ADDRESSING SOME OF THE CHALLENGES FACED BY SMALL AND MEDIUM-SIZED ENTITIES DURING THE SELECTION AND IMPLEMENTATION OF ACCOUNTING SOFTWARE PACKAGES

by

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DECLARATION

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ABSTRACT

Alignment between an entity's strategic business objectives and its information system (IS) has been a popular research area over the last couple of years. There is a considerable amount of literature on how to solve this alignment issue in larger entities, but limited research is available on the challenges that small and medium-sized entities (SMEs) face when having to align their strategic business objectives with their ISs. Various small generic accounting software packages are available for purchase by SMEs. These accounting packages all have functionalities that enable SMEs to keep proper accounting records; however, due to their generic nature, these accounting packages do not always have sufficient functionalities to drive the SMEs' strategic business objectives, resulting in IS misalignment.

Newly established SMEs face the challenge of both selecting the correct accounting software package at the start of their establishment and proper implementation of the selected package. The same challenge is faced by growing SMEs that are planning to replace, improve or expand their current accounting software. Not selecting the correct accounting software package and not managing the package installation and configuration processes properly will result in the accounting software not addressing the strategic business needs of the SME. These are two of the main reasons why small generic accounting software packages often fail to drive the entire business system of SMEs.

The purpose of this research assignment was to review and discuss the two main challenges faced by SMEs when selecting and implementing generic accounting packages. The purpose was further to develop a mapping between strategic business objectives commonly found within SMEs and software package functionalities that SMEs can refer to during the selection and implementation of new accounting software packages. It also examined the potential of (PRINCE2) Projects in Controlled Environments as a project-management framework for application by SMEs during the implementation of new accounting software.

A non-empirical approach was followed throughout this assignment, whereby a literature review was performed on strategic alignment issues faced by SMEs, the

strategic business objectives of SMEs, the functionalities required for strategic alignment within SMEs and the tailoring potential of PRINCE2.

It was found that in order for an SME to select the correct accounting software package, it is important that it invests time and effort in considering the software functionalities provided by the software package and maps it against its strategic business drivers to prevent failure of the package. It was further concluded that the level of innovation the SME strives towards has a direct impact on the software package functionality requirement.

PRINCE2 was found to be a suitable framework for use by SMEs in the implementation of accounting software packages only if tailored properly to incorporate the specific needs of the SME and adjusted to specifically address strategic alignment issues.

OPSOMMING

Die belyning van 'n entiteit se strategiese besigheidsdoelwitte en inligtingstelsel is reeds vir etlike jare 'n gewilde navorsingsonderwerp. Baie is al geskryf oor hoe om hierdie belyningskwessie by groter entiteite op te los, maar beperkte navorsing is beskikbaar oor die uitdagings wat klein en medium-grootte entiteite (KME's) in die gesig staar wanneer hul strategiese doelwitte met hul inligtingstelsels in lyn gestel moet word. Verskeie klein generiese rekeningkundige sagtewarepakkette is vir aankope deur KME's beskikbaar. Hierdie rekeningkundige pakkette het almal funksionaliteite wat KME's in staat stel om behoorlike rekeningkundige rekords by te hou, maar as gevolg van hul generiese aard, het hierdie pakkette nie altyd genoegsame funksionaliteite om die strategiese besigheidsdoelwitte van die KME te dryf nie, en gevolglik lei dit tot wanbelyning.

Nuutgestigte KME's staar twee uitdagings in die gesig, naamlik dat die korrekte rekeningkundige sagtewarepakket tydens die beginstadium van die KME gekies moet word, asook om behoorlike implementering van die sagtewarepakket te bewerkstellig. Hierdie uitdagings word ook deur groeiende KME's wat beplan om hul huidige rekeningkundige sagtewarepakkette te vervang, te verbeter of uit te brei in die gesig gestaar. Die keuse van die verkeerde rekeningkundige sagtewarepakket en wanbestuur van die installasie- en konfigurasieprosesse kan daartoe bydra dat die rekeningkundige sagteware nie in die strategiese besigheidsbehoeftes van die KME voorsien nie. Hierdie is twee van die hoofredes waarom klein generiese rekeningkundige sagtewarepakkette dikwels nie daarin slaag om die besigheidstelsels van KME's behoorlik te dryf nie.

Die doel van hierdie navorsing was om die twee hoofuitdagings wat KME's in die gesig staar wanneer generiese rekeningkundige pakkette geselekteer en implementeer word, te ondersoek en te bespreek. Die doel was verder om 'n kartering tussen strategiese besigheidsdoelwitte, wat algemeen op KME's van toepassing is, en sagtewarepakket funksionaliteite te ontwikkel waarna KME's kan verwys gedurende die selektering en implementering van nuwe rekeningkundige sagtewarepakkette. Die potensiaal van (PRINCE2) Projects in Controlled Environments as 'n

projekbestuursraamwerk vir toepassing deur KME's gedurende die implementering van nuwe rekeningkundige sagteware is ook geëvalueer.

'n Nie-empiriese benadering is deurgaans in hierdie navorsingsopdrag gevolg waartydens 'n literatuurstudie gedoen is oor die strategiese belyningskwessies van KME's, die strategiese doelstellings van KME's, die funksionaliteite benodig vir strategiese belyning van KME's en die aanpassingspotensiaal van PRINCE2.

Daar is gevind dat ten einde die sukses van sagtewarepakkette te verseker, dit vir KME's belangrik is om genoeg tyd en moeite tydens die oorweging van sagtewarefunksionaliteite van sagtewarepakkette aan te wend en ook om dit met strategiese besigheidsdoelwitte te vergelyk ten einde die korrekte rekeningkundige sagtewarepakket te kies. Daar is verder tot die slotsom gekom dat die vlak van vernuwing waarna 'n KME streef 'n direkte uitwerking op die verlangde funksionaliteite van die sagtewarepakket het.

PRINCE2 is as 'n geskikte raamwerk vir gebruik deur KME's tydens die implementering van rekeningkundige sagtewarepakkette geklassifiseer, mits die raamwerk behoorlik aangepas word vir KME-spesifieke behoeftes en om strategiese belyningskwessies aan te pak.

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CHAPTER 1
INTRODUCTION

1.1 Background

Implementing a new accounting information system (IS) for a business is a costly process that requires considerable time and skills. Hedtke (2007) explains how various small accounting packages have everything that small and medium-sized entities (SMEs) require to operate successfully. These smaller accounting packages are generally more affordable, easy to set-up and user-friendly. According to research done by Azyabi, Fisher, Tanner & Gao (2014), SMEs in developing countries are more likely to make use of non-expensive software with ease-of-use platforms. Furthermore, SMEs generally prefer to purchase and install generic accounting packages and use them to manage their entire business operations rather than developing their own customised packages due to capacity constraints and costs, as well as the time and information technology (IT) skills that may be required (Blili & Raymond, 1993). In a survey conducted by Temtime, Chinyoka and Shunda (2003) it was found that word-processing systems are used the most by SMEs, followed by accounting packages and spreadsheets.

Many authors, such as Davenport (1998), have mentioned the importance of aligning accounting package functionalities with the business objectives, specifically on a strategic level. The functionalities of most small accounting packages are mostly limited and generic and require low costs to maintain (Temtime *et al.*, 2003). As a result, it might have all the functionalities for a proper accounting system, but may fail to provide functionalities that successfully manage the entire business system and succeed in reaching the strategic goals of SMEs. Davenport (1998) explains how companies fail to align their business and IT needs, resulting in business system failure. Instead of focusing on aligning the business system objectives with the accounting package, many companies instead focus on fitting the business system into the accounting package. From the view of SMEs, this might be due to smaller firms having fewer skilled IT personnel who also have a good understanding of the business, employed to assist with strategic alignment (Cragg, King & Hussin, 2002).

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This results in the accounting package not being suitable for the management of the entity's entire business operations and failing to manage and deliver the required outputs the business requires.

Others further argue that in-house customisation of purchased accounting software packages is required to ensure that business strategies are managed and controlled by the same package (Olsen & Sætre, 2007).

Newly established SMEs face the challenge of selecting the correct accounting software package at the start of their business as well as the proper implementation of such package. This challenge is also faced by current SMEs planning to replace or expand their current software. Part of this challenge for SMEs is to successfully map their business strategies at a strategic level with the functionalities of the considered generic accounting package before purchasing and implementing the software. This is to ensure that alignment of the considered accounting package and the business strategies will be possible. This process will identify areas where potential customisation during the implementation of the software might be required. During the accounting software-implementation process, software functionalities should therefore be properly aligned with the key business strategies to prevent future failure.

During the implementation of the new accounting software packages, proper project-management tools are also very important in order for the accounting package to be properly installed and for it to operate as a business system for SMEs. It was found that project-management tools are rarely used by smaller companies on smaller projects (Turner, Ledwith & Kelly, 2009). A lack of control over the implementation of accounting packages is another reason why small accounting packages fail to manage and deliver the required outputs for the business. Kruger and Rudman (2013) addressed how a framework such as (PRINCE2) Projects in Controlled Environments can be used to align the implementation of an accounting software package with a business's strategies. PRINCE2 is a framework suitable for project management, but focuses mainly on large implementation projects. The need therefore arose for a framework for smaller projects that can be used by SMEs during the implementation of small accounting packages to ensure alignment of business strategies with the accounting package functionalities.

1.2 Research problem

The alignment of strategic business drivers and software functionalities is a common problem when it comes to the implementation of new ISs. This problem is also a reality of SMEs; however, limited research is available on the strategic alignment of ISs within SMEs.

This research focused on two main constraints of successful strategic alignment of ISs within SMEs:

- The first main problem is that SMEs implement generic accounting packages that do not provide all the functionalities that are required to achieve the entities' business strategies. Insufficient time and effort are invested by SMEs in the identification of their key business strategies and aligning them with the accounting systems they are considering implementing. It is essential for SMEs to spend the necessary time and resources in identifying accounting software packages that have the operational functionalities that will specifically address the key strategic drivers of the SMEs, before implementation.

  However, this seldom happens within SMEs, as can be seen from the results of this research. Consequently, SMEs tend to install accounting software packages that do not have the operational functionalities to provide the required outputs for the business and fail to manage and drive their entire business operations. This results in accounting software package failure and may result in the accounting package having to be replaced in the future. Many publications are available on addressing strategic IS alignment in general, but little is available that specifically focuses on guidance for SMEs. This research partly focused on addressing the challenges SMEs face when it comes to aligning their key business strategies with their accounting software systems.

- The second main problem entities face when implementing new accounting software is failure to follow a controlled implementation approach. Many publications focus on the consequent failure of ISs if proper project-management

principles are not followed. Reasons for failure include risks that are not identified and addressed during the implementation phase, software not working as desired and strategic alignment not reached. This further leads to the accounting package not being configured properly and not operating in a way that enables the business to successfully manage its business system.

Many project-management frameworks are available and research has shown that following project-management frameworks in the implementation of ISs contributes to strategic alignment and addressing project risk. Little research is however available on specifically addressing additional challenges faced by SMEs when it comes to project management. Most frameworks that are available for project management are suitable for application by larger entities, but not suitable for use by SMEs. Reasons include additional challenges such as the complexity of frameworks, their generic nature and time constraints. This research identified the options available to SMEs to overcome these additional challenges when selecting a project-management framework.

1.3 Research objective and scope

The objectives of this research were, firstly, to investigate the strategic business drivers found within the business models of most SMEs and to identify accounting software functionalities that will be required to attain these strategic business drivers and to do a mapping between these functionalities and drivers. This mapping highlighted required functionalities that are critical in the attainment of business strategies, but which might not be available from small generic accounting software packages. Accounting packages are becoming more and more important within the ISs of SMEs (Ismail & King, 2007). Therefore, this is a valuable exercise to do for all SMEs implementing new accounting software packages, as this mapping will assist SMEs in preventing the implementation of incorrect accounting software that will ultimately lead to software failure.

The above-mentioned mapping highlighted the strategic business areas that, if not addressed by the generic functionalities of small accounting packages, ultimately lead

to failure of the business system. By identifying the business areas for which the accounting package will not be able to provide functionality, SMEs will be able to map the business requirements to the functionalities provided by the accounting package and address the shortcomings before implementation to prevent future failure.

It is important to note that during this research, not all possible strategic business drivers were considered and discussed. Only some of the strategic business drivers that were found to be most commonly relevant to SMEs were selected, and they do not cover the entire spectrum of strategic business drivers. Due to the difference in nature between entities, all have different and unique combinations of strategic business drivers. The purpose of discussing these strategic business drivers was to provide management of SMEs with an overview of the results of misaligned software functionalities and their drivers.

Secondly, this research further focused on investigating project-management frameworks available to SMEs in the implementation of new accounting software packages. The objectives were to review the PRINCE2 project-management framework for its ability to be applied by SMEs and to develop a tailored version of the framework that can be used by SMEs during the implementation of small accounting packages in order to prevent future failure of the accounting system implemented. This tailored version focuses specifically on the challenges SMEs are facing during the implementation process of new ISs.

It is important to note that this tailored version of PRINCE2 addresses general SME challenges and does not focus on one specific section within SMEs. It might therefore be necessary for this version to undergo further tailoring by the SME using it in order for it to address the specific challenges of the SME. It aims to provide SMEs with an already tailored version that will reduce the time they have to spend on the required tailoring of the framework.

1.4 Research methodology

A non-empirical approach was followed throughout this research. A literature review was conducted on various areas of the research problem by inspecting peer-reviewed and non-peer-reviewed academic articles, published conference papers, theses and dissertations, white papers, popular articles, academic books and published frameworks.

Strategic alignment was firstly investigated by means of a literature review. During this review, specific focus was placed on defining strategic alignment and its implementation complications, furthered by its relevancy to SMEs.

In order to provide SMEs with an organised mapping between strategic business drivers and software functionalities, the following methodology was followed:

- A literature review was performed on the strategic business drivers commonly found within SMEs.
- The functionalities that might be required by an IS in order for an SME to successfully attain each of the identified strategic business drivers were identified through a further literature review on case studies performed by different authors. For each of the business imperatives identified, an explanation is provided as to why small accounting packages might not have the functionalities to fulfil the strategic business requirement.
- Information on small generic software packages was inspected and available functionalities were identified.
- For each of the strategic business drivers and functionalities requirements, reasons are provided as to why it is important to have this functionality.
- Examples of potential failure are also provided should the accounting package be installed without the required functionalities.
- A mapping was performed between the strategic business drivers and the software functionalities that will be required by the small accounting package in order to attain these strategies.

In order to provide SMEs with a tailored version of PRINCE2 that can be used, after minor tailoring, in the implementation of their accounting software package, the following methodology was followed:

- A literature review was performed on PRINCE2 as a project-management framework and an overview is provided of the key processes and activities that are required when following this framework during project management.
- The literature review was expanded by looking into the potential of PRINCE2 to be scaled down (tailored) in order for it to be applied by SMEs.
- Based on the results of the literature review on the tailoring potential of PRINCE2, tailoring was done on the PRINCE2 framework in such a way that it is suitable for SMEs to use in the management of smaller projects, bearing in mind that minor tailoring might still be required to address specific project requirements.
- Due to this research assignment also focusing on the alignment of strategic business drivers and software functionalities within SMEs, recommendations on weaknesses and shortcomings of the PRINCE2 framework when using it for the implementation of software were also researched by performing a further literature review.
- The above-mentioned recommendations on weaknesses and shortcomings of PRINCE2 were scrutinised and filtered for possible inclusion in the tailored version of PRINCE2 developed through this research.
- A final tailored version of PRINCE2 was developed that can be used by SMEs in the implementation of accounting software as a business system. This tailored version was developed by incorporating the results of the above-mentioned literature review.

1.5 Research components

This research assignment is divided into the following chapters:

Chapter 2: Literature review

This chapter focuses on explaining the types of entities that are covered under the category SME and which were included in this research assignment. The chapter also reports on a literature review on strategic alignment in general and the importance of strategic alignment within SMEs.

Chapter 3: Mapping of business imperatives with accounting software functionalities

This chapter reports on a literature review on the software problems SMEs are currently facing. It elaborates on the investigation of strategic business drivers commonly applicable to SMEs and develops a mapping between software functionalities and strategic business drivers of SMEs.

Chapter 4: PRINCE2 tailored for application by SMEs during accounting software implementation

In this chapter PRINCE2 as a project-management framework is reviewed and tailored for use by SMEs in the implementation of accounting software packages. Special attention is given to the requirements of reaching strategic alignment when using PRINCE2.

Chapter 5: Conclusion

An overview of the research assignment is provided in this chapter. It focuses on the conclusions made in chapters 2, 3 and 4, brings them together and addresses the main research problem of strategic alignment within SMEs.

CHAPTER 2
LITERATURE REVIEW

2.1 Introduction

Proper alignment of an entity's business strategies with its IT strategies is a necessity for entities to maintain a competitive advantage (Avison, Jones, Powell & Wilson, 2004) and to increase performance (Ismail & King, 2007). A study conducted by Cragg *et al.* (2002) has concluded that small businesses that have strategic alignment perform better than businesses that do not. Other studies also found that entities tend to perform better when their ISs are aligned with their business strategies (Ismail & King, 2007). It must be noted, however, that the operational environment of SMEs is very different from others and that the level of strategic alignment required for an SME might differ between different SMEs (Temtime *et al.*, 2003). In a study conducted by Temtime *et al.* (2003:233) it was found that "SMEs tend to focus more on operational planning activities than on strategic planning activities".

This chapter focuses on the principles behind IS strategic alignment and its relevancy to SMEs.

2.2 Information system strategic alignment

Strategic alignment is found when the IS of an entity is sufficient to drive the business processes and simultaneously attain the strategic goals of the entity (Smit, 2009). For strategic alignment to occur, it is critical that the strategic business drivers (also known as business imperatives) of an entity are identified and aligned with the IS of the entity.

2.2.1 Business imperatives and basic business assumptions

According to Goosen and Rudman (2013) it is important to understand the difference between business imperatives and basic business assumptions for sufficient alignment:

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- *Business imperatives*: Kruger (2012) described business imperatives as those strategic objectives of an entity that are crucial for the entity to succeed. Strategic objectives necessary for an entity to achieve a competitive advantage above other entities are seen as its business imperatives (Goosen & Rudman, 2013). Business imperatives can therefore be defined as those drivers of a business that enables the entity to attain its strategic goals and objectives. Due to each business having its own goals, business imperatives are therefor also unique to each business (Sahd & Rudman, 2013).

- *Basic business assumptions*: The objectives of an entity that are required for an entity to operate on a daily basis are seen as its basic business assumptions (Goosen & Rudman, 2013). These assumptions will not be sufficient for an entity to achieve a competitive advantage, but are necessary for an entity to operate as it should on a daily basis. These assumptions include *inter alia* accounting transactions, cash flow transactions, human resource and payroll transactions and transactions of all other business cycles (Boshoff, 2014).

2.2.2 Information technology architecture

For strategic alignment to be obtained, it is necessary that the IS of an entity drives both the basic business assumptions and the business imperatives of the entity. For this to be done, the business processes of an entity need to be properly managed by the IT set out in the IT architecture of the entity (Boshoff, 2014).

The IT architecture of an entity is a design that illustrates the requirements and specifications of the IT structure needed to align IT with the entity's business assumptions and business imperatives. Included in this architecture is the software application programs that will be installed. These software programs will have to be properly aligned with the basic business assumption requirements as well as the business imperative IT requirements in order to properly assist with alignment (Boshoff, 2014).

2.2.3 Business system for purposes of this research assignment

Olugbode, Elbeltagi, Simmons and Biss (2008:11) describe a business system as all the tools, techniques and procedures that have to be used by an entity for data processing. The business processes of an entity include the processes that will be in place to manage both the basic business assumptions of an entity and its business imperatives. As a result, the IT architecture as discussed above sets out the IT requirements of an entity that will ultimately drive all the business processes of an entity. In this study, this is referred to as the 'business system' of a business.

2.2.4 Issue of alignment

In order for the IT architecture of an entity to successfully include all the IT requirements, it is important that the business system be properly aligned with its IT architecture (Boshoff, 2014). To support this, research conducted by Levy & Powell, (2004) has shown that proper alignment between IT, business structures and processes and business strategies is very important for entities to succeed. During the process of alignment, business strategies are determined by the owners or top management. The business model and business processes are then built around these business strategies. In order for these business models and processes to be properly implemented, the IT personnel building the IT architecture will have to have sufficient knowledge of the business model and processes required (Levy & Powell, 2004).

It often happens that the owners and top management do not have sufficient knowledge of or experience or interest in ISs (Levy, Powell & Yetton, 2001). Further to this, IT personnel do not always have sufficient knowledge of the business model and processes (Kruger, 2011). This results in the IT architecture, designed by the IS personnel, not being designed to address all the areas of the business system, especially the business imperatives. This creates an issue of alignment that ultimately leads to business system failure.

Figure 2.1 below illustrates the business system and the issue of alignment.

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                    ┌─────────────────────────────────────┐
                    │         IT architecture             │
                    └─────────────────────────────────────┘
    ┌──────────────────────┐                    ▲
    │  Issue of alignment  ──▶                  ┆
    └──────────────────────┘                    ▼
         ┌──────────────────────────────────────────┐
         │   Business processes (business system)   │
         └──────────────────────────────────────────┘
            ▲                              ▲
           ╱                                ╲
    ┌──────────────────────┐      ┌──────────────────────┐
    │ Basic business       │      │ Business imperatives │
    │ assumptions          │      │                      │
    └──────────────────────┘      └──────────────────────┘
            ▲                              ▲
            │                              │
    ┌──────────────────────┐      ┌──────────────────────┐
    │ Basic operation      │      │ Strategic business   │
    │ requirements         │      │ drivers              │
    └──────────────────────┘      └──────────────────────┘
```
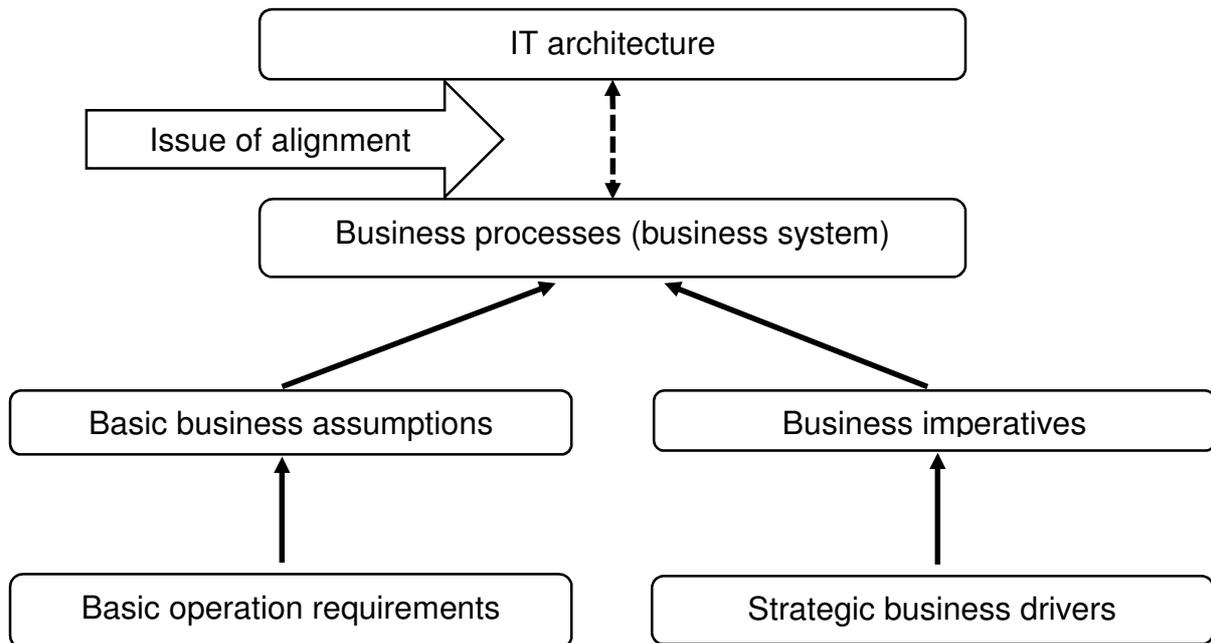
Figure 2.1: Illustration of a business system and the issue of alignment

2.3 Business system failure

Management of SMEs are normally the decision makers and involved in the implementation decisions of new software. Their IT knowledge will therefore contribute to the success or failure of the implementation process (Ismail & King, 2007). It is often found that new technologies and software that are implemented fail before completion or are not in line with the expectations of top management (Griffith, Zammuto & Aiman-Smith, 1999). Whenever the IS of an entity fails to provide the outputs required by the user or does not function as required, it can be seen as IS failure (Dwivedi *et al.*, 2015), ultimately leading to business system failure.

Accounting software packages form a key part in the IT architecture of SMEs and are also widely used by SMEs (Temtime *et al.*, 2003). Many SMEs use accounting software packages to manage their entire business system. Managers of SMEs might also increasingly rely on management information provided by accounting software packages to assist them in their decision-making processes. Therefore, in situations

where SMEs use accounting software packages to manage their business system, failure of the package to attain business imperatives will result in SMEs losing their competitive advantage and in the accounting package failing the businesses.

SMEs are struggling with aligning their application software packages with their business imperatives (Olatokun & Kebonye, 2010; Webb & Schlemmer, 2006). A study by Ismail and King (2007) on manufacturing SMEs in Malaysia indicated that the level of IT sophistication together with the IT knowledge of SME owners and management influences the capability of alignment and ultimately plays a role in business system failure.

The constraints of small accounting packages contributing to difficulty to align them with an entity's business imperatives include the limited functionalities they might have, as well as the level of customisation that is available on the software packages.

The following different types of software packages are available (Broida & Flora, 2015):

- Generic software packages that are closed for any customisation requirements
- Generic software packages with availability for customisation, usually limited
- Custom-designed software packages.

2.4 Strategic alignment and small and medium-sized entities

2.4.1 The scope of small and medium-sized entities

Literature reviewed during this research varied on what was regarded as SMEs. The discussion below consequently provides information on the scope of SMEs that were included in this research assignment:

- In the study by Ismail and King (2007) on Malaysian manufacturing firms, they define SMEs as entities with employee numbers varying between 20 and 150 employees. They mention that the most common SME indicator found by them

was the number of employees, as internationally they found that not all SMEs are willing to disclose financial information.

- When considering the guidelines of South Africa's National Small Business Act (Act No. 102 of 1996), as cited by Kyobe (2004), entities with employee numbers of fewer than 100 are categorised as small or medium-sized entities. This was also the threshold Kyobe (2004) placed on the entities that were included in his research. He further narrowed his sample by looking at revenue numbers and asset values.

- In research conducted by Wynn (2009), the criteria of the Commission of the European Communities were used to select his sample. Accordingly, entities with no more than 250 employees, turnover levels at a maximum of 40 million euros per annum and annual asset values of a maximum of 27 million euros were defined as SMEs.

- SMEs that have adopted e-commerce technology in Botswana were researched by Olatokun and Kebonye (2010) and they varied in employee numbers of between 1 and 99 employees. A total of 120 SMEs were included in this research. These same criteria were also followed by Temtime *et al.* (2003) in a study on the strategic use of ISs in developing countries.

- In a study on small IT companies, Webb and Schlemmer (2006) followed the same criteria of the Commission of the European Communities by limiting SMEs included in their study to those with 250 employees. Their study was narrowed by only researching SMEs that were making use of online selling platforms.

In conclusion, SMEs covered in this research assignment are entities with one or more of the following characteristics:

- Owner involvement at operational and decision-making level
- Entities with a limited number of employees, and not exceeding 250
- Low turnover levels
- Low asset values.

2.4.2 The importance of strategic alignment for small and medium-sized entities

SMEs provide the foundation of economies worldwide. Their contribution towards development in developing countries is exceptional (Amoako, 2013). In South Africa specifically, SMEs play an important role in poverty reduction and economy restructuring (Malefane, 2013). SMEs are seen as the force that drives the European Union economy (Matejun, 2014). It is also important to note that the issues SMEs have to deal with are in many aspects different to that of larger entities. SMEs are normally more owner-involved and strategies are developed from an owner's entrepreneurial perspective. They tend to have limited available financial and labour resources (Blili & Raymond, 1993).

Many SMEs are therefore still finding themselves in the middle of deciding whether to continue with purchasing add-on software and software expansions as their business grow or to invest in more sophisticated IT infrastructure due to the limited financial and staff resources available. Not investing in proper IT infrastructure results in SMEs having to deal with non-integration problems, insufficient information for management decision-making purposes and inability to effectively compete with other SMEs, especially those that are investing in e-business opportunities (Wynn, 2009).

Levy *et al.* (2001) found that SMEs are becoming more willing to invest in the development of their ISs in order to add value as the financial resources required to invest in ISs decrease. SMEs also tend to be sceptical about investing in system replacement due to the cost involved (Wynn, 2009). SMEs that are finding themselves in a growing phase are often required to replace or enlarge their ISs, as the original installed packages are not able to handle this growth. SMEs are sceptical of these types of investments (Levy & Powell, 2004). Good customer relations are one of the features that enables growth within SMEs. It is therefore very important that the ISs implemented by SMEs are contributing to and maintaining good customer relations (Levy & Powell, 2004). SMEs' investment patterns are also influenced by the strategies that they strive towards. Investment in ISs increases as the need to add value increases, while investment decreases among SMEs where cost-reduction

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strategies are present (Levy *et al.*, 2001). A study conducted by Kyobe (2004) on SMEs in the eastern Free State province and part of the KwaZulu-Natal province of South Africa showed that some SMEs are using IT in an attempt to lower costs and improve their customer service. However, many managers are still not using IT strategically in reaching business imperatives. Examples are using IT to encourage innovation, linking systems to suppliers and product differentiation (Kyobe, 2004). It has long been seen that SMEs benefit from strategic alignment and IT development provides SMEs with the ability to be more innovative and as a result benefit competitively from it (Blili & Raymond, 1993).

2.4.3 Issues of strategic alignment within small and medium-sized entities

Due to the owners of SMEs often being the key decision makers of the SMEs, they are the people that need to identify and drive the need for ISs. As discussed earlier in this assignment, owner involvement in IS implementation is critical for proper alignment between the business system and IS architecture. Having the owner involved in this process contributes to better alignment (Levy & Powell, 2004).

As mentioned before, owners of SMEs do not always have sufficient knowledge of IT, thereby constraining the issue of alignment. In addition, many SMEs do not have their own IT department and have to rely on IT consultants (Levy & Powell, 2004). The challenge for SMEs in this respect is to use IT consultants that are highly skilled and specialised in their field, but also understand the business model and strategies of the specific SME. It is therefore critical for owners of SMEs to make use of professional, skilled IT consultants when aligning the IT architecture with their business system.

At the time of this research, SMEs were still struggling with the proper alignment of IT architecture with their business systems (Kyobe, Namirembe & Shongwe, 2015). Figure 2.2 illustrates some of the positive and negative influences SMEs are facing when implementing new software.

Positive influences		Negative influences
External		**External**
Knowledgeable consultant/vendor		Inexperienced consultant/vendor
Perceived benefit	Successful IS/IT adoption and use	Competitor pressure
Customer pressure		**Internal**
Internal		Less knowledgeable owners
Knowledgeable owners, users and managers		IT led by financial director
High IT skills		Limited financial resources
Previous success with IS adoption		Time constraints
		Limited IT knowledge among staff
		Limited effort

Figure 2.2: Positive and negative influences of information system adoption in SMEs (adapted from Levy & Powell, 2004:47)

2.5 Conclusion

It can be concluded that strategic alignment is very important for SMEs to attain a competitive advantage in the industry and to prevent their ISs from failure. The challenges faced by SMEs include correct alignment of their IT architecture with their business model and processes. Knowledgeable individuals are to be involved in this alignment process and alignment should be embraced by the owners of SMEs.

In order for SMEs to successfully align their IT architecture with their business model and processes, business imperatives need to be clearly identified and aligned with software applications included in the IT architecture. This whole process should be properly managed and controlled so that the requirements of management are reflected by the implemented IS.

CHAPTER 3
MAPPING OF BUSINESS IMPERATIVES WITH ACCOUNTING SOFTWARE FUNCTIONALITIES

3.1 Introduction

In a study conducted by Pulakanam and Suraweera (2010), it was found that SMEs are often in a position where the accounting package implemented does not meet their requirements. In order to prevent failure of accounting software used by SMEs as their business system, it is important that these accounting software packages, and specifically the functionalities they provide, are properly mapped to the business imperatives of the specific SME. Accounting software packages should only be purchased if the functionalities that they provide meet the needs of the SME.

Software integration problems are experienced by SMEs (Pulakanam & Suraweera, 2010). It happens, for example, that SMEs have developed websites that are not integrated with their accounting software (Levy *et al.*, 2001). SMEs are starting to use web-based software applications more often due to these being easy to use and available at more affordable prices (Azyabi *et al.*, 2014). When websites are used to drive a large portion of the (if not the entire) business, it is critical that transactions captured on the websites are sufficiently integrated with the processing thereof. Compatibility and integration of accounting software with websites are critical for these types of SMEs to prevent the business system from failing in the delivery of required information. Furthermore, when purchasing and implementing accounting software, it is often seen that SMEs invest in software that brings improved production, but lacks integration with the accounting software (Levy *et al.*, 2001).

A literature review on business imperatives, commonly seen to be strived towards by SMEs, was conducted to determine the focus of this study.

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3.2 Business imperatives of SMEs

Cragg *et al.* (2002:114) investigated nine potential business strategies applicable to SMEs to identify the level of importance these strategies had for the firms and also whether these strategies were supported by the IT system of the firms. Production efficiency, quality service and quality product were identified as the most important strategies for SMEs and were also found to be mostly supported by the IT systems of the firms, while product differentiation, new markets and product diversification were identified to be strategies SMEs view as important, but that were not supported sufficiently by their IT systems and consequently resulted in IT misalignment (Cragg *et al.*, 2002:124). As a result, efficiency, quality service/product, product differentiation, diversification and innovation were selected as part of the business imperatives investigated during this research. Further to these, low cost, mobility, pro-active management, de-skilled workforce and customer-centric were also investigated due to its relevance to SMEs as discussed later in this chapter.

It is also said that SMEs with business strategies of either low cost or value adding tend to be more successful in the investment of their ISs. Low-cost strategies are typically followed by SMEs where ISs do not play a large role in the business and where the owner's IT knowledge is mostly limited. Accounting software in these SMEs are mainly used for transaction processing. SMEs striving towards a more value-adding approach are seen to be more innovative in their IT investment with greater focus on the availability of information used by management for decision making (Levy *et al.*, 2001).

The focus-dominance model was developed by Levy *et al.* in 2001, after analysing 27 SMEs. This model concludes that SMEs' business imperatives strongly influence the software that SMEs invest in or have to invest in. The business imperative identified by this model that affects SMEs is a low-cost approach versus the delivery of value-adding services. It is illustrated by this model that the number of customers is also a contributing factor to the level of software investment by SMEs (Levy *et al.*, 2001). Four different competitive environments were further identified by taking the level of business imperative focus and number of customers into account. These are efficiency, coordination, collaboration and innovation.

The figure below illustrates how software investment is influenced by the business imperatives and number of customers of SMEs.

		Coordination	Innovation
Customer dominance	**Low**	Word processing Accounting Customer databases	Word processing Accounting Electronic business
	High	Word processing Accounting	Word processing Accounting Materials requirements planning Electronic data interchange
		Efficiency	**Collaboration**

Cost   Value added

Strategic focus

Figure 3.1: Information systems mapped in accordance with the focus-dominance model (Levy *et al.*, 2001:136)

The model above was partially used as a framework during this research for the discussion of business imperatives (see Section 3.4), in identifying the key required accounting software functionalities based on the positioning of an SME in this model.

Features of the focus-dominance model

SMEs finding themselves in the efficiency quadrant view investment in software as a cost rather than an investment and strive to keep cost as low as possible. These SMEs are focused on improving the efficiency of their business processes (including the use of word-processing systems and accounting software) in order to service the higher customer demand (Levy *et al.*, 2001).

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In the coordination quadrant, SMEs focus highly on the maintenance of their customer relationships. Therefore, the communication between the SMEs and their customers becomes rather important, and as a result, the IT architecture is the driver of effective communication. Low cost is however also a very important factor in this quadrant (Levy *et al.*, 2001).

The collaboration quadrant is where SMEs focus on cost-effectiveness rather than low cost. Data exchanges between these SMEs and customers are found and therefore software is used in a more sophisticated manner. These SMEs strive to add value through their software investments by generating appropriate information for communication with customers (Levy *et al.*, 2001).

The software of SMEs in the innovation quadrant plays an integral part in the attainment of their business imperatives. These SMSs are very often found in the electronic business environment (Levy *et al.*, 2001).

3.3 Functionalities

The functionalities of accounting software packages can be seen as the functions that are available to the users in order to reach the required business imperatives (Kruger, 2012). These include *inter alia* the input and output requirements that are needed for the generation of accurate financial reports for external reporting purposes and accurate management accounting reports that can be used for internal decision-making purposes.

Functionalities, as set out in an entity's IT architecture, can be divided into functionalities required to reach basic business assumptions and functionalities that drive business imperatives, as discussed in Chapter 2.

Based on a review conducted on various software packages available mainly in South Africa, small basic accounting packages typically provide the following functionalities, although not limited to these:
- Automatic generation of general ledger

- Accounts receivable and payable

- Invoicing

- Trading in alternative currencies

- Sales order generation

- Expense and profit tracking

- Inventory control and bills of material (some accounting software has this as add-on software)

- Production planning and control

- Multi-user access (often limited to low employee numbers)

- Cost accounting and management accounting reports

- Basic financial reports, including income statements and balance sheets.

The above-mentioned functionalities can be seen as the functionalities needed to mainly drive the basic business assumptions. These functionalities are not always enough to attain the business imperatives of an SME. Therefore it is critical that other functionalities that are available are also investigated before implementation to ensure that the functionalities that need to drive the business are available or are added either through customisation or other sources. These functionalities might include, *inter alia*:

- Integration with other software packages

- Web-based platform ability/integration

- Real-time updating of information on different devices

- Booking management and integration

- Pre-defined and simple workflow

- Remote access

- Bills of materials (if not part of the basic accounting package).

3.4 Business imperatives and required functionalities

Based on the literature review reported on in Section 3.2, business imperatives applicable to SMEs were identified together with the required software functionalities that they might require in the attainment of these business imperatives. These functionalities were then compared to the functionalities typically provided by small

accounting packages in the sections below. It must however be kept in mind that SMEs usually do not have only one business imperative, but rather a combination of a few.

3.4.1 Low cost

Most SMEs find themselves in a competitive environment in which, to survive, they need to reduce costs as far as possible. Increased competition between companies adds pressure on businesses to lower costs on all possible levels (Umble, Haft & Umble, 2003). Some SMEs still view investment in software as a cost rather than an investment (Levy *et al.*, 2001). Entities with low cost as a business imperative tend not to use their ISs in a strategic way (Lesjak, 2000) due to the potential costs involved. Small businesses might prefer to buy the basic versions of generic accounting software packages for implementation rather than spending on the more advanced versions or the development/customisation of software. Both software development and software customisation also require a highly skilled IT workforce, which is expensive and not ideal for businesses striving towards lowering costs. Even SMEs adopting enterprise resource planning (ERP) systems sometimes do not have the same availability of financial resources as larger entities, resulting in scaled-down implementation (Muscatello, Small & Chen, 2003). The same can be said of SMEs implementing generic accounting software to act as their business system. Due to the limitation of financial resources, SMEs might prefer to implement only the basic software, rather than spending on the development of the software to enable them to reach their business imperatives. The customisation of software might be necessary for a SME to successfully use the accounting software as a business system that drives the entire business and its imperatives.

As a result of the above issues, software bought by an entity does not necessarily provide the desired functionalities and requires extensive customisation and development for it to work for the business (Kruger, 2012). Some entities do not want to spend the time and money required for these developments and customisations and often, after realising that the cheaper package is failing them, continue to buy a more expensive package that is more suitable for the business or other add-on software that provides the required missing functionalities. In the long term, buying the

lowest-costing software results in having to spend more in future periods to compensate for the missing functionalities. Investing in the development or customisation of purchased accounting software at the start may prove to be more cost-effective. Thus, SMEs investing in lower-cost accounting packages may find themselves spending more in future periods. Implementing packages that fail to drive the business system results in the entire IS failing. Therefore, investing in the lowest-costing software does not necessarily assist in the attainment of a low-cost strategy.

SMEs with a low-cost strategic focus are often seen to focus on the improvement of their processes or coordination of business activities in order to improve efficiency and at the same time maintain good customer relations, as seen in the focus-dominance model (Levy *et al.*, 2001).

Functionalities required in a low-cost environment

SMEs that strive towards improving efficiency, but at the same time keeping costs to the minimum, should focus on the functionalities that will enable the organisation to be operated successfully without too many modifications to the software or capital investment requirements. The following recommendations can be made in this regard:

- The accounting software should be able to accommodate the number of users that are assigned to work on the accounting software. Usually with smaller versions of accounting packages, the user counts are limited, which may contribute to inefficiencies if more users are required to obtain access to the software but cannot.
- It is also seen in lower-cost environments that manual processes and systems, such as spreadsheets, are used on conjunction with accounting software such as payroll, invoicing systems and general ledger transactions (Levy *et al.*, 2001). It is therefore critical that the various accounting packages, if not one, are properly integrated so that data transfer and data sharing are possible.
- The software must manage the customer database and handle an increase in customers, especially if it is a start-up SME that has the potential to grow.
- Ease-of-use input interfaces should be available to assist employees, who might not always be properly trained, to easily record data that are kept manually.

Consequences of lack of available functionalities:

- Non-integration of different small software packages, leading to inefficient operations

- Incomplete accounting records due to the inability of software packages to share data

- Inability to manually manage the customer database in the event of increases in situations where the system is not able to handle the amount of customers. This can lead to incomplete/incorrect customer information and may have a negative effect on customer relations.

3.4.2 Innovation

As mentioned in earlier chapters, for SMEs to maintain a competitive advantage above others, innovation plays a key role. For SMEs to be innovative, the optimal use of IT becomes essential. Olsen and Sætre (2007) are of the opinion that some SMEs regard innovation as one of their survival strategies. Innovative entities are also more often seen to have ISs aligned with their business strategies than other non-innovative entities (Hussin, King & Cragg, 2002).

A case study conducted by Yetton, Johnston and Craig (1994) on an architectural firm showed the importance of IT for firms to enable them to provide the best services to their clients. Firms that are similar in nature, for example architectural firms, are required to constantly deliver new and top-of-the-range products to successfully compete with similar firms in the market (Smit, 2009). It is further argued that SMEs that embrace technological development tend to gain more than SMEs that do not (Blili & Raymond, 1993). IT therefore becomes critical when it comes to innovative strategies (Levy *et al.*, 2001).

Basic versions of generic accounting software packages purchased by SMEs seldom have all the functionalities available to drive innovation. Taking the example of an architectural firm above, generic accounting software is not specifically tailored to manage all the data of an architectural firm. Architects typically make use of specialised software on which drawings and designs for client orders are done. These

design programs are run separately from the accounting software on which quotations, orders and sales are processed and are therefore not always integrated. Some might argue that it is not necessary for these two types of programs to be integrated, because the accounting software assists with account processing, while the architectural design software assists in developing the end products. However, for a quotation and invoice to be generated, the cost of the job needs to be calculated accurately. For this to be done, the details of the resources used in the design are required, by using the architectural software, in other words architectural hours spent on the job and the scope of the work being done. Some architectural software might have the functionality to keep track of the hours spent on a job and the resources utilised, while others might not. In scenarios where the software does not keep track of the hours spent, another software management system might be purchased to assist in this regard, contributing to a third software program that again does not necessarily integrate with the other software program used by the entity. It is imperative that the costing of a job/products is calculated correctly, as it directly affects the sales of an entity.

In the study by Levy *et al.* (2001), one of the innovative types of entities had used its core design program to manage its business processes. The entity had a website and allowed for online orders by customers. The challenge faced by this entity was to link designs to orders and to integrate the order-generation software with its accounting software (Levy *et al.*, 2001). Innovative SMEs are therefore striving towards adding customer value through the use of their IT systems.

Functionalities required for innovation

The required functionalities to enhance innovation as a business imperative in SMEs and add value include, among others, the following:

- Accounting software packages should be integrated with non-accounting software packages (design, operational and other add-on software) that enable data transfer and data sharing (Levy *et al.*, 2001). An area that still causes major frustrations for SMEs is the non-integration of their various software packages (Pulakanam & Suraweera, 2010). Due to small accounting packages having limits in terms of the level of customisation allowed by users, the integration of the software with other packages is often not possible.

- Web-based platform ability for customer order generation, marketing, communication and customer support should be created to enable good customer service to clients. Customer service is seen as important for SMEs to maintain a competitive advantage (Cragg *et al.*, 2002). Not all small accounting package versions provide the functionality to integrate web-based order processing with the accounting system. Orders generated on a web-based platform should be integrated with accounting packages to enable complete and accurate invoice generation.

- Efficient online customer support is a key functionality that enables SMEs to build customer relations. Online support can add value if relevant information on customer data is available to customers online, such as transaction details and statements. Customer information should also be accessible to customer support staff to easily assist customers with enquiries.

Consequences of lack of available functionalities

- Non-integration between website data and accounting software data
- Duplication of missing orders due to orders not being linked to accounting software, leading to incomplete financial figures
- Inaccurate cost calculations (job costs, design costs, etc.), resulting in inaccurate invoices
- Decrease in customer satisfaction should information not be available to customers.

Should the above-mentioned consequences not be identified at the start of the implementation project, it will lead to failure of the software accounting system (Kruger, 2012) to attain innovation in the entity.

Possible solutions to lack of functionalities

Non-integration of software programs can be solved by either introducing manual systems or customising accounting software. The latter is the more expensive alternative and also the alternative rarely taken up by SMEs. Manual intervention, on the other hand, can result in additional labour resource requirements together with the risks of human error.

3.4.3 Product/service/business diversification

The diversity of businesses is driven by the different types of products they supply and services they render. In a study conducted by Hussin *et al.* (2002), product diversification formed part of the IT strategies followed by many SMEs. The more diverse businesses are, the more flexibility they require from their business processing systems and the more the need for amending or adding functionality becomes a requirement. The importance of flexibility for SMEs in order to gain a competitive advantage is discussed by authors such as Olsen and Sætre (2007). The effectiveness of the business processes of SMEs is very dependent on flexibility. The quality of the products and services of SMEs as well as flexibility is regarded as important for market strategy and innovation (Matejun, 2014).

Small generic accounting packages are not always flexible enough to allow for diverse product/service ranges. In addition, the customisation potential of the software package functionalities is also limited (Olsen & Sætre, 2007). This can result in businesses amending their unique processes to fit the purchased software rather than customising the software to fit the business needs. It can also result in SMEs purchasing other software packages that will assist in managing the functionalities not addressed by the accounting software invested in, which may lead to non-integration between the different packages.

SMEs striving towards diversity will find themselves delivering various types of products and/or services, which are all in different markets. The challenge with diversification in SMEs is to find an accounting package that is flexible enough to accommodate all the different service and product types. Typically, these SMEs might find themselves striving towards effectively managing all the diverse business areas, thereby finding themselves either in the efficiency or the collaboration quadrant of the focus-dominance model.

Functionalities required for diverse businesses
The functionalities that will be required to enable diverse businesses are extremely wide and will be dependent on the different products and services. The most important

need is that the software functionalities must be adaptable for the requirements of the specific SME. A few examples are listed below:

- The software must have the ability to create different inventory and service types and/or accommodate different income streams or business divisions. Basic versions of accounting packages might limit the number of different income streams or divisions and it is important that a package be selected that can manage these.
- The software must offer bills of materials set-ups for different types of inventory, especially in small and medium-sized manufacturing entities. Some types of small accounting software do not have the functionality to manage bills of materials and add-on software that provides this functionality must be purchased separately.

Consequences of lack of available functionalities

- Not purchasing the bills of materials add-on functionality can result in inaccurate stock valuations and inability to effectively manage inventory, resulting in consequent failure of the inventory system.
- The inability of software programs to handle different income and products streams can lead to inefficiency of business processes.
- Incorrect financial information due to the non-integration of different income streams.

3.4.4 Product/service differentiation

Based on the study by Hussin *et al.* (2002) it is evident that differentiation of products and services is also important for some SMEs, especially for SMEs that are finding themselves in a competitive environment. These SMEs would strive towards the delivery of products and services that are better than that of their competitors (Alvarez & Iske, 2015) and therefore product quality becomes an important focus (Cragg *et al.*, 2002). In order for SMEs to differentiate themselves from their competitors, innovation and/or collaboration becomes an important strategic focus (Alvarez & Iske, 2015).

Functionalities required for product/service differentiation

- SMEs using different types of software programs on which to differentiate their products or services would require for those software programs to properly integrate with the accounting software used.

- Web-based platform ability should be available for the more innovative SMEs that are using websites and e-commerce functionalities to differentiate themselves from their competitors. Accounting software requires functionalities that can integrate with websites to enable order placement and invoice generation.

- Customer data should be available to customers online to provide quality services to clients.

- The accounting software should have an effective inventory control system and related quality reports that can be used by management to control the quality of products that are manufactured or supplied to clients.

Consequence of lack of available functionalities

Insufficient product quality information can directly affect the quality of the product and services rendered and affect the differentiation of the product or service rendered by the SME.

3.4.5 Mobility

Hislop (2008) mentions in his book, *Mobility and technology in the workplace*, how the continued use of mobile technology significantly contributes to change in the traditional workplace to a more mobile environment. He also concludes that the modern worker is still constantly facing the challenges of reacting to the failure of technological systems. SMEs are also facing the challenge of mobility and how mobile technology is increasingly used in the business (Park, 2015).

SMEs that strive towards a more mobile environment will likely be finding themselves in either the innovation or collaboration quadrant of the focus-dominance model and also have innovation as a business imperative. ISs are used to add value to the business (Levy *et al.*, 2001) and provide appropriate information to customers. Access

to company information when visiting and communicating with customers is required by these types of SMEs.

Operation managers and fieldworkers also require timely information on production to assist them with effective decision making. ERP systems are used by many large companies to enable them to obtain relevant information timeously. These systems are however still too expensive for SMEs to invest in. The collection of production data through mobile resources is becoming increasingly attractive to SMEs. Web applications and mobile applications are available to SMEs to remotely access production information (Park, 2015).

Functionalities required for mobility

Required functionalities to enhance mobility in SMEs include the following:

- Remote access to accounting software information through internet access, either via desktop, laptop or tablet applications, is a requirement. Not all basic accounting software packages have the functionality of remote access, which might be crucial for sales teams and other employees needing to access accounting data from mobile or other devices. Many small accounting packages do however allow for access via remote desktop through a virtual private network.
- Security and protection against fraudulent data access. Most small accounting packages have the functionality of creating different user groups and user profiles that manage unauthorised access. This should however be configured during the implementation stage of the software packages. User groups and user profiles are however not sufficient to prevent unauthorised users from accessing company information. Proper security programs have to be purchased and installed together with the accounting software to prevent unauthorised access. These security programs should be integrated with accounting software to enable efficient security features.
- Multiple user access is required for different employees to access accounting software. Based on a review of the functionalities of a few small accounting packages in South Africa, it was found that user access is in many cases limited to user numbers as low as five employees.

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- The integration and data sharing between accounting software and of mobile apps or web applications are crucial for operation managers of manufacturing SMEs that want to remotely access production data for effective decision making.

Consequences of lack of available functionalities

- Slow connections through remote desktops lead to inefficiency of employees performing daily tasks, ultimately leading to company losses
- Inability of employees to access information from anywhere
- Unauthorised access to company data and information
- No access to software for additional users should the allowed user numbers be reached
- Inability of operation managers of manufacturing SMEs to effectively and timely make operational decisions if production data are not available.

3.4.6 Pro-active management

Innovative SMEs using mobile applications, as discussed above, can also be seen as being pro-active when it comes to management and decision making. To be pro-active in managing a business it is key to have real-time information available at all times, especially when it comes to decision making (Goosen, 2012). Accounting software packages require functionalities to provide real-time information to management and staff on a continuous basis. Due to the increased competition SMEs are facing and the availability of new technologies, SMEs are increasingly investing in ISs that promise to increase efficiency and enhance pro-active management through *inter alia* the availability of real-time data (Seethamraju, 2014). Although many software packages have the ability to provide reports, these reports are mainly generic and do not necessarily provide the required real-time information that each business requires at particular times.

SMEs striving towards being pro-active in their strategic approach are those that realise the importance of good management information in their decision-making processes. They fall in the collaboration quadrant of the focus-dominance model (Levy *et al.*, 2001). In one of the collaboration case studies conducted by Levy *et al.* (2001),

the SMEs found that they are losing their competitiveness due to poor management information and information only becoming available several months after it was processed. In this specific case, the company was also situated over various cities, which resulted in information and data being available at different locations.

Functionalities required for pro-active management

Required functionalities to enhance pro-active management in SMEs include the following:

- Real-time information should be available to managers that are using information to make decisions. This implies that the accounting software should have the functionality where appropriate information is generated at any given time, either via reports or graphs. Not all small accounting software have the functionality of instantly being able to provide management information.
- Data and information from various locations should be available through internet access and/or local area networks. This enables managers to access information and data when SMEs are situated at various locations. It must be possible to install the accounting software at different premises and to share data from a main server if it is used as the business processing system.

Consequences of lack of available functionalities

- Should data and information not be available at all the locations of the entity, it can lead to inefficient working environments and incorrect decision making.
- Data not being available to management when they require them for important decision-making purposes will lead to incorrect decision making.

3.4.7 De-skilled workforce

Due to SMEs having a smaller workforce than larger entities, employees tend to be involved in many tasks that require different skills (Azyabi *et al.*, 2014). It can therefore happen that employees are involved in the performing of certain tasks for which they are not properly trained. In situations such as these it is crucial that the accounting

software used by these employees is easy to use with a simple workflow (Boshoff, 2014).

SMEs with a de-skilled workforce are typically SMEs with a low-cost strategic approach where multiple customers are being served. These SMEs strive towards efficient processes and may find themselves in the efficiency quadrant of the focus-dominance model (Levy *et al.*, 2001). In the efficiency case study of Levy *et al.* (2001) it was found that a small off-the-shelf accounting package is used by the SME to improve efficiency while at the same time striving to keep costs low.

Functionality required for a de-skilled workforce

The required functionality to enable lower-skilled employees to operate accounting software includes the following:

Pre-defined and simple workflow interfaces are required for ease of use by employees. Accounting software packages need to be automated as far as possible to limit inputs from users to the absolute minimum in an effort to limit any inefficiencies as a result of de-skilled users. Small accounting packages tend to have simple and easy-to-use platforms with pre-defined workflow functionalities. It is however important to configure pre-defined workflows at the implementation phase of software to prevent future failure.

Consequence of lack of available functionalities

The lack of pre-defined and simple work-flow interfaces can lead to inefficiencies due to users not knowing how to operate the system. It may also lead to the input of incorrect data, resulting in incorrect financial information.

3.4.8 Customer-centric strategy

One of the key strategies found within SMEs in which to maintain a competitive advantage is customer service (Cragg *et al.*, 2002). It is often found that SMEs have a few large customers who contribute to high portions of the total income received by the SMEs. SMEs are dependent on these customers and their focus is to have and

maintain good customer relations. These SMEs fall in either the innovation or the coordination quadrant of the focus-dominance model (Levy *et al.*, 2001).

In a case study by Levy *et al.* (2001) of an SME in the coordination quadrant, insufficient controls and the informal ways of dealing with its clients led to incomplete accounting data and lack of follow-up on client information and requests.

Functionalities required for customer-centric strategy

SMEs striving towards being customer-centric pride themselves in the personal services they render to their clients. Continuous communication and feedback to their clients are important for reaching this goal. Functionalities required to achieve these are the following:

- A user-friendly web-based information platform for the innovative type of SMEs is required that enables customers to gain access to product or order information. Integration with accounting software and these webpages should be possible.
- Access to customer account information should be available to all employees directly communicating with customers to enable them to provide customers with relevant and correct information. Accounting software should therefore provide user access to these employees.

Consequences of lack of available functionalities

- Unhappy customers not receiving the desired service expected.
- Loss in competitiveness.

3.4.9 Process efficiency

Efficiency has been identified by Levy *et al.* (2001) and Cragg *et al.* (2002) as business imperatives of many SMEs. SMEs striving towards efficiency will want their business processing system to contribute to the efficiency of all their processes.

An example is SMEs that make use of booking systems to manage their clients. They require an IS that can both initiate a booking and create an order that will, after service

delivery, be an instruction for the creation of an invoice. This whole process should be efficiently driven by the accounting software that is installed. The ability of small accounting software to manage bookings can result in the SME manually having to transform bookings into invoices. Customisation of the accounting packages to integrate with the booking system might however be a more efficient approach to follow. Olsen and Sætre (2007) argue that SMEs must be in control of the customisation of software functionalities to provide them with a competitive advantage. Furthermore, customisation of software is said to be possible at much lower costs than in the past due to new techniques and products available on the market (Olsen & Sætre, 2007).

Effective stock control systems are also a requirement for manufacturing SMEs that strive towards production efficiency (Park, 2015).

Functionalities required to enhance process and production efficiency

The required functionalities to enhance process and production efficiency are as follows:

- Functionalities to manage booking and reservation systems should be available in the order- and invoice-generation processes. Businesses that might use these include guest houses, boutique hotels, hair salons and other service-rendering SMEs. Booking software systems are available for service-delivery companies. Some even have the functionality of point-of-sale, invoicing and online payments. Functionalities required in these instances include generating, tracking and invoicing of bookings. SMEs not investing in proper booking software systems that generate accurate financial results, but rather making use of generic accounting software systems to account for their service transactions, might be faced with non-integration issues between the booking system in use and the accounting software generating the financial results, leading to failure of the entire business processing system.
- Real-time information should be accessible by operation managers and other employees to enable them to efficiently react on service requests.

Consequences of lack of available functionalities

- Non-integration of booking/reservation software and accounting software
- Bookings not being invoiced for, leading to incomplete accounting information
- Inability to instantly making decisions if real-time information is not available.

3.5 Mapping of business imperatives with software functionalities

Business imperatives discussed above and functionalities that might be required to attain them are listed in the table below:

Table 3.1: Business imperatives mapping table

Required functionalities	Business imperatives								
	Low cost	Innovation	Product/service/ business diversification	Product/service differentiation	Mobility	Pro-active management	De-skilled workforce	Customer-centric strategy	Process efficiency
Accommodation of number of users	X				X			X	
Software package integration	X	X		X	X				X
Customer database management	X								
Ease-of-use interfaces	X						X		

Required functionalities	Low cost	Innovation	Product/service/ business diversification	Product/service differentiation	Mobility	Pro-active management	De-skilled workforce	Customer-centric strategy	Process efficiency
Web-based platform availability		X		X				X	
Online customer support		X		X					
Accommodate different product and income streams			X						
Bills of materials and inventory management			X	X					
Remote access					X	X			
Security and protection					X				
Real-time information						X			X

Key: X = Functionalities that might be a requirement for SMEs to attain their business imperatives

3.6 Conclusion

This chapter focused on the relation between software functionalities and business imperatives of SMEs. It has been seen in this chapter that the unavailability of proper software functionalities directly causes misalignment of business imperatives and ISs, ultimately leading to software failure.

It was found that innovation and cost play a major role in both the business imperatives an SME strives towards and the software that an SME will be willing to invest in. The more innovative the business environment of SMEs becomes, the more complex the software functionalities will be that will enable SMEs to attain their business imperatives and the more the cost will be of obtaining a software package that will provide these functionalities.

Generic smaller accounting packages are mostly more affordable, but might not provide the more complex functionalities that will be required. The availability of proper software functionalities is therefore a critical requirement for SMEs to enable them to attain their business imperatives. SMEs using their accounting software as their business processing system need to ensure that the functionalities are available for them to attain these imperatives. A mapping must therefore be conducted between the software functionalities an accounting package provides and the business imperatives the SME would want to attain. A similar mapping table was developed that can be used by SMEs for this purpose. An accounting software package must therefore not be purchased before the SME has ensured that all the required functionalities of the package are provided and will be available for use by the SME.

CHAPTER 4
PRINCE2 TAILORED FOR APPLICATION BY SMEs DURING ACCOUNTING SOFTWARE IMPLEMENTATION

4.1 Introduction

Good project-management principles should be followed to successfully manage the strategic alignment process discussed in Chapter 3 and to assist in the implementation of new ISs. Some authors argue that these principles should include aspects of clear objectives, resource and work plans and progress monitoring (Umble *et al.*, 2003). Other authors also mention that the greatest success of software implementation lies in the correct identification of project risk at the start of the project (Verner & Evanco, 2005). Little has however been published on project management within SMEs (O'Sheedy, 2012). Marcelino-Sádaba, Pérez-Ezcurdia, Echeverría Lazcano and Villanueva (2014) concluded in one of their studies on small firm projects that project risks often tend to play out during the initial and final stages of the projects. They found it to be due to a lack of oversight in these two stages. Also, from the results of Chapter 3 of this study, identifying business imperatives and incorporating them into the management of software-implementation projects for SMEs are critical for successful software implementation.

Various project-management frameworks are available to entities to assist in IS project management. These frameworks are however often more suitable for implementation by larger entities and do not specifically address methods that can be used by SMEs. SMEs also often do not have access to project managers with the required technical skills required for software implementation (O'Sheedy, 2012).

According to Marcelino-Sádaba *et al.* (2014), projects of SMEs have some of the following common features:
- The project and the project team are small.
- It is mainly internally managed.
- The objectives are clearly identified.
- It is mostly related to day-to-day activities of the SME.

PRINCE2 is a methodology that is designed to assist project managers in the effective management of projects and resource management (Kruger & Rudman, 2013). PRINCE2 is an example of a framework that is more suitable for use by medium to large entities, rather than for smaller projects due to its bureaucratic nature (Turner *et al.*, 2009). Reasons that have been provided for this include limited or unskilled staff usually employed by SMEs, limited resources available to SMEs and the complexity of the framework (Marcelino-Sádaba *et al.*, 2014). However, the authors of the PRINCE2 framework state that the framework is fully scalable and if done correctly, can be used on smaller projects as well. This can however be a very timely and costly exercise, as there are almost 40 different activities that will need to be looked into and adjusted to suit the implementation requirements of the SME (O'Sheedy, 2012). As seen in Chapter 3, SMEs often follow a low-cost strategy that will result in them finding the scaling down of a framework such as PRINCE2 too costly and not beneficial. Wynn, Turner, Abas and Shen (2009) indicate that some authors are of the view that the time spent on tailoring PRINCE2 will not add sufficient value. However, SMEs might find an already scaled-down version that requires minor tailoring more appealing.

The purpose of this chapter is to look into the tailoring of PRINCE2 into a scaled-down version that can be used by SMEs specifically during the implementation of new accounting software.

4.2 An overview of the PRINCE2 methodology

Saad, Ibrahim, Asma, Khan and Abdul (2013) explain that there are normally six areas of project management. They are discussed below:

Costs

As discussed in Chapter 3, striving towards low costs is a business imperative often followed by SMEs. They also often find themselves in a competitive environment, and therefore costs should be reduced as far as possible (Umble *et al.*, 2003). The cost of the software-implementation project will therefore also play a role in software implementation by SMEs.

Timescales

It is important for all projects to be managed within a specified timeline. The moment that the project exceeds the original timeline, costs, scope, quality and project risk are directly affected (Saad *et al.*, 2013).

Scope

It is essential to define the scope of the software-implementation project accurately. The project manager should firstly have a clear understanding of what should be included in the project, in other words packages, functionalities, customisation requirements, and so forth. This should be clearly laid out by the project manager to prevent unnecessary costs and missed deadlines (Saad *et al.*, 2013).

Quality

As concluded in Chapter 3, it is essential that software packages implemented by SMEs should have sufficient functionalities to successfully drive the business system and attain the business imperatives of the SME. Therefore, the installed software program should work for the purposes for which it was installed (Saad *et al.*, 2013).

Risks

All projects come with risk and it is essential that the risk a SME is willing to take in the implementation of software packages is clearly understood and addressed by the implementation plan (Saad *et al.*, 2013).

Benefits

Lastly, the software package installed by the SME must benefit the SME in all possible ways. As discussed in Chapter 3, the package should drive the business imperatives of the SME.

PRINCE2 is categorised as a generic framework built on the above-mentioned areas of importance (Saad *et al.*, 2013). The framework assists project managers in project management, but needs to be tailored to suit individual projects (Viergever, 2014). The framework was developed over some years from insights into many projects (Kruger & Rudman, 2013).

The PRINCE2 methodology is built on seven principles and consists of seven themes and seven processes that are aimed at addressing the above-mentioned six areas of project management (Siegelaub, 2004).

Listed in the following table are the seven principles of PRINCE2 (Kruger, 2011; Siegelaub, 2004):

Table 4.1: The seven principles of PRINCE2

Principle	Description of principle
Continued business justification	Throughout the project business objectives, strategies and benefits should remain aligned and documented as such.
Learning from experience	Lessons learnt by project managers from previous experience should be considered and acted upon through the project.
Defined roles and responsibilities	All individuals involved in the project should have a clear understanding of what is expected of them.
Managing by stages	To properly control the project it is suggested that the project be implemented in stages with sufficient control points identified.
Managing by exception	Each level of the project-management team should have an authority limit based on time, costs and scope.
Focusing on products	Expected project deliverables as defined in the project plan should remain the main focus throughout the project.
Tailoring to suit the project environment	Themes and processes should be tailored to suit the needs of the specific project.

Listed in the following table are the seven themes of PRINCE2 (Kruger, 2011; Siegelaub, 2004):

Table 4.2: The seven themes of PRINCE2

Theme	Description of theme
Business case	The business case can be defined as the main driver of the project. It defines the expected benefits from the project deliverables. Should it at any stage during project implementation appear that these benefits are no longer there, termination of the project is to follow.
Organisation	The roles and responsibilities of the project-management team must be clearly laid out and the accountability structure should be established.
Quality	The expected quality of the project deliverables is to be clearly defined and achieved in the end product through a quality system.
Risk	Proper risk analysis and management techniques are to be used to manage project risk throughout the project.
Planning	Planning is essential for all projects, therefore this theme sets out the required steps to develop plans that are ultimately based on the required deliverables of the project.
Changes	Changes to the business cases and project deliverables during the course of the project should be properly controlled and assessed for relevant inclusion in the project plan.
Progress	The purpose of this theme is to monitor and compare outcomes with planned deliverables set and to ensure that the project remains viable in terms of the business case throughout the project.

The seven processes of PRINCE2 are summarised below:

Starting up a project (SU)

This process occurs once at the start of a project lifecycle and is designed to ensure that the prerequisites for initiating the project are in place. The deliverable of this process, the project brief, sets out the reason for the project and what is required and should ideally be very short (Office of Government Commerce, 2005:13). It includes the following (Kruger, 2011:51):

- Appointing the project manager
- Including information on lessons learnt from previous projects, if available
- Appointing the project-management team
- Preparing the outline business case
- Choosing the correct approach for the project and draft the project brief
- Compiling the initiation stage plan.

Directing a project (DP)

This process includes the authorisation, monitoring and control of the project by the project board through various decision points (Office of Government Commerce, 2005:14). It includes the following (Office of Government Commerce, 2005:14):

- Authorising the start of the project (initiation)
- Authorising the project
- Authorising the stage or exception plan
- Providing direction in terms of monitoring, giving advice and direction, reacting to threats, etc.
- Authorising the closure of the project.

Initiating a project (IP)

This process includes the planning of the project as a whole and entails the development of the project-initiation document (Office of Government Commerce, 2005:14). This document includes the benefits of the project for the business, the risks relating to the implementation of the project, the products that are developed from the project, activities included in the project lifecycle, the desired quality of the products and how resources will be applied throughout the project (Kruger, 2011:54).

This process further includes the following (Kruger, 2011:54):

- Preparing the risk-management strategy
- Preparing the configuration-management strategy
- Preparing the communication-management strategy
- Preparing project controls that are designed to detect deviations from the original project plan
- Creating the project plan, which includes the costs, timeline and resources used in the project
- Revising the original business case to include the costs, timelines and risks
- Assembling the project-initiation document.

Controlling a stage (CS)

In many cases, especially on larger projects, the project consists of various stages. Each stage is controlled separately on a day-to-day basis. This process details the control and monitoring procedures of the project manager during each stage (Office of Government Commerce, 2005:15).

Each stage includes the following (Kruger, 2011:55):

- Authorising the work that is scheduled to be done for each stage
- Reviewing the work that has already been done at various intervals
- Reporting on the work completed
- Documenting and escalating issues and risks identified during the stage
- Taking any necessary corrective action.

Managing product delivery (MP)

This process ensures that the planned product and deliverables are completed and handed over. It includes the following (Kruger, 2011:56; Office of Government Commerce, 2005:16):

- Accepting the work being done and detailing what is required to be delivered. The team manager negotiates the details of the work packages with the project manager.
- Ensuring that the work is done as required

- Ensuring that the work being conducted was conducted at the desired quality and delivering it to the project manager.

Managing stage boundaries (SB)

This process provides information to the project board on whether the deliverables were completed as planned during the stages. It also provides the board with information on whether it is viable to continue with the project. This process is there to assist the project board in authorising the completion of a stage and starting of the following stage (Office of Government Commerce, 2005:15).

Activities within this process include the following (Kruger, 2011:58; Office of Government Commerce, 2005:15):

- Assuring that all planned activities in the current stage have been completed successfully
- Compiling and planning the next stage or execution plan by comparing it to the actual progress of the project
- Revising the original project plan and updating the business case
- Updating the risk logs and considering the viability of continuation of the project
- Compiling an exception report for consideration and approval by the project board.

Closing a project (CP)

This process defines an organised closure of the project. The project manager compiles finalised information on the project for presentation to the board in order to obtain approval that the project may close (Office of Government Commerce, 2005:16). Activities include the following (Kruger, 2011:59–60; Office of Government Commerce, 2005:17):

- Ensuring that the aims and objectives as set out in the project-initiation document have been met
- Determining whether deliverables have been delivered and accepted by the customer
- Ensuring that arrangements were made for maintenance, operation and training of the delivered product

- Compiling recommendations for future projects
- Compiling an end project report and archiving all project files.

Figure 4.1 is an illustration of the PRINCE2 processes.
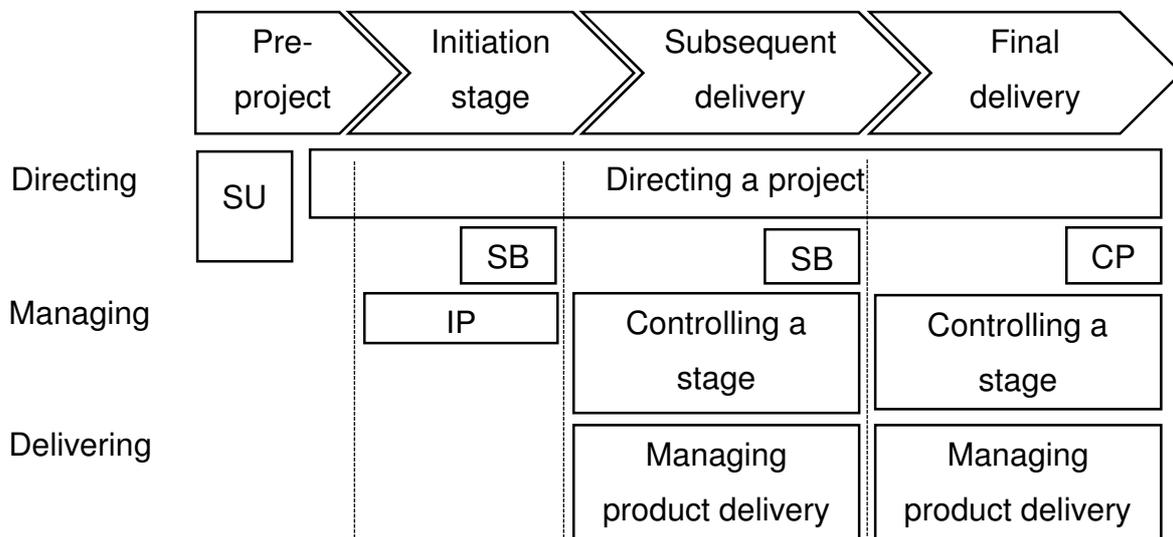
Figure 4.1: PRINCE2 process model (Siegelaub, 2004)

4.3 Literature review on the tailoring of PRINCE2

Although some authors argue that the PRINCE2 methodology is not suitable for SMEs due to its bureaucratic nature (Turner *et al.*, 2009), others are of the opinion that if scaled down correctly, PRINCE2 can be valuable to SMEs in project management by using only the processes that are applicable and required in the relevant situation (Wynn *et al.*, 2009).

In a study conducted by Wynn *et al.* (2009), PRINCE2 was tailored for a project on the replacement of software of a small and medium-sized financial service company, Allpay.net. It supplies electronic payment options using internet, telephone, text and other cashless solutions and is web-based. The biggest challenge for Allpay.net was to integrate and maintain different in-house developed software packages. The company therefore decided to implement a middleware application that replaced some in-house developed software that would reduce maintenance and enhance the current software architecture to supply a more robust service to its customers. The project

team, consisting of only three staff members, adjusted the PRINCE2 methodology in a way that addressed the scope and scale of the proposed project. This entailed using only a selection of the PRINCE2 proposed processes (Wynn *et al.*, 2009). A summary of the tailoring done by them is listed and explained in the following table.

Table 4.3: Summary of tailoring conducted on PRINCE2 by Wynn *et al*. (2009)

PRINCE2 process	Description of tailoring done
Starting up a project (SU)	The project manager and board were selected at the start of the project during a start-up meeting. During this meeting, all responsibilities of the project team were set out. The business case was confirmed by a feasibility study done on the project. A project brief that included project objectives, deliverables, scopes, risks, limitations and stakeholders was compiled and approved. This document also served as the project-initiation document, required by PRINCE2 during the process of initiating the project.
Initiating the project (IP)	During this stage, Microsoft Project was used to revise and document the project plan in more detail. A quality plan was documented that included the expected product quality, control procedures and quality responsibilities. Timelines were set, activities were identified and deliverables were defined. The business case was also reviewed and risk logs were set. Weekly discussions of the project plan occurred and the plan was adjusted during the course of the project as required.
Controlling a stage (CS), managing stage boundaries (SB), managing product delivery (MP)	Due to this project being scaled down to include only one main stage, the managing stage boundaries process became redundant. The activities within the process of controlling a stage were applied during the course of the main stage process and some activities were also applied during the closing down of the project. As Microsoft

	Project was used for the planning and management of the project, the process of managing a product delivery was also not used.
Directing a project (DP)	Due to the project board meeting on a frequent basis, a considerable number of the activities included in the process of directing a project took place during these meetings.
Closing a project (CP)	During the process of closing a project, the project board discussed and approved the closure of the project. Reports were compiled on the deliverables and the application was released after confirming that it met the required criteria. A final report was drafted by the board. A few meetings followed between end users and IT staff regarding the roll-out of the software. A meeting was also held with the in-house system team where documentation was handed over and continued maintenance procedures and support were discussed.

Conclusions reached from the study mentioned above included the following (Wynn *et al.*, 2009):

- Selectively use the main PRINCE2 processes to only include processes that address the required outcomes of the individual project.
- Combine certain activities from the starting up, initiating and directing processes into one brief document. Activities include the business case, brief, approach and quality plan.
- Minimise all other logs to only keep crucial logs, such as a risk log.
- Make use of Microsoft Project for purposes of planning the project.
- Where possible, only make use of one stage rather than various stages. This enables a project team to exclude the managing stage boundaries process from the entire project.
- Only include the process of managing project delivery if really necessary.
- Make use of highlight, checkpoint and exception reports to address issues during the course of the project lifecycle.

- Selectively use the activities included in the process of closing a project. Ensure that project closure approval by the project board and a final project closure report are included.

In the book, *Tailoring PRINCE2* (Office of Government Commerce, 2004), it is also discussed how PRINCE2 can be tailored to suit smaller projects where a limited number of staff is involved. An example is provided of a project for a small company with limited staff. Tailoring was done by them as shown in the following table.

Table 4.4: Tailoring conducted on PRINCE2 for small projects (Office of Government Commerce, 2004)

PRINCE2 process	Description of tailoring done
Starting up a project (SU)	The company only had two directors. During the start of the project, the project objectives were discussed. One of the directors was appointed as the project manager and specialist team and the other director as the project board and project quality control team.
Initiating the project (IP)	The two directors agreed on reviewing each other's work. The product deliverables, required quality, timeline and project plan were drafted. They also agreed on having frequent meetings to discuss the progress of the project.
Controlling a stage (CS), managing stage boundaries (SB), managing product delivery (MP)	During the course of the project, the project plan was revisited and amended as required. Some of the key activities of the process of controlling a stage were followed during the entire project. The managing stage boundaries process became redundant and was not used during the course of the project.

Closing a project (CP)	The two directors discussed the closing down of the project and concluded on a date on which the working of the product will be revisited to ensure that the product is working as it should.

Conclusions reached on the above-mentioned small project included the following (Office of Government Commerce, 2004):

- Selectively use the main PRINCE2 processes to only include processes that address the required outcomes of the individual project.
- Combine certain activities from the starting up, initiating and directing processes into one brief document. Activities include the business case, brief, approach and quality plan.
- Where possible, only make use of one stage rather than various stages. This enables a project team to exclude the managing stage boundaries process from the entire project.
- Only include the process of managing project delivery if really necessary.
- Make use of highlight, checkpoint and exception reports to address issues during the course of the project lifecycle.
- Selectively use the activities included in the process of closing a project. Ensure that project closure approval by the project board and a final project closure report are included.

4.4 Best management practices

One of the PRINCE2 principles is that the methodology be tailored to suit the needs of the specific project. Tailoring for the purposes of PRINCE2 is defined as those measures taken during the tailoring of the framework that ensure a sufficient level of governance, planning and control (Murray, 2011:6).

The table below illustrates the focus areas of an entity during the adoption and tailoring of PRINCE2. Embedding refers to the adoption of PRINCE2 by the entity as a whole (Murray, 2011:6).

Table 4.5: Areas of focus during both PRINCE2 adoption and tailoring (Murray, 2011:6)

Embedding (conducted by the organisation to adopt PRINCE2)	Tailoring (conducted by the project-management team to adapt the method to the context of a specific project)
Focus on: • Process responsibilities • Scaling rules/guidance (e.g. scorecard) • Standards (templates, definitions) • Training and development • Integration with business processes • Tools • Process assurance	Focus on: • Adapting the themes (through strategies and controls) • Incorporating specific terms/language • Revising product descriptions for management products • Revising role descriptions for PRINCE2 project roles • Adjusting processes to match the above

4.5 Tailoring of PRINCE2 for SMEs

Turner, Ledwith and Kelly (2012) indicate that SMEs require management processes that are flexible and not as complicated to apply and are therefore not likely to make use of formal project-management techniques. It is however also concluded that SMEs that do make use of project-management tools make use of status reports to track time and costs, manage risks and detail work structures (Turner *et al.*, 2012).

Tailoring of PRINCE2 themes:

By considering both the literature review conducted on the tailoring of PRINCE2 and best management practices, when tailoring PRINCE2 it is important to still comply with the themes of PRINCE2. This is required to retain the integrity of the project (Ferguson & Consulting, 2011).

An example of the tailoring of the PRINCE2 themes for smaller projects is given in the table below:

Table 4.6: Tailoring of PRINCE2 themes for smaller projects (Ferguson & Consulting, 2011)

Theme	Description of theme
Business case	It is essential that the cost and benefits of the project are still being considered throughout the project lifecycle to conclude on the feasibility of the project.
Organisation	A project manager and project board member (as a minimum) should be appointed with clearly assigned responsibilities.
Quality	A quality plan should be developed indicating the required quality of the end product and the procedures that will be followed to ensure that quality is delivered.
Risk	Keeping risk logs is essential to enable the project manager to react to deviations from the original project plan.
Planning	The project plan should include detailed timelines, cost estimates, resources that will be used and the expected deliverables of the project.
Changes	The project board member (independent member from the project manager) should be in charge of all high-level decisions.
Progress	The project plan should be revisited throughout the project lifecycle and a progress report should be kept to keep track of the project progress.

Tailoring of PRINCE2 processes:

Based on the literature review performed on project management, it is clear that, for smaller projects, a need for fewer processes and activities arises. It is therefore

recommended that certain activities of different processes are combined, certain processes are simplified and unnecessary activities are removed.

The following table was developed from the literature review findings and best management practices. It lists recommendations for SMEs considering using PRINCE2 during the implementation of accounting software.

Table 4.7: Recommendations for SMEs considering using PRINCE2

Process	Activity	Recommendation (key)
Starting up a project (SU)	(1) Appoint the project board and the project manager	(A)
	(2) Capture previous lessons learnt	(B)
	(3) Design and appoint the project-management team	(A)
	(4) Prepare the outline business case	(C)
	(5) Select the project approach and assemble the project brief	(C)
	(6) Plan the initiation stage	(D)
Directing a project (DP)	(1) Authorise initiation	(E)
	(2) Authorise the project	(E)
	(3) Authorise a stage or exception plan	(E)
	(4) Give *ad hoc* direction	(E)
	(5) Authorise project closure	(I)
Initiating a project (IP)	(1) Prepare the risk-management strategy	(C)
	(2) Prepare the configuration-management strategy	(C)
	(3) Prepare the communication-management strategy	(C)

	(4) Set up the project controls	(C)
	(5) Create the project plan	(C)
	(6) Refine the business case	(C)
	(7) Assemble the project-initiation documentation	(D)
Controlling a stage (CS)	(1) Authorise a work package	(G)
	(2) Review a work package status	(G)
	(3) Receive completed work packages	(G)
	(4) Review the stage status	(G)
	(5) Report highlights	(G)
	(6) Capture and examine issues and risks	(G)
	(7) Escalate issues and risks	(G)
	(8) Take corrective action	(G)
Managing product delivery (MP)	(1) Accept a work package	(G)
	(2) Execute a work package	(G)
	(3) Deliver a work package	(G) (I)
Managing stage boundary (MS)	(1) Plan the next stage	(F)
	(2) Update the project plan	(F)
	(3) Update the business case	(F)
	(4) Report stage end	(F) (H)
	(5) Produce an exception plan	(F)
Closing a project (CP)	(1) Prepare planned closure	(I)
	(2) Prepare premature closure	(I)
	(3) Hand over products	(I)
	(4) Evaluate the project	(I)
	(5) Recommend project closure	(I)

Recommendations:

Key   Recommendation

A   The project board could consist of one person, but should have the highest level of authority and will ultimately be approving the project and making high-level decisions on the project. The project board member should, however, be independent of the project manager in order to review work and make high-level decisions. Roles and responsibilities of the board, manager and other team members should be clearly laid out. It is important to have a team member with sufficient IT knowledge, either an external supplier or internal employee with IT knowledge, as part of the project team.

B   This activity will also be important activities to consider for small and medium projects.

C   It is recommended that these activities be combined into one initiating stage as far as possible, rather than having a separate starting up and initiating stage. It is also recommended by Ferguson and Consulting (2011) to combine these two processes for smaller projects. It is further recommended to assemble one project brief document that outlines the business case, decide on the project approach, set out the frequency of communications that will take place between the project manager and the project board, set controls for project review and risk identification, and document the required product quality.

D   These activities fall away due to the initiating stage and the starting up stage being combined into one initiating stage and the project plan being combined with the project-initiation document in one project brief document.

E   Authorisation and decision making are done throughout the project lifecycle by the project board member(s).

F   Based on the literature review reported on in this chapter, it is recommended that smaller projects, as far as possible, only include one main stage. This will enable the entire managing stage boundaries to be excluded by SMEs implementing small accounting packages. This should however only be done if it is possible and feasible for the specific project.

G   Due to the recommendation of only having one main stage, it is recommended that activities from the managing product delivery and controlling a stage

processes be combined into one controlling and delivering a project stage. Ferguson and Consulting (2011) also recommend this.

H   Include this activity in the completing of a project stage.

I   Combine this activity with the completing of a project stage.

4.6 Implementing additional recommendations due to shortcomings and weaknesses identified within PRINCE2 by previous authors

As a tailored PRINCE2 is recommended for project-management purposes by SMEs, it is also important to include recommendations for shortcomings in the framework that have already been identified by previous authors. The study conducted by Kruger and Rudman (2013) concluded in a list of recommendations to address shortcomings and weaknesses in the PRINCE2 framework. It specifically address issues regarding the alignment of business processes with application software functionality (Kruger & Rudman, 2013). These recommendations were investigated and are summarised in the table below and filtered for recommendations that will also apply to SMEs for smaller software-implementation projects.

Table 4.8: Recommendations for addressing shortcomings and weaknesses of PRINCE2 (based on Kruger & Rudman, 2013)

Recommendation category	Recommendation description
Strategic alignment	Due to the IT gap, it is essential that persons with both a business and an IT background form part of the project team. Team members that do not have sufficient experience should be mentored by other team members. It is further recommended that the project manager and project board member also have a good understanding of the business system and IT needs. This enables effective communication between the IT team and top management.

Testing of functionalities	Testing of the functionalities of the software package by end users should be conducted at the end of the project before the software is implemented. It is important for the end product to be tested by the users that will be working with the program to ensure that the program is working as it should and that functionalities achieve the desired outcomes as required by the business imperatives of the entity.
Competencies of team members	It is important that training and coaching are available to team members or new project managers to ensure that all members forming part of the project have the necessary competencies to reach the required objectives of the project.
Communication	Communication structures should be in place between team members, the project manager and the project board member to ensure that issues identified during the course of the project are immediately communicated and acted upon through the correct channels.
Effective tailoring of the PRINCE2 methodology during the planning stage	It is important to note that the methodology should still be tailored during the project planning stage to ensure that it addresses the specific requirements of the entity, more specifically, that it is in line with the required business imperatives that the entity strives towards. The project brief and planning documentation should specifically address and include these business imperatives and the functionalities required to achieve it.
People skills	Team members and project managers should have good people skills in order for them to successfully work together. Although SMEs might have limited staff, it is still important to use individuals with good people skills to form part of the project team.

4.7 Tailored version of PRINCE2 for small and medium-sized entities

Following the recommendations made in this chapter, a tailored version of PRINCE 2 was developed. During this development, the recommendations for smaller projects, the recommendations for addressing weaknesses and shortcomings and the concluded results of Chapter 3 have been taken into account. It is further important to note that this tailored version will still require further tailoring by SMEs in order for it to address the specific business imperatives of the SMEs.

Figure 4.2 is an illustration of the proposed tailoring of the PRINCE2 processes for SMEs.
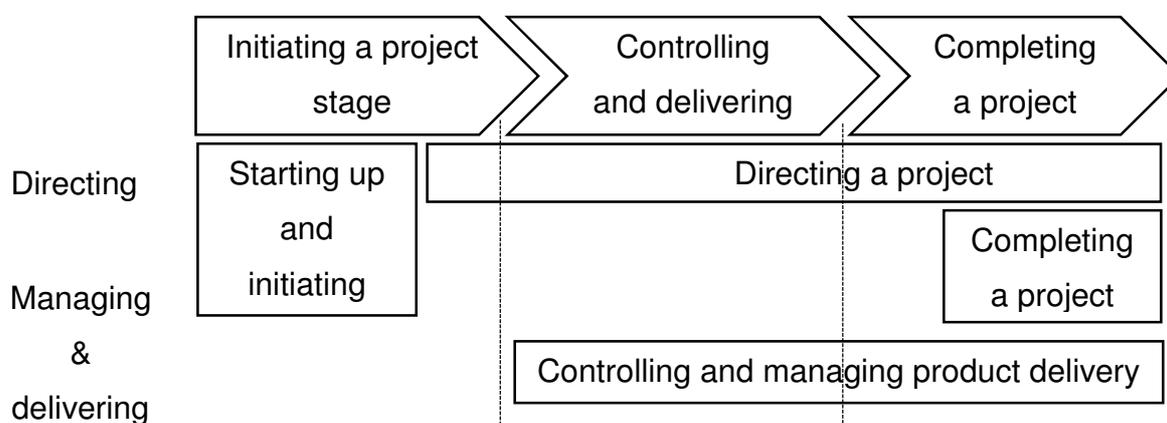
Figure 4.2: PRINCE2 process model tailored for SMEs

It was concluded that all seven themes of the PRINCE2 framework will still form a valuable backbone of the entire project. Section 4.3 detailed how these themes should, however, be seen in the light of smaller projects.

As a result, the PRINCE2 processes can be tailored and summarised as shown in the table below:

Table 4.9: Tailored PRINCE2 processes for SMEs

Tailored process	Tailored activities	Reference to PRINCE2 activities	Additional activities to address shortcomings	Conclusions from Chapter 3
Starting up and initiating a project	Appoint the project board (or single board member) and the project manager. Ensure both parties have sufficient knowledge of the business and IT skills.	(SU1) Appoint the project board and the project manager.	Strategic alignment weakness	
	Appoint the project-management team. Ensure that individuals have the required skills to assist in the project. Should existing employees not have the required skills, rather make use of a service provider to assist with project development. Also ensure	(SU3) Design and appoint the project-management team	Strategic alignment weakness & Competencies of team members weakness & People skills weakness	

	that the team members have the correct people skills to be involved in the project.			
	Schedule a project planning meeting and discuss and document the following in the project brief document in as much detail as required: - Outline the business case and project objectives. Include business imperatives and required software functionalities to attain these imperatives. Sufficient time must be invested in the selection of the correct software package with functionalities that will ensure attainment of business imperatives.	(SU4) Prepare the outline business case & (IP6) Refine the business case	Strategic alignment weakness	Conclusion from Chapter 3 on business imperatives and effective tailoring of the PRINCE2 methodology approach to address business imperative alignment weakness

	- Capture lessons learnt on previous projects if applicable. - Decide on the project approach and project plan.	(SU2) Capture previous lessons learnt (SU5) Select the project approach and assemble the project brief & (SU6) Plan the initiation stage & (IP5) Create the project plan & (IP7) Assemble the project-initiation documentation		
	- Include project risks and procedures to address risks. - Decide on frequency of communication and reporting of issues identified during the course of the project.	(IP1) Prepare the risk-management strategy (IP3) Prepare the communication-management strategy	Communication weakness	

	- Detail controls that will be put into place to identify and address issues that may result in a change in the business case or the project not reaching its objectives.	(IP4) Set up the project controls		
Directing a project	Approval of the project by the project board member(s)	(DP1) Authorise initiation & (DP2) Authorise the project		
	The project board member should be available for decision making and providing guidance throughout the project lifecycle.	(DP4) Give *ad hoc* direction		
Controlling and managing product delivery	The project manager authorises and assigns work that is scheduled to be done for the project.	(CS1) Authorise a work package & (MP1) Accept a work package		

	The project manager reviews work completed throughout the course of the project lifecycle and tracks the process. The project manager ensures that work has been done at the required quality by frequently performing tests on the software package functionalities to ensure that it delivers the outcomes as set out in the project brief document.	(CS2) Review a work package status & (CS4) Review the project status & (MP3) Deliver a work package	Testing of functionalities weakness	
	Coaching and feedback on completed work between project managers and team members should be done throughout the project lifecycle.	Competencies of team members	Communication weakness	

	The project manager communicates completed work with the project board in accordance with communication schedules agreed upon in the project brief document.	(CS3) Receive completed work packages & (CS5) Report highlights & (MP2) Execute a work package		
	The project manager escalates issues and risks identified during any given stage of the project to the project board member(s).	(CS6) Capture and examine issues and risks & (CS7) Escalate issues and risks	Communication weakness	
	The project board member provides guidance as to the corrective actions to be taken for issues and risks identified. Project team members act on the proposed actions.	(CS8) Take corrective action & (MS5) Produce an exception plan		
	Amend the project brief document (project plan	(MS2) Update the project plan & (MS3)		

	specifically) should any of the issues identified have a material impact on the original plan.	Update the business case		
Completing a project	The project manager prepares for the closure of the project by ensuring that all objectives as set out in the project brief document have been met and the desired quality has been achieved.	(CP1) Prepare planned closure & (DP5) Authorise project closure		
	The project manager compiles a project end report detailing achievements and how issues were resolved.	(MS4) Report stage end		
	Testing of functionalities of installed software package should be conducted before the completed product is handed over for closure to		Testing of functionalities weakness	

	ensure that the software is working as it should.			
	Completed products are handed over to the project board member(s) for evaluation and approval.	(CP3) Hand over products & (CP4) Evaluate the project		
	Project board member(s) authorise project closure.	(DP5) Authorise project closure & (CP5) Recommend project closure		

4.8 Conclusion

This chapter highlighted the importance of making use of a structured framework for project management and indicated that PRINCE2 can be a valuable framework for use by SMEs during the implementation of small accounting software packages.

Using a methodology such as PRINCE2 in managing a software-implementation project ensures that the project is properly controlled and finalised. Should PRINCE2 be used in a software-implementation project by SMEs, it is, however, important to ensure that:

- sufficient time and effort are invested in planning the implementation project to ensure that objectives are properly defined and attainable. Objectives should include the business imperatives of the entity, mapped against the functionalities that the proposed software package provides in order for the project to be feasible.
- the activities and processes included in the tailored version of PRINCE2 are still reviewed and further tailored to address the requirements of the specific SME's implementation project. It is important to note that further tailoring should be done by still incorporating at least the principles of the seven themes of PRINCE2 in order to maintain the integrity of the PRINCE2 methodology.

CHAPTER 5
CONCLUSION

5.1 Introduction

Many publications are available on strategic alignment of ISs and business strategies of large entities. This topic has already been widely researched in order to narrow the gap between ISs and business strategies. Many recommendations and frameworks have been developed to assist entities in narrowing this gap and are mainly focused on larger entities. Little has however been published on the tools and frameworks available to SMEs during software implementation and specifically the challenges they face when implementing software. Although SMEs are facing similar challenges as larger entities with regard to software implementation, they are also challenged by other obstacles such as limited skilled staff and resources due to their size (Marcelino-Sádaba *et al.*, 2014), high costs relating to software implementation and competition in the SME market.

This study focused on two main constraints of strategic alignment of ISs within SMEs. These two constraints were identified as one of the two main reasons why SMEs fail in the proper implementation of accounting software.

5.2 Results from the literature review on strategic alignment within small and medium-sized entities

In Chapter 2 a literature review was performed on strategic alignment between business strategies and ISs. During this review, strategic alignment and its importance in the prevention of software failure were researched. This literature review also focused on the relevancy of strategic alignment for SMEs specifically.

After the above-mentioned review it was concluded that strategic alignment between business strategies and ISs is necessary to prevent failure of accounting software. It was further concluded that strategic alignment is just as important for SMEs as it is for larger entities.

5.3 Results from the mapping of business imperative and software functionalities

Mainly due to the high cost implications of software programs, SMEs often fail to implement accounting software packages that will successfully deliver the outputs to drive the entire business by simply selecting a generic software package that does not provide the functionalities the SMEs require to manage their business processes.

A literature review was performed to identify the business imperatives commonly found within SMEs. For each of these business imperatives, software functionalities were identified that will be required in order for SMEs to attain the specific business imperative. It is important to note that during this research, not all possible strategic business drivers were considered and discussed. Only some of the strategic business drivers that were found to be most commonly relevant to SMEs were selected, and they do not cover the entire spectrum of strategic business drivers.

A mapping table was developed that maps the most common business imperatives followed by SMEs with the software functionality that might be required in order for the SMEs to attain their business imperatives.

It was found that the types of business imperatives SMEs are striving towards are impacted by the level of innovation the SMEs want to accomplish as well as the cost of investment in software the SMEs are willing to accept. Business imperatives identified included low cost, innovation, diversification, differentiation, mobility, pro-active management, de-skilled workforce, customer-centric strategy and process efficiency. In addition, it was found that the level of innovativeness of an SME also has a direct impact on the type of software functionalities that will be required from the implemented software package. These functionalities include integration ability, the level of complexity of operating the software, electronic capability and availability for customisation.

From the literature review and mapping table it was found that, in order for an SME to select the correct accounting software package, it is important for the SME to invest time and effort in considering the software functionalities provided by the software

package and mapping these with the business imperatives that drive the SME. Not all generic accounting software packages provide these functionalities and it might be necessary to invest in either a more advanced package or customisation. In order for SMEs to properly map their business imperatives with required software functionalities and ultimately deciding on the correct software package a high level of insight and planning is required. Should a generic software accounting package be installed that does not provide these outputs, it will result in software failure.

5.4 The practical ability of using PRINCE2 during accounting software implementation of small and medium-sized entities

Not following a structured methodology to manage the software-implementation process was identified as another reason for software failure. PRINCE2 as a project-management framework was researched for its suitability for SMEs to use during software implementation.

In this study, case studies of small projects that made use of tailored versions of PRINCE2 were reviewed and used to develop a shortened version of PRINCE2 that can be used by SMEs during software-implementation projects. Recommendations for improvement were obtained, filtered and included in this shortened version of PRINCE2 for SMEs.

From the literature review and development of a shortened version of PRINCE2, it was found that PRINCE2 as a framework is currently too bureaucratic for use by SMEs. It was further identified that the framework lacked sufficient activities to specifically address strategic alignment issues. It was concluded that if PRINCE2 is tailored properly and adjusted with certain recommended improvements, it can be a valuable framework for use by SMEs.

As a result, the shortened version of PRINCE2 as developed in this research assignment included tailoring and improved activities. The tailoring process eliminated certain processes and activities from the PRINCE2 framework that were regarded as unnecessary for smaller entities. It also incorporated some activities from the removed processes into other processes where the activities were regarded as important to be

followed for smaller projects as well. This shortened version of PRINCE2 can be used by SMEs for small accounting software-implementation projects, but it must be noted that further tailoring might be required to address the specific needs of the project. It is important to note that this tailored version of PRINCE2 addresses general SME challenges and does not focus on one specific section within SMEs. It might therefore be necessary for this version to undergo further tailoring by the SME using it in order for it to address the specific challenges of the SME.

5.5 Conclusion

In conclusion, the time, cost and effort involved in selecting the best accounting software package and following a structured methodology such as PRINCE2 during the implementation process of new accounting software will prove to be beneficial in the long term. It will prevent the business processes of SMEs from future failure and unnecessary future costs.

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