Preface

This book is about Small Business and Information Systems.

The small business sector is an important part of an economy. Small business employs 48% of the total workforce in Canada (Industry Canada, 2010) and 50% in the USA (Michma & Bednarz, 2006). The contribution to GDP by small business is 29% in Canada and 30% in the USA. In order for small business to survive and prosper an innovative approach must be adopted. The mainstay of any innovation is the effective adoption and use of technology, specifically information systems. The appropriate combination of information systems and the level of maturity of the management processes will create an effective environment to contribute to competitive advantage and the longevity of the small business through improved operations.

Small businesses, in general, may pass through a number of growth stages. To begin, a sole proprietor may form a home-based business. As production and sales volume increase a distinct location may be established for a micro-business. Further growth may necessitate the hiring of individuals to work in the business. Subsequently, expansion to a medium sized business will allow for the specialization of certain tasks and assignment to qualified individuals.

Each of the above stages may be described relative to the number of employees. The European Parliament (2002) defines a small business to include 10 to 50 employees. Industry Canada (2010) has two major categories for the definition of a small business. In the manufacturing sector a small business has 100 employees. In the service sector the number is 50 employees. In the United States a small business is defined as having fewer than 500 employees (Michma & Bednarz, 2006).

In the past small business success was associated with growth (Smallbone & Wyer, 2000). However, this is not necessarily the case. Dobbs and Hamilton (2007) and Tan et al (2009) determined that small business growth tends to slow after a certain size. Hunter and Kazakoff (2008) also identified this phenomenon when investigating multi-generation small business. They identified certain businesses which could grow with existing facilities such as automobile dealers and jewelers. However, home builders could not necessarily expand without incurring a signifi-
cant increase in costs. Even a small increase in volume would require the addition of a complete set of sub-trades. Thus, the home builders considered themselves successful through longevity rather than growth.

As a small business exists for quite some time, the approach to conducting operations must necessarily mature along a continuum of three perspectives. One perspective relates to management processes. They will become more defined and easily replicated. Also, this maturing of management processes will promote efficiency, eventually effectiveness, and contribute to competitive advantage. Another perspective, E-commerce involves employing more advanced levels of web site functions. E-business represents the other perspective. Along this continuum more sophisticated functionality of administrative support will be employed through information system integration.

Small business adopts and uses information systems in innovative ways to improve operations and contribute to competitive advantage. This book provides a number of perspectives on the relationship between small business and information systems. As a small business matures more sophisticated information systems are employed involving more advanced technology. There are three major sections in the book.

**INTRODUCTION**

An overview of the book is presented here along with definitions of major terms related to Small Business, Entrepreneurs, and Information Systems.

A business of any size needs information to function. Computer-based systems provide the necessary information to support the process of management. This book describes the relationship between information systems and small business. This chapter provides an overview of the book.

An overview description of the book is presented here. The term small business and the relationship with information systems is presented here. It includes a discussion of the importance of small business and the reasons and benefits for employing information systems. The format for the remainder of the book is presented.

*Chapter One: Small Business*, presents a description of small business.

This chapter presents a description of generic small business from a number of different perspectives. To begin, a definition for the term “small business” is discussed. There are many varied definitions used by government agencies and researchers. Thus, a contingency approach is usually taken with the investigator providing the adopted definition.

Next the importance of small business to a nation’s economy is presented. The small business sector consists of a large proportion of overall employment and contributes a significant amount the national Gross Domestic Product (GDP).
Small business is not a small big business. Thus, small business managers take a different approach to making decisions than managers in large corporations. Mainly small business managers’ decisions are affected by limited resources and the liabilities created by these limitations.

Many perspectives may be taken regarding what constitutes a small business. At a senior level there are alternative structures which facilitate policy decision making. At an operational level decisions are made relative to the resource limitations, experienced by all small business, concerning skills, time, and finances.

Small business will tend to focus on a small customer base because of the number which can be served. This approach entails risk regarding the loss of a few customers or a general down turn in the market.

Many small businesses must deal with the dynamics created by family member’s involvement in the business. Initially family members may be employees. However, they may grow to become owners and decision makers, especially the children of the founding entrepreneur. Another issue revolves around participation versus non-participating family members.

There are intangible resources, such as culture and reputation that will contribute to the performance of a small business. Also, knowledge and skills of employees and managers; as well as the ability to pursue personal relationships both internally and externally will facilitate performance and contribute to competitive advantage.

Unfortunately, small businesses fail. The main contributing factor relates to poor management and the soft skills involved in dealing with employees and customers. Successful small businesses will initially make a profit. Then, the small business may grow. Although growth tends to lessen as the small business matures. A small business may be considered successful without growth if this is the objective of the small business manager. Another perspective of success is longevity, evidence of which is shown in multi-generation small business.

A major issue for small business is succession. The small business may be passed on from one generation to the next within the family or the business may be sold and continue under new management. A positive result for succession requires the current owner/manager to make a decision about their eventual cessation of involvement.

This chapter is organized as follows. The next section presents various definitions for small business. The importance of small business is related to employment and contribution to the economy. Then small business is differentiated from large companies. Various perspectives on policy and operational decision making are outlined. Then aspects which contribute to small business failure and success are compared. Issues regarding growth suggest this is a possible measure of success. But, so is longevity which leads to the final section of the chapter about succession.
Chapter Two: Entrepreneurs, describes the types and characteristics of individuals involved in small business. An entrepreneur willingly addresses relatively high risk situations which require making decisions about allocating scarce resources.

This chapter includes a description of the various types and characteristics of entrepreneurs involved in small business. The emphasis is on the individual who becomes an entrepreneur. A nascent entrepreneur is an individual who has not yet started a venture but has considered doing so and is in the process of forming a small business. The types of entrepreneur include novice, serial, and portfolio. Personality types influence the entrepreneur’s approach to conducting business. Some entrepreneurs might be aggressive pursuing growth and expansion while others might take a more conservative approach.

Further, there is an obvious link between an entrepreneur and a small business. The characteristics and aptitude of an entrepreneur may apply to their involvement in a large corporation, but an entrepreneur is more obvious and indeed necessary in a small business. It is a difficult task to separate a discussion of the entrepreneur from the small business. However, the remainder of this chapter will focus on aspects related to entrepreneurs.

This chapter is organized as follows. The next section defines the types of entrepreneurs including novice, serial, and portfolio, including nascent. Another perspective considers manager, owner, technician, and crafts person. The following section presents descriptions of the characteristics of entrepreneurs. These characteristics include descriptions of cognitive style and the umbrella characteristics as displayed by “super achievers” and “small giants”. Another perspective investigates the characteristics of the founding entrepreneur and the authentic leader. A differentiation is made between an entrepreneur and a small business owner. Further characteristics are explored from the perspective of traits, behaviors, and opportunity identification. This section also investigates the performance of entrepreneurs in relation to their human and social capital. Then entrepreneurship is explored through a discussion of the Theory of Entrepreneurship. The chapter concludes with the introduction of the entrepreneurial process, including creativity, innovation, and implementation, followed by a discussion of the dimensions involved in the entrepreneurial process including creativity, innovation, and implementation.

Chapter Three: Information Systems, provides a generic overview of this technology and how it may be employed to support small business.

This chapter describes information systems. In general, an information system turns data into information to support decision making. The information must be timely, complete, and accurate relative to the decisions which must be made.

There are many types of systems, such as the solar system or the nervous system. An information system is one type of system which supports various decision making activities within a business. Information systems may be manual or automated.
With a low volume of transactions and few data items a manual information system may suffice. However, as transaction volume increases along with the requirement for more data items an automated information system will become a necessity. This chapter focuses on aspects related to automated information systems.

This chapter is organized as follows. To begin, systems in general are described. Then, the terms “information technology” and “information system” are differentiated. The remainder of the chapter is focused on information systems. Next a general information systems diagram serves to explain the components of any information system and its relationship to the business environment. This diagram shows how data becomes information which, in turn, supports decision making. There are different types of information systems depending upon the management level in a business. Each type of information system is designed to address the requirements of decisions necessary at various management levels. The chapter includes a list of commonly used terms which might be encountered by the small business manager. Then an overview of research related to small business and information systems presents a description of small business readiness for the technology. A small business may use information systems to lower costs, increase profits, improve service, or achieve a competitive advantage. More specific research is presented in subsequent chapters. To conclude this chapter a sample investigation is included which outlines further considerations regarding the acquisition of information systems by small business. Project recommendations are made relative to a number of stakeholders as they relate to small business.

Chapter Four: Theories for Investigations reviews the plethora of conceptual and applied frameworks for investigating small business in general and more specifically the relationship between small business and information systems. It is concluded that currently there is not a generally accepted small business theory.

This chapter presents general theories, including models and frameworks, about small business and investigations related to information systems. Then a series of overviews describe approaches to information systems and small business. These overviews are presented in more detail in subsequent chapters in this section of the book.

Chapter Five: Adoption commences a series of chapters that relate small business and information systems via a specific aspect relating the two topics. In this chapter the idea of adopting the technology is explored from initially identifying an issue through to adopting a specific information system to address the issue.

This chapter addresses the issues involved in small business adoption of information systems. The adoption of technology in general will result in significant changes to the small business. It is not necessary that the technology is leading edge, just new to the small business. Pressure to adopt a new technology may come from external or internal sources. Externally, customers or suppliers may expect to interact with
the small business via some form of technology. Internally, senior management of
the small business may perceive that the adoption of a technology will provide a
benefit to the business.

A specific form of technology involves information technology; those systems
which provide input to management decision making. Small business adopts informa-
tion technology to enhance the efficiency of daily operations. Previous experi-
ence will positively impact the adoption of traditional information systems; those
functions which support normal business operations. The adoption of more current
information systems, such as Internet based applications will be facilitated by an
innovative approach to adopting a novel information technology.

Two theories have been employed to analyze the adoption of information systems
by small business. The Resource-based View Theory suggests small business employ
their internal resources to adopt information systems in a unique way to improve
processes and potentially gain competitive advantage. The Technology-Organization-
Environment (TOE) framework outlines the characteristics of information systems
adoption relative to the specific context of the technology, the small business, and
its environment.

The adoption of information systems may be considered a success of a failure.
Successful adoption will result from user participation and the realization of the
initially identified benefits. If there is no recognition of the impending change in
the small business, the adoption may not be considered successful.

This chapter is organized as follows. The context of the adoption of information
technology involves the acquisition of technology in general while taking an in-
novative approach. There are both internal and external pressures for the adoption
of information systems. Previous experience will positively impact the adoption of
traditional information systems. However, a more innovative attitude will facilitate
the adoption of current technologies involving the Internet. Two theories are reviewed
– Resource-based View and Technology-Organization-Environment (TOE). Then
issues, related to adoption success and failure are reviewed. The chapter concludes
with the presentation of an adoption project which, while completed, was not con-
sidered to be successful by the managers of a small business.

Chapter Six: Use describes how the information system is employed within a
small business. An information system may be used to support different levels of
management decision making. There may be issues in interacting with the informa-
tion system which may impact user satisfaction.

This chapter presents an overview of the issues involved in the use of information
systems by small business. Management of small business tends to make decisions
based upon an informal approach to gathering information. Once adopted, an in-
formation system formalizes this approach and promotes a more structured process
for decision making. From an external perspective the use of information systems by small business presents a positive image to customers, suppliers and other small businesses. Internally the responsibility resides with senior management to set a positive environment regarding the use of information systems.

Senior managers should take a strategic approach to determining how information systems can contribute to competitive advantage. They must be proactive in dealing with issues associated with the use of information systems. This is especially so for ensuring employees are sufficiently trained in the appropriate use of the information systems. The use of an information system should promote operational efficiency by providing timely information that accurately reflects what has transpired in the small business.

This chapter is organized as follows. To begin two theories are reviewed which provide the context for information systems use in small business. Then it is noted that information systems use will promote a positive image for the small business. Laggards and leaders are described regarding practices which facilitate the beneficial use of information systems. In general, a proactive attitude by management and employees will provide a positive environment. Once selected the information systems should be used effectively as well as efficiently. Operational efficiency will contribute to “doing things right”. Effective information systems, providing timely and accurate information will contribute to management in their goal of “doing the right things”. The chapter concludes with a presentation of the results based upon a series of projects which investigated small business use of information systems. There are issues to be addressed internally and those which arise externally that require a response.

Chapter Seven: Strategy explores the idea of how an information system may support strategic initiatives of small business.

Strategy involves planning for the future of the small business and considers both internal assets and external events which may impact the business. Small business may employ information systems in a strategic manner in order to attempt to gain competitive advantage. From an external perspective the small business will develop a strategy which proactively addresses the business environment. Continual scanning will provide information about the market and other small businesses in the same industry. Information systems related to websites and other Internet based applications will facilitate gathering important information.

Internally the focus is on skills and processes. The strategic use of information systems will improve employee skills and promote more sophisticated processes. The establishment of a learning environment will allow managers and employees to acquire knowledge about information technology. They will be encouraged to take novel initiatives in the application of information systems which may contribute to
competitive advantage. In this environment the information technology knowledge of the owner/manager will promote investigations into the novel use of the technology to benefit the small business.

Overall, the strategic use of information systems will improve the performance of the small business. Physical assets such as equipment and machinery will be employed more productively. Intangible assets in the form of method and processes will lead to a more sophisticated approach to the management of the small business. Further, as the small business grows and matures informal processes will be replaced by formal processes supported by the adoption and use of information systems. Employee skills and a learning environment will facilitate the use of all of these assets to gain competitive advantage.

This chapter is organized as follows. To begin the generic term “strategy” is reviewed. Then for the remainder of the chapter strategy is related to information systems. Thus, it is suggested that the strategic use of information systems by small business will contribute to gaining competitive advantage. Next it is proposed that the information technology knowledge of the owner/manager and the creation of a learning environment within the small business will lead to a more sophisticated use of information technology and consequently competitive advantage. As the small business grows and matures more sophisticated and formalized processes are employed which are supported by information systems.

Chapter Eight: Competitive Advantage discusses the impact of information systems on the small business’ interaction with the direct environment. This interaction involves both, relating to customers as well as identifying and reacting to competitors’ initiatives.

Competitive advantage for a small business involves operating more efficiently and offering different products or services than competitors. A more efficient operation will result on lower costs and thus an advantage may be gained by establishing a lower market price. The advantage gained by offering different products or services must also take into account the needs of customers. That is, being different is not enough. There still must be a demand for the product or service.

A small business does not necessarily have to grow to attain competitive advantage. Indeed, just survival will suffice. In either case competent management is imperative. This relates to knowledgeable senior management and a positive learning environment for employees. The Theory of Constraints suggests that increased sales volume in conjunction with lower expenses will contribute to competitive advantage.

Information systems may be employed to contribute to the establishment of competitive advantage. The innovative adoption of technologies will support this initiative. Another theoretical perspective has been employed in this instance. The Resource-based View Theory, as presented in a previous chapter suggests the small business should employ its resources in a unique way from competitors.
This chapter is organized as follows. To begin, the term “competitive advantage” is described. Advantage may be gained through differentiation from competitors by having lower costs or different products or services that respond to a demand in the market. Next, competent management is presented as a factor contributing to competitive advantage. This factor involves knowledge of senior management and their ability to establish and maintain external networks. Then the Theory of Constraints suggests improved performance will result from increased sales and lower operating expenses. Three related issues are then presented which may contribute to competitive advantage. “Coopetition” is a term used to describe the conundrum of small businesses which are simultaneously cooperating and competing. The result is an increased market. “Family Capital” is another term which suggests the unique characteristics of a family business may contribute to competitive advantage. The last term is “luck”. Here it is important to have a stimulating and open small business environment. Thus, when a situation arises which may be attributed to luck the small business will be in a position to take advantage. Finally, the Resource-based View theory provides the context for analyzing the unique information systems characteristics of small business which may contribute to competitive advantage. These characteristics include information systems infrastructure and information systems skills along with management knowledge and an integrated strategy to use information systems to facilitate competitive advantage.

Chapter Nine: Management Processes discusses how management of small business evolves over time as the business matures. In general, these processes become more formal and robust.

Management processes relate to a number of high level activities involved in small business operations. At the highest level management will set the direction for the small business in the form of a mission statement. Then, within the context of the mission statement goals may be used to give further direction to the small business. Goals, however, must be evaluated. This necessitates the development of objectives which possess measurable outcomes. These three initiatives relate to long range planning activities of the small business.

Management involves five functions. Irrespective of the level of management all five functions are necessary. The higher management levels involve more planning while the lower levels involve more controlling.

As a small business matures more sophisticated management processes are required. The continuum of sophistication relates to the stages of a small business – Genesis, Grounding, Growth, and Generations.

Management capabilities till promote growth of the small business. These capabilities are related to human resource activities, competency of managers, and the planning and control of management processes in an attempt to improve perfor-
mance. Resources should be used to improve productivity. The core functional areas, marketing, fiancé, and human resources, should operate as efficiently as possible. The limited resources of a small business should be employed as productively as possible to gain maximum short-term and long-term advantage.

The personality characteristics and experience of a few senior managers in a small business are key aspects to the performance of the small business. These managers will provide direction and guidance to employees through establishing management processes and ensuring they continue to reflect the necessary operational functions of the small business.

This chapter is organized as follows. To begin the context for management processes is described relative to the sequence of planning related to mission, goals, and objectives. This sequence provides a path from general statements of direction to specific measureable activities. It is important to note that the specific activities should relate to the goals and respond to the mission. Next the five generic functions of management are reviewed. They relate to all levels of management with their emphasis changing depending upon the level within the hierarchy. Another perspective is presented with five themes of management which relate to the main operational area of a small business. Growth of a small business depends upon the characteristics and experience of the senior management. As small businesses grow management processes become more formalized. Information system support this formalization.

Chapter Ten: E-commerce also presents a maturity continuum for the use by the small business for Internet-based technology. This is a specific form of information system based upon current technology.

E-commerce involves the sale of products and services via the Internet. The unique properties of the Internet facilitate a variety of E-commerce models. The focus of this chapter is Business to Consumer (B2C). As a small business matures it will tend to incorporate more sophisticated aspects of E-commerce and pass through four stages – Presence, Portals, Transactions Integration, and Enterprises Integration.

E-commerce allows small business to be in virtual contact with any one from anywhere at any time. The customer relations component of the value chain is improved through using E-commerce. Sales may be completed faster. Post sales service may be related to the specific customer and their purchases.

Security concerns may be addressed by establishing specific user accounts with passwords. A response to telecommunications concerns could be the adoption of encryption techniques for data exchanged via communications networks.

Internet use and E-commerce is expanding. Small business adoption of E-commerce will be facilitated by three considerations. The goals of the small business should relate to the benefits created by using E-commerce. Senior management
should be knowledgeable about E-commerce and enthusiastic about its adoption. Further, employees should possess sufficient knowledge to be able to implement and use a specific E-commerce application.

This chapter is organized as follows. To begin, the context of E-commerce is described. The Internet forms the base for any E-commerce application. The benefits of the Internet all businesses to be able to better communicate with the market in general and with specific customers. Then, the four stages of E-commerce use are described. These stages relate to the E-commerce dimension of the Balanced Maturity Framework described in more detail in Chapter Thirteen. Various categories of E-commerce are then presented. The focus of this chapter is on Business to Consumer (B2C). Next, advantages and disadvantages of E-commerce are listed. Not that the advantages far outweigh the disadvantages. Then the chapter reports on a series of projects which investigated various E-commerce issues. These issues range from increasing customers, improving customer service, pursuing a differentiation competitive strategy, and inhibitors of E-commerce adopt. Finally, organizational slack is identified as a positive contributor to the adoption of E-commerce. Organizational slack allows managers and employees the time to investigate alternative technologies and how they may be applied to the specific small business. Unfortunately, small businesses tend to not possess slack. Thus, small business will innovate within the restrictions imposed by limited resources of time, skills, and finances.

Chapter Eleven: E-business describes the third evolution component in the use of information systems by small business. This component relates to the more traditional use of information systems to support management processes and it also incorporates current technology.

E-business is a way of conducting business in an electronic form which employs the facilities of the Internet. Recall from Chapter Eleven – E-commerce that electronic commerce involves the sale of products and services on the Internet via the website of a business. E-business includes E-commerce. But, it goes beyond and extends E-commerce to both pre-sales and post-sales services. E-business puts the business in closer contact with its customers, through Customer Relationship Management systems, which improves customer service and loyalty as a consequence.

The other major initiative involved in E-business relates to Supply Chain Management. This facility allows a business to manage all processes involved in the acquisition and distribution of products. Again, it puts the business in closer contact with suppliers. Both Customer Relationship Management and Supply Chain Management promote interaction with external entities. This focus positively impacts performance through improved customer service and efficiencies in the supply chain.

This chapter is organized as follows. To start, the term E-business is defined along with various perspectives. In general, E-business involves internal management processes and external information systems based on the Internet. Next factors which
facilitate the adoption and use of E-business are presented. These factors include the level of information systems knowledge in the business and the system’s perceived usefulness. There are also organizational factors related to internal management processes. Then, benefits related to the adoption of E-business involve improved performance and contribution to competitive advantage. The chapter concludes with a presentation of the E-business stages which form one of the three dimensions on the Balanced Maturity framework discussed in Chapter Thirteen. The E-business stages include Basic, Silos, Internal Integration, and External Integration.

Chapter Twelve: Balanced Maturity Framework brings all of the previously presented material together by relating management processes, E-commerce, and E-business. The main thesis of the book is presented here in that as the three major components evolve they must do so in a relatively balanced manner.

The presentation of the Balanced Maturity Framework represents the culmination of this book. The framework consists of three dimensions. Management Processes include functions such as planning, organizing, staffing, directing, and controlling. All management levels include these functions. Each level will consist of a different mix of these functions. As a small business matures the management processes become more structured and more outward looking. Information for decision making will be more formalized. In support of the more structured management processes will be more sophisticated technology. E-commerce will support interaction with customers. More advanced E-business will allow communication with suppliers.

This chapter is organized as follows. To begin, growth and longevity are presented in association with success. The stages of growth are reviewed which were initially presented in Chapter Four – Theories for Investigation. Then E-commerce is related to stages of maturity. E-business follows with a progression over time. The small business life cycle stages are then related to information processing. The chapter then provides a description of some models the show how small businesses evolve. All of the previous descriptions here and the earlier chapters have provided the context for the Balanced Maturity Framework which is presented at the end of the chapter.

CONCLUSION

This conclusion presents a summarized review of the book. The general context of information systems in small business is described in Chapters One through Three. This includes material on small business, entrepreneurs, and information systems. Chapter Four through Eight provide further detail. Each chapter includes a review of related theories along with an applied discussion of information systems aspects including adoption, use, strategy, and competitive advantage by small business. The
three dimensions of the Balanced Maturity Framework are described in separate chapters. These dimensions include Management Processes, E-commerce, and E-business. The final chapter in this section presents a description of the Balanced Maturity Framework. The important aspect of the framework is the balanced approach to maturity.

REFERENCES


