash flow performance of UK small businesses with the standard OAS were enhanced beyond the capabilities of those that modified their OAS.

The websites of one the leading OAS vendors present a wealth of case studies on enterprises that have successfully implemented their packages, stating that their accounting software provides users with software that is accessible anywhere (especially on a mobile phone). Other perks include automated purchases, simplified banking, the creation of invoices and the ability of the user to automatically send reminder letters for credit control. The package ostensibly works well with other software (add-ons). In other words, claims about potential advancements in administrative management regarding accountancy and finance are made and claims about the opportunity to measure the risk of some business activities or forecast future earnings with advanced statistical software applications need to be critiqued. As information and communications technologies include all the areas in which a firm operates, it is important to determine whether OAS are directly related to improvements in productivity (economic and financial results) in small and medium-sized business organisations. Therefore, the claim of the software’s function in automating and simplifying a firm’s credit control modus operandi also needs to be established.

The absence of meaningful guidance from the research literature, as well as divergent views from the leading OAS vendors on the effect of the AR function of OAS in helping small businesses better manage cash flow has enabled the evolvement of the CMAM (business-centric interaction model). This has facilitated the establishment of a conceptual framework. Figure 10 below presents the conceptual framework, and helps to establish the extent of the
effectiveness of the standard OAS (as claimed by the leading OAS vendors) in strengthening the cash flow position of UK small businesses. It also establishes the extent to which there is sufficient justification to warrant the view that the modified OAS has greater utility in strengthening the cash flow position of UK small businesses. This conceptual framework is derived from CMAM, and contains elements of the standard OAS and the Automated Credit Management Software.

**Figure 10 - The Conceptual Framework**

![Conceptual Framework Diagram]

Source: Thesis Author
The **standard OAS** comprises of the firm’s regular business & financial management procedures and consists of the four Core Firm Activities highlighted in CMAM. The **Credit Management add-on** includes online trade credit management processes and consists of the five Credit Decision Activities, also highlighted in CMAM. The **modified OAS** is the interaction of the standard OAS and the Credit Management add-on whilst the **Cash Flow Income (Performance)** demonstrated the impact of OAS (standard and modified) on the level of cash flow income of the responding firms. The standard OAS, the Credit Management add-on, and the modified OAS serve as the independent variables. The Cash Flow Income is the expected financial gain after the completion of all the Core Firm and/or Credit Decision activities in CMAM, and it serves as the dependent variable. In addition to this, three control variables were included in the statistical model. The control variables are the length of OAS ownership (1 year or over), the length of OAS integration with the Credit Management Software (1 year or over), and subscriptions to credit checking agencies by respondents. For the purpose of this study and as explained in chapters 1 and 2, this study is focused only on the impact of the standard OAS and the modified OAS on the level of cash flow income of the responding firms, as the standard OAS can be re-configured to enable the integration of a suite of software add-ons/modules, one of which is the credit management add-on.

The individual perception of the users of OAS (standard and modified) was gathered to explain the perceived usefulness and perceived ease of use of the software, thereby unpacking claims by the leading vendors of the standard OAS that their software integrates with other systems (add-ons) and shares data allowing customers to create a solution that is right for them. The claim is that this makes it even easier for small businesses to run their business operations. From the perspective of trade credit management, this suggests that OAS provides a match between what is needed by the firms and the service offered by the software in yielding the best performance. Thus, the joint effect of interactions between the standard OAS and the Credit Management add-on in terms of how these impacts on accounting for the variance in cash flow income over and above the contributions of the individual additive effects needs to be examined. The conceptual framework informs the predictions of the effects of the standard OAS and its interaction with the credit management add-on on the level of cash flow income. However, as stated in section 1.6, the credit management add-on
was only included for exploratory purposes. In addition to the above, the direct effects of the standard OAS components on the level of cash flow income will be examined.

A set of hypotheses to test the effectiveness of the standard OAS having greater utility in improving a small firm’s cash flow position (as perceived by the small business respondents) than when integrated with the credit management add-on are therefore presented below:

- **H1:** The standard OAS significantly impacts on the respondents’ level of cash flow income and controls for the length of standard OAS ownership - 1 year or over. It also impacts on the length of OAS integration with the credit management software - 1 year or over, and subscriptions paid to credit referencing agencies.

- **H2:** There modified OAS significantly impacts on the respondents level of cash flow income and controls for the length of standard OAS ownership - 1 year or over. It also controls the length of OAS integration with the credit management software - 1 year or over, and subscriptions paid to credit referencing agencies.

- **H3:** There standard OAS’s credit control functions significantly impact on the respondents’ level of cash flow income and controls for the length of the standard OAS ownership - 1 year or over. It also controls the length of OAS integration with the credit management software - 1 year or over, and subscriptions paid to credit referencing agencies.

As stated in section 1.6, the development of CMAM was also an attempt to identify the relationship between a small firm's AR activities and the potential opportunities for acquiring financial gains (cash flow income). Therefore, the above hypotheses were formulated to assist in testing the claims of the leading OAS vendors as regards the idea that the standard OAS has greater utility in improving a small firm’s cash flow position than it has when integrated with the credit management add-on. Also, these hypotheses were developed based on the need to identify the capabilities and extensive application possibilities of OAS through interactions among the core firm and credit decision activities that can improve the financial management and accounting operations of the research respondents. The implication is that respondents can subsequently translate their business operations into financial gains.
A description of the research findings from the survey data collected within the context of CMAM will be presented in the next chapter, providing information on the empirical testing of the research hypotheses. Subsequently, the ordinal regression method was used to extend analysis in order to establish whether there were any statistically significant associations between the ordinal outcome variable, e.g. cash flow income, and the explanatory variables concerning the activities involved in a small firm’s trade credit supply process. Explanations for the use of the ordinal regression method as well as the chosen research methodology are explained in the next chapter.

3.6 Chapter Summary

This chapter has explored the credit management function of a computerised accounting system in a small business environment, with the aim of providing insight into the operation of OAS. The chapter highlighted the typical credit management cycle and demonstrated the link between OAS and the adjusted value chain (CMVC). It illustrated Sethi and King’s (1994) CAPITA as it provides appropriate dimensions for the disaggregation of trade credit activities using OAS to form CMAM. The chapter also underscored the development of the conceptual framework and hypotheses identified for the trade credit management process as represented in the value chain. It set out expectations of opportunities for improvements in the cash flow position of the research respondents. The next chapter therefore presents the methodology that was applied to test the hypotheses that have been systematically formulated in this chapter.
CHAPTER FOUR - RESEARCH METHODOLOGY

4.1 Introduction

This chapter sets out the methodology used to collect data and the research hypotheses that were tested following data collection. Section 4.2 justifies the paradigm chosen for this research. Section 4.3 explains the research design and identifies the method chosen to carry out the research. Section 4.4 describes the population and sampling method that were used. Section 4.5 identifies the method of data collection. Section 4.6 defines the research instrument, measurement and scaling and section 4.7 deals with the questionnaire design. Section 4.8 identifies the research variables and measurement techniques. Section 4.9 explains the reliability of the research instrument. Section 4.10 demonstrates the model development for this study and the hypothesis testing that was carried out. Finally, Section 4.11 presents a summary of the chapter.

4.2 Research Paradigm

Theoretical paradigms about the nature of reality are vital to understanding the general point of view from which any study is designed and carried out. Therefore, a theoretical paradigm is a vague set of assumptions and concepts that are logically put together to aligns thinking and research. Similarly, a paradigm can be characterised as a basic belief system that aides the research study and determines the appropriateness of particular questions, including how these questions will be answered, as well as the context of their interpretation (Guba and Lincoln, 1994; Gliner and Morgan, 2000). The two broad types of paradigms in research are positivism (associated with a deductive research approach) and interpretivism (associated with an inductive research approach). Interpretivist theories are formulated rather than tested, and are characterised by understanding a phenomena from the perception of a researcher. They are concerned with qualitative research strategies (Kasi, 2009). In line with Creswell’s (2003) discussion, this research strategy focuses n a small sample size in a broader sense, and involves the re-telling the stories in a narrative sequence.
The views of the researcher and respondents are put together in a collective narrative to explore one or more individuals, processes and events. These are explored in some depth, and researchers gather comprehensive information using a mixture of data collection measures over a continuous period of time. They attempt to develop a broad, hypothetical theory of a process, action, or interaction grounded in the views of respondents in a study. This involves various stages of data collection and the regular assessment of data to establish emerging categories. Such an approach is based on the theoretical sampling of dissimilar groups to get the most out of the similarities and the differences in the data. Such research identifies the real meaning of human experiences with regards to phenomena by developing patterns and relationships of meaning. In such a way the researcher attempts to identify with the experiences of the respondents in the study. The approach involves studying a group in a natural situation for an extended period of time by mainly collecting observational data (Creswell, 2003).

In contrast, a positivist epistemological paradigm views the social world as something that exists outwardly, and understanding is enforced by irrefutable natural laws and instruments (Easterby-Smith et al., 1991; Guba and Lincoln, 1994). The epistemological basis of quantitative research is described as positivism. Positivism looks into reviewing relevant theory from a wide range of issues and expresses the relationship between variables using statistical correlations or frequency differences between the means. It is focused primarily on testing theory and it is compatible with the use of the methods associated with the natural sciences to study social reality. It uses quantitative methods to test and verify hypotheses or models developed for the research (Guba and Lincoln, 1994). Creswell (1994) recommends that in selecting a paradigm, research of a theoretical nature, in which a wealth of secondary data is available is called deductive research, while the inductive approach (the formation of theory using themes) is suitable for studies focusing on a small amount of data taken from existing literature.

According to Deetz (1996), different methods of research inquiry enable understandings of different phenomena, and for various reasons. The method chosen depends on what the researcher intends to achieve, rather than sticking to a specific paradigm (Cavaye, 1996). As a result, the method used should meet a particular area of interest. Several areas of interest
may require the use of different methods. This involves focusing on the phenomenon studied in research, rather than the methodology. A suitable research approach chosen for this research is therefore the deductive approach, which is a part of the positivist paradigm. Collins and Hussey (2003) explain that a deductive approach develops theory (and hypotheses), whilst a research strategy is drawn up to test the hypothesis. Due to the fact that hypothesis testing is the focus of this study, a quantitative research strategy is chosen to provide sufficient data to address the research questions and the two hypotheses highlighted in chapter three. The highlight of quantitative research is that it allows measurements in data collection and data analysis, leading to hypothesis generation and testing. This gives rise to explanations of law (Katsirikou and Skiadas, 2010).

Research concerning the management of WC by small businesses centres on best practices and explanations of behaviour based on an examination of the theoretical concepts from general practices that serves as precedence. As a consequence, this approach addresses the research gap in terms of the joint effect of the standard OAS and the automated credit management software’s interaction when accounting for the variance in cash flow income, over and above the contributions of the individual additive effects. Ultimately, the current understanding about the practices of WCM in SMEs is taken from a positivist paradigm (Perren and Grant, 2000).

4.3 Research Design

Quantitative research methods are frequently used in modern accounting research (Gruszczynski, 2009). A natural starting point for the investigation is to take a quantitative approach, since the study of measures of accounting looks into phenomena in a positivist manner. A research design is developed in order to achieve the purpose of the research with the aim of answering the research question. This ensures the arrangement and organisation of the data collection and analytical approach adopted (Easterby-Smith et al., 1991). An effective research design can produce valid conclusions and recommendations from the investigation (Ryan et al., 1992). A research design presents the main instructions for conducting the research study. A research design specifically furnishes the researcher with
the relevant information that will take up the research questions and hypotheses efficiently and effectively (Hair et al., 2007). This thesis is concerned with the kind of research used in business. “Business research can be methodised according to technique or function (or purpose)” (Zikmund, 1997, p. 37). Experiments, surveys and observational studies are classified based on technique; whilst business research is based on functions that are exploratory, descriptive, or causal in nature.

*Exploratory* research could be used to clarify ambiguous issues, and can be carried out with the expectation that more research will be conducted to present a definitive argument. An exploratory study aims to build theory, and is used to understand phenomena and increase knowledge (Sekaran, 1992). *Descriptive* research has answers to questions in relation to who, what, when, where and how? Its main objective is to describe the attributes of a population or a phenomenon. A descriptive study describes the characteristics of the variables in the phenomena of interest to researchers from an individual, organisation, industry or other perspective (Sekaran, 1992). In a situation in which the problem of research has already been defined, *Causal* research is carried out to identify cause-effect relationships between variables. The identification of cause-effect relationships between variables is its main objective (Zikmund, 1997). Aside from the above, exploratory, descriptive and causal research are the three key methodical research designs suggested by Hair et al. (2007). However, descriptive and causal research designs meet the urge to supply specific details relating to working through aims, objectives, questions and hypotheses of the study in relation to the extent of the use of standard and modified OAS by UK small businesses.

Descriptive data also provides information about the probable elements that influence the degree of the usefulness of the standard and modified OAS, and the relationship between the degree of the usefulness of the standard and modified OAS and cash flow gains. Further to the above, the descriptive data gathered in this study reflects the research questions and hypotheses that are set out above, wherein the independent and dependent variables are brought together to develop and test relationships and interactions between the extent of the use of the standard OAS, and the modified OAS (dependent variables) with Cash Flow Income (dependent variable). Hence, a descriptive research design is used for this research and analysed using quantitative methods. The design of exploratory research that endeavours
to uncover unknown connections/associations, methods, proposition or viewpoint does not attempt to particularly test research hypotheses (Hair et al., 2007), and fails to meet the objectives of this study. Therefore, such an approach is not applicable to this study. In addition, qualitative methods are not suitable for this study as they deals with data that are essentially word-of-mouth in nature. Such an approach deduces meaning from the respondent’s point of view (Bless and Higson-Smith, 2000; De Vos, 2002).

4.4 Population and Sampling Method

The research questions in this study seek to interrogate the use of OAS by small businesses in the UK. The target audience for the collection of information are largely in the service and retail sectors. The research focuses only on this sector to avoid unnecessary interference and diversions between sectors. Taking a sub-section of a portion from the population being reviewed is essential to make the search more manageable, and conclusions can be drawn up on the basis of the data obtained from the sample if this sub-section is selected, and if the right procedure is followed (Brannick, 1997). As there is no department for managing IT in most cases for small businesses, the owner-manager was the main point of contact for the research. This is the case even though such stakeholders are seldom trained or experienced in the IT/IS capacity (Palvia, 1996). Therefore, small business owner-managers are the key respondents in this research, and were targeted because they own and/or control all operations of their business and are responsible for decision making at all stages of the implementation of systems (Ghobakhloo et al., 2011). Members of different groups forming the population, for example, the Sutton Business Club, the Sterling Business Network (SBN), Business Network International (BNI), the Evening Standard Business Connections (ESBC) and the Marketscan business directory database have been identified. A key advantage of the Marketscan business directory is that the number of employees and annual turnover is established.
4.5 Sampling Method

The fundamental purpose of sampling is to make statistical inference; in other words, reaching conclusions on the attributes of a population after estimating the attributes of the population (Tryfos, 1996). Estimates that exclude bias are a intended outcome of a sampling plan. However, the stratified random sampling method is generally adopted in social, business, economic and political studies than the simple random sampling method. This is due to the fact that stratified sampling boosts accuracy in estimates, satisfactorily represents the population and brings about convenience when carrying out sampling tasks (Sarndal et al., 1992; Zewotir, 1998). In the majority of instances where the stratified sampling method was used to collect data, the data was examined just as if they were collected using the simple random sampling method. The basic explanation here is that the analysis techniques used in simple random sampling is uncomplicated and widely adopted. As a matter of fact, the statistical formulas for analysis are ready for use and effortlessly configured in several statistical packages. Moreover, nearly all statistical packages use the simple random sampling technique to perform tests of hypotheses and estimations from all manner of data. In other words, data samples drawn from the stratified random sampling technique will be measured and analysed as though the data samples are drawn from simple random samples. (Sarndal et al., 1992; Tryfos, 1996; Zewotir, 1998).

Four small business groups were identified and drawn from the sampling frame separately, and as a result, a stratified random sampling method was chosen so as to control the proportional size of each sub-sample. Stratified sampling involves the drawing out of comparable representation of the different groups of companies included in the study. This achieves a simple random sample of every layer, and the sub-samples are combined to form the full sample. This ensures that each layer receives adequate representation (Judd et al., 1991; Reynolds et al., 2003). This procedure also permit comparisons among the outcome of sub-groups to determine if there are differences in the sector classification affects when it comes to the use of the OAS. In this study, the stratified random sampling technique was used, and is based on the economic influence of the subgroups because the data relating to the different implementations and usage of OAS in all four groups is not known.
A report by Octopus Investments (Octopus Investments, 2014) reveals the important contribution that High Growth Small Businesses (HGSBs) bring to the UK economy. They explained that these HGSBs represent only 1% of UK companies and only 3.4% of the entire UK economy. They generated 36% of UK economic growth in 2013 and created two out of the three new jobs (68%) between 2012 and 2013; a total of more than 250,000 jobs in the whole of the UK. The report highlighted the significant impact of HGSBs on increases in employment growth and economic growth, and in ensuring that the government develops a policy initiative that enables these HGSBs to continue to thrive in the UK. There has been an increase of 18% in HGSBs between 2011 and 2013 as there are currently 30,000 HGSB’s in the UK. The report notes that more than a third of HGSB’s are located in London and the South East, with nearly one out of 25 workers in the capital working for an HGSB (Octopus Investments, 2014). The European Commission’s website (European Commission, 2013) identifies that the London region and the Greater London region in particular are what the City of London comprises of. It contains 32 borough councils and is bordered by the South East and East of England regions. It is the richest region in the UK. Innovation in London is primarily related to services in the financial sector and in the creative and digital industries.

Octopus Investments (2014) provided information on the UK regional economies that were lagging behind economically, and identifies the absence of HGSBs as a function of this. Their study evaluated the contribution of the HGSBs to the economy at all levels. London exceeds all regions of the UK with regards to labour productivity and Gross Value Added (GVA). London contributed 22% of the GVA in 2012 (UK National Statistics, 2013). The growth of GVA compared to other regions was substantial in London at 11% growth between 2009 and 2012 (UK Regional Statistics, 2014). The approximate GVA - a measure of income generated by businesses - as estimated in 2013 in the UK non-financial business economy is shown in table 2, below (ONS, 2013).
Table 2 - The share of revenues generated by non-financial companies, such as UK Business Economics estimated.

<table>
<thead>
<tr>
<th>Region</th>
<th>aGVA (£’bn)</th>
<th>% aGVA of the Services Industry</th>
<th>% aGVA of the Production Industry</th>
<th>% aGVA of the Distribution Industry</th>
<th>% aGVA of the Construction Industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>London</td>
<td>226.4</td>
<td>76</td>
<td>7</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>South East</td>
<td>156.8</td>
<td>59</td>
<td>14</td>
<td>19</td>
<td>8</td>
</tr>
<tr>
<td>North East</td>
<td>28.4</td>
<td>49</td>
<td>29</td>
<td>15</td>
<td>8</td>
</tr>
<tr>
<td>Yorkshire &amp; The Humber</td>
<td>61.1</td>
<td>48</td>
<td>27</td>
<td>17</td>
<td>8</td>
</tr>
<tr>
<td>East Midlands</td>
<td>62.8</td>
<td>43</td>
<td>29</td>
<td>19</td>
<td>8</td>
</tr>
<tr>
<td>East of England</td>
<td>82.2</td>
<td>49</td>
<td>21</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>North West</td>
<td>100.3</td>
<td>48</td>
<td>25</td>
<td>19</td>
<td>7</td>
</tr>
<tr>
<td>West Midlands</td>
<td>69.7</td>
<td>50</td>
<td>28</td>
<td>14</td>
<td>8</td>
</tr>
<tr>
<td>South West</td>
<td>67.7</td>
<td>52</td>
<td>24</td>
<td>16</td>
<td>7</td>
</tr>
<tr>
<td>Scotland</td>
<td>94.8</td>
<td>42</td>
<td>37</td>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>Northern Ireland</td>
<td>19.4</td>
<td>35</td>
<td>32</td>
<td>24</td>
<td>8</td>
</tr>
<tr>
<td>Wales</td>
<td>31.6</td>
<td>41</td>
<td>38</td>
<td>14</td>
<td>7</td>
</tr>
</tbody>
</table>


Looking at the table above, the use of the proportionate stratification procedure is based on the proportional input in terms of labour productivity and GVA of businesses in the service sector. This allows adequate representation of businesses in London and the South- East. This procedure is chosen to ensure accuracy without increasing the cost and reducing the sampling variability. The technique offers the possibility of a sampling error reduction in the direction of an increased level of confidence (Churchill, 1991) to provide an appropriate representation of the four groups of businesses that accurately reflect the population (Davis, 2000; Zikmund, 2000).

Although there are a range of statistical formulas accessible in order to determine a suitable sample size, these require the manual inputting of data on variability as well as estimation precision and a degree of confidence. However, information on variability is not available since the variability of the use of OAS has not been established through previous research. Other guides include references to precedence presented by statisticians to assist in deciding the sample size. Kent (2001) suggested that at least 100 cases are necessary for any type of quantitative analysis to be undertaken. A sample size of over 30 and under 500 is suitable for most research, bringing about a sampling distribution for the mean that is nearest to a normal
distribution. This is a critical point to make to ensure that inaccurate outcomes do not arise (Stutely, 2003; Saunders et al., 2009). When conducting a multivariate research study that includes multiple regression analyses, the sample size preferably should be 10 times more than the number of variables in the study Sekaran (2004). This study used multivariate ordinal regression analysis and includes six predictor variables. As such it was seen as realistic to obtain in some measure 100 cases to successfully analyse the data quantitatively.

Response rates in surveys are largely 'poles apart' and are dropping in most advanced economies (not excluding the UK) (Groves, 2006). Business surveys are usually faced with low response rates particularly for those that pursue financial data; and this is because businesses usually turn down requests to divulge their financial information in private sector surveys. Moreover, private sector surveys are saddled with time and cost constraints (White and Luo, 2006). Generally, realising a high response rate is believed to be the benchmark for delivering quality survey estimates, as it is considered to produce samples that are (to a greater extent) representative of the population, and therefore, with less bias (Tate et al. 2007). Nevertheless, various studies revealed that non-response is likely to produce results with bias (Brogan, 1980; Hill et al. 1997). Findings from recent empirical studies indicated that differences in non-response rates do not significantly affect survey results as the connection between non-response rate and bias is non-direct and largely complicated (Groves, 2006). Increasingly, there are few advocates of the proposition that low response rate consistently leads to high non-response bias outcomes (Curtin and Singer, 2000; Keeter et al. 2000; Lahaut, 2004; Groves, 2006; Groves et al. 2006; Tate et al. 2007). Interestingly, this same cohort of advocates proposed the application of a definitive sampling frame in order to preserve the value of the unbiased sample against low response rates (Lahaut, 2004; Groves, 2006; Groves et al. 2006).

Even though the use of the proper and suitable sampling technique can assist in curtailing selection bias, having a high dropout rate can also usher in bias. Likewise, measurement bias occurs when a high number of target participants fail to respond to requests for data collection (Atkinson and Flint, 2001). The issue of selection bias is dealt with by administering large samples coupled with the duplication of the research outcome to enhance and substantiate any generalisations (Atkinson and Flint, 2001). Even though measurement
bias can be dealt with by establishing similarities between the research participants and the sample population as well as its impact on the interpretation and generalisation of the outcome (Peersman 2014), administering large samples can reduce bias regardless (Pollak and Schlitz, 1988).

In general, since small businesses usually turn down requests to divulge their financial information in private sector surveys and this study is focused on UK small businesses (excluding B2C firms), a low response rate was anticipated. There was therefore a need to identify a sample which would be sufficient enough to make sure that adequate and relevant responses were received. As 850 questionnaires must be distributed to obtain 100 cases, it seemed that increasing the number of questionnaires distributed to 1000 might produce a margin of safety if the rate of return was lower than expected. The researcher attended business networking meetings with members of the Sutton Business Club, the Sterling Business Network (SBN), Business Network International (BNI), the Evening Standard Business Connections (ESBC) in order to pitch the research aims. The survey was sent to members of these business groups via email. Not surprisingly, a low response rate was realised. As a result, the researcher revisited the business networking meetings in order to generate more responses - this move eventually paid off. However, to minimise on the impact of non-response bias in the survey, obtaining a higher response rate was seen as crucially important (Lessler and Kalsbeek, 1992). The details of the respondents' conversion from contacts to study participants are set out in Section 5.2 of the next chapter.

4.6 The Data Collection Method

Data can be collected using different methods, including the survey method (Ticehurst and Veal, 2000). Nevertheless, this study is based on a one-time survey research strategy exploring the relationship between the management of trade credit (AR management) using OAS and the cash flow situation of small businesses in the UK. A quantitative data collection method was adopted so that an electronic survey could be sent to research participants that had been identified in section 4.4. A single electronic survey was chosen for two main reasons. Firstly, electronic surveys are considered to provide cheaper and faster returns
compared to traditional paper and pencil surveys, and they are widely used by business researchers and groups of online-based users (Jansen et al., 2007). Secondly, any shortage or absence of secondary data means that the more appropriate method of data collection is a survey strategy. For this study, it was considered cheaper and quicker to distribute and collect data from respondents as there was a shortage of secondary data on the usage of OAS.

4.7 Research Instrument Measurement and Scaling

The questionnaire has four sections. These sections relate to the company's profile, the respondents’ perceptions of the usefulness of OAS, performance and business growth levels after the use of OAS and business condition after the use of OAS. Data from the survey instrument used in this study are based on nominal and ordinal levels of measurement. Nominal and ordinal scales are commonplace in social science studies with the use of Likert scales in surveys (Long, 2012). Most regression models suited to nominal and ordinal scales data back to the 1980s. These models are basically sets of binary regressions, tallied together with constraints over the parameters (Long, 2012). A binary category is a nominal level of measurement and can be one of two types: occurrences that display a characteristic and occurrences that do not (Kent, 2001). For example the employed and the unemployed, and those responding with "Yes" or "No" to a question. This binary category was used for the "yes / no" questions which explored whether the firms maintained their standard OAS or integrated their standard OAS to include a credit management add-on.

Nominal scales help spot and organise certain traits of the research respondents (Hair et al., 2007) allowing the researcher to qualitatively differentiate between groups classified into mutually exclusive and collectively exhaustive sets (Sekaran, 2004). This scale is used especially for the type of industry to measure the firms’ profile. The ordinal scale measures perceptions, opinions attitudes, feelings and values by means of rating scales (Hair et al., 2007) and it assists in the structure of the variations in each variable (Sekaran, 2004). The use of a Likert scale (or summated rating scale) facilitates an ordinal scale. The five-point scale or seven point scale is used to evaluate the level of consistency with a set of statements (Hair et al., 2007). The self-reporting five-point Likert scale was used in this study to gauge the degree of applicability of OAS (standard or integrated), the performance and growth levels of
the responding firms after using the software in a standard or the integrated format with the credit management add-on.

The use of a five-point Likert scale helps to reduce the time taken to complete questionnaires by the respondents. However, obtaining the annual reports of small businesses is difficult, as these reports are not publicly available, and small businesses owners are not willing to release their financial data. Therefore, the researcher had to use self-reporting scales to measure the variables involved in the use of OAS. Given that SMEs are unwilling to divulge business data, the self-rating scale is the only option available, even though it has been criticised for its lack of objectivity. However, Dess and Robinson (1984) explained that subjective perceptions of respondents in relation to performance resonated with exact performance, therefore, the use of subjective scales is applicable when objective measures are not obtainable.

The research participants were well informed and equipped to deal with a great number of categories of information. Nonetheless, the research participants responded more easily to scaling questions (Hair et al., 2007). In terms of small business owners only having time for activities that realise the benefits for their firms, having a smaller number of groups in Likert scales helps the research participants identify with the information required. This helps to boost the response rate. However, section 5.2.1 demonstrates the response rate for this study, and section 5.2.2 demonstrates the non-response bias tests conducted using chi-square and Mann-Whitney U tests based on the distribution of cash flow levels between the early and late respondents. These comparisons were done by developing hypothesis (H₀) as follows:

H₀: there is no significant difference in the distribution of the cash flow level between the responding firms and the sample frame.

The results of the non-response bias tests are presented in tables 6 and 7 (see pages 148 and 149).
4.8 Questionnaire Design

The research questionnaire used for this study was developed with guidance from existing scales validated from previous corporate research studies (e.g. IOMA, 2010). The researcher also used the basic models and guidelines in the literature (e.g. Sethi and King, 1991) for new measures that had to be adjusted or changed significantly. Two well-established accountants with experience in the field of the research, and one well-established scientific researcher with extensive experience in survey research assessed the research questionnaire. Thereafter, the proposed amendments were executed. In order to address the validity of the questionnaire, the questionnaire was piloted on four small business owner-managers during a face-to-face meeting. The purpose of the pilot test was to objective view of feedback and also to measure their grasp of the questionnaire (Dillman, 1978).

In developing and designing a questionnaire, it is important to establish by what means to choose the variables that will form the questions. The outline of the questionnaire was drawn from different sources which included reports on credit management by professional financial and management accounting bodies such as the ICAEW, CIMA, and IOMA (Institute of Finance & Management). The questionnaire was tailored by exclusively selecting variables that served the purpose of this research and that could be understood by the target respondents without difficulty. The questionnaire was designed to probe for information to examine whether the efficiency levels of online credit management practices and the cash flow performance of UK small businesses that maintained the standard OAS were enhanced beyond those that modified their OAS. The final version of the questionnaire contained 14 main questions. Questions were asked in four sections, in order to collect data on the most important issues in an organised way. Details on the subject matter covered are:

- **First Section: The Company Profile**

Nominal and ordinal measures were used in this section to determine the profile of the firms, such as the type of business activity (industry sector); age of the firm; the position of the respondent in the firm; annual turnover of the firm; and the number of firm employees. All questions were in a close-ended form.
Second Section: Perception of the usefulness of online accounting systems

Ordinal measures were applied in this section in order to determine the extent of the use of OAS for small businesses. OAS usage was grouped into three parts (A to C). Parts A and B featured questions to identify if the standard and the modified OAS performed the respective set of functionalities as expected. For example, question eight asked the respondents to indicate the extent to which OAS performs its standard set of functionalities as expected. A five-point Likert scale was employed to signify the extent of use of the standard OAS. The scale was: 1 - Very Ineffective; 2 – Ineffective; 3 – Average; 4 – Efficient; and 5 - Very Efficient. Thereafter, the ninth question asked, “Have you integrated your Online Accounting Package with the Automated Credit Management add-on?” The binary category ‘yes’ or ‘no’ response options were provided to answer the question. In addition to this, the statement that appears after the tenth question reads as follows: “If yes, please answer the questions in part B and onwards. If no, please go to part C and onwards.” This statement directs the respondents to where they should look at next in answering the questionnaire.

Where the respondents opted for a "Yes" answer to the ninth question, the ensuing questions in the section delved into the use of the standard OAS after integrating it with the credit management add-on. The pattern of scale is the same in the eleventh question of part B in section 2. However, to answer the twelfth question in part C, the same five-point Likert scale was used with a different pattern of scale to explore the extent to which the standard and modified OAS have effectively helped firms in realising financial gains. The scale was: 1 - Not at all; 2 - Low Extent; 3 - Moderate Extent; 4 - High Extent; and 5 - Very High Extent. Questions about the online trade credit management processes that needed to be answered by the respondents are included in the dimensions of Sethi and King (1994) CAPITA construct, strengthening the relationship between small business activities and the opportunities to acquire financial gains that OAS can offer in each area of a business undertaking. Further to this, the data collected provided information about the empirical testing of the 1st and 2nd research hypotheses.
Section Three: The levels of performance and growth of the business after the use of the Online Accounting Software (OAS).

As already explained in section 2.7, and the previous section, the lack of availability of objective data on the performance of SMEs enforced a subjective and self-reported measure of performance in the questionnaire in order to assess the responding firms’ performance. Even though financial performance determinants in the context of this study refer to the cash flow performance of the responding firms as stated in section 2.7, the thirteenth question asked respondents about the extent to which the use of the standard and modified OAS has impacted on the responding firm’s performance. The scale used was: 1 - Decreased Significantly; 2 – Decreased; 3 - No Change, 4 – Increased; and 5 - Increased Significantly. The research participants were urged to signify changes in their business performance over the past year using the self-rating Likert scale. The data gathered from this section provide further insights into the use of the standard and modified OAS, and their impact on organisational performance using non-financial performance indicators. Such indicators include the number of days to process new orders; the level of sales and revenue; the number of retained customers; the level of cash inflow from operations; the level of late payment charge; overdue receivables (outstanding customer debts); the number of days it takes to receive payment; the number of late-paying customers; disputes with defaulting customers; the cost of chasing late payments; details of bad debt write-offs; and the use of debt collection agencies. Such data supports sound empirical testing of the three research hypotheses.

Section Four: Business condition after the use of the Online Accounting Software (OAS)

The experience of the respondents after the use of OAS (standard and modified) was measured using the binary category "Yes" or "No" to obtain a nominal level of measurement. One of the categories represents respondents with a particular characteristic, and the other represents those that do not represent that particular characteristic (Kent, 2001). The questions in the survey are based on an understanding of the reality of a small business owner (an automobile garage owner) whose business collapsed after extending credit to a new customer with the agreement that the customer will pay for their services in arrears at the end of each month. The following six indices were used: the experience of a slowdown in customer payment; the allowance of anticipation payment discounts to encourage faster payments; the initiation of a late payment charge for defaulting customers; the handing over
of defaulting customers to collection agencies; a recommendation of OAS to a business colleague; and optimism on the future outlook for UK small businesses with the use of OAS.

4.9 Research Variables and Measurement

Based on the research hypotheses, this study focuses on three major variables: the dependent, the independent, and interaction variables. Cash flow income was investigated as the dependent variable. The independent or explanatory variables are the functionalities of the standard OAS, the Credit Management Add-on, and the integration of the standard OAS with the Credit Management Add-on (also referred to as the modified OAS). The control variables were the length of OAS ownership (1 year or over), the length of OAS integration with the Credit Management Software (1 year or over), and the subscriptions paid by respondents. As previously discussed in Chapter 3, OAS functionality (standard and modified) are variables that can be responsible for effective AR management. The effect of the above-mentioned variables on the level of cash flow income are defined and measured as shown in table 3. Further to this, the Direct Effect (DE) of the components of the standard OAS on the level of cash flow income are defined and measured as shown in table 4.

Table 3 - Cash Flow model (Research Variables and Measurement) table

<table>
<thead>
<tr>
<th>Variables</th>
<th>Abbreviation</th>
<th>Symbol</th>
<th>Measurements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent Variable</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash Flow Income</td>
<td>CFI</td>
<td>Y</td>
<td>5 point Likert Scale – Ordinal data</td>
</tr>
<tr>
<td><strong>Independent Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard OAS</td>
<td>Std OAS</td>
<td>X</td>
<td>5 point Likert Scale – Ordinal data</td>
</tr>
<tr>
<td>Credit Management Add-on</td>
<td>CredMgt</td>
<td>Z</td>
<td>5 point Likert Scale – Ordinal data</td>
</tr>
<tr>
<td>Modified OAS</td>
<td>Mod OAS</td>
<td>XZ</td>
<td>Interaction of the Standard OAS and the Credit Management Add-on (Ordinal data)</td>
</tr>
<tr>
<td><strong>Control Variables</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length of OAS ownership (over 1 year)</td>
<td>LofO</td>
<td>timeOAS</td>
<td>Nominal scale - binary category (yes/no)</td>
</tr>
<tr>
<td>Length of OAS integration with</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Credit Management Software (over 1 year)</td>
<td>Int1Yr</td>
<td>timeInt</td>
<td>Nominal scale - binary category (yes/no)</td>
</tr>
<tr>
<td>Subscriptions paid by respondents</td>
<td>Subscr</td>
<td>Subscr</td>
<td>Nominal scale - binary category (yes/no)</td>
</tr>
</tbody>
</table>
Table 4 - Standard OAS variables and measurement table

<table>
<thead>
<tr>
<th>Standard OAS – Variable Category</th>
<th>Components of Standard OAS variable</th>
<th>Abbreviation</th>
<th>Beta Coefficient</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FINANCIAL FRAMEWORK</strong></td>
<td>Provides accurate, reliable and up-to-date financial information</td>
<td>xFinFr1</td>
<td>βDE1</td>
<td>5 point Likert Scale – Ordinal data</td>
</tr>
<tr>
<td></td>
<td>Adheres to the highest standards of statutory reporting to the Companies House and the HMRC</td>
<td>xFF2</td>
<td>βDE2</td>
<td>5 point Likert Scale – Ordinal data</td>
</tr>
<tr>
<td></td>
<td>Processes financial data in a reliable and understandable way</td>
<td>xFF3</td>
<td>βDE3</td>
<td>5 point Likert Scale – Ordinal data</td>
</tr>
<tr>
<td></td>
<td>Records invoice for orders using standard billing and contract terms</td>
<td>xFF4</td>
<td>βDE4</td>
<td>5 point Likert Scale – Ordinal data</td>
</tr>
<tr>
<td></td>
<td>Calculates tax (including VAT) and interest payments accurately</td>
<td>xFF5</td>
<td>βDE5</td>
<td>5 point Likert Scale – Ordinal data</td>
</tr>
<tr>
<td><strong>SYSTEMS MANAGEMENT</strong></td>
<td>Provides unlimited, free support on the use the application</td>
<td>xSysMgt1</td>
<td>βDE6</td>
<td>5 point Likert Scale – Ordinal data</td>
</tr>
<tr>
<td></td>
<td>Improves time planning, and procedural skills</td>
<td>xSM2</td>
<td>βDE7</td>
<td>5 point Likert Scale – Ordinal data</td>
</tr>
<tr>
<td></td>
<td>Improves book-keeping &amp; accounting, and payroll skills</td>
<td>xSM3</td>
<td>βDE8</td>
<td>5 point Likert Scale – Ordinal data</td>
</tr>
<tr>
<td></td>
<td>Administers knowledge of the profitability of the business</td>
<td>xSM4</td>
<td>βDE9</td>
<td>5 point Likert Scale – Ordinal data</td>
</tr>
<tr>
<td></td>
<td>Reduces the need for in-house IT expertise</td>
<td>xSM5</td>
<td>βDE10</td>
<td>5 point Likert Scale – Ordinal data</td>
</tr>
<tr>
<td><strong>SYSTEMS INTEGRATION &amp; DATA RECOVERY</strong></td>
<td>Sends invoices to customers quicker and receive payments quicker</td>
<td>xSysInt1</td>
<td>βDE11</td>
<td>5 point Likert Scale – Ordinal data</td>
</tr>
<tr>
<td></td>
<td>Enables the in-built automated credit control feature to collect payments from customers within 60 days</td>
<td>xSI2</td>
<td>βDE12</td>
<td>5 point Likert Scale – Ordinal data</td>
</tr>
<tr>
<td></td>
<td>Simplifies credit control by chasing payments from customers</td>
<td>xSI3</td>
<td>βDE13</td>
<td>5 point Likert Scale – Ordinal data</td>
</tr>
<tr>
<td></td>
<td>Enables interaction with other banking systems and clearing houses when payments are made</td>
<td>xSI4</td>
<td>βDE14</td>
<td>5 point Likert Scale – Ordinal data</td>
</tr>
<tr>
<td></td>
<td>Enables modifications with other software and systems (e.g. Payment processors, debt management add-on)</td>
<td>xSI5</td>
<td>βDE15</td>
<td>5 point Likert Scale – Ordinal data</td>
</tr>
<tr>
<td></td>
<td>Enables speedy data back up with zero data loss in the event of a network malfunction</td>
<td>xSI6</td>
<td>βDE16</td>
<td>5 point Likert Scale – Ordinal data</td>
</tr>
<tr>
<td></td>
<td>Provides high system uptime as network servers are always available whilst customers’ data is safe</td>
<td>xSI7</td>
<td>βDE17</td>
<td>5 point Likert Scale – Ordinal data</td>
</tr>
<tr>
<td><strong>RESOURCE UTILITY</strong></td>
<td>Enables software accessibility anywhere &amp; at anytime, and on a mobile phone</td>
<td>xResUti1</td>
<td>βDE18</td>
<td>5 point Likert Scale – Ordinal data</td>
</tr>
<tr>
<td></td>
<td>Enables software suitability and appropriateness to meet business requirements</td>
<td>xRU2</td>
<td>βDE19</td>
<td>5 point Likert Scale – Ordinal data</td>
</tr>
<tr>
<td></td>
<td>Enables real time management of cash flow and credit sales</td>
<td>xRU3</td>
<td>βDE20</td>
<td>5 point Likert Scale – Ordinal data</td>
</tr>
<tr>
<td></td>
<td>Assess the risk of some business operations and prediction of future earnings</td>
<td>xRU4</td>
<td>βDE21</td>
<td>5 point Likert Scale – Ordinal data</td>
</tr>
<tr>
<td></td>
<td>Assess the risk of the safety and security of business financial information against hackers</td>
<td>xRU5</td>
<td>βDE22</td>
<td>5 point Likert Scale – Ordinal data</td>
</tr>
<tr>
<td></td>
<td>Enables simultaneous access and engagement with the Accountant</td>
<td>xRU6</td>
<td>βDE23</td>
<td>5 point Likert Scale – Ordinal data</td>
</tr>
<tr>
<td></td>
<td>Reduces reliance on Traditional Accountants</td>
<td>xRU7</td>
<td>βDE24</td>
<td>5 point Likert Scale – Ordinal data</td>
</tr>
</tbody>
</table>
4.10 Reliability and Validity

Reliability is the degree to which a test measurement is measured continuously (Gay and Airasian, 2000). Validity is the extent to which the interpretations of the results of a test are warranted, which depends on the particular use the test is intended to serve (Kimberlin and Winterstein, 2008). Evidence of reliability and validity are necessary to establish the precision and coherence of variables. Survey questions have to be answered by respondents in a consistent manner, and these are profoundly mutually related. However, the scale used to measure the variables would be unreliable if the responses are inconsistent and unrelated (Hair et al., 2007). In this study, the reliability of the questionnaire was ascertained by using Cronbach's alpha. This method calculates the coefficients alpha, when a variable of the initial set is withdrawn, so that it is possible to detect the subgroup with the maximum reliability coefficient. The scales are deemed to be reliable if all the results are above 0.7 (Sousa et al., 2006). Lower coefficients may be acceptable, but only contingent upon the research objectives (Hair et al., 2007). Hence, for exploratory research, alpha coefficients of 0.50 to 0.60 are considered satisfactory (Nunnally, 1978). The Cronbach Alpha outcome for this study is demonstrated in section 5.2.2 (see page 150). The validity of the self- and informant-report questionnaire was demonstrated in section 4.7 above.

4.11 Model Development for this Study and Hypothesis Testing

The type (s) of data and/or problems that a researcher will probably encounter differs considerably across disciplines. Therefore, techniques that are useful in one area of study may be of little use or interest to researchers in another area (McCullagh, 1980). Ordinal logistic regression models are appropriate when data come in ordered categories and when it is necessary to control possible confounding factors, or even when there is a need to take several factors into consideration. A multivariate analysis for ordinal data is the natural alternative Abreu et al. (2008). There are various approaches, such as the probit model, nonetheless, the ordinal logistic regression models have been widely publicised in the statistical literature (McCullagh, 1980; Anderson, 1984; Ananth and Kleinbaum, 1997; Scott et. al, 1997; Lall et al., 2002). Research studies by Allan (1976), Borgatta (1968), Kim (1975, 1978), Labovitz (1967, 1970), and O'Brien (1979a) as cited in Winship and Mare (1984).
explained that multivariate methods should be used for ordinal variables because the power and flexibility gained from these methods outweighs the small biases that they may entail.

As stated in section 4.7, the ordinal measure was used to determine the extent of the use of the standard and modified OAS by small business respondents, and these were identified through an examination of CMAM. Moreover, the ordinal regression method was used to model the relationship between the ordinal outcome variable (cash flow performance); the explanatory variables concerning the functionalities of the standard OAS, the functionalities of the credit management add-on, and the integration of the functionalities of both standard OAS and the credit management add-on (the modified OAS). They were also used to model the control variables [the length of OAS ownership (1 year or over), the length of OAS integration with the Credit Management Software (1 year or over), and subscriptions to credit checking agencies by respondents]. The outcome variable of cash flow performance was measured on an ordered, ordinal, and five-point Likert scale as demonstrated in pages 138 and 139. However, it is unreasonable to presume the normality and homogeneity of variance for the ordered categorical outcome. Therefore, the ordinal regression model emerge as the preferred modelling tool that fails to presume the normality and constant variance, but depend upon the presumption of parallel lines over every layer of the categorical outcome (Elamir and Sadeq, 2010).

Regression methods such as linear, logistic, and ordinal regression are useful tools to analyse the relationship between the explanatory and control variables and the outcome variable. The ordinal regression method permits the researcher to estimate the magnitude of the effect of the explanatory and control variables on the outcome variable. A major decision involved in the model building for ordinal regression was choosing the link function (e.g. logit link, probit link) that demonstrated the model appropriateness (Elamir and Sadeq, 2010). The link function (logit) is used to build particular models in ordinal regression analysis, and the logit link is mostly suited for analysing ordered categorical data that are equally distributed among all categories (Elamir and Sadeq, 2010). Be that as it may, the multivariate ordinal logistic (logit) regression model is appropriate for this study (Zikmund, 1997), and will be used to test the effectiveness of the standard OAS. This is particularly useful to test its credit control functions which can improve a small firm’s cash flow position as perceived by the small
business respondents. The model can assess hypotheses $H_1$, $H_2$ and $H_3$ (see section 3.5) which are as follows:

$$Y_1 = \alpha_1 + \beta_1 X + \beta_2 Z + \beta_1 XZ + \beta_{OAS1} - OAS + \beta_{tOAS} + \beta_{tInt} + \beta_{Subscr} + \mu_{Y1} \ldots \ldots \ldots \ldots \text{cash flow model 1}$$

$$Y_{DE} = \alpha_{DE} + \beta_{DE1} - FinFr1 + \beta_{DE2} - SysMgt1 + \beta_{DE6} - SysInt1 + \beta_{DE11} - ResUt1 + \mu_{Y2} \ldots \ldots \ldots \ldots \text{std OAS cash flow model 2}$$

where:

- $\alpha_i (i = 1,2)$ is constant;
- $\beta (i/DE = 1,2 \ldots 24)$ are the coefficients;
- $\mu$ is the error variable;
- $X$ and $Z$ are the functionalities of the standard OAS, and the functionalities of the credit management add-on respectively (the 1st and 2nd Independent Variables);
- $XZ$ is the modified OAS (the 3rd Independent Variable - the interaction of the X and Z);
- $tOAS$, $tInt$, and $Subscr$ represents the length of OAS ownership (1 year or over), the length of OAS integration with the Credit Management add-on (1 year or over), and subscriptions to credit checking agencies by respondents (the Control Variables);
- $x(FinFr1, \ldots, ResUt1)$ are the components/functionalities of the standard OAS, as shown in table 4 above;
- $Y_i (i = 1, DE)$ is the Cash Flow Income (the Dependent/Outcome Variable).

As explained in previous chapters, the modified OAS is the interaction of the standard OAS, and the Credit Management Add-on. The interaction of these two explanatory variables is often referred to as a two-way or two-factor interaction on the response variable (Fitzmaurice, 2000). However, according to Fitzmaurice (2000), the term interaction has a statistical meaning, and refers to how the effect on the response of one explanatory variable depends on the level of one or more other explanatory variables. That is, interaction is said to arise when the effect of one explanatory variable depends on the particular level or value of another explanatory variable. Although the inclusion of an interaction term in a regression model by definition creates multicollinearity and presents potential problems, this may be improved via
centering (Afshartous and Preston, 2011). Centering is defined as subtracting the mean (a constant) from each score, \( X \), yielding a centered score (Robinson and Schumacker, 2009).

The use of other transformations, additive constants or uncentered scores can have a profound effect on interaction results. Regression with higher order terms has covariance between interaction terms (\( XZ \)) and each component (\( X \) and \( Z \)) depends, in part, upon the means of the individual predictors. Rescaling the predictors is often recommended to improve the interpretation of the lower order effects, \( \beta_1 \) and \( \beta_2 \) and these are sometimes referred to as main effects (Aiken and West, 1991). Centering or creating deviation scores requires subtracting the mean from every predictor’s original value before estimating the interaction term. This minimises multicollinearity among the predictors when the variables are used in the model. The interaction coefficient and its significance are not affected by the rescaling, but the standard errors of the main effects are enhanced due to a decrease in elements that are unnecessary multicollinearity (Aiken and West, 1991).

Centering is therefore an important step when testing interaction effects in multiple regressions to obtain a meaningful interpretation of results (Robinson and Schumacker, 2009). If data are measured on an ordinal scale, then they can be placed in some kind of order. However, the points on an ordinal scale are not necessarily equally spaced (Elamir and Sadeq, 2010). Hole (2011) further explained that if data are measured on an interval or ratio scale, the distances between the various points on the scale are equivalent across the whole range of measurements. Therefore, descriptive statistics such as mode or median should be used as the average reading for the balance (measures for central tendency) and not the mean (Hole, 2011; Boone and Boone, 2012). Likewise, Garth (2008) compared the mean and median, and pointed out that the mean is based on all the data values. However, because of this it is prone to being unduly affected by outliers in the data, most noticeably when the sample is small.

The median, however, is largely unaffected by one or two extreme outliers, even in small samples and it is simply the middle value (Garth 2008). Hole (2011) concluded that all rating scale data (Likert scales included) are to be treated as ordinal data and only analysed with
non-parametric statistical tests. Following Hole’s (2011) explanation, the data produced by this study are solely collected through the use of Likert Scales, and as such, the data are ordinal and not interval or ratio scaled data, as there is no true zero point. Therefore, the median was used as the average reading for the balance and became measures for central tendency. Multivariate ordinal logistic (logit) regression tests were carried out to analyse the data using SPSS 24 with median-centered variables. Section 4.11 briefly discusses data analysis methods, whereas details of the techniques used and results of data analysis will be reported in chapters 5 and 6.

4.12 Data Analysis

The CMAM assisted the researcher in collecting the appropriate and relevant data regarding the views from the leading OAS vendors on the effect of the software’s AR function in helping small businesses better manage cash flow. These data were categorised into broad themes, and subsequently subjected to a more detailed descriptive analysis, alongside the survey data collected in order to answer the research questions and meet the research aims and objectives. This theme-based analysis of the survey data helped to provide a general overview of the direction of the research, enabling a review of the feedback from the survey respondents in conjunction with the researcher’s interpretation of the interactions among the core firm and credit decision activities involved in an organisation’s trade credit supply process. Additionally, the relationship between a small firm’s online credit management practices and cash flow performance was ascertained with reference to the CMAM data using multiple regression modelling. An ordinal logistic regression analysis technique was an appropriate match for this study (Zikmund, 1997); and as a result, ordinal logistic regression models were developed and tested to explain the relationships between online credit management practices and cash flow performance using the SPSS 24.
4.13 Chapter Summary

This chapter describes the research design and methodology used to answer the three research questions and three research hypotheses presented earlier. The chapter explained that the aim, objectives, and questions in relation to the research will be taken on quantitatively using a descriptive design. The target population consists of small businesses in the service and retail sector and the target sample was stratified into four subgroups. As anticipated, a low response rate was realised. In order to increase the number of responses, the snowball strategy through referrals was employed by the researcher. This generated more responses, however, the sample size was set at 1000 firms with a target of 100-150 usable responses. In addition, an online survey was used to collect data. The arrangement of the questionnaire and the source of the content were discussed and explained, and the pilot testing execution (including the validity and reliability tests of the research instrument) was also discussed. More importantly, the ordinal logistic regression model developed for this study was explained, along with the hypotheses tested. Finally, an explanation of the use of theme-based analysis and the use of the ordinal logistic regression analysis was discussed.
CHAPTER FIVE - DESCRIPTIVE FINDINGS USING THE CREDIT MANAGEMENT ACTIVITY MODEL (CMAM)

5.1 Introduction

The main purpose of this chapter is to introduce the descriptive findings of the research survey within the context of CMAM, through an analysis of the feedback from the survey data collected. The section provides information on the empirical testing of the research hypotheses. Thus, section 5.2 looks into the descriptive results of the questionnaire responses, including response rates and non-response bias, and the profile of the respondents. Section 5.3 presents CMAM as a tool for strategic analysis, focusing on the financial productivity possibilities associated with the match between strategy and the appropriateness of OAS in helping to improve cash flow. The full results of the descriptive data on the perception and the extent of use of the standard and modified OAS has impacted on the respondents’ business cash flow position and this is described in section 5.4. This section contains information on the practice-performance situation of the respondents’ businesses after using OAS in its standard form, and/or modifying the software to realise an increase in cash flow income. The final section presents a summary of this chapter.

5.2 The Descriptive Results of the Survey Responses using CMAM

The responses from the small business population surveyed were categorised into themes, and presented to demonstrate the interactions amongst the core firm and credit decision activities involved in an organisation’s trade credit supply process. Also, CMAM was used to identify the relationship between AR activities and the potential opportunities for acquiring financial gains (cash flow income) – as stated in sections 1.6 and 3.5. Therefore, data collected through the survey were analysed with reference to CMAM, and subsequently substantiated in the next chapter using the ordinal logistic regression technique in order to present a more suitable framework for discussion and comparisons. The perceptions of respondents as to the extent to which OAS (either modified or used in its standard form) was seen as appropriate for their business needs were gathered. They were also asked if the
software’s capability in identifying financial productivity possibilities was something that they perceived of and if they thought that the software could effectively manage their cash flow and payment collection processes.

The previous chapter provided information with regards to identifying and targeting the sample size necessary to realise the required number of research participants. The target sample size of 1000 participants was drawn up from four small business groups, namely: the SBC, SBN, BNI, the ESBC and the Marketscan business directory database as explained in chapter 4. An electronic survey was sent to research participants as stated in section 4.5 of chapter 4. The researcher obtained some business contacts from the Marketscan business directory database, and sent the survey via email. As explained in Section 4.5, the researcher also attended meetings with members of the groups mentioned above in order to pitch the research aims. The survey was eventually sent to members via email between 11 January 2016 and 15 July 2016. In order to promote the completion of the questionnaire, participants were informed that their responses were anonymous and they were assured that they would have access to a summary of the results.

Two months after the setting up and sending out the survey, only 33 responses were received. The majority of these were from respondents using the standard OAS. In order to increase the number of responses, the researcher revisited the business networking meetings in order to generate more responses. This generated 19 more responses a month later. The researcher attended a major business show in the fifth month, and came in contact with some of the members of two of the business groups mentioned above (and in page 127). Consequent to the attendance a major business show, the researcher paid another visit to the rest of the business groups. This generated 48 more responses. A month later, 90 more responses were received, and only 1 response was received during the seventh month. However, due to time and cost constraints, the data collection process had to be concluded. Upon the completion of the data collection stage, a total of 191 responses were gathered.
5.2.1 Non-response Bias test

Non-response in the context of this study refers to respondents that turned down the request to fill out surveys or avoided questions in the survey. Return rates on surveys range from below 10% to over 90%, subject to different factors such as the attractiveness of the survey, the perceived importance of the subject matter, and the method of distribution used (Dillman, 1978). The potential impact of missing data, or non-responses for particular questions on surveys is related to exclusions in the sampling frame, i.e., a part of the target population has been excluded from the sample (Henry, 1990). Results relating to items for which a considerable number of responses (mostly above 10%) are left empty do not automatically correctly portray the opinions or attitudes of the target population. The researcher (like others beforehand) turned to email dissemination via business networking (website membership) emailing lists, but the response rates were initially low since many received similar such requests on a regular basis and viewed these as a nuisance (Sheehan, 2001; Kaplowitz et al., 2004; Kosinski et al., 2013).

Small business owners are primarily interested in their business, and little else beyond. The researcher realised that small business owners are very much interested in communications about skills development and training opportunities, as long as they are directly relevant to their business, and as long as the delivery method is correctly arranged beforehand in terms of location, time of day, and length of session (Walker et al., 2007). Therefore, the task of filling in academic surveys is usually the last thing on their minds. The initial step to identify non-response bias was to match up the number of responses from firms with the standard OAS with those that modified their OAS (of the 191 respondents from the sample of 1000 firms).

<table>
<thead>
<tr>
<th>Table 5 - Summary of the population response rate by OAS classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total sample size</td>
</tr>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td>Standard OAS</td>
</tr>
<tr>
<td>Integrated OAS</td>
</tr>
</tbody>
</table>

As shown in table 5 above, the response rate from firms that had modified their OAS is higher than those who had not. The results show that the population is fairly biased towards
firms who have modified their OAS (106 responses) with 85 of responding firms having carried out no modifications to their OAS. However, the majority of the early responses (2 months after the setting up and sending the survey) were from respondents with the standard OAS.

Non-response bias is a big issue as a result of the low response rate that came about in this study. Non-response bias is intrinsic in both low response rates and distinct variations in the assessment between respondents and non-respondents (Bose, 2001). Based on the results displayed in the table above, non-response bias tests were administered to check whether non-response bias was existent. Non-response bias was initially assessed by comparing the distribution of the cash flow levels between the respondents and the sample frame, after the use of OAS (standard and modified). This comparison features the profiles of the early and late responding firms (i.e. the first and last 20% of respondents). A major assumption here is that late responding firms to a survey are to a greater extent identical to non-responding firms than early responding firms (Bose, 2001). As the research variables are categorical in nature, this comparison was completed by applying the non-parametric chi-square test ($\chi^2$) via the following hypothesis:

$H_0$: there is no significance difference in the distribution of the cash flow level between responding firms. Table 6 shows the result of the chi-square test.

<table>
<thead>
<tr>
<th>Cash flow level</th>
<th>Value</th>
<th>Df</th>
<th>Asympt. Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Respondents</td>
<td>21.400</td>
<td>10</td>
<td>.018</td>
</tr>
<tr>
<td>Late Respondents</td>
<td>8.754</td>
<td>10</td>
<td>.556</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Business performance level</th>
<th>Value</th>
<th>Df</th>
<th>Asympt. Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Respondents</td>
<td>7.213</td>
<td>10</td>
<td>.705</td>
</tr>
<tr>
<td>Late Respondents</td>
<td>11.277</td>
<td>6</td>
<td>.080</td>
</tr>
</tbody>
</table>

Table 6 above indicates that, for the distribution of the cash flow level, the number of early respondents is significant at a 5% significance level, leading to the first null hypothesis being
rejected. This result reveals non-response bias as earlier suggested in Table 6. No significance difference was found in the distribution of the business performance level between the early and late respondents (p > 0.05), and for this reason the second null hypothesis cannot be rejected. This result connotes that the distribution of the business performance level between the early and late respondents is the same as in the sample frame. This result fails to signify non-response bias.

The bias pointed out by the number of early respondents within the distribution of the cash flow level is not surprising. An additional test was conducted with a view to finding out whether the responses were representative of the early and late respondents, based on the distribution of the categorisation of the use of OAS (standard or integrated). This was also based on the distribution of cash flow income, business performance, and business experience levels. The Mann-Whitney U non-parametric test was used, as this is useful to examine the variations between groups that supplied ordinal or continuous data. This test presents evidence of how the survey results can be inferred directly for each category of response.

### Table 7 - Mann-Whitney U test of representativeness of response rate for OAS classification, distribution of cash flow income, and business experience levels

<table>
<thead>
<tr>
<th>Null Hypothesis</th>
<th>Test</th>
<th>Sig.</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>The distribution of Cash Flow Income Level is the same across categories of early and late respondents</td>
<td>Independent Samples Mann-Whitney U Test</td>
<td>.026</td>
<td>Reject the null hypothesis</td>
</tr>
</tbody>
</table>

The results of this test found no significant differences across the response categories, therefore, the results of the tests explained above demonstrate no indication of non-response bias. However, the results of the reliability test suggest a Cronbach Alpha coefficient of .961 (see appendix B), therefore, the questionnaire measurement scales are deemed to be reliable as the results are above 0.7 (Sousa et al., 2006). As stated in section 4.9, the validity of the self- and informant-report questionnaire was demonstrated in section 4.7. As indicated previously, a total of 191 responses were received, of which 63 were incomplete or non usable. This left the researcher with 128 (52 standard OAS users and 76 modified OAS users) completed and usable responses, which was higher than expected. Therefore the net usable response rate is 12.8% (128/1000). For this reason, it can be generally agreed that the
response rate of the study was considerably sufficient for analysis. The quantitative data gathered were categorised into broad themes and subjected to a more detailed descriptive analysis of the survey data (drawn from CMAM). The 128 completed and usable responses were descriptively analysed within the context of CMAM. These are presented next.

5.2.2 Profile of respondents

The survey contained 14 questions, with section 2 containing some sub-questions. The survey response time was not more than 15 minutes. Information regarding the profile of the respondents was gathered from Section 1 of the questionnaire. This comprises of five questions, which include the following: the respondents’ position in the business enterprise, the age of their enterprise, the industry sector category their business enterprise fall under; the number of employees and the turnover of the enterprise during the last financial year. It also includes the length of ownership of the standard and modified OAS, and the number of small business owner/managers who subscribed with credit rating agencies for customer credit checks. This information is valuable in understanding the background of the responding firms, as well as to provide data for statistical analysis. Table 8 provides information on the 128 companies that completed the survey.
Table 8 - Profile of the responding companies

<table>
<thead>
<tr>
<th>Profile of firms</th>
<th>Standard OAS</th>
<th>Modified OAS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Respondent’s position in the business enterprise</strong></td>
<td>Response %</td>
<td>Response Count</td>
</tr>
<tr>
<td>The sole owner</td>
<td>73%</td>
<td>38</td>
</tr>
<tr>
<td>A partner</td>
<td>6%</td>
<td>3</td>
</tr>
<tr>
<td>Major decision maker</td>
<td>21%</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>52</td>
</tr>
<tr>
<td><strong>The age of the enterprise</strong></td>
<td>Response %</td>
<td>Response Count</td>
</tr>
<tr>
<td>1-3 years</td>
<td>59%</td>
<td>31</td>
</tr>
<tr>
<td>4-7 years</td>
<td>27%</td>
<td>14</td>
</tr>
<tr>
<td>8-10 years</td>
<td>8%</td>
<td>4</td>
</tr>
<tr>
<td>Over 10 years</td>
<td>6%</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>52</td>
</tr>
<tr>
<td><strong>Industry sector category of the business enterprise</strong></td>
<td>Response %</td>
<td>Response Count</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>12%</td>
<td>6</td>
</tr>
<tr>
<td>Information Technology</td>
<td>19%</td>
<td>10</td>
</tr>
<tr>
<td>Business and Support services</td>
<td>55%</td>
<td>29</td>
</tr>
<tr>
<td>Culture and Entertainment</td>
<td>8%</td>
<td>4</td>
</tr>
<tr>
<td>Hospitality and/or Cleaning</td>
<td>6%</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>52</td>
</tr>
<tr>
<td><strong>Firm’s size</strong></td>
<td>Response %</td>
<td>Response Count</td>
</tr>
<tr>
<td>Sole proprietor (no waged employees)</td>
<td>38%</td>
<td>20</td>
</tr>
<tr>
<td>Micro business (1-9 waged employees)</td>
<td>54%</td>
<td>28</td>
</tr>
<tr>
<td>Small business (10-49 waged employees)</td>
<td>8%</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>52</td>
</tr>
<tr>
<td><strong>The turnover of the enterprise in the last financial year</strong></td>
<td>Response %</td>
<td>Response Count</td>
</tr>
<tr>
<td>Less than £100,000</td>
<td>65%</td>
<td>34</td>
</tr>
<tr>
<td>£100,000 - £250,000</td>
<td>19%</td>
<td>10</td>
</tr>
<tr>
<td>£250,000 - £500,000</td>
<td>10%</td>
<td>5</td>
</tr>
<tr>
<td>£500,000 - £1,000,000</td>
<td>2%</td>
<td>1</td>
</tr>
<tr>
<td>Over £1,000,000</td>
<td>4%</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>52</td>
</tr>
<tr>
<td><strong>Length of OAS ownership (over 1 year)</strong></td>
<td>Response %</td>
<td>Response Count</td>
</tr>
<tr>
<td>Yes</td>
<td>63%</td>
<td>33</td>
</tr>
<tr>
<td>No</td>
<td>37%</td>
<td>19</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>52</td>
</tr>
<tr>
<td><strong>Subscription payments to credit rating agencies (for customer credit checks)</strong></td>
<td>Response %</td>
<td>Response Count</td>
</tr>
<tr>
<td>Yes</td>
<td>19%</td>
<td>10</td>
</tr>
<tr>
<td>No</td>
<td>81%</td>
<td>42</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>52</td>
</tr>
</tbody>
</table>
The table above reports the distribution of the sample of responding firms in terms of the position of the respondent in the business enterprise. 43% of the respondents are major decision makers in a small business whilst 34% are the sole owners of the business. A further 23% are trading partners. In terms of size, 17% of the businesses that have no employees are sole traders. A further 56% are micro businesses with 1-9 employees, and 27% have between 10 and 49 employees. Additionally, 30% of the respondents had a turnover of less than £100,000. In addition, 29% earn over £100,000 but less than £250,000 whilst 30% earn more than £250,000 but less than £500,000. None of the respondents earn less than £1,000,000 but more than £500,000, and surprisingly, 11% earn over £1,000,000. These businesses satisfy the criteria of the SME definition highlighted in section 4.4 (chapter 4).

The concentration of respondents with 1-9 employees is also reflected by the information gathered on the industry sector category of respondents. The majority (35% of the sample) of the responding businesses fall under the business and support category, followed by the Information Technology category (23%). This is closely followed by the Culture and Entertainment category (17%). The other groups are the Hospitality and/or Cleaning sectors (13%), and the Manufacturing Sectors (12%). However, some organisations (17% of the sample) in the population engage in varied business activities. These proportions were not significantly changed compared with the fractions planned in the sampling procedure. Therefore, they provide assurance that the sample correctly reflects the target population on the basis of the measure used for the stratified sampling technique. However, the results show that very few (15%) of the firms that responded have been in business for over 10 years. 26% have been in business between 4-7 years whilst 27% have been in business for 1-3 years. A further 32% have been operating for between 8 and 10 years.

Even though table 8 above indicates that a quarter of the business population in the study are mature in terms of number of how long they have traded, the number of firms that have owned OAS for more than 1 year is disproportionately higher than those who have not. The result indicates that 90% of the total respondents have owned their OAS for more than 1 year, with only 10% of responding firms owning their OAS for less than 1 year. Moreover, the results also show that an equal number (50%) of the respondents subscribed with credit rating agencies for customer credit checks. This is a very interesting outcome as it shows that
respondents in both groups ensure that they perform background checks on their customers before offering trade credit. The relevance of CMAM as a tool for examining the relationship between a firm's business activities, and the potential opportunities for acquiring financial productivity improvements that OAS can present in every area of business and financial management operations is presented in the subsequent sections of this chapter.

5.3 CMAM as a Tool for Strategic Analysis

This section presents descriptive findings that relate to the accounting and credit management practices of small businesses in the sample using CMAM. However, as stated in chapter 1, some other businesses have added the credit management software to their existing (standard) OAS. In the current business environment, any tool that enables small business owners to better manage business processes and make informed decisions which will positively impact on future business operations and financial management control processes is valuable (Corbitt, 2000; Grabski et al., 2011). CMAM is composed of the CMVC (see figure 9) and the seven distinct dimensions from Sethi and King’s (1994) holistic CAPITA model of business activity for the disaggregation of trade credit activities. The credit decision and core firm activity efficiency dimensions of CAPITA hold rational points in the external area of the value chain, while the other five dimensions present a platform that sets up the entire value chain. As figure 9 illustrates, aspects of OAS financial productivity improvements surround the activities in the CMVC in an effort to strengthen the relationship between business activities and the potential opportunities for acquiring financial productivity improvements that OAS can offer in all areas of business and financial management operation.

In other words, Synergy, Resource Acquisition Functionality, Resource Management Functionality, Pre-emptiveness, and Threat-based financial productivity improvements may be found in the credit management activities or the core firm activities. The essential point is that OAS provides opportunities by virtue of its different applications that are not obvious in the CMVC. The dotted lines between the core firm activity efficiency and the CMVC’s core firm activities in CMAM (see figure 9) reflect the fact that this dimension of the
financial productivity improvements of OAS directly pertains to those traditional activities. The dotted lines between the credit decision activity efficiency and CMVC’s credit decision activities perform identical functions. The dotted lines also set aside the rest of the financial productivity dimensions of OAS from the CMVC, demonstrating their impact upon any of the traditional business activities even though they are separated.

CMAM is presented here as a tool for strategic analysis that can help identify the financial productivity possibilities associated with the match between strategy and the appropriateness of OAS (standard or modified) in helping to improve cash flow. CMAM offers various benefits including the individual use of either the CMVC or CAPITA. To illustrate this, the CMVC highlights procurement of resources as an independent core firm activity with the possibility of generating value in itself. At the same time this has an impact on credit decision activities. However, the CMVC does not assess the possible success of management’s proposition in developing continuous procurement-based financial gains. CMAM classifies resource management functionality as an all-encompassing category of strategic tasks within OAS that can be examined for unique operational capabilities, and can also impact upon the core firm and credit decision activities. Thus, the combination of the CMVC and CAPITA constructs included a unique element of profoundness in the determination of financial productivity possibilities.

In order to fully exploit the financial productivity possibilities of OAS, this chapter presents a comprehensive review of credit management practices carried out by the research respondents using CMAM as a strategic tool to analyse the effectiveness of the credit control solution of the standard OAS. This helps to improve cash flow positions amongst respondents, as claimed by the leading OAS vendors. It sheds light on the extent to which the research respondents who have integrated their standard OAS with the Automated Credit Management software experienced an improvement in their cash flow situation. Moreover, this chapter uses CMAM to evaluate the possibility of the research respondents experiencing any improvement in their operational and credit management capabilities that would accommodate the processing of accounting (and financial management) data relating to all of the different areas of interest of the firm (Maguire et al., 2010). The next section examines
the relationships between the financial productivity dimensions of OAS from the original value chain that can impact upon any of the traditional business activities that are directly reflected in financial productivity improvements. The questions in section 2 of the survey were designed to capture data on the use of technology that supports business activities and proffers opportunities for realising financial gains. This was illustrated as the extent of the effectiveness of the use of OAS, and the findings are discussed from this point forward.

5.3.1 The Core Firm activities in OAS

The four core firm activities, i.e. financial framework, systems management, systems integration, resource utility, are all part of the Core Firm Activity Efficiency, replacing CAPITA’s Support Activity Efficiency. They constitute the strategic tasks, or functionalities of the standard OAS that are expected to improve the user’s operational capabilities and drive financial gains. The interactions amongst the core firm and credit decision activities involved in an organisation’s trade credit supply process using OAS are examined along with theoretical research concepts on trade credit management. These concepts are highlighted in the literature review and conceptual framework chapters. Further scrutiny is given to claims made by the leading vendors of the standard OAS, whilst employing the seven distinct dimensions from Sethi and King’s (1994) holistic CAPITA model in order to assess the probable success of financial management initiatives in building constant credit management-based financial productivity improvements. The analysis of CMAM begins with the Core Firm Activities of the software, as evaluated under CAPITA’s dimensions and these are as follows:

1.) Management Functionality

This measures how well OAS helps its primary users to meet the requirements associated with a resource, and it corresponds to the early stages of business expansion. It indicates the financial framework function of the standard OAS. Computerised accounting software that improves the planning and assessment of a firm’s financial position and performance by putting together relevant business-related data in a more reliable, understandable and comparable structure to the internal and external stakeholders are seemingly adopted and
implemented by firms (Wood and Sangster, 2008). Computerised accounting software improves cost-effectiveness (Brynjolfsson et al., 2003) and knowledge distribution, and as a result, improves business operations (Romney and Steinbart, 2009) and management’s decision-making activities (Sajady et al., 2012).

Above all, OAS is expected to accurately record all sales returns and allowances – that is, authorise credit memos by individuals, independent of the AR function. OAS is also expected to pre-number and account for credit memos and receiving documents. It can ostensibly match credit memos and receiving documents and resolve unmatched items by individuals independent of the AR function. It means the user can avoid unauthorised input for non-existent returns, allowances, and write-offs. It can calculate discounts allowed and interest on late payments accurately, based on company policies (IOMA, 2010). In addition to these, OAS is expected to record sales invoices correctly – that is, record orders and invoice only for authorised and delivered orders. It can support standard billing or contract terms and can communicate non-standard billing or contract terms. It can verify billing or contract terms before invoice processing and it can record events in the proper accounting period. It can reconcile goods delivered to goods billed and match orders, delivery documents, and invoices, and follow through on missing or inconsistent information (IOMA, 2010).

Previous research has reported that small business owners may have some discretion in terms of whether to adhere to or comply with regulations subject to available business resources and market contexts (Edwards et al., 2003; Blackburn et al., 2005). They also vary in terms of their desire to adhere to or comply with regulations (Amodu, 2008). There is a necessity therefore to examine the SME owner-manager attitude and approach to managing regulations in the broader socio-economic context. Regulations will affect SMEs directly via requirements such as tax returns, and indirectly as a consequence of the effect of regulatory laws on other businesses, agencies and organisations that the SME owner-manager work with. These include suppliers, customers and infrastructure providers (Kitching et al., 2008). However, findings from this study suggests that 65% of respondents stated that the standard OAS was efficient in adhering to the highest standards of statutory reporting to Companies House and the HMRC. 73% stated that OAS was efficient in providing accurate, reliable and
up-to-date financial information. A further 70% said the software was efficient in processing financial data in a reliable and understandable way.

It has been argued that regulatory requirements on businesses, particularly those that SMEs face, are burdensome and can be a constraint on their growth and success (Hansford and Hasseldine, 2012). The most time consuming activities are completing returns, and calculating and paying tax with VAT is consistently more time consuming than calculating other taxes including income tax / corporation tax, PAYE and capital gains tax. Nonetheless, 49% of the small business respondents stated that the software was efficient in calculating tax (including VAT) and interest payments accurately. This shows that the standard OAS has been helpful in terms of being able to keep small business owners/managers up to date on tax matters, as well as helping them to comply with tax obligations thereby preventing the risk of surcharges and penalties for non-compliance. They are useful for improving record keeping and for growing the knowledge of the firm’s profitability. They can provide the business with useful up-to-date accounting and financial management information (Hansford and Hasseldine, 2012).

The use of software packages is perceived to not only assist with managing finance, but in particular with supporting learning about book-keeping, accounting and payroll.. Software vendors provide free online courses for their OAS users (Battisti et al., 2011). This exhibits the systems management function of the standard OAS. Heikkila et al. (1991) argued that small businesses have many times been left dissatisfied with their software packages either because they are onerous or because they do not fit the requirements of the firm. Issues like user resistance and the inadequacy of acceptable software may prevent the use of web-based technology in small businesses. Burgess (2002) suggests that a lack of knowledge of such technology and a lack of understanding about its benefits can be reduced through proper training that can bring about successful implementation. In addition to this, the delivery of adequate and efficient technical training and support, and harmonious working relationships between vendors and/or consultants can minimise the risk of web-based technology failure in small businesses (Igbaria et al., 1997).
The careful selection of vendors and/or consultants of accounting software in integrating the technology into the business and/or in filling the knowledge gap within the organisation is therefore integral to the successful use of web-based technology in many small businesses (Burgess, 2002). One of the leading standard OAS vendors argues that their software is intuitive and easy to learn, as it is designed to help make running small businesses (and larger companies) easy, without needing any accounting or book-keeping knowledge. The user will be able to pick it up quickly by the virtue of an online help section with video tutorials (including free email support). Another vendor stated that their OAS goes beyond providing easy to use software, focusing on making it easy to getting things done - with fewer clicks, while their intuitive design reduces learning time, making accounting accessible to all. They further intonated that their customers enjoy unlimited, free support delivered through a range of options - including email, comprehensive online help and online communities.

Results from the survey revealed that 62% of the respondents stated that the standard OAS was efficient in providing unlimited, free support for their application. Some 77% stated that the standard OAS was efficient in terms of improving time planning, and procedural skills. A further 75% stated that the software was efficient when it comes to improving book-keeping & accounting, and payroll skills. Some 67% stated that the software was efficient at administering knowledge of the profitability of the business. This means that the small business owners/managers are happy with their software packages because they are easy to use, and they have received support to fulfil their needs. This has reduced the need for in-house expertise.

2.) Pre-emptiveness and Threat Dimensions
These are concerned with the extent to which OAS helps to prevent the risk of surcharges and penalties for non-compliance with tax obligations and regulations. They protect the firm against security threats, while at the same time, erecting institutional and virtual security barriers. These can be classed under the resource utility category of OAS function. Even though the capability of OAS in helping with small business regulatory requirements that are burdensome and can be a constraint on their growth and success (Hansford and Hasseldine, 2012), it is essential to highlight the critical role of the standard OAS in preventing the risk of surcharges and penalties for non-compliance with tax obligations and regulations under the
pre-emptiveness dimension. In addition to the above, the extent to which OAS provides the capacity to control and protect the firm against security threats such as computer viruses, data loss and unauthorised access was also a concern in ensuring business continuity. This is evaluated under the ‘threat’ dimension. Small businesses that use the software are relieved of the burden relating to the day-to-day maintenance and support of the software. They need not be concerned with technical operations, and the persistent upgrade cycle because the software applications live on their servers. This removes the burden of business continuity and disaster recovery planning (ICAEW, 2010). At the preliminary and utilisation levels, information security is another issue worth addressing. Destruction by fire and natural disasters; access to unauthorised persons; unauthorised disclosure and modification or subversion of accounting data are examples of threats from information security (Loch et al., 1992). Abu-Musa (2006) revealed that the entry of incorrect data coupled with the loss of reliable data and the inflow of computer viruses to the system are the most serious threats to computerised accounting technologies. Other threats include the sharing of passwords by employees, mismanaging of prints and the dissemination of information to unauthorised people.

Romney et al. (2009) revealed that natural and political disasters, software defects and equipment failure are the main threats to computerised accounting technology. Hood and Yang (1998) also highlighted that malicious attacks from outsiders are the biggest critical security threat. Such threats are initially created by insiders, particularly when they are disguised as legitimate transactions, pointing to the employees of the firm as the extremely worrying security risk (Abu-Musa, 2004). The effect of the existence of these incidents includes intrusion in business activities, fiduciary losses and failure (Loch et al., 1992; Abu-Musa, 2004). Therefore, firms acquire, manage and bring up to date their security solutions such as firewalls, encryption techniques, access control mechanisms and intrusion detection systems to resist security breaches (Gordon, Loeb and Lucyshyn, 2003). These preventive efforts improve the quality of the computerised accounting technology, therefore, generating relevant, reliable and valuable financial and managerial accounting information for decision-making. White and Pearson (2001) mentioned that many organisations in the US adopted computer technology before enforcing suitable protection against threats.
The fact that OAS data is located at the service provider’s quarters is, to a greater extent regarded as more of a weakness than a strength on account of the safety and security problems it can introduce. The service provider takes responsibility for the safety and security of the software user’s accounts data (ICAEW, 2010). Moreover, since the user-firm is not responsible for the installation, upgrade and maintenance of the system, the introduction of a new version of the system or upgrades and changes to functionality might have a negative impact on the firm (ICAEW, 2010). The ease with which authorised people can pass data around is another possible drawback. There is a chance that firms who provide their banks and other investors with access to their virtual accounting data in order to improve and strengthen their relationship or maintain liquidity are susceptible to internal and external threats (Hood and Yang 1998; Abu-Musa, 2004). As the electronic filing of statutory data turns out to be a necessary requirement, there is concern that HM Revenue and Customs will sooner or later ask to directly access the firm’s virtual accounting data (ICAEW, 2010).

In any case, one of the leading vendors claims to own a real-time data centre in the north of the country, hence, if a serious problem were to occur at the main data centre, their systems can be back up and running within minutes with zero data loss. The vendor further went on to state that this has cost them tens of thousands of pounds to set up. Another vendor offers the assurance that their investment in class-leading infrastructure provides high system uptime, ensuring their solutions are always available whilst customer data is safe. Following up on the above information, 62% of the respondents stated that the standard OAS was efficient for assessing the risk of the safety and security of business financial information against hackers. Some 58% of respondents stated that the standard OAS was efficient for enabling speedy data back up with zero data loss in the event of a network malfunction. A further 59% stated that the software was efficient at providing high system uptime as network servers are always available whilst customer data is safe. This shows that the standard OAS was effective in its capacity to control and protect the firm against security threats such as computer viruses, data loss and unauthorised access.
3.) Resource Acquisition Functionality and Synergy Dimensions

This is concentrated upon the OAS’s utility and impacts on the acquisition phase of the technology’s life cycle. These dimensions particularly determine the effect of OAS on the user’s ability to acquire the software and verify its capabilities. It can be categorised under the systems integration function. Software applications that support the needs of the user and provide a match between the requirements of the firms and service provided by the technology can lead to best performance. The post-acquisition management of the resource, which includes monitoring utilisation, transferring and accounting for the software are all significant as part of resource acquisition support in achieving financial productivity. This denotes the relevance of the fit of systems to business operations to enable accuracy and the monitoring efficacy of output information. However, this is reflected in the feedback from the survey, as 70% of the respondents stated that the standard OAS was efficient in enabling interactions with other banking systems and clearing houses when payments are made. IT is changing management accounting systems to become integrated with regular and standard business information in a simplified format (Caglio, 2003; Granlund, 2007). Additionally, prior to the introduction of OAS, computerised accounting systems have influenced managerial accounting applications in SMEs in particular, and they have completely changed the nature of managerial accounting. ERP systems caused a change in managerial accounting practices in terms of supplying global information flows and standardisation. Traditional managerial accounting practices were phased out after the implementation of this accounting technology (Scapens and Jazayeri, 2003).

Although it is not evident if the demand for employed managerial accountants and consultants has greatly reduced, the ICAEW (2010) explained that accountants in practice will be happy to discover that they can perform tasks concurrently with their clients without being concerned about incompatibilities when different versions of OAS software are being used by both parties. Accounting practitioners can utilise OAS in taking a more pro-active approach to offering advice and services. By virtue of the accountant having authorised access to log onto the clients’ accounts at any time, accountants can easily detect problems with clients’ accounting paperwork, and also give guidance to their clients about important transactions. Therefore, OAS can promote a more effective book-keeping support. As mentioned previously, OAS can also form a basis for different types of opportunities for
enterprise productivity, such as providing real time transaction and tax planning advice. This is especially the case when it comes to the management of the clients’ working capital, and the ability to offer a range of virtual services. Responses from the survey show that 78% stated that the software was efficient at enabling simultaneous access and engagement with the accountant. Some 55% stated that the software was efficient at reducing small business reliance on traditional accountants. This means that the software had a good fit between the requirement of firms and their technology capabilities.

Some small businesses may opt for simple, standardised software, while some others may require sophisticated (integrated for their purpose) software, depending on their requirements. Davenport (1998) explained that there needs to be a good match between the requirements of a firm and its technology capabilities. However, Rogers (1995) stated that relative advantage, compatibility, complexity, trialability, and observability are the five attributes that determine the rate of adoption of technology. The assessment is based on user satisfaction, systems reliability, as well as the quality and improvement of task. Stefanou (2006) stated that a match between technologies, the business environment, along with social and ethical factors is necessary to support the adoption, installation and efficient utilisation of this technology. Nicolaou (2000) explained that having the appropriate technology demonstrates the users’ perceived satisfaction with the precision and monitoring efficiency of output information. Also, Nicolaou (2000) revealed the impact of having appropriate technology on the satisfaction of its users as to the perceived quality of information content in system outputs is more or less important. This indicates that compatibility with organisational and professional standards, conduct, and business activities is essential to the perceived effectiveness of the technology.

Interestingly, the vendors promote their software as enabling the user to co-ordinate and manage all financial processes within an easy to use platform, accessible from all internet-enabled devices. This underscores the extent to which OAS provides unique access to real-time business channels and market position, thereby setting industry standards and practices. As a result, some 60% of the respondents stated that the standard OAS was efficient at enabling software suitability and appropriateness to meet business requirements. A further 65% of the respondents stated that the standard OAS was efficient for enabling the real-time
management of cash flow and credit sales. Some 54% stated that the software was efficient for assessing the risk of some business operations and predicting future earnings. Even though the majority of the small scale enterprises operate without a credit control department, the vendors’ claim that OAS’s can co-ordinate and manage all financial processes within an easy to use platform is demonstrated above.

An OAS vendor claimed to offer software that gets invoices to customers quicker and receive payment quicker, simplifies credit control and chasing payments, identifies good and bad customers, thereby giving the small business owner greater control of the cash flowing into the latter’s business. These ultimately save time and increase the productivity of the small firm. Another vendor postulated that invoices can be sent anytime anywhere, and financial transactions can be recorded in real-time, reducing the time to get paid, and improving cash flow. A look at the survey results indicate that 66% of the respondents stated that the standard OAS was efficient for sending invoices to customers quicker and for receiving payments quicker. Some 61% stated that the software was efficient at simplifying credit control by chasing payments from customers. A further 54% of the respondents stated that the standard OAS was efficient at enabling the in-built automated credit control feature to collect payments from customers within 60 days. This explains how the standard OAS was the appropriate solution for both internal small businesses and third parties (e.g. traditional accountants) as it suited their accounting and financial management needs.

Claims to the capability of OAS to help small businesses manage their financial accounting and management activity clearly have some foundation. They are able to transform financial accounting and management processes into a more efficient and hassle-free exercise that gives added value. This can however be identified in CAPITA’s synergy dimension. Olsen and Saetre (2007) indicated that standard systems impose a rigid structure on a firm, threatening the dynamic nature of many SMEs. Many firms have a better alternative, which is developing a proprietary accounting system. For such firms, having an accounting system with add-ons makes it possible to become and remain flexible and dynamic, and means they can conform to the needs of the customer at any time. Granlund and Malmi (2002, p. 305) also hinted that “currently, integration is increasingly needed in the business environment. This need emerges from the efficiency and synergy requirements necessary in a complex and
turbulent environment. In other words, integration is needed to facilitate coordination, which is again related to the building of competitive advantage.”

One of the leading vendors of OAS claims that their software integrates with over 85 other systems. Rather than cobbling together a bunch of second-rate, buggy applications to take care of Customer Relations Management (CRM), time management and payment processing, they instead integrate with companies that are at the top of their game in each of these niches. These include recognised names in CRM, e-commerce, email programmes, payment processors, payroll software and inventory management. Another prominent OAS vendor also stated that more than 350 add-ons connect to their software and share data allowing customers to create a solution that is right for them, and making it even easier for small businesses to run their organisations. 77% of the respondents suggested that the standard OAS was efficient at enabling modifications with other software and systems (e.g. payment processors, credit management add-on). This means that the standard software is appropriate for both small businesses and third parties such as traditional accountants in meeting their accounting and financial management needs. From the perspective of trade credit management, this suggests that OAS allows the integration of systematic processes and techniques that can enable an SME owner to effectively and efficiently manage the supply of trade credit. The information presented above formed Part A of the questionnaire.

Furthermore, with reference to the theory of differentiation-integration of Lawrence and Lorsch (1967) mentioned in chapter 2, no single best way exists. However, a firm’s automation system, in order to be efficient must fit the organisational context of the company. As firms vary context, the mechanisms of integration of an enterprise’s operations should be suitable to the enterprise. Therefore, each functional unit has its tasks, targets, limitations, conduct, as well as its vision, and the enterprise has to generate integration mechanisms suitable to its needs. This is especially the case for accounting systems (Lawrence and Lorsch, 1967). Regardless, 17% (of which 9% were standard OAS users) of the small businesses in the population engage in varied business activities. This explains the suitability of the software in allowing the users to coordinate and manage all financial processes, and to eventually increase their financial accounting and management efficiency. Also, to overcome hitches, having to integrate a computerised accounting system with other systems (including
add-ons) must be designed for, by and with users in mind to improve the quality of work life of users, and to provide a technically efficient job with user satisfaction, as proposed by Hirschheim and Klein (1994).

Going on the above, it is believed that linking credit management, that is, integrating AR management as an add-on to OAS provides access to relevant, current customer information as and when it is needed. In turn, that helps to develop a customer-focused culture that leads to an increase in customer service levels as well as productivity. However, the survey results revealed that about 8% of the respondents that are diversified in their business operations have more complex business division set-ups (Sorter, 1969). As such, they have integrated (i.e. modified) their standard software with the credit management add-on so as to manage the complexities of trade credit. This again underscores the importance of system fit and the idea that the integration option is suited to its specificity. Correspondingly, the integration of systematic processes and the techniques of business operations and trade credit management using OAS are essential for effective collecting payments from credit sales.

As explained earlier in this chapter, the capability of OAS by way of enabling collaboration opportunities with other systems (modules/add-ons) in co-ordinating and managing all financial processes within an easy-to-use platform is clear. OAS are vital in transforming financial accounting and management processes into a more efficient and hassle-free exercise that gives added value. This is identified in CAPITA’s synergy dimension. This means that financial productivity improvements can also be realised as a consequence of the integration of credit management activities with core firm activities. However, CMAM suggest that OAS can enhance each of the firm’s credit management activities as identified in the value chain. CMAM has been helpful as a tool to strategically analyse the link between strategy and the appropriateness of OAS in helping to improve cash flow. Therefore, the next part of the chapter explores credit decision activities in the context of the increasing uptake of Credit Decision Activity Efficiency platforms to improve small business cash flows. The effect of the integration of the credit management software (add-on) with the standard OAS (i.e. the modified OAS) is analysed in order to explore the extent of the effectiveness of the modified OAS in terms of its ability to help to improve the cash flow position and/or improve the operational capabilities of the survey respondents.
Next, the questionnaire inquired as to whether or not the respondents had added the credit management software to their existing, standard OAS. If they had, further enquiry was then made into the effectiveness of the use of OAS after adding the credit management software based on a five-point Likert scale. This sets up Part B of the questionnaire, i.e. an evaluation of the ability of OAS to enhance each of the firm’s credit management activities, thereby underlining the importance of credit decision activity efficiencies. Nonetheless, the respondents were first asked whether they had owned their OAS for more than 1 year. The argument that small business owner-managers are able to consider the capability of OAS to enhance each of their credit decision activities is discussed in the next section. The integration of the credit decision activities with the core firm activities became conceivable as a consequence of CAPITA’s synergy dimension. Therefore, the impact of CMAM on the Credit Decision Activities of a firm as analysed under CAPITA’s dimensions is explained below:

### 5.3.2 The Credit Decision Activities in OAS

The five credit decision activities are termed under the credit decision activity efficiency dimension, and they consist of the effect of OAS on the cost of all five credit decision CMVC activities. In general, the credit decision activities involve the process set in motion to help small businesses to effectively collect payment, thereby improving cash flow and enhancing profitability. The credit management process should not exist in a vacuum. Instead, it should work alongside other functions within OAS to ensure that the users of the software get the best possible experience. Undoubtedly, the fact that information can be shared automatically also means that users have access to the most recent data, keeping the parties involved in the use of OAS up-to-date and fully aware of each customer’s needs. In view of the fact that OAS users have that complete view of their customer’s experience, OAS users can use this knowledge to make sure that all communication with their customers is positive. As explained earlier, the Credit Decision Activities are classified under CAPITA’s synergy dimension; however, the next segment presents the line-up of activities involved in the credit management process for effectively collecting payments from credit sales.
1.) **Credit Notification And Arrangement**: *Credit Policy (terms & conditions).*

Companies usually establish standard credit policies and procedures before extending credit to their customers. The range of written credit policies is also quite vast, from one-page documents of intent, to lengthy manuals of detailed policy aims and even more detailed procedures and reports (Bullivant, 2010). It is essential to determine whether small businesses establish standard credit policies and procedures. An example may be distinctly declaring the unit and total price along with discounts offered. This would be declared alongside VAT on sales (where applicable); delivery terms (actual versus allowance, and who pays for it) and payment terms, (Salek, 2005). Also, the credit terms and policies are clearly stated before extending credit to customers. As observed from the survey data collected, 57% of respondents stated that the modified OAS was efficient in providing the credit terms and policies on the amount of the advanced payment to be collected before delivery, clearly and accurately. A further 59% of the respondents stated that the modified OAS was efficient for recording the credit terms and policies for charging interest on late-paying customers. Establishing a sound credit policy is pivotal in improving efficiency in receivables management, giving rise to increases in the collection of late payments (Sushma and Bhupesh, 2007). The literature review highlighted three policies that are associated with a firm’s level of WCM: aggressive, conservative, and moderate. However, it is not clear what policy was adopted by the responding firms in this study.

2.) **Credit Analysis (Risk Management)**: *Credit Scoring/Rating, Credit Limit Set-Up.*

There are different types of risks involved when managing a small business, thus, small business owners and managers aim to prevent the risk of late or default payments. Consequently, experience increases in cash inflows. The strategies to overcome this include the establishment of simple and understandable arrangements, advanced methods, efficient reporting and extensive systems. Credit policies and procedures define the various conditions for extending credit as well as the amount of credit to be granted, and to whom it should be granted. Firms use the services of credit-rating agencies that provide credit information to set credit terms for customers (IOMA, 2010). This is the situation when using the standard OAS, which requires the small business owner-manager to pay a separate fee to access this credit information from credit-rating agencies. The results from the survey responses suggested that
71% of the small business owners who had modified their OAS also used the services of credit-rating agencies. Only 19% of those who maintained a standard OAS used these services. As reported earlier, 17% of the population in the study engaged in varied business activities, and 9% of these respondents had modified their OAS. These reiterate the relevance of the suitability of the software in allowing the users to co-ordinate and manage all financial processes with the aim of eventually increasing their financial accounting and management efficiency.

Credit scoring turns out to be all-important in a situation where a typically reliable and trustworthy (creditworthy) customer can become insolvent. Therefore, there is a need for constant credit reviews of all substantial customer accounts and the automation of this labour intensive function can save the small firm from making a loss. Managing AR, and especially late payments is complex and time consuming. Regardless, there are stand-alone credit management solutions such as Credit Point, DRAYCIR and Sidetrade that are customised to fit the AR portfolios of small firms to help with conclusive approval and decline decisions. Regardless, these enable credit analysts to spend valuable time on intricate and demanding decision making (IOMA, 2010). The re-configuration of the standard OAS to enable the integration of a suite of software add-ons, one of which is the credit management add-on, helps to profile customer credit performances and identify potential high-risk accounts. It helps organisations to identify the risk of non-payment for doubtful customers and to understand customer payment patterns. It also empowers them to review creditworthiness and credit limits on a real-time basis and at regular intervals.

The survey results reveal that 55% of the respondents stated that the standard OAS was efficient at providing the conditions for extending credit and the amount of credit to be given to customers. A further 64% stated that the software was efficient at reviewing creditworthiness and credit limits on a real-time basis and at regular intervals. 57% of the respondents stated that the standard OAS was efficient at providing customer credit performances and was useful for identifying potential high-risk customers. A further 53% of the respondents stated that the standard OAS was efficient at enabling a fast credit approval process and 39% of the respondents stated that the modified OAS was efficient at eliminating the cost of subscriptions with credit rating agencies. The non-capability of the modified OAS
in eliminating the cost of subscriptions with credit rating agencies meant in this case that 71% of respondents who had modified their OAS used credit-rating agencies. Even though this might come at some extra cost to users of the modified OAS, 66% of the respondents stated that the cost of chasing late payments had decreased after the integration of their standard software with the credit management add-on.

This gives prominence to best practice credit controls, as the financial situation and creditworthiness of firms can shift quickly, and regular updates of customer credit positions are almost impossible to obtain when using credit rating agencies. However, reliance on these agencies can lead to exposure to bad debt losses, and therefore, the appropriate credit controls must be tailored to fit the firm, its strategy, profitability, its tolerance for risk and the nature of its customer base and its products or services (Salek, 2005). Interestingly, the ability of users of the modified OAS to review the creditworthiness and credit performances of their customers gives them the advantage of being able to evaluate credit risk based on borrower information by creating a credit history of the customers. This resonates with observations suggested by Burkart and Ellingsen (2004). However, it is not clear whether these firms were able to save on the carrying costs associated with granting trade credit (e.g. costs such as cash discounts) or to as save time on credit control activities when chasing payments after implementing the integrated standard OAS.

3.) **Credit Sales Administration**: *Trade Credit Administration, Special Payment Terms (Discounts).*

A great deal of administrative effort with regards to purchasing and sales is integrated into the cash management concept. A streamlined administration, offering quotation and invoicing that clearly states the commercial specifications of the deal has a direct effect on both cash flow and WC. The focus here is accounting for credit in terms of pricing, discount, and interest-related adjustments. At periodic intervals, OAS is expected to prepare various reports including customer invoices which (includes pro-formas as well as issuing receipts, credit reports and credit limit reports for each customer account. The software vendors claim it can accurately process invoice and payments, and apply these to the correct customer accounts (IOMA, 2010). Firms offer special discounts in order to promote prompt early payments.
Discount programs vary widely by company, as they typically reward customers with a discount when payment is made prior to delivery.

Firms, particularly in the services sector allow anticipation payment discounts for their customers. As stated earlier, such discount is used to speed up cash inflow while offering customers an opportunity to add value to their purchase. Anticipation discount programs can be customised to each transaction, allowing for variable payment amounts as well as variable payment dates (IOMA, 2010). While firms sell to the customer under some sort of credit arrangement, it is important to be mindful of the principle of best practice credit controls in order to arrive at a mixture of credit and security controls in the case of a customer default (Salek, 2005). However, the survey data revealed that 51% of the respondents stated that the modified OAS was efficient at providing pricing, discounts for quick payments, and interest-related adjustments accurately. Some 84% of the respondents stated that the software was efficient at providing an up-to-date record of each customer’s charges, payments, and balances due. A further 78% stated that the software was efficient at tracking of current and past-due balances to identify delinquent customer accounts. Furthermore, 51% of respondents stated that the software was efficient at providing readily-accessible information that improves the quality of decision-making. This underscores the capability of the modified OAS in the management of a whole system of commercial relationship in preventing the risk of late or default payments. However, offering discounts to buying firms may increase the cost of controlling the trade credit activities for the supplying firm.

4.) **Credit Control: Periodic Credit Review (AR Ageing Schedule).**

A firm’s ability to make forecasts and automate its credit management process is a major clue as to the quality of its liquidity management, as it sets right internal controls concerning the firm’s current position and risk. In addition to this, the exposure to accurate and readily-accessible information for each customer at periodic intervals improves the quality of decision-making. The integration between central functions and associated business units helps to optimise the management of the whole system of commercial relationship by providing cash-flow-related information to the owner-manager for forecasting and budgeting needs and this is another key function of OAS (IOMA, 2010). By the same token, the survey data disclosed that 46% of the respondents stated that the modified OAS was efficient in
terms of accurately preparing various reports including credit hold and credit limit reports for each customer. Some 49% of the respondents stated that the modified OAS was efficient in enabling credit limits that are assigned to the customer with an expiry or a re-evaluation date. A further 43% of the respondents stated that the modified OAS was efficient in the sense that it offered the option to adjust an automatically calculated credit limit manually.

The availability of the credit control functions of the credit management add-on pinpointed above vary amongst the vendors. However, these functions emphasise the importance of best practice credit controls as mentioned by Salek (2005). Although the particular credit management add-ons adopted by the respondents in this study did not effectively provide the above capabilities, the users of the modified software were able to get a complete picture of their customers’ trade credit accounts and were thus able to track current and past-due balances to identify delinquent accounts. This resonates with the Credit Sales Administration function (outlined on page 170) of the credit management add-on. This feature provides a valuable overview that gives users a clear understanding of all their financial management activities at a glance. Moreover, certain accounts can be watch-listed and monitored in greater detail.

5.) **Collection:** Automatic Payment (no recovery needed) or Late Payment & recovery efforts (reminder letters with acknowledgement of receipt).

Even though it can be agreed that efficient payment procedures are dependent upon linking internal and external information flows that are generated by purchases, sales and financial transactions, the capability of the modified OAS to interact with the functions of the standard OAS implies there is no need for late payment collections and recovery efforts and procedures. However, once the due date for payment has lapsed, email notices are sent to customers at periodic intervals. Further email reminders are sent to customers as accounts become past due. When payments are not received despite reminders and follow-up efforts, companies may either turn the account over to a collection agency or take legal action. The survey data specified that 74% of respondents indicated that the modified OAS was efficient at sending emails to customers before the due date for payment. Some 71% of the respondents stated that the modified OAS was efficient at sending emails to customers at periodic intervals once the due date for payment has lapsed. A further 59% stated that the
modified OAS was efficient at enabling the collection of payment(s) on or before the due date - i.e. within 60 days. Furthermore, 82% of the sample stated that the modified software was efficient at providing reminder emails and follow-up emails before the customer’s account goes into collection. These results show that the modified OAS had only partially helped in fulfilling the process of managing credit and chasing late payments towards the timely collection of payments compared with the experiences of users of the standard OAS.

Many companies outsource AR collection to professional collection agencies, which act as third-party collectors (IOMA, 2010). This is seen as a last resort when the collection process fails. A report published by IOMA (2010) revealed that it generally takes over a month and a half for a small or medium-sized company to collect the cash that it is owed by its customers. Some companies include one month’s cost of borrowing (interest) in their prices to invoke late payment legislative rights under their conditions of sale to charge extra interest for late payment (Bullivant, 2010). Howorth and Wetherhill (2000) stated that suppliers of credit probably do not charge penalty interest on late payment where relationships between suppliers and customer were deemed to be exceptional. The UK Late Payment of Commercial Debts (interest) Act (1997) give businesses a statutory right to claim interest if another business pays its bills late (CIMA, 2009). However, the information gathered from the surveyed respondents reveals that 67% of the modified OAS users perceived that the level of late payment fees levied on their customers had decreased after implementing the modified software, compared with 52% of standard OAS users who reported the same observation. This result shows that the respondents in this study enforce credit terms, even though smaller firms find it exceptionally challenging to apply these due to an imbalance in bargaining power. This is particularly the case where they are dependent on one, or a small number of dominant customers (Howorth and Wilson, 1999; Wilner, 2000; Wilson and Summers, 2002).

Once again, it can be said that the above findings showcase the capability of the modified OAS in the management of a whole system of commercial relationships. They can mitigate the risk of late or default payments towards the timely collection of payments. As ascertained earlier, it is not clear whether these firms were able to save on the carrying costs associated with granting trade credit (e.g. costs such as cash discounts), or if they saved time on credit control activities when chasing payments following the integration of their standard OAS
with the credit management add-on. As indicated in chapters 2 and 3, the integration of the seven dimensions of competitive advantage in the CMVC (to create CMAM) were thought-out to help with the initial identification of an effective and efficient cash and credit management process that would be likely to increase the cash flow position of the respondents. Therefore, the efficacy of OAS can be determined based on the sum of all the activities concerned with the co-ordination and management of all financial processes to more effectively collect payment from credit sales. This is discussed in the next segment of this section. Part C demonstrated the use of the standard and the modified OAS in realising financial gains as a result of reducing costs and collecting payments promptly. This completes the line-up of functions in CMAM based on online trade credit management processes using the CMVC, as explained above.

**Margin Increment** implies that firms realise financial gains that depend on their ability to manage the linkages between all activities in the value chain. In other words, the organisation is able to effectively and efficiently manage the flow of credit for which the customer ends up paying. Trade credit has to be arranged on the shortest possible basis, all other factors being considered, because in the context of return on investment, net profit only comes from paid sales (Bullivant, 2010). As stated earlier, this represents the sum of all the activities concerned with the co-ordination and management of all financial processes in effectively collecting payment from credit sales. As such, the claims of the leading OAS vendors as to the effectiveness of the standard OAS and its greater utility for improving cash flow position is demonstrated, particularly when the standard OAS is integrated with the credit management add-on. Uncovering the outcome of the survey responses, 50% of the standard OAS users perceived that their standard software had effectively helped them to significantly realise financial gains, compared with 46% of the modified OAS users who made this observation. This means that firms with the standard OAS were able to turn their credit sales into cash quicker than firms with the integrated OAS. This supports the claims of the leading OAS vendors that the standard OAS is very effective at helping to collect money owed by late paying customers. Also, the standard OAS without the add-on has greater utility in improving a small firm’s cash flow position.
When assessing the consequence of efficiencies in the credit management activities of small firms, reducing the period when the customer makes the payment (the operating cycle) is also a source of financial gain. Jordan (2003) defined the operating cycle as the time between cash disbursement and cash collection. Shortening the operating cycle enhances profitability because the longer the operating cycle, the greater the need for external borrowing. This demonstrates a significantly positive impact on the firm’s cash-flow situation (De Loof, 2003). This must be achieved without increasing the cost of credit management activities, for example, any anticipation of discount programs and the risk of not identifying delinquent accounts. Thus, the possibilities exist for cost reductions and it may be possible to reduce the operating cycle through OAS. However, the possibilities for cost reductions and for reducing the operating cycle through OAS needs further investigation.

Section 3 explores organisational performance and growth levels after the use of OAS (standard and modified) by first exploring a range of non-financial performance appraisal criteria in order to understand the impact of the use of the standard and modified OAS on the responding firms’ cash flow situation. Data were collected using a five-point Likert scale. As stated in sections 2.7 and 4.7, the perception-based financial performance determinant in the context of this study is the cash flow performance of responding firms. The data collected from the questionnaire pertaining to performance and growth levels after the use of OAS served to provide further insights into the use of the standard and modified OAS and the impact of these on organisational performance. Internal factors and collection measures such as non-financial indicators were examined. These can influence the level of average receivables, one of which is the level of cash inflow from operations.

However, the following are observations from the survey results relating to performance and growth levels amongst respondents after the use of OAS. 76% of the modified OAS users indicated that they experienced an increase in their level of cash flow income compared with 77% of the standard OAS users. A further 54% of the modified OAS users indicated that they experienced a decrease in the number of late paying customers compared with 60% of the standard OAS users. However, there was only a slight difference between the performances of the modified OAS users compared with the standard OAS users in regards to disputes with
defaulting customers. Indeed, 57% of the modified OAS users indicated that they had experienced a decrease in disputes with defaulting customers compared with 56% of the standard OAS users. In addition, the non-capability of the modified OAS in eliminating the cost of subscriptions with credit rating agencies was demonstrated, as 71% of the modified OAS users engaged with the services of credit-rating agencies, and 66% stated that the costs associated with chasing late payments had decreased.

Remarkably, the findings from the survey in relation to performance and growth levels produced mixed results. For example, 74% of the modified OAS users indicated that they had experienced a decrease in outstanding customer debts, compared with 54% of the standard OAS users. 64% of the modified OAS users indicated that they had experienced a decrease in the number of days to receive payments compared with 58% of the standard OAS users. A further 77% of the modified OAS users indicated that they had experienced a decrease in the number of bad customer debts written off compared with 75% of the standard OAS users. In addition, 58% of the modified OAS users indicated that they used debt collection agencies less often, compared with 52% of the standard OAS users. Even though the survey data produced mixed results, one prominent outcome is that the standard OAS had a slightly greater utility for increasing the level of cash flow income of its users. Again, this supports the claims of the leading OAS vendors that the standard OAS is very effective in terms of helping to collect money owed by late paying customers.

The survey ended by examining business conditions after the use of OAS, by considering the business experience of the respondents after the use of OAS. The data were based on answering general ‘Yes/No’ questions. This section covers the business conditions of the survey respondents in the year preceding the EU referendum, and also provides a summarised supplement of data on the responding firms’ performance and growth levels gathered within the same period. The results revealed that 22% of the modified OAS users continue to experience a general slow-down in customer payments compared with 29% of the standard OAS users. 30% of the modified OAS users allowed discounts to encourage faster customer payments, compared with 38% of the standard OAS users. 20% of the modified OAS users initiated a late payment charge on their defaulting customers compared with 13% of standard OAS users. 22% of the modified OAS users turned defaulting customers over to collection
agencies compared with 4% of the standard OAS users. 29% of modified OAS users believe their customers are relying on credit sales over the last 12 months, compared with 38% of the standard OAS users. In addition, 98% of the modified OAS users indicated that they would recommend the integration of their standard OAS with the Credit Management add-on to a business colleague. In addition, 96% of the standard OAS users and 98% of both modified and standard OAS users indicated that they are optimistic about the future outlook for UK small businesses who use OAS. These results confirm that the impact of the standard and modified OAS on organisational performance and growth levels (and business conditions) in this sample have mixed outcomes, although the software has been successful in other areas of business operations as found in Brynjolfsson and Hitt (1996), Matolcsy et al. (2005), Ngongang (2005), and Rom (2008). Nonetheless, further research is required to determine whether there were instant or delayed increases in firm performance after the use of OAS, in both standard and modified formats.

The business environment is becoming more technologically focused. Modern business processes depend significantly on business information systems. The standardisation of business information systems promotes universality and communicates all kind of business information from different sources (Siahaan, 2013). As mentioned in chapters 2 and 3, the entire trade credit management process should be directed to the timely collection of payments and keeping the costs associated with prevention, monitoring and the collecting of receivables to a minimum. Otherwise the firm’s survival could be threatened (Kubičková and Souček, 2013). This study provides evidence that sheds light on the extent to which standard and modified OAS has helped small businesses with their credit management and collection efforts in order to improve their cash flow situation. CMAM was used as a tool for strategic analysis in examining the effectiveness of the credit control solution of the standard OAS helping to improve the research respondents’ cash flow positions. The claims of the leading OAS vendors were confirmed in this regard. The chapter examined the extent to which research respondents who had integrated their standard OAS with the credit management add-on experienced a higher increase in their cash flow situation. The modified OAS was expected to have a magnifying effect on the cash flow levels of the small business respondents in this study. However, it did not create such an effect, and, instead, the modified OAS provided evidence of success in other areas of business operations. The findings revealed that modified OAS users did not experience a general slow-down in customer
payment. They believe their customers are relying on credit sales over the last 12 months and have also experienced the following:

- a decrease in outstanding customer debts;
- a decrease in the number of days to receive payments;
- a decrease in the amount of bad customer debt written off;
- a decrease in their use of debt collection agencies;
- a decrease in disputes with defaulting customers.

These outcomes can be attributed to the modified OAS users and its ability to offer trade credit with few discounts to encourage faster payments. Such an approach also means suppliers can initiate a late payment charge on their defaulting customers, and turn defaulting customers over to collection agencies. One prominent outcome from the use of CMAM is that the standard OAS had a slightly greater utility in increasing the level of cash flow income of its users than the modified OAS. Again, this supports the claims of the leading OAS vendors that the standard OAS is very effective for collecting money owed by late paying customers. In spite of the fact that the modified OAS is not able to assist its users to reduce the number of late paying customers, it has helped users to manage the complexities of trade credit, including the administration of trade credit policies and practices and the minimisation of credit process costs. It has the advantage of being able to create a repayment, credit history for consumers.

**5.4 Chapter Summary**

This chapter has identified evidence of financial productivity possibilities for UK small businesses (B2B). It has explored their ability to effectively collect payment from credit sales through CMAM. CMAM informed the predictions of the effects of trade credit management activities in terms of the level of cash flow income. These trade credit management activities were devised into an electronic survey to investigate the perception of a sample of small business owners. There are implications for the extent to which they use OAS in its standard and modified formats to effectively collect payment from credit sales. The results of the
survey were varied. However, the standard and modified OAS have impacted positively on the operational and trade credit management capabilities of the small business respondents that use them. Information on the practice-performance situation of the responding small businesses was explored and specifically the ability and suitability of both OAS types to empower users to co-ordinate and manage all financial processes and to improve their over financial accounting and management process efficiency. This chapter provides evidence that the standard OAS has helped respondents to realise an increase in their cash flow income in a way that the modified OAS was not able to do. However, the modified software also helped these small business owners/managers manage the complexities of trade credit. The next chapter substantiates the data obtained by conducting ordinal logistic regression tests in order to present a more suitable framework for discussion and comparisons.
CHAPTER SIX - MULTIVARIATE LOGISTIC REGRESSION ANALYSIS

6.1 Introduction

The previous chapter provided information pertaining to the ability and suitability of both types of OAS in allowing users to co-ordinate and manage all financial processes. This included each of the firm’s credit management activities. It explored their ability to eventually increase their financial accounting and management efficiency processes through CMAM. CMAM informed predictions as to the effects of trade credit management activities in relation to the level of cash flow income secured in order to determine whether the efficiency levels of online credit management practices and the cash flow performance of the responding small businesses that maintained the standard OAS were enhanced beyond those that modified their OAS. This chapter will extend the analysis by conducting statistical tests and by reporting the results of tests intended to establish whether there were statistically significant associations between the use of OAS and the explanatory variables obtained from CMAM. This is carried out in order to answer the research questions and achieve the research aims and objectives.

As shown in pages 138 and 139, the data produced by this study consist of ordinal data. Multivariate ordinal logistic (logit) regression analysis is used to establish the effectiveness of the standard OAS in terms of its ability to help improve the cash flow positions of respondents in line with claims made by the leading OAS vendors. The chapter also examines the extent to which the respondents who had integrated their standard OAS with the Automated Credit Management software experienced an improvement in their cash flow situation. This is achieved by testing hypotheses H1-H3 (see page 121). As proven in the previous chapter, the modified OAS did not have a magnifying effect on cash flow. However, the multivariate ordinal logistic (logit) regression analysis will be used to prove or disprove this outcome.
6.2 Non-parametric Tests to Analyse the Two-way Interaction on the Response Variable

Logistic regression is concerned with determining the extent to which one predictor accurately classifies outcomes. In the process, it produces an evaluation of the degree to which the predictor affects the outcome; that is, the odds ratio is an effect-size statistic. Nonetheless, there are three relative additional applications to which logistic regression can be utilised in analysing predictors of research outcomes. These are: (1) to investigate the impact of, and associations between many predictors; (2) to identify the sequence of potential predictors that are relevant; and (3) to investigate the impact of newly researched variables on the predictive validity of previously approved models (Fleck et al., 2005; Reilly et al., 2009; Howell and Davis, 2011). As with other statistical techniques, there is a collection of assumptions that influences the use of logistic regression, and these are fairly simple and straightforward. Logistic regression makes no assumption about the distribution of the independent variables.

However, there must be no multicollinearity of variables. Logistic regression does not assume a linear relationship between the actual dependent and independent variables. The sample is ‘large’ and the reliability of estimation declines when there are only a few cases. Independent variables are not linear functions of each other and normal distribution is not necessary or assumed for the dependent variable. Homoscedasticity is not necessary for each level of the independent variables and normally distributed descriptions of errors are not assumed. The independent variables need not be interval level (Burns et al., 2008; Park, 2013). Odds ratios are always a valid measure of association (Grimes and Schulz, 2008). The odds ratio technique is often used, as the output of logistic regression, as a control for confounding bias in research analysis. Adjustment of odds ratios in logistic regression analysis are widely available through software packages and are easily understood (Grimes and Schulz, 2008). When a logistic regression is computed, the regression coefficient \((b1)\) is the likely increment in the logged odds of the outcome per unit increase in the value of the independent variable. For this reason, the exponential function of the regression coefficient \((e^{b1})\) is the odds ratio associated with a one unit increase in the independent variable (Park, 2013).
Logistic regression fits $\alpha$ and $\beta$, the regression coefficients, and the logistic or logit function is used to transform an ‘S’-shaped curve into an approximately straight line and to change the range of the proportion from $0 - 1$ to $-\infty$ to $+\infty$ as:

$$\text{logit}(y) = \ln(\text{odds}) = \ln\left(\frac{p}{1-p}\right) = \alpha + \beta \chi$$

where: $p$ is the probability of interested outcome, $\alpha$ is the intercept parameter, $\beta$ is a regression coefficient, and $\chi$ is a predictor.

The logistic regression model, $\text{logit}(y) = \alpha + \beta \chi$ looks similar to a simple linear regression model. As a consequence, the researcher considers the line representing the relationship between the explanatory variables and the predicted logit for the level of cash flow income as having the formulas:

$$Y_1 = \alpha_1 + \beta_1X + \beta_2Z + \beta_3XZ + \beta_{OAS}C_{OAS} + \beta_{FinFr}C_{FinFr} + \beta_{SysMgt}C_{SysMgt} + \beta_{Int}C_{Int} + \mu_1 \ldots \text{cash flow model 1}$$

$$Y_{DE} = \alpha_{DE} + \beta_{DE1}X_{FinFr1} \ldots + \beta_{DE6}X_{SysMgt1} \ldots + \beta_{DE11}X_{SysInt1} \ldots + \beta_{DE18}X_{ResUti1} \ldots + \mu_{DE1} \ldots \text{OAS cash flow model 2}$$

An example of the use of logistic regression is the study of the factors that predict whether an improvement or no improvement will occur after mediation (Fleck et al., 2005). This study examines whether there would be an increase in the levels of cash flow income after the use of the standard OAS compared with the use of the modified OAS. Since logistic regression calculates the probability or success over the probability of failure, the results of the analysis are in the form of an odds ratio. A Wald test is used to test the statistical significance of each coefficient in the model. A Wald test calculates a $Z$ statistic. However, model fit will be assessed using pseudo-$R^2$ and statistics. Nagelkerke-$R^2$, a pseudo-$R^2$, will be used to evaluate goodness-of-fit in logistic models (Long, 1997; Silva and Abreu, 2010; Azen and Walker, 2011).

Notably, if ordinal data are not centred, the regression coefficients that are estimated and tested may be irrelevant and misleading. Centering does diminish the almost inevitable multicollinearity problems in regression. Thus it increases both the precision of parameter estimation and the power of statistical testing of those parameters (Kraemer and Blasey, 2004). Further to this, Kraemer and Blasey (2004, p. 146) “recommended (in the absence of
strong reason to the contrary) that every ordinal independent variable be centered at its median.” Logistic regression requires each observation to be independent. In addition, the model should have little or no multicollinearity. That is, independent variables are not linear functions of each other. For the purposes of this study, a logistic regression test table includes the following: a Model Fitting Information table (i); a Goodness-of-Fit table (ii); a Pseudo R-Square table (iii); a Test of Parallel Lines table (iv); and a Parameter Estimates table (v). The logistic regression tests conducted to predict the level of cash flow income of the responding small businesses after median-centering the independent variables revealed the following results, shown in table 9(i-v) below:

Table 9(i-v) - Cash Flow Income model logistic regression test outcome after median-centering the independent variables

<table>
<thead>
<tr>
<th>Model</th>
<th>-2 Log Likelihood</th>
<th>Chi-Square</th>
<th>Df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept Only</td>
<td>130.998</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final</td>
<td>96.498</td>
<td>34.499</td>
<td>7</td>
<td>.000</td>
</tr>
</tbody>
</table>

Link function: Logit.

The significant chi-square statistic (p<.05) indicates that the cash flow income model gives a significant improvement over the baseline intercept-only model. This shows that the model gives better predictions based on the marginal probabilities for the outcome categories.

<table>
<thead>
<tr>
<th>Goodness-of-Fit (ii)</th>
<th>Chi-Square</th>
<th>Df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson</td>
<td>446.980</td>
<td>104</td>
<td>.000</td>
</tr>
<tr>
<td>Deviance</td>
<td>71.198</td>
<td>104</td>
<td>.994</td>
</tr>
</tbody>
</table>

Link function: Logit.

The above table shows the Pearson's chi-square statistic for the model, as well as another chi-square statistic based on the deviance. These statistics test whether the observed data are consistent with the fitted model. The null hypothesis means that the fit is good, however, if this hypothesis is not rejected (i.e. if p>.05), then the data and the model predictions are similar and that is an indication of having a good model. The results for the above analysis are mixed. Although this result is inconclusive, the data show how well the outcome is
predicted with the model fitting information. The chi-square is highly likely to be significant when the sample size is large.

Even though the chi-square is suitable for models with a small amount of categorical explanatory variables, they are very sensitive to empty cells. Generally, there are several empty cells when calculating models with a sizable amount of categorical (nominal or ordinal) predictors or with continuous covariates. Therefore, these test statistics with such models are not reliable. Other methods of indexing the goodness of fit, such as measures of association, like the pseudo $R^2$ are reliable.

<table>
<thead>
<tr>
<th>Pseudo R-Square (iii)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cox and Snell</td>
</tr>
<tr>
<td>Nagelkerke</td>
</tr>
<tr>
<td>McFadden</td>
</tr>
</tbody>
</table>

Link function: Logit.

In linear regression, $R^2$ (the coefficient of determination) summarizes the proportion of variance in the outcome that can be accounted for by the explanatory variables, with larger $R^2$ values indicating that more of the variation in the outcome can be explained up to a maximum of 1. For logistic and ordinal regression models, the Nagelkerke Pseudo $R^2$ value is used. Here, the Nagelkerke Pseudo $R^2$ value is .283, indicating that 28.3% of variance in the outcome is explained by the explanatory variables.

<table>
<thead>
<tr>
<th>Test of Parallel Lines(^a) (iv)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
</tr>
<tr>
<td>Null Hypothesis</td>
</tr>
<tr>
<td>General</td>
</tr>
</tbody>
</table>

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

- a. Link function: Logit.
- b. The log-likelihood value cannot be further increased after the maximum number of step-halving.
- c. The Chi-square statistic is computed based on the log-likelihood value of the last iteration of the general model. Validity of the test is uncertain.

Just like the Goodness-of-Fit test, the null hypothesis means that the fit is good. However, if this hypothesis is not rejected (i.e. if $p>.05$), then the data and the model predictions are
similar and that is an indication of a good model. The results for the above analysis after examining the adequacy of the model, and particularly the Proportional Odds assumption suggests the model fits very well.

<table>
<thead>
<tr>
<th>Parameter Estimates (v)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Threshold</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Location</td>
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<tr>
<td></td>
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<tr>
<td></td>
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<tr>
<td></td>
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<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Standard Software (Median centered)</td>
</tr>
<tr>
<td>Modified Software (Median centered)</td>
</tr>
<tr>
<td>Standard Software (Median centered) interaction with Modified Software (Median centered)</td>
</tr>
</tbody>
</table>

Link function: Logit.

a. This parameter is set to zero because it is redundant

As the Proportional Odds assumption suggests the model fits very well, this means that the odds for each explanatory variable are consistent across the different thresholds of the outcome variable, and the parameter estimates from the above table shows that there is also a strong association between the standard OAS and the level of cash flow income. There is a significant positive coefficient for the standard OAS users (2.797) indicating they are exp (2.797) = 16.4 times more likely than users of the modified OAS to experience an increase in their level of cash flow income. Also, the odds of the users of the standard OAS who have owned the standard OAS for more than 1 year to experience an increase in their level of cash flow income is [exp(-1.280) = 0.28]. This less than half compared to those who have owned the standard OAS for less than 1 year. Thus, the alternative hypothesis in H1 is rejected in favour of the null hypothesis. There are no statistically significant differences in the rest of the explanatory variables, and this result complements the results obtained from the use of CMAM in the strategic analysis of the survey results conducted in chapter 5.
The results show that there is no statistically significant association between the modified OAS and the level of cash flow income in model 1. This is very surprising as the modified OAS was expected to have a magnifying effect on the cash flow level of the small business respondents in this study. The results for the above analysis (after examining the adequacy of the model and particularly the Proportional Odds assumption) suggest the model fits very well. The null hypothesis $H_0$ in the second hypothesis is rejected in favour of the alternative hypothesis. Therefore, the modified OAS does not have a magnifying effect on the cash flow levels of the small business respondents in this study. This supports the outcome of the results obtained from the strategic analysis of CMAM in chapter 5.

Clearly, the credit management add-on does not moderate the effect of the standard OAS on the level of cash flow income. However, the credit management add-on was only included for exploratory purposes. Nevertheless, the direct impact of the standard OAS components on the level of cash flow income were examined to further test the effectiveness of the standard OAS having greater utility in improving a small firm’s cash flow position as perceived by the small business respondents. The focus was to identify the credit control functionalities that have contributed positively to increases in the level of cash flow income of the small business respondents. The result of the standard OAS cash flow model 2 tested is presented below:

Table 10(i-v) - Logistic regression test relating to the components of the standard OAS and the level of Cash Flow Income.

<table>
<thead>
<tr>
<th>Model Fitting Information (i)</th>
<th>-2 Log Likelihood</th>
<th>Chi-Square</th>
<th>Df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept Only</td>
<td>227.013</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final</td>
<td>134.784</td>
<td>92.229</td>
<td>30</td>
<td>.000</td>
</tr>
</tbody>
</table>

Link function: Logit.

<table>
<thead>
<tr>
<th>Goodness-of-Fit (ii)</th>
<th>Chi-Square</th>
<th>Df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson</td>
<td>167.607</td>
<td>333</td>
<td>1.000</td>
</tr>
<tr>
<td>Deviance</td>
<td>132.961</td>
<td>333</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Link function: Logit.
### Pseudo R-Square (iii)

<table>
<thead>
<tr>
<th>Model</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cox and Snell</td>
<td>.514</td>
</tr>
<tr>
<td>Nagelkerke</td>
<td>.615</td>
</tr>
<tr>
<td>McFadden</td>
<td>.400</td>
</tr>
</tbody>
</table>

Link function: Logit.

### Test of Parallel Lines (iv)

<table>
<thead>
<tr>
<th>Model</th>
<th>-2 Log Likelihood</th>
<th>Chi-Square</th>
<th>Df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Null Hypothesis</td>
<td>134.784</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General</td>
<td>111.973b</td>
<td>22.811c</td>
<td>60</td>
<td>1.000</td>
</tr>
</tbody>
</table>

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

a. Link function: Logit.

b. The log-likelihood value cannot be further increased after the maximum number of step-halving.

c. The Chi-square statistic is computed based on the log-likelihood value of the last iteration of the general model. Validity of the test is uncertain.

The significant chi-square statistic (p>.05) indicates that the components of the level of cash flow income model give a significant improvement over the baseline intercept-only model. This means that the model gives better predictions based on the marginal probabilities for the outcome categories. The results for the above Goodness-of-Fit test suggest a favourable result. The results show how well the outcome is predicted with the model fitting information. The Nagelkerke Pseudo R² value here is .615, indicating that 62% of variance in the outcome is explained by the explanatory variables. Again, just like the Goodness-of-Fit test, the null hypothesis is not rejected (as p<.05). This is an indication of a good model for the components of the level of cash flow income. The results for the above analysis after examining the adequacy of the model and particularly the Proportional Odds assumption suggest the model fits very well.
### Parameter Estimates (v)

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Estimate</th>
<th>Std. Error</th>
<th>Sig.</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Threshold</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[CFI = 3]</td>
<td>Cash Flow Income</td>
<td>20.08</td>
<td>4.228</td>
<td>.000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location</th>
<th>Utility</th>
<th>Resource</th>
<th>Systems Management</th>
<th>Systems Integration</th>
<th>Resource Utility</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Financial Framework</strong></td>
<td>Provides accurate, reliable and up-to-date financial information</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adheres to the highest standards of statutory reporting to the Companies House and the HMRC</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Processes financial data in a reliable and understandable way</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Records invoice for orders using standard billing and contract terms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calculates tax (including VAT) and interest payments accurately</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Systems Management</strong></td>
<td>Provides unlimited, free support on the use the application</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improves time planning, and procedural skills</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improves book-keeping &amp; accounting, and payroll skills</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administers knowledge of the profitability of the business</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduces the need for in-house IT expertise</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sends invoices to customers quicker and receive payments quicker</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enables the in-built automated credit control feature to collect payments from customers within 60 days</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Simplifies credit control by chasing payments from customers</strong></td>
<td>1.292</td>
<td>.513</td>
<td>.012</td>
<td>.287</td>
<td>2.297</td>
</tr>
<tr>
<td>Enables interaction with other banking systems and clearing houses when payments are made</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enables modifications with other software and systems (e.g. Payment processors, debt management add-on)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enables speedy data back up with zero data loss in the event of a network malfunction</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provides high system uptime as network servers are always available whilst customers’ data is safe</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enables software accessibility anywhere &amp; at anytime, and on a mobile phone</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enables software suitability and appropriateness to meet business requirements</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enables real time management of cash flow and credit sales</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asses the risk of some business operations and prediction of future earnings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asses the risk of the safety and security of business financial information against hackers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enables simultaneous access and engagement with the Accountant</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduces reliance on Traditional Accountants</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>[LotO=1]</strong> Length of Standard Software Ownership</td>
<td>-2.126</td>
<td>.874</td>
<td>.015</td>
<td>-3.839</td>
<td>-1.413</td>
</tr>
<tr>
<td><strong>[LotO=2]</strong> Length of the Standard Software Ownership</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>[SubCr=1]</strong> Subscriptions paid by the small business enterprise</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>[SubCr=2]</strong> Subscriptions paid by the small business enterprise</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>[SECT=1]</strong> Industry Sector Category of the small business enterprise</td>
<td>-1.443</td>
<td>.948</td>
<td>.128</td>
<td>-3.301</td>
<td>.415</td>
</tr>
<tr>
<td><strong>[SECT=2]</strong> Industry Sector Category of the small business enterprise</td>
<td>.699</td>
<td>.843</td>
<td>.407</td>
<td>-954</td>
<td>2.352</td>
</tr>
<tr>
<td><strong>[SECT=3]</strong> Industry Sector Category of the small business enterprise</td>
<td>.961</td>
<td>.854</td>
<td>.261</td>
<td>-714</td>
<td>2.635</td>
</tr>
<tr>
<td><strong>[SECT=4]</strong> Industry Sector Category of the small business enterprise</td>
<td>.193</td>
<td>.899</td>
<td>.831</td>
<td>-1.570</td>
<td>1.955</td>
</tr>
<tr>
<td><strong>[SECT=5]</strong> Industry Sector Category of the small business enterprise</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Link function: Logit.

a. This parameter is set to zero because it is redundant.
In order to evaluate and interpret the contribution of each independent variable in the regression equation, a partial correlation statistic (the Wald chi-square statistic for individual coefficients) in a logistic regression as proposed by Bhatti et al, (2006) was used. This was used to identify the particular components of the standard OAS that were strongly associated with increases in the level of cash flow income. The Wald test can be used to test the association between the independent variables (predictors) and the criterion variable (dependent) variable, i.e., $H_3-0$: $\beta_i = 0$. The null hypothesis is that there is no association between the predictor $i$ and the outcome after taking into account the other predictors in the model. To reject the null hypothesis, the $t$-value has to be higher than 1.96 (for a 95% confidence), meaning that there is evidence of a non-zero association, and for this reason, the higher the Wald (z-value), the higher the relevance of the variable (Thompson, 2009).

The contributions of the different components of the standard OAS that have brought about the increase in the level of cash flow income is explained by the software’s ability to simultaneously allow access and engagement with the accountant, as well as its ability to reduce dependence on traditional accountants. This is the case since both functionalities of the standard OAS respectively reached statistical significance at $p= (.002$ and $.004$). However, the former showed a $z$-value of 9.806 (a negative $\beta$-value of -2.164), while the latter showed a $z$-value of 8.290 (a positive $\beta$-value of 1.699). This means that the standard OAS is very effective in simultaneously allowing access and engagement with the accountant, and is also effective for reducing small business owner/manager reliance on traditional accountants. Most importantly, the function of carrying out simplified credit controls by chasing payments from customers was within the conventional levels of significance at ($p= .012$), with a $z$-value of 6.344 (a positive $\beta$-value of 1.292. In addition to this, the standard software’s function of adhering to the highest standards of statutory reporting to the Companies House and the HMRC shows a statistically significant value of ($p=0.028$), and a $z$-value of 4.813 (a negative $\beta$-value of -1.403). These four components of the standard software are responsible for increases to cash flow income amongst the small business respondents in this study.

The length of ownership of the software is an essential feature of the standard OAS, hence its inclusion in the test for the contribution of each component of the standard OAS to the
increase in cash flow income experienced by users of the software. Therefore, the result and interpretation of the results in table 10(v) are similar to that in table 9(v). There were no statistically significant differences in the other components of the standard OAS and the level of cash flow income for the participating firms. The results above indicate a significant and positive impact of one of the credit control functions on the standard OAS in terms of the level of cash flow income it generates. Thus, the alternative hypothesis is rejected in favour of the null hypothesis in H3. Again, the above results are identical with the outcome of the CMAM analysis conducted in chapter 5 and the implication of both results is that the standard OAS technology has helped to improve the operations of small business owners and has subsequently helped to translate their business operations into financial gains without much reliance on accountants. The standard OAS also restricts unauthorised access to the financial details of the firm by third parties. This confirms the claims of the leading standard OAS vendors that the standard OAS software is intuitive and easy to learn, as it is designed to help make running small businesses (and larger companies) easy and to empower users to keep control of cash flows, without needing any accounting or book-keeping knowledge. The user will be able to pick up such knowledge quickly by the virtue of an online help section with video tutorials (including free email support).

6.3 Chapter Summary

This chapter has presented the outcome of the multivariate ordinal logistic (logit) regression analysis to establish the effectiveness of the standard OAS in terms of its ability to help improve the cash flow positions of respondents. This resonates with the claim that is made by the leading OAS vendors. It identified the components of the standard OAS that have assisted in strengthening the cash flow income of the small business respondents. This chapter has demonstrated that the modified OAS did not have a magnifying effect on cash flow to corroborate the outcome of the results obtained from the strategic analysis of CMAM in chapter 5. It therefore, establishes the validity of the research outcome as a result of strong correlations in the results between two different measures of data analysis (see Appendix C). However, the modified OAS provided evidence of success in other areas of business operations. This evidence, as well as the overall research results is discussed under section 5.3.2 of chapter five.
CHAPTER SEVEN - DISCUSSION OF RESEARCH FINDINGS, CONTRIBUTIONS, LIMITATIONS, AND RECOMMENDATIONS FOR FUTURE RESEARCH

7.1 Introduction

This chapter summarises and concludes the research by first discussing the findings in relation to statistical relevance and the perceptions of the respondents, and by later illustrating the research aims, objectives (including research questions and hypotheses), implications, limitations and areas for future research. This study seeks to address the gap in literature by querying if standard OAS is effective in helping to improve the cash flow position of UK small businesses. This resonates with claims made by the leading standard OAS vendors. It also examined the extent to which the small business owners who integrated the standard OAS with the Credit Management add-on experienced an improvement in their cash flow situation. This study is focused on UK B2B supply, using perception-based measures to capture non-financial performance indicators. It uses these to examine the extent to which OAS (standard and modified) has helped the responding small businesses with their credit management and credit sales collection efforts. This was undertaken in order to reduce their chances of incurring bad debts. As explained in chapter 5, a total of 191 responses were received, of which 63 were incomplete or non-usable. This left the researcher with 128 completed and usable responses, which is higher than expected. The quantitative data gathered were categorised into broad themes and subjected to a more detailed descriptive analysis of the survey data (drawn from CMAM). The findings from the theme-based analysis of the survey data (in Chapter 5) provided another perspective that adds to the quantitative (ordinal regression) analysis in Chapter 6 - both taken from the responses of the 128 small business respondents. These helped to provide further insights into the influence of the standard and modified OAS on cash flow income. A discussion of the findings from the survey is presented from this point onwards.
7.2 Research Findings in Relation to Statistical Relevance and the Perception of the Respondents

The outcome of this study suggests that the standard OAS is very effective in helping to improve the cash flow position of the responding UK small businesses. This outcome justifies claims by the leading OAS vendors that standard software helps to improve administrative management for small businesses when it comes to accountancy and finance. These outcomes present the possibility to gauge the risk of some business operations in terms of predicting future earnings. This is key since the software was designed by small business owners, to be used by small business owners. It is intuitive and easy to learn, as it is designed to help make running businesses easy, without needing any accounting or book-keeping knowledge. The user will be able to pick up the requisite skills quickly by virtue of an online help section with video tutorials (including free email support). This reduces the need for in-house expertise. These are consistent with studies by Rezaee et al. (2000); Matolcsy et al. (2005); Walker et al. (2007); and Battisti et al. (2011).

The result of the tests conducted showed that the credit control function of the standard OAS technology has helped to translate the business operations of respondents into financial gains to improve their levels of cash flow income. This can be achieved without much reliance on accountants, whilst also restricting unauthorised access to the financial details of the firm by third parties. This result reflects the outcome of a study by Perez et al. (2010) which looks at the implementation of computerised accounting technologies that give SMEs a competitive advantage, and the opportunity to be well positioned in achieving a more desirable outcome. SMEs are, to a greater extent, adaptable and possess better response capability. To this end, the claims made in relation to the predicted effects of the standard OAS via the conceptual framework of this study (hypotheses 1 and 3), have been supported. However, the study also confirms that the probability of the users of the standard OAS who have owned the standard OAS for more than 1 year is that they will experience an increase to their level of cash flow income. The chances of this happening are less than half than for those who have owned the standard OAS for less than 1 year. This finding suggests that users of the standard OAS experienced delayed increases in their cash flow after the implementation of the software. This is consistent with research by Wah (2000). Matolcsy et al. (2002) Hunton et al. (2003), Nicolaou et al. (2003), Matolcsy et al. (2005) and Wieder et al. (2006). These researchers all
indicated that relatively two years will pass between the installation of computerised accounting systems and the attainment of its benefits.

Accordingly, the findings from statistical tests using ordinal regression techniques tie in with the descriptive findings of the accounting and credit management practices of small businesses in the sample using CMAM. This suggests that firms with the standard OAS experienced an increase in their cash flow position while firms with the modified OAS did not. The outcome of the limitations of the modified software is consistent with Naranjo-Gil (2004); Wieder et al. (2006); Dibrell et al. (2008); and Grande et al. (2011) who found no significant relationship between SME productivity and the use of computer-based accounting systems. These authors argued that IT is readily available, and using ITs provides no competitive advantage for achieving improved results. They argued that many firms have invested in IT but do not succeed in attaining the established performance goals. A closer look at the results of the descriptive analysis of the responses suggests that the modified OAS users’ ability to effectively manage the complexity of credit management may have been interpreted as having an increase in cash flow income. This could be because the modified OAS enabled its users to review the creditworthiness and credit performances of their customers. It therefore gave them the advantage of evaluating credit risk based on borrower information. It might have also influenced the management of the whole system of commercial relationships management so as to prevent the risk of surcharges and penalties for non-compliance. It also appears to enable its users adapt in particular ways.

Therefore, the claim made in relation to the predicted effect of the modified OAS (see hypotheses 2) has not been supported. Notwithstanding, these outcomes support arguments propounded in previous studies that the suppliers of credit have the upper hand above financial institutions since credit supplying firms have an informational advantage that reduces their risk exposure to borrowers’ exploitation when it goes beyond the bank’s intermediation advantage (Burkart and Ellingsen, 2004). They also support a study conducted by Hansford and Hasseldine (2012). Again, this established the efficacy of the credit management add-on in helping small firms cope with the increasing complexity of credit management. In addition, this explanation justifies the point-of-view that managing the trade
credit process using the modified OAS has further advantages over the application of the standard OAS used independently.

Although no previous studies have examined the extent to which OAS has helped small businesses with their credit management and collection efforts in order to improve their cash flow situation, three main discourses were established, summing up the different aspects of the research outcomes. The next section presents an itemised account of the research findings from a combination of the examination of the relationships between the financial productivity dimensions of OAS from the CMAM and the results of the statistical tests aimed at establishing the association between the use of OAS and explanatory variables gathered from CMAM. The analysis was undertaken to answer the research questions and fulfil the research objectives.

7.3. Linking the Findings from the Conceptual Framework to the Research Questions and Objectives

Going by the network of information in the findings, it can be said that the small business respondents who have maintained their standard OAS and those who have integrated their standard OAS with the credit management software have both been able to facilitate the coordination of trade credit activities, as well as becoming and remaining flexible and dynamic. They have achieved this whilst conforming to the needs of customers (Olsen and Saetre, 2007; Granlund and Malmi, 2002). It can be said that the respondents who integrated (i.e. modified) their standard software with the credit management add-on did so in order to manage the complexities of trade credit. This resonates with Nicolaou’s (2000) assertion as to the importance of a system fit that meets the satisfaction of small business owners-managers. They must be convinced by the perceived quality of information content in system outputs. This resonates with the suggestion made by Katerattanakul et al., (2014) that firms adopt technology that is compatible with the features and the intrinsic characteristics of the small firm. Undeterred by the non-significant impact of the modified OAS on the level of cash flow income of the small businesses in the study, the research findings showed that the users of the modified OAS had the advantage of being able to evaluate credit risk based on borrower
information. This result supports arguments in previous studies that suggest that in lending, the supplying firm has an advantage over financial institutions (Burkart and Ellingsen, 2004).

Integrating the credit management software add-on with the standard OAS has helped to improve credit management practices amongst users, whilst the standard OAS has provided the match between strategy and its appropriateness in helping to improve cash flow and operational efficiency. Although Kirby and King (1997) suggest that SMEs are largely reliant on external agencies (e.g. solicitors, accountants, banks, consultants and academics) for advice; this might simply be a consequence of the SME owners lacking financial literacy. However, this study found that the standard OAS has helped to simplify the credit management process of small business owners and has subsequently helped to translate their business operations into financial gains without much reliance on accountants. It has also helped them to restrict unauthorised access to the financial details of the firm by third parties. Nonetheless, it is not clear if the need for managerial accountants and consultants has dramatically decreased due to the application of this credit management add-on.

In addition to the above, the standard OAS function of adhering to the highest standards of statutory reporting to Companies House and HMRC, and most importantly, the function of carrying out simplified credit controls by chasing payments from customers are the constituents of the standard OAS that helped to accurately process financial management information. In this way it is possible to improve the cash flow position of the small businesses respondents. Besides, small firms are not very good at managing their AR and a great number of the small businesses carry out this function without a credit control department, signifying the absence of both the expertise and the information necessary to make sound decisions regarding terms of sales (Atrill, 2006). For most small firms, payment from trade credit may be more unpredictable or even precarious when revenue related to projected sales are subject to review, and collection from trade credit targets are not achieved (Burkart et al., 2006; Menichini et al., 2009; Fabbri and Klapper, 2013). However, the findings of this study suggest that the standard and modified OAS have enabled debt collection and control procedures in combination and this has helped users make sound financial management decisions in order to build the capabilities necessary to compete successfully. Therefore, the standard and modified OAS have presented an effective and
progressive structure that are compatible with the features and the intrinsic characteristics of the small firm that seeks to collect payments not made within the agreed or normal period of credit. This answers the first and second research questions.

Moreover, the findings reveal that the modified OAS has helped to reduce the number of late-paying customers as well as the number of overdue receivables (outstanding customer debts). It has reduced the number of disputes with defaulting customers, and the cost of chasing late payments. This finding is consistent with previous research by McNab and Wynn (2000) and Al Amari (2002), as both authors opined that evaluating the creditworthiness and credit performances of customers lead to better management of credit risk as well as more efficient processing times. It provides more precise and more consistent decisions and it reduces operating costs due to the implementation of a consistent system for making credit decisions and managing credit policy in different locations for the population. The modified OAS has influenced the management of the whole system of commercial relationships management so as to prevent the risk of surcharges and penalties. This is especially the case for non-compliance with HMRC regulations and it has enabled its users to adapt in particular ways.

This finding supports a study conducted by Hansford and Hasseldine (2012); however, evidence of success in the aforementioned areas of business operations would not have been possible without the financial framework. In addition, it would not have been possible without the resource utility and systems integration functions of the standard OAS. The use of OAS in its standard form has facilitated efficiency in the operational and credit management capabilities of the small business respondents. This accommodates the processing of accounting and financial management data relating to different areas of interest in the firm. Its integration with the credit management add-on has helped with the systematic processing of business operations and trade credit management. Either way, the standard OAS or modified OAS has offset the weaknesses in the practice-performance concern of small businesses by virtue of real-time interactions within every business section. As such, credit decisions were made quickly, and the firms were able to operate more efficiently because there was more opportunity for up-selling which translates into more sales. This answers the third research question.
The relevance of the conceptual framework through CMAM cannot be underestimated as this formed the foundation upon which the research rests, and was instrumental in several key aspects of the study. This has helped to identify the capabilities, resources (that is, OAS), strategies and processes used by the responding firms to gain an understanding of the impact of OAS technology on supporting small businesses (in B2B relationships) in the UK. It has meant that they can better manage their finances (Coursaris et al., 2008). Managing cash flow is a skill, and only a firm grip of the cash conversion process will yield results. However, as small business owners operate within the uncertain environment of externally defined standards of behaviour, this study has provided information that illustrates how OAS is a solution for managing the trade credit process. It provides solutions in a range of areas, from placing an order to payment collections, and from the point of view of placing an increased focus on optimising both internal and external relationships and procedures (Burnett 2005). The relationship between a firm's activities and the potential opportunities for acquiring financial gains (cash flow income) that OAS can provide in each area of operations was presented. By its own nature, the conceptual framework influenced the principles of the entire system of trade credit management relationship possibilities of OAS as an integrated solution for both internal and third parties. Such an approach is appropriate for collecting payment from credit sales. This was demonstrated in chapters three and five of this study, and the findings speak to the first and second research objectives.

According to Elder et al. (2010), there is a need for strong internal financial management control systems in guiding the users of computerised accounting systems to achieve their organisational goals effectively. This can also ensure that cash that is tied up in the supply of trade credit ends up being collected. Even though OAS is sold as a standardised software package, it can be integrated with other systems/add-ons. Regardless, the leading vendors of OAS have only presented the software in its standard form. However, they argue that the standard software was designed to help make running small and larger businesses easier. Be that as it may, their affirmation rests on the software’s ability to effectively manage its user’s cash flow income. The small business population in this study originates from different industries. These are of different sizes, with different growth rates and different degrees of industry concentration/fragmentation. However, Niresh’s (2012) study revealed that changes in the liquidity position of the firms investigated exert no remarkable change in terms of their profitability. Yet, other factors such as, seasonal changes in demand, firm size, operating
cycle and technological changes may exert a greater influence on the profitability of the firms. This goes to show how the combination of internal and external factors can influence a company’s performance.

While some studies found a positive relationship between computerised accounting technology alignment, SME strategy and performance (Wah, 2000; Ismail and King, 2005), other research showed no distinct relationship exists between an investment in computerised accounting technology and the performance indicators (Naranjo-Gil, 2004; Wieder et al., 2006; Dibrell et al., 2008; Grande et al., 2011). Hence, the linkage between computerised accounting technology and firm performance is seen to be rather unclear. In spite of the aforementioned, comparisons were attributed to studies of the association between WCM and cash flow, and remarks made by the leading vendors of OAS. The efficiency levels of OAS in strengthening the cash flow position of the responding UK small businesses through the interactions among the core firm and credit decision activities involved in an organisation’s trade credit supply process are presented from this point forward. These discussions speak to the third research objective.

- **Resource Management Functionality dimension**
  - *The standard OAS plays a major role in the in planning and decision-making functions in the management process.*

The peculiarities of good credit management practices (efficient management of working capital) have being crucial to the financial health and performance of small firms. Now that technologies provide the relevant prospects required to convert resource utilisation into a productive, quality and performance-oriented business (Ismail et al., 2003) it has been argued that organisations have now recognised the alignment of IT as a business enabler to support business processes (Runge and Lee, 2002). The findings of this research are consistent with previous research (Rafuse, 1996; Peel and Wilson, 1996; Peel et al., 2000; Eljelly, 2004; Atrill, 2006; Barine, 2012; and Kandpal, 2015) indicating that efficient WCM increases free cash flow. This justifies claims by OAS vendors in helping small businesses get paid faster to keep their cash flow healthy. The above point is echoed in the analysis of data collected, which revealed that the standard OAS is designed for small business users with simple bookkeeping needs and little or no book-keeping experience. It has been effective for processing
financial data in a reliable and understandable way and this enables the careful preparation and presentation of accounting and financial management data in a flexible and understandable manner.

The software was efficient at providing unlimited, free support on the use of the application. It was useful for improving time planning and procedural skills, and for improving bookkeeping, accounting, and payroll skills. It was also useful for administering knowledge of the profitability of the business. As mentioned above, this also justifies claims by the leading OAS vendors of the standard software that their product can improve the small firm’s administrative management of accountancy and finance. It also makes it possible for them to assess the risk of some business activities or forecast future proceeds since the software was designed by small business owners, to be used by small business owners. In addition, the software is intuitive and easy to learn, as it is designed to simplify the running of small and large businesses alike without the need to acquire new accounting or book-keeping knowledge. The user will be able to pick it up quickly by virtue of an online help section with video tutorials (including free email support), and this has reduced the need for in-house expertise. These are consistent with studies by Rezaee et al. (2000); Walker et al. (2007); and Battisti et al. (2011).

Adhering to regulatory requirements, most especially the HMRC’s tax assessment is time consuming. However, it is very important for small businesses to ensure that accurate tax returns are submitted to the HMRC in order to avoid penalties which are usually very costly, and can be a constraint on their growth and success. The research finding shows that the standard OAS has been efficient in adhering to the highest standards of statutory reporting to Companies House and the HMRC, and also in calculating tax (including VAT) and interest payments accurately. This finding supports a study conducted by Hansford and Hasseldine (2012), and also substantiates the claim of the vendors of OAS as to the ability of the software to provide accurate and reliable information and to conform to the highest standards of transparency. The software also empowers users to carry out different legal and management reporting demands. The standard OAS was said to have created a basis for all sorts of opportunities for enterprise productivity, such as providing real-time transaction and
tax planning advice. This is most especially the case with the management of the clients’ WC, and it offers a range of virtual services. The findings show that the standard OAS was efficient in enabling the real-time management of cash flow and credit sales, and that the software was very effective in simultaneously allowing access to, and engagement with the accountant.

Kirby and King (1997) hinted that more established and experienced small business owner-managers may consider the software as being able to manage their business better without much assistance from management accountants and other financial advisors. However, the findings of this study reveal that the standard OAS was effective in reducing small business owner-manager reliance on traditional accountants. This finding supports those of Sian and Roberts (2009) who stated that financial knowledge levels are unequal among small business owners, and there is an indication that many small enterprise owners depend on their accountants to prepare their financial statements. This is the case since they are usually taken aback by the complexity of the information gathered. As the UK and the prospective IASB standards are being designed to accommodate the needs of the large businesses, there is to some extent, an understanding that specific guidance for small and micro businesses would be worthwhile.

- **Credit policies and procedures define the various conditions for extending credit, including the cost of trade credit.**

Managing a small business is constantly linked with different kinds of risks. Day-to-day liquidity management usually covers up the possibility of making significant savings. Although this study has not looked into specific types of WCM policy (such as aggressive, conservative and matching policies) adopted by the responding small businesses, today’s firms grant trade credit to boost sales. As a result, these firms need to properly control their investment in AR including the credit terms, and the credit process (Maness and Zietlow, 2005). Some firms establish simple credit policies and procedures before extending credit to their customers. These include the credit terms and policies regarding whether to accept cheque and credit card payments. They also include the investigation of new customers before extending credit and deciding about the amount of advance that should be collected before delivering goods or services. They also consider whether or not to charge interest on late-paying customers (IOMA, 2010). As stated earlier, where product demand is slow but
trade credit for customers is chosen as an option, firms operating under such conditions may be reluctant to increase their prices. Granting credit and managing credit involves costs.

However, firms use the services of credit-rating agencies in order to collect credit information to set credit terms for customers (IOMA, 2010). This is very much the situation with users of the standard OAS, as they pay a separate fee to access this credit information from the credit-rating agencies. Sushma and Bhupesh’s (2007) suggestion to set up a reasonable credit policy to secure appropriate debt collection measures in enhancing efficiency in AR management is evident in the outcome of this research study. This is the case since the finding suggests that half of the total respondents say that they pay for subscriptions with credit rating agencies for customer credit checks. These might have led to the increases in the firms’ free cash flow. Even though the UK Late Payment of Commercial Debts (interest) Act (1997) enables businesses the statutory right to impose interest charges when their clients pay late (CIMA, 2009), the finding show that 17% of the total population (and 13% of standard OAS users and 25% of the modified OAS users) have initiated a late payment charge on their defaulting customers. As such, the results support findings espoused by Howorth and Wetherhill (2000) who found that suppliers may not charge penalty interest on late payments. Regardless, the aim of credit management should be to regulate and control these costs; not to eliminate them altogether (Mathur et al., 2010).

- The credit control aspect of the standard OAS has a great impact on the cash flow position of small businesses.

Atrill (2006) hinted that numerous small businesses are not particularly competent and skilled at managing their WC, and they operate without a credit control department. As a result, they lack the skills required to make decisions in regards to terms of credit sales. This study has provided evidence suggesting that OAS has enabled its in-built automated credit management function to automatically email customers when an online invoice becomes overdue. This research finding is agrees with claims by vendors of OAS providing three pre-written reminder letters, which are sent automatically to customers who are late paying the firm. Atrill (2006) also stated that small business owners are likely to experience higher risks of late payment and default by debtors due to the lack of correct debt collection processes and systems.
However, the results from this study show that the software was efficient at simplifying credit control by chasing payments from customers. Again, this finding accords with claims espoused by the leading OAS vendors who argue that the software gives small business owners greater control over cash flowing into their business. Even though it is not clear whether the standard OAS has saved its users time on chasing payments, the research finding suggests that the standard OAS has ultimately increased the cash flow position of the small firms in the study. This however, is consistent with Helo et al. (2008) who stated that it is convenient for a small firm to simply adopt the best practice business processes embedded in web-technology, rather than carrying out modifications, as it would be more cost effective to benchmark best practices in web-technology instead of making amendments or modifications. Managing trade credit is complex, thus, some standard OAS users integrate the standard software with the credit management add-on. The addition of the credit management module to further automate AR collection processes did not yield an increase in cash flow income as expected. Nonetheless, the results of the interaction of the latter with the former in taking up credit control and collecting late payments are discussed next.

- Security and Safety concerns of the standard OAS

The line up of remarkably compelling security threats to businesses include: natural and political disasters, entry of inaccurate data, software errors, equipment malfunctions, loss of valid data, admission of viruses into the computer system, allocation and circulation of passwords among members of staff, mismanaging prints and dissemination of information to unauthorised people, vicious attacks from cyber criminals incited by authorised personnel (notably via genuine transactions). This signifies that employees are the principal security risks to business (Abu-Musa, 2006; Romney et al. 2009). However, the effects of the existence of these security threats vary between interruptions to business activities, to fiduciary losses (and failure) (Loch et al, 1992; Hood and Yang, 1998; Abu-Musa, 2004).

The capacity to control and protect the firm against security threats such as computer viruses, data loss and unauthorised access are functions of the standard OAS that over half of the respondents agreed were effective. This finding supports arguments made by standard OAS vendors who suggest the software can manage and bring up-to-date firewalls, encryption
techniques, access control mechanisms and intrusion detection systems to overwhelm security violations (see Gordon et al., 2003; IOMA, 2010). Also, this finding is a reflection of the claim that investing in class-leading infrastructure provides high system uptime to ensure the software is always available whilst customer data is safe. This is a claim made by the vendors of the standard OAS. They argue that the software can protect the users against the possibility that the HMRC might want to access their financial data as Real Time Information (RTI) submissions become ever more mandatory.

- **Synergy Functionality Dimension**

Late payment is unavoidably a huge problem for businesses and this is especially the case for small businesses. These occur relatively frequently amongst businesses (Wilson 2008), and can lead to financial distress and failure (Pike and Cheng, 2001; Drever and Harcher, 2003). The management of WC (most especially AR), is important to the financial health of businesses from all industries, and therefore the key to improving a firm’s ability to collect overdue accounts is to be organised. Davenport (1998) suggested that there needs to be a match between a firm’s requirement and its technology capabilities. However, in order for the technology to give users satisfaction in terms of systems reliability, as well as the quality and improvement of credit management tasks, the small business owner-manager needs to carefully plan to implement an information system. Therefore, the compatibility with organisational and professional conduct, standards, and activities is most important to the perceived effectiveness of the technology.

- **Integration was appropriate with small firm’s trade credit policies and practices**

Cash management involves handling purchasing and sales. However, a streamlined administration has a direct effect on both cash flows and working capital. Olsen and Saetre (2007) indicated that standard systems are constraints to the dynamic nature of many SMEs. Users can integrate the standard accounting system with other system add-ons and this enables SMEs to continue being flexible and dynamic. It also meets customer demands at all times. Some responding firms in this study are diversified in their business operations with more complex business division set-ups, as expressed by (Sorter, 1969). As such, about 8% of the respondents have integrated their standard software with the credit management add-on
in order to manage the complexities of trade credit. This accord with Nicolaou’s (2000) assertion as to the importance of system fit for business administrators’ satisfaction with the perceived quality of information content in system outputs.

It also resonates with the suggestion made by Katerattanakul et al. (2014) that firms adopt technology that is compatible with the features and the intrinsic characteristics of the small firm. Even though the interaction of the standard OAS with the credit management add-on has not yielded an increase in cash flow position of the responding small businesses, the modified OAS has contributed to the credit management process by working alongside other functions within the standard software system. This research finding also accords with Granlund and Malmi’s (2002) statement that integration is, to a greater extent necessary in the business environment. This necessity emanates from the efficiency and synergy requirements that are essential in a complex and unstable business environment. In other words, integration was necessary to assist with the co-ordination of trade credit activities.

- Integration provided the advantage of creating a repayment history of buying firms

This is a part of credit administration and notably one very important aspect of credit management. The ability of an enterprise to make estimates in advance is a crucial sign of the quality of its liquidity management. Many at time, it informs the efficacy of integration between the central functions and associated business units. OAS is expected to enhance the management of net positions and cash flows. Automating credit management processes improves the internal control a firm has over its current position and risk. In an economy in which yesterday’s creditworthy customer can become today’s defaulter, profiling customer credit performances becomes critical. This calls for regular credit reviews of all significant accounts as well as the identification of potential high-risk accounts. It calls for a review of the risk of non-payment for doubtful customers and for a greater understanding of customer payment patterns. It therefore becomes necessary to review creditworthiness on a real-time basis and at regular intervals. The automation of this labour intensive function can save the firm from taking a big hit, and can also help with focusing valuable time on the really complex and challenging decisions, as explained by (IOMA 2010).
Even though the credit management add-on had no significant impact on the level of cash flow income of the small businesses in the study, the statement by IOMA (2010) above is evident in the research finding, which suggests that the modified OAS was efficient for preparing various reports including credit hold reports for each customer accurately. This can be carried out whilst enabling credit limit re-evaluation. In addition to this, the research findings showed that users of the modified OAS were able to review the creditworthiness and credit performances of their customers, giving them the advantage of evaluating credit risk based on borrower information. This result supports arguments made in previous studies that firms who supply credit are in a better position than financial institutions since they have an informational advantage that helps to reduce their exposure to borrowers’ exploitation when it surpasses financial institution’s intervening advantage (Burkart and Ellingsen, 2004).

Integration enabled the minimisation of credit process costs and effort

The sound management of trade credit (account receivables) does not occur only in the situation of late payment or default to pay. It involves the management of a whole system of commercial relationships so as to prevent the risk of late or default payments together with optimising the costs associated with this trade credit management. It is also about facilitating the ability to settle one’s own payables in time. The entire trade credit management process should be directed to the timely collection of payments and keeping costs (i.e. costs of prevention, monitoring and collecting of receivables) to the minimum, otherwise the firm’s survival could be threatened (Kubíčková and Souček, 2013). The findings from this research echo this assertion by Kubíčková and Souček (2013) as over half of the users of the modified OAS agreed that the software provided an up-to-date record of each customer’s charges, payments, and balances due, and also that the software enabled the collection of payment(s) on or before the due date - i.e. within 60 days.

Also, the findings revealed that the modified OAS has helped in reducing the number of late-paying customers as well as the number of overdue receivables (outstanding customer debts). It has reduced the number of disputes with defaulting customers, and the cost of chasing late payments. This finding is consistent with previous research by McNab and Wynn (2000) and Al Amari (2002), as these authors opined that evaluating the creditworthiness and credit performances of customers lead to better management of credit risk and more efficient
processing time. It provides more precise and more consistent decision making and it reduces operating costs due to the implementation of a consistent system for making credit decisions and managing credit policy in different locations for the population.

Although the findings from this study reveal the input of the credit management add-on can help small business owners in managing the complexity of trade credit management, it has not established whether an investment in the credit management add-on will help small businesses save time on credit control and chasing payments. It does not support the idea that they have a more reliable view of their cash flow situation.

- Pre-emptiveness and Threat Functionality Dimension

Pre-emptiveness consists of four items: the extent to which OAS provides unique access to external users e.g. the management accountant; its influence on the development of industry standards and practices, and its capacity to control and protect the firm against security threats such as computer viruses, unauthorised access. According to Porter (1985), technology can convert its technical edge into first-mover advantages that continue through the provision of favourable access to channels and market position, setting industry standards, and building institutional and virtual security barriers even if the technology void is filled. Aside from the central government, HMRC is the UK’s other level of government responsible for collecting tax, including Value Added Tax (VAT), and they collect the second highest percentage of UK revenue (Personal Income Tax and Corporation Tax are first and third in ranking) (Maffini et al., 2015).

However, dependency on taxes for government expenditure is high, as taxes constitute the main resource of government revenue, at around 93% of total UK governmental receipts (Pope and Roantree, 2014). For this reason, the UK tax regulators apply a system of surcharges and penalties to ensure compliance by companies. However, the British Chambers of Commerce (BCC, 2006) suggest that implementing new legislation has cost UK businesses more than £50bn since 1998. As noted above, the modified OAS has influenced the management of the whole system of commercial relationships management so as to
prevent the risk of surcharges and penalties for non-compliance. It has enabled its users to adapt in particular ways, although this may not have happened without the financial framework function of the standard OAS. This finding again supports the study conducted by (Hansford and Hasseldine, 2012).

7.4 Conclusion of the Research Study

This research combined both academic and the practitioner perspectives to highlight several issues and emerging trends relating to the impact of late payments on small businesses. Late payments also create a negative cycle when they run through supply chains or throughout suppliers. Some firms increase sales by being generous with their credit policy, but they may end up extending credit to risky customers who do not pay (Mathur et al., 2010). In a situation where large businesses pay late, small firms can be put out of business. Large companies can basically dictate the terms of their relationships to their B2B customers, and in the process, extend their due payment date. A large proportion of businesses look to short-term fixes when late payment becomes a problem. One of the quick fix for firms experiencing this problem is to take out, or look to extend overdrafts. However, with the problems small businesses are facing with banks at present, this can be either a costly or a time wasting experience, which further reduces profits and productivity. Therefore, these businesses use trade credit as a short-term source of finance. Organisations allow sales on credit so as to protect their market share from competitors and attract potential customers. Credit sales can be risky since cash is not obtained immediately from the sale. The main benefit of offering trade credit is that of having a boost in sales. However, this study finds that firms needs to properly control their offering of trade credit (including the credit terms and the credit process) in order to improve efficiency in receivables management. In effect, the firm would experience a shortened creditor’s collection period, lower levels of bad debts, increases in the firm's ability to attract new customers and its financial performance.

Small business owners face daunting challenges in terms of how to realise financial gains and efficiency after offering trade credit. They face the challenge of managing payment collection efforts - including what best practices to utilise in order to drive process improvements.
Advancements in IT have dramatically improved accounting systems. They have transformed the economic life of small businesses, and have increased the rapid exchange of business information. They have impacted on the collection and analysis of business and financial data. IT provides all sorts of individual economic actors’ new valuable tools for identifying and pursuing economic and business opportunities (Ballada and Ballada, 2011). This study observed that OAS is the latest development in management accounting and information systems. Meanwhile, the leading vendors of this software claim that it can manage credit sales for small businesses and can help to improve their cash flow position. Even though Evans and Smith (2004), Matolcsy et al., (2005), and Wieder et al., (2006) modified the value chain in identifying potential business opportunities for firms as well as improvements in profitability and liquidity management, no study has yet presented a unified framework to test the claims of the leading OAS vendors in identifying trade credit management opportunities and improvements in cash flow income. This study has addressed that specific gap. It has also focused on the supply side of trade credit by some UK small businesses to other small businesses, examining the individual perception of the users of OAS (standard and modified) and determining the extent to which the software has helped them in their trade credit management and collection efforts in order to reduce the chances of incurring bad debts.

Firms take decisions in managing relationships between short-term assets and liabilities (working capital) to ensure they are able to continue their operations and have sufficient cash flow to satisfy both maturing short-term debts and upcoming operational expenses at minimal costs, increasing corporate profitability (Barine, 2012). Good management of receivables (a part of working capital) is the development of a complete system of business relationships management, avoiding the risk of late or default payments and optimising the costs for this area of financial management, whilst also facilitating the ability to pay one’s own payables in time (Kubičková and Souček, 2013). This study has presented evidence on the use of OAS in matching strategy with the appropriateness of OAS in effectively managing AR, thereby, improving the cash flow situation of small businesses. Equally important in this study is the recognition of the utility of OAS in helping accountants perform tasks simultaneously with their clients conveniently even when different versions of the software are being used by both parties. Furthermore, accountants are to a greater extent, able to offer advice and services pro-actively.
The entire structure of account receivables management should be focused on the prompt payment of a considerable amount of receivables and on reducing the costs of account receivables management (i.e. costs of prevention, monitoring and collecting of account receivables) to the lowest amount. As a matter of fact, the issue of late payment cannot be underestimated particularly by small firms, as it could have a detrimental effect on their survival. Therefore, OAS has enabled debt collection and control procedures to become easy and understandable, providing its users with the opportunity to improve their trade credit management practices and operational efficiencies. Integrating the standard software with the credit management add-on has helped users to manage the complexities of trade credit, including the administration of the small firm’s trade credit policies and practices and the minimisation of credit process costs. It has reduced the effort required to create a repayment (credit) history for buying firms. Altogether, information on the practice-performance situation of the responding small businesses was revealed, especially the ability and suitability of both OAS types to enable users to co-ordinate and manage trade credit and to improve their financial and management accounting process efficiency.

### 7.5 Research Contribution to Theory and Practice

This study has shifted the focus of research towards the relevance of using OAS to better manage business processes and make better decisions which will positively impact future business operations and financial (trade credit) management control (Grabski et al., 2011). As a consequence, an opportunity was created to add OAS research study to the financial management information systems literature. Therefore, it has added to the debate some ideas about online credit management practices to help examine the use of OAS by the responding UK small businesses. The conceptual framework (drawn from CMAM) is considered a significant and important contribution of this study of financial management IS for small businesses. CMAM helped to unify the trade credit (working capital) and IT management theories provided by previous researchers by providing empirical evidence in confirming the existing claims of the leading OAS vendors on the effectiveness of the standard OAS helping to improve the cash flow position of UK small businesses. It also helped to establish that the standard OAS has greater utility in improving the cash flow position as perceived by the small business respondents than when integrated with the credit management add-on.
However, integrating the standard OAS with the Credit Management add-on has provided evidence of success in other areas of its users’ business operations (see section 5.3.2).

Aside from the above, CMAM acted as a strategic tool that provided knowledge of the simultaneous impact of web-based trade credit and financial management characteristics and practices on small business cash flow - which has not been investigated previously. Further to this, CMAM highlighted the relationships between the variables that were used to measure trade credit management characteristics. Specifically, it demonstrated the interactions among the core firm and credit decision activities involved in a small organisation’s trade credit supply process. This research used a combination of non-parametric statistical techniques (ordinal logistic regression analysis) and the adjusted value chain (CMAM) to identify some relationships not previously emphasised by researchers in the field of financial management information systems. The statistical analysis was compared with the strategic analysis, and the results provided a strong correlation between analyses. Evidence was provided of the statistical test’s construct validity. Therefore, this study highlighted the linkages between OAS (standard and modified) and the level of cash flow income in addition to the perceptive measures of the use of OAS by the research respondents. Nevertheless, previous research provided a large number of findings relating to financial management and the use of ES such as ERPs, and AIS, whereas the characteristics of OAS (standard and modified) have rarely been investigated.

Research concerning the management of WC by small businesses centres on best practices and explanations of behaviour based on the examination of the theoretical concepts from general practices. However, this study demonstrates how field data can be applied to modify current theoretical models in reflecting the practices and management of trade credit using OAS in the UK small business environment. Even though OAS has evolved and vendors have targeted small businesses, this study undoubtedly sets precedence in terms of knowledge about the interaction between the standard OAS and the credit management add-on to effectively deal with late or non payments by buying firms. In addition, knowing that integrating the standard software with the credit management add-on by small businesses who have varied business activities can help them manage the complexities of trade credit, and can influence the management of the whole system of commercial relationships management, provides some implications for practice and policy.
The global private and corporate cloud computing industry (on public cloud services alone) is considered to be worth $56.6 billion in 2014 and it is predicted to be worth twice this value by 2018, according to a study by the International Data Corporation (IDC, 2014). Furthermore, Giannakouris and Smihily (2014) echoed a report by Eurostat (European Commission Statistics) that in 2014, 19% of corporations in the European Union (EU) hosted their e-mail infrastructure and also stored their documents electronically using cloud computing. Equally important is the finding from a study conducted by the Centre for Economics and Business Research (2010) which revealed that the economic benefits of using cloud computing by businesses operating in some of Europe’s industrialised countries generated 2.3 million additional jobs from 2010 to 2015. For this reason, policy consultations will extend the discussion of issues such as the conditions of entry into the market for the production and distribution of cloud services, privacy and security regulations, Internet Protocol (IP) (Murray and Zysman, 2011; Benlian and Hess, 2011; Gupta et al., 2013; Trigueros-Preciado et al., 2013).

In view of the current debate about economic uncertainty after Britain leaves the EU (a.k.a Brexit) by the year 2019, major law and tax reforms are anticipated. With this in mind, it is necessary for UK small businesses (whether they trade within the UK only or with the rest of the world) as well as the providers of OAS to identify avenues of reducing the effect of uncertainty and prepare in advance for potential reforms. That is to say, changes in laws (regulation), tariffs, Financial Reporting Standards, the new International Financial Reporting Standards (IFRS) and corporation tax reforms may take effect after Brexit. The EU’s General Data Protection Regulation (GDPR) is undeniably the most significant reform to data protection regulation in the last ten years (Murray and Zysman, 2011). The GDPR will supersede the Data Protection Act (1998), making provisions for new rules governing extensive developments in science and technology from 25 May 2018. In fact, future developments in science and technology will be covered in the policy discussions mentioned earlier alongside current regulations (Murray and Zysman, 2011).

The above observations lead to two implications: first, Cloud Service Providers (CSPs) have come to be involved in business process management as well as business software
development as they take complete charge of the technology and the data included in the technology. Even so, one of the objectives of GDPR is to mark aspects such as cyber security and technological capacity for comprehensive scrutiny. Notably, the objective at the heart of GDPR is to enhance the rights of an individual (EU citizen or resident) on the way businesses collect, process, store, transfer and/or dispose their personal data, coupled with broadening supervisory responsibility and punitive measures within the scope of GDPR (ICO, 2017). Without a doubt, the existing Data Protection laws (Data Protection Act 1998) were drafted and enforced before the launch of OAS. As a consequence, CSPs (including OAS vendors) hardly ever had any responsibility for the suitability and significance of the data retained; instead, they were wholly guided by the commercial agreement that ordinarily targeted areas such as maintenance and support (ICO, 2017). With this in mind, CSPs (including OAS vendors) are literally obliged to present assurances of acceptable technical and procedural controls in compliance with GDPR (ICO, 2017). Under these circumstances, the providers of OAS would have to incorporate the objectives of GDPR and provide the means for their software users to install, update and maintain the hardware and software components of the technology effortlessly.

The second implication is related to small businesses adopting OAS having to reconsider their business processes and their workflow in order to fully benefit from using the technology. Firms involved in B2B relationships are owned and/or managed by individuals networking and exchanging commercial information relating to one another, with one another. Data pertaining to sole traders or partners are treated as personal data under the current Data Protection Act (1998); therefore, business data regarding sole traders or partners are to be processed as personal data and not business data (ICO, 2017). In this case, information on credit performances (credit profiling) that relates to sole traders and partners must be treated as personal and not business data. Equally, business data - for example, a business email address that can identify an individual person (such as olamide.osinowo@cybg.co.uk) - is also treated as personal data (ICO, 2017). Without question, consent is one distinctive aspect of GDPR that was subjected to significant reforms. Small businesses that use the principle of “consent” as a premise to process data would have to obtain the customer's (sole traders and partners) permission to opt-in and agree to supply their (sole traders and partners) data for marketing purposes. The customer's consent has to be given voluntarily, explicitly and without ambiguity prior to processing the customer's data for
marketing purposes; unless it is in the legitimate interest of the firm to process the customer's data for marketing purposes (The Direct Marketing Association (UK) Ltd., 2016).

Findings from this study show that modified OAS enabled its users to review the creditworthiness and credit performances of their customers, thereby giving them the advantage of evaluating credit risk based on borrower information. Katerattanakul et al. (2014) stated that firms adopt technology that is compatible with the features and the intrinsic characteristics of the small firm. In other words, the decision to modify OAS (i.e. integrate the standard software with the credit management add-on), in the context of trade credit management, should be based on the implications of GDPR compliance on the credit management activities from setting up the credit policy (terms and conditions) to credit collection. Not only modified OAS users but also standard OAS users will have to reassess their business practices (and procedures) and technological capabilities in order to comply with GDPR's code of conduct, particularly with the opt-in and email marketing guidelines. To sum up, GDPR enforces urgent and coherent compliance responsibilities on the providers of OAS and their small business customers (i.e. standard and modified OAS users); and both providers and consumers of OAS risk serious penalties (fines of up to 4% of global turnover or €20m, whichever is greater) if they breach the GDPR.

7.6 Limitations and Generalisability of the Research Study

This research is constrained by both financial and non-financial resource limitations. Limitations of time, funding and the scope of the study required the researcher to focus on a limited number of objectives. Moreover, the research problem and questions often directly or indirectly involved multiple areas of financial (trade credit) management information systems. Regrettably, time and funding constraints hindered the investigation of these research areas. Also, the researcher attended several small business group meetings, fairs, and exhibitions, but was initially denied access to the target population. Data collection from small businesses is difficult, and therefore, data related to non-financial characteristics in this study were only derived from self-reporting scales and used to measure the degree of use of OAS. The self-rating scale was the only scale attainable to measure the variables involved in
the use of OAS (standard or integrated) due to the fact that SMEs are reluctant to disclose their financial results. This is the case even though it has been criticised for its lack of objectivity. However, the use of subjective measures (self-rating scales) was appropriate in the absence of objective measures, as Dess and Robinson (1984) explained that subjective perceptions of responding firms on performance were coherent with existent performance.

Obtaining data from small businesses is burdensome, and therefore, the limitation of low response rates could not be prevented. In general, since this study excludes B2C firms, a low response rate was anticipated. Not surprisingly, a low response rate was realised; and without delay, the researcher revisited the business networking meetings in order to generate more responses. In as much as differences in non-response rates do not significantly affect survey results (Groves et al., 2006; Rindfuss et al., 2015), the stratified random sampling technique was used as it helps to preserve the value of the unbiased sample regardless of low response rates - producing a more appropriate representative sample of the population. For this reason, inferences can be drawn from the sample and generalised to the population (Zewotir, 1998; Lahaut, 2004; Groves, 2006; Groves et al. 2006). Nonetheless, the researcher did not make assumptions on the existence or non-existence of low response-rate bias, therefore, non-response bias tests were administered to check whether non-response bias was existent. This comparison features the profiles of the early and late responding firms (i.e. the first and last 20% of respondents), and the result failed to signify non-response bias (see page 157). Furthermore, there is no indication of selection bias as no respondent dropped-out of the study, and also, there was no measurement bias introduced as the study generated enough sample. Convincingly, the replication of the results [i.e. the strategic analysis of data using CMAM, the ordinal regression analysis (and the linear regression analysis - see appendix C)] strengthens the argument that inferences from the sample are generalisable to the population (Atkinson and Flint, 2001). Albeit, for the purpose of encouraging and support for the local and private small business development, this study only focuses on trade credit services granted to small businesses within the London and South East region of the UK. It does not capture trade credit services data from international business clients.

There are constraints in connection with the structure and volume of questions in electronic surveys. Furthermore, the study does not clear the way for follow-up questions to examine
inconsistent responses that are evident and/or other areas of research interest. There is the likelihood of the respondents misinterpreting or misunderstanding the questions, and therefore, the responding business owner-managers may have misunderstood or misinterpreted some aspects in the survey due to the large volume of items examined. Additionally, some of the small business owners-managers who may have some biased views as to their trade credit management practices and the use of OAS. Regardless, the results from the strategic analysis using CMAM were identical to those identified from using the ordinal regression analysis in this study. This study indicates that using OAS can help firms to effectively and efficiently manage the flow of credit and suggests that the leading OAS service providers take responsibility for the safety and security of the firms’ accounts data. However, this study could not specify whether the software (standard or modified) were able to save the responding firms the sum of the costs of all their trade credit management activities. These require further research; yet, such extended research was beyond scope of this thesis.

Despite these limitations, this research presents evidence relating to the use of OAS (standard or modified) by the responding UK small businesses, and further information about the exceptional factors that influenced the use of OAS for improving the responding firms’ cash flow position. It is fair to say that this study has made a valuable contribution to research in terms of the use of OAS and it has successfully responded to calls for more research about how new technologies create new possibilities for management accounting by investigating the impact of OAS as a credit management tool on UK small business cash flow.

7.7 Recommendations for Future Research

This study tested the claims of the leading OAS vendors as to the effectiveness of the standard OAS in terms of how this helps to improve a small firm’s cash flow position compared to when this OAS is integrated with the credit management add-on. The study also examined whether the research respondents who integrated the standard OAS with the Automated Credit Management software experienced an improvement in their cash flow situation. The limitations of the study were discussed in section 7.5 above. However, these
limitations support calls for further research to expand and supplement what could not be captured in this research study. CMAM could be applied as the basis for further research on the financial productivity possibilities associated with the match between financial management strategies and the appropriateness of OAS in helping to improve UK small business cash flow and performance.

The findings and conclusions relating to the relationships between small business trade credit management practices, financial management information system characteristics and cash flow performance could be used as the foundation for further research. In the context of WCM policies using OAS, it might be advantageous to examine whether a shorter operating cycle represents the aggressiveness of the firms’ WCM. Therefore, the nature of the dependence between the cost and time spent on credit control and chasing payments after using OAS needs further investigation. In addition to this, the findings that relate to the credit management function of OAS helping to translate small business operations into financial gains without much reliance on accountants could be applied to further research. Such research could examine the extent to which the need for managerial accountants and consultants has dramatically decreased due to the application of this credit management add-on.

The methodological approach and findings relating to the combination of non-parametric statistical techniques and CMAM produced a correlation between the two types of analyses and established linkages between the research parameters. This could lead to further research to investigate the individual functionalities of the credit management add-on. Such research is necessary and important for online financial, and trade credit management practices in the UK and beyond. Lastly, the findings relating to the appropriateness of OAS in ensuring business continuity as a result of the control issues it raises, and the safety and security crises it can possibly create could be used as the basis for specific and detailed research into aspects relating to the safety and security of accounts data. Above all, there is the strong possibility of the existence of heightened global competitiveness in international trade in the next few years. As a consequence, extending the survey to carry out a longitudinal study (reporting changes over time) on the use of the online accounting and credit management software would be an interesting move.
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APPENDICES

A.) THE RESEARCH STUDY’S SURVEY QUESTIONS

THE IMPACT OF ONLINE ACCOUNTING SOFTWARE AS A CREDIT MANAGEMENT TOOL ON UK SMALL BUSINESS CASH FLOW. CARDIFF METROPOLITAN UNIVERSITY, UK.

I am Olamide Osinowo, a PhD student at the London School of Commerce (LSC), London - an associate college of the Cardiff Metropolitan University (CMET), Wales.

This survey is part of a research project examining the possibility of reducing the number of late-paying customers (whilst improving the cash flow situation of UK small businesses), following the addition of an Automated Credit Management add-on to the Online Accounting Software.

This research project is supervised by Prof. Peter Abell of the London School of Economics (LSE), London. The results will be used strictly for academic purposes in the completion of my PhD programme. The questionnaire will take approximately 10 minutes to complete. All responses and any identifiable information provided will be held confidentially and retained for up to three months from the date this survey is completed.

After three months, all identifiable information will have been completely anonymised. All data will be stored on computers that are password protected. Participation in this study is entirely voluntary.

If you choose to participate, you are free to withdraw at any time. This research study has received ethical approval from the School of Management Ethics committee, Cardiff Metropolitan University.

If you have any questions about this research study, please contact Olamide Osinowo at lo402jtjt0212@student.lscLondon.co.uk or Prof. Peter Abell on p_abell@lse.ac.uk.

Thank you very much for participating in this research study.

School of Management, Cardiff Metropolitan University

CONSENT FORM

I understand that my participation in this project will involve completing a questionnaire about the possibility of reducing the number of late-paying customers (whilst improving the cash flow situation of UK small businesses), following the addition of an Automated Credit Management add-on to the Online Accounting Software which will take approximately 10 minutes of my time.

I understand that participation in this study is entirely voluntary and that I can withdraw from the study at any time without giving a reason or discussing my concerns with Olamide Osinowo.

I understand that any identifying information provided by me will be held confidentially, such that only Olamide Osinowo can trace this information back to me individually.

I understand that my data will be anonymised after completing the current survey, and after this point no one will be able to trace my information back to me. The anonymous information will be retained for up to seven years when it will be deleted/destroyed.

I understand that I can ask for the information I provide to be deleted/destroyed at any time up until the data has been anonymised.

If you understand the statements above and freely consent to participate in this study, please tick the consent box below to proceed.

□ consent box
Q1. Which of the following best describes your position in the business enterprise?

*Answer Options*
- The sole owner
- A partner
- Major decision maker

Q2. What is the age of the enterprise?

*Answer Options*
- 1-3 years
- 4-7 years
- 8-10 years
- Over 10 years

Q3. What Industry sector category does your business enterprise fall under?

*Answer Options*
- Manufacturing
- Information Technology
- Business and Support services
- Culture and Entertainment
- Hospitality and/or Cleaning

Q4. Which of the following best describe your business category?

*Answer Options*
- Sole proprietor (no waged employee)
- Micro business (1-9 waged employees)
- Small business (10-49 waged employees)

Q5. What was the turnover of your enterprise during the last financial year?

*Answer Options*
- Less than £100,000
- £100,000 - £250,000
- £250,000 - £500,000
- £500,000 - £1,000,000
- Over £1,000,000

Q6. Have you owned your Online Accounting Software (OAS) for more than 1 year?

*Answer Options*
- Yes
- No
Q7. Do you pay for subscriptions with credit rating agencies for customer credit checks?

**Answer Options**

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

Q8. On a scale of 'Very Inefficient (1)' to 'Very Efficient (5)', please indicate the extent to which the Online Accounting Software (OAS) does the following:

**Answer Options**

<table>
<thead>
<tr>
<th>Very Inefficient (1)</th>
<th>Inefficient (2)</th>
<th>Moderate (3)</th>
<th>Efficient (4)</th>
<th>Very Efficient (5)</th>
</tr>
</thead>
</table>

**i) Financial Framework**
- Provides accurate, reliable and up-to-date financial information
- Adheres to the highest standards of statutory reporting to the Companies House and the HMRC
- Processes financial data in a reliable and understandable way
- Records invoice for orders using standard billing and contract terms
- Calculates tax (including VAT) and interest payments accurately

**ii) Systems Management**
- Provides unlimited, free support on the use the application
- Improves time planning, and procedural skills
- Improves book-keeping & accounting, and payroll skills
- Administers knowledge of the profitability of the business
- Reduces the need for in-house IT expertise

**iii) Systems Integration & Data Recovery**
- Sends invoices to customers quicker and receive payments quicker
- Enables the in-built automated credit control feature to collect payments from customers within 60 days
- Simplifies credit control by chasing payments from customers
- Enables interaction with other banking systems and clearing houses when payments are made
- Enables modifications with other software and systems (e.g. Payment processors, credit management add-on)
- Enables speedy data back up with zero data loss in the event of a network malfunction
- Provides high system uptime as network servers are always available whilst customers’ data is safe

**iv) Resource Utility**
- Enables software accessibility anywhere & at any time, and on a mobile phone
- Enables software suitability and appropriateness to meet business requirements
- Enables real time management of cash flow and credit sales
- Assesses the risk of some business operations
and prediction of future earnings

- Assesses the risk of the safety and security of business financial information against hackers
- Enables simultaneous access and engagement with the Accountant
- Reduces reliance on Traditional Accountants

Q9. Have you INTEGRATED your Online Accounting Software (OAS) with the Automated Credit Management add-on?

**Answer Options**

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

Q10. Have you INTEGRATED your Online Accounting Software (OAS) (with an Automated Credit Management add-on) for more than 1 year?

**Answer Options**

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

Q11. On a scale of 'Very Inefficient (1)' to 'Very Efficient' (5), please indicate the extent to which the INTEGRATED Online Accounting Software (OAS) with the Automated Credit Management add-on does the following:

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Very Inefficient (1)</th>
<th>Inefficient (2)</th>
<th>Moderate (3)</th>
<th>Efficient (4)</th>
<th>Very Efficient (5)</th>
</tr>
</thead>
</table>

i) CREDIT NOTIFICATION AND ARRANGEMENT
- Provides the credit terms and policies on the amount of advanced payment to be collected before delivery, clearly and accurately
- Records the credit terms and policies for charging interest on late-paying customers

ii) CREDIT ANALYSIS (RISK MANAGEMENT)
- Provides the conditions for extending credit and the amount of credit to be given to customers
- Reviews the creditworthiness and credit limits on a real-time basis and at regular intervals
- Provides, identifying potential high-risk customers
- Enables a fast credit approval process
- Eliminates the cost of subscriptions with credit rating agencies

iii) CREDIT SALES ADMINISTRATION
- Provides pricing, discounts for quick payments, and interest-related adjustments accurately
- Provides an up-to-date record of each customer’s charges, payments, and balances due
- Provides the tracking of customers' current and past-due balances to identify delinquent accounts
- Provides readily-accessible information that improves the quality of decision-making

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iv) CREDIT CONTROL
- Prepares various reports including credit hold report, credit limit report for each customer accurately
- Enables credit limits that is assigned to the customer with an expiry or a re-evaluation date
- Provides the option to modify an automatically calculated credit limit with human judgment

v) COLLECTION
- Sends e-mails to customers before the due date for payment
- Sends e-mails to customers at periodic intervals once the due date for payment has lapsed
- Enables the collection of payment(s) on or before the due date - i.e. within 60 days
- Provides reminder emails and follow-up emails before the customer account goes into collection

Q12. To what extent has the...

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Not at all</th>
<th>Low extent</th>
<th>Moderate Extent</th>
<th>High Extent</th>
<th>Very High Extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>i)...STANDARD Online Accounting Software (OAS) effectively helped the firm in realising financial gains?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ii)...Online Accounting Software (OAS) with the INTEGRATED (Automated Credit Management add-on) effectively helped the firm in realising financial gains?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Q13. The following statements are related to the impact of the use of the Online Accounting Software (OAS) on firm’s performance. On a scale of ‘Decreased Significantly’ (1) to ‘Increased Significantly’ (5), to what extent has the use of the Online Accounting Software (OAS) impacted on the:

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Decreased Significantly (1)</th>
<th>Decreased (2)</th>
<th>No Change (3)</th>
<th>Increased (4)</th>
<th>Increased Significantly (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>o Number of Days to process new orders</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Level of sales and revenue</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Number of retained customers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Level of cash inflow from operations</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Sales growth rate</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Business growth rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Level of late payment fees levied on customers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Overdue receivables (outstanding customer debts)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Number of days it takes to receive payments</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Number of late-paying customers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Disputes with defaulting customers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Cost of chasing late payments</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Bad debt write-offs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Use of debt collection agencies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
B.) CRONBACH’S ALPHA’S TEST RESULTS

a. CRONBACH’S ALPHA TEST RESULT

Case Processing Summary

<table>
<thead>
<tr>
<th>Cases</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>191</td>
<td>100.0</td>
</tr>
<tr>
<td>Excludeda</td>
<td>0</td>
<td>.0</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100.0</td>
</tr>
</tbody>
</table>

a. Listwise deletion based on all variables in the procedure

Reliability Statistics

<table>
<thead>
<tr>
<th>Cronbach’s Alpha</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.961</td>
<td>75</td>
</tr>
</tbody>
</table>
C.) RESULTS OF THE USE OF PARAMETRIC TESTS

Histogram plot for the level of Cash Flow Income showing the test for Normality

Statistical test for Skewness (and Kurtosis) on the level of Cash Flow Income and Internal performance.

<table>
<thead>
<tr>
<th>Cash Flow Income (Y)</th>
<th>Statistic</th>
<th>Std. Error</th>
<th>df.</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skewness</td>
<td>-.232</td>
<td>.214</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>-.319</td>
<td>.425</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Kolmogorov-Smirnov</td>
<td>.321</td>
<td>-</td>
<td>128</td>
<td>.000</td>
</tr>
<tr>
<td>Shapiro-Wilk</td>
<td>.764</td>
<td>-</td>
<td>128</td>
<td>.000</td>
</tr>
</tbody>
</table>

Scatterplot and the Normal P-P plots for the level of Cash Flow Income showing the test for Homoscedasticity.
Model Summary of the Level of Cash Flow Income showing the $R$, $R^2$, Adjusted $R^2$, Std. error of the Estimate and Durbin-Watson tests.

<table>
<thead>
<tr>
<th>Model 1</th>
<th>R</th>
<th>$R^2$</th>
<th>Adjusted $R^2$</th>
<th>Std. error of the Estimate</th>
<th>Durbin-Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of Cash Flow Income</td>
<td>.527&lt;sup&gt;a&lt;/sup&gt;</td>
<td>.278</td>
<td>.242</td>
<td>.523</td>
<td>1.393</td>
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</tbody>
</table>

<sup>a</sup> Predictors: (Constant), Int1Yr, X (Mean), LofO, SubCr, Z (Mean), ModOAS

Cash Flow Income model (1) test outcome before mean-centering the variables and removing outliers.

<table>
<thead>
<tr>
<th>coefficients&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Model 1</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t-value</th>
<th>Sig.</th>
<th>Collinearity Statistics</th>
<th>95% Confidence Interval for B</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
<td>Tolerance</td>
<td>VIF</td>
</tr>
<tr>
<td>(Constant)</td>
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<sup>a</sup> Dependent Variable: Y (Cash Flow Income)

$R^2 = .278$, $F (6, 121) = 7.77$, $p < .001 (0.000)$

Cash Flow Income model (1) test outcome after mean-centering the variables and removing outliers.

<table>
<thead>
<tr>
<th>coefficients&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Model 1</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t-value</th>
<th>Sig.</th>
<th>Collinearity Statistics</th>
<th>95% Confidence Interval for B</th>
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</thead>
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<td>Std. Error</td>
<td>Beta</td>
<td></td>
<td>Tolerance</td>
<td>VIF</td>
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<tr>
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<sup>a</sup> Dependent Variable: Y (Cash Flow Income)

$R^2 = .219$, $F (6, 117) = 5.483$, $p < .001 (0.000)$
Statistical test for Skewness (and Kurtosis) on the level of Cash Flow Income and Internal performance after removing outliers and correcting multicollinearity by mean-centering.

<table>
<thead>
<tr>
<th>Cash Flow Income (clean data) (Y)</th>
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<th>Std. Error</th>
<th>df.</th>
<th>Sig.</th>
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<tr>
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<td>-</td>
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<tr>
<td>Kurtosis</td>
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<td>.431</td>
<td>-</td>
<td>-</td>
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<td>Kolmogorov-Smirnov</td>
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<td>-</td>
<td>124</td>
<td>.000</td>
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<tr>
<td>Shapiro-Wilk</td>
<td>.742</td>
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<td>124</td>
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Histogram, Scatterplot and the Normal P-P plots for the level of Cash Flow Income showing the test for Homoscedasticity after removing outliers and correcting multicollinearity by mean-centering.

Statistical test for Skewness (and Kurtosis) on the level of Cash Flow Income after transforming the data using the log base 10 function.

<table>
<thead>
<tr>
<th>Transformed Cash Flow Income (Ylog10)</th>
<th>Statistic</th>
<th>Std. Error</th>
<th>df.</th>
<th>Sig.</th>
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<td>Kolmogorov-Smirnov</td>
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<td>Shapiro-Wilk</td>
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<td>-</td>
<td>124</td>
<td>.000</td>
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Histogram for the level of cash flow income showing the test for Homoscedasticity after the log transformation.

Summary of the Level of Cash Flow Income model 2 showing the R, R², Adjusted R², Std. error of the Estimate and Durbin-Watson tests and before removing outliers.

<table>
<thead>
<tr>
<th>Model 3</th>
<th>R</th>
<th>R²</th>
<th>Adjusted R²</th>
<th>Std. error of the Estimate</th>
<th>Durbin-Watson</th>
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<tbody>
<tr>
<td>Level of Cash Flow Income - 2</td>
<td>.674$^a$</td>
<td>.455</td>
<td>.327</td>
<td>.493</td>
<td>1.635</td>
</tr>
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</table>

a. Predictors: (Constant), xFinFr1, xFF2, xFF3, xFF4, xFF5, xSysMgt1, xSM2, xSM3, xSM4, xSM5, xSysInt1, xSI2, xSI3, xSI4, xSI5, xSI6, xSI7, xResUti1, xRU2, xRU3, xRU4, xRU5, xRU6

Summary of the Level of Cash Flow Income model 2 showing the R, R², Adjusted R², Std. error of the Estimate and Durbin-Watson tests and after removing outliers.

<table>
<thead>
<tr>
<th>Model 3</th>
<th>R</th>
<th>R²</th>
<th>Adjusted R²</th>
<th>Std. error of the Estimate</th>
<th>Durbin-Watson</th>
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<tr>
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a. Predictors: (Constant), xFinFr1, xFF2, xFF3, xFF4, xFF5, xSysMgt1, xSM2, xSM3, xSM4, xSM5, xSysInt1, xSI2, xSI3, xSI4, xSI5, xSI6, xSI7, xResUti1, xRU2, xRU3, xRU4, xRU5, xRU6
Linear regression analysis relating to the components of the standard OAS measured by the level of Cash Flow Income before removing outliers.

<table>
<thead>
<tr>
<th>Cash Flow Model 2</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t-value</th>
<th>Sig.</th>
<th>Collinearity Statistics</th>
<th>95% Confidence Interval for B</th>
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</thead>
<tbody>
<tr>
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<td>Std. Error</td>
<td>Beta</td>
<td></td>
<td>Toler.</td>
<td>VIF</td>
</tr>
<tr>
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</table>

a. Dependent Variable: Y

\( R^2 = .455, F (24,127) = 3.576, p < .05 (0.000) \)
Linear regression analysis relating to the components of the standard OAS measured by the level of Cash Flow Income after removing outliers.

<table>
<thead>
<tr>
<th>Cash Flow Model 2</th>
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<td></td>
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<td>Std. Error</td>
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<td>.483</td>
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</tbody>
</table>

a. Dependent Variable: Y

R² = .470, F (24, 123) = 3.651, p < .05 (0.000)