

**The growth of small firms: An Alternative look through
the lens of effectuation**

Afolayan Oluwaseun Babatope

Thesis submitted to the
Faculty of Graduate and Postdoctoral Studies
In partial fulfilment of the requirements
for the MSc. degree in Management

Telfer School of Management
University of Ottawa

©Afolayan Oluwaseun Babatope, Ottawa, Canada, 2014

Abstract

The importance of small firms in a country's development cannot be over-emphasized. In particular, it is important for them to grow in order to sustain their contributions to a country's economy. Studies have shown how firms achieve growth using the traditional model of decision making (causation) in which planning, market research and forecasting are used to gain relevant information about the firm's market/industry. This planning enables the firms to compete favourably with other existing firms in the market.

Effectuation as an alternative theory involves decision-making processes under conditions of uncertainty where there is no adequate knowledge of the market due to its latent and emerging nature. Effectuation has been used to examine various concepts in entrepreneurship, but there has been no real effort to apply it to the growth of small knowledge-intensive firms (SKIFs).

This study, based on in-depth interviews with six SKIFs, highlights how effectuation can be applied to the growth of SKIFs and it examines how the four underlying principles of contingencies, affordable loss, strategic relationships and adaptation contribute to SKIF growth. In addition, elements of causation are also shown to be relevant, leading to the conclusion that the two models can be used jointly to achieve growth of SKIFs.

Acknowledgements

I wish to thank my supervisor Professor Martine Spence for her guidance and leadership which have been of immense benefit to me in writing this thesis. Her great insights and dedicated mentorship put me on the right path.

I also wish to thank many other people who have in different ways assisted me from my first day at the University of Ottawa. These people include Professor Dan Lane (who incidentally was an examiner for this thesis) and Professor Samia Chreim who both took me through the rudiments of research. Others include Professor Judith Madill, Professor Tyler Chamberlin, Professor Mark Freel and Professor Barbara Orser whose teachings were thorough and insightful. I also thank Professor Ajax Persaud (my second examiner) and Professor Sandra Schillo for their valuable advice that helped to make this thesis a reality.

In addition, I wish to thank all my classmates in the M.Sc. in Management program who have all been helpful in one way or another.

Table of Contents

1. Introduction	1
1.1 Statement of Purpose and Research Questions	3
2. Literature Review	5
Part 1. Causation contrasted with effectuation	5
2. 1 Models of enterprise growth	5
2. 2 Modes of growth	10
2. 3 Theory of effectuation	11
Part 2 Effectuation as an alternative to a firm's growth	19
2. 4 Application of the theory of Effectuation to firms' growth	19
2. 5 Affordable Loss and Opportunity Exploitation	32
2. 6 Strategic Relationships and the Firm's Growth	34
2.7 Adaptation as a Means to Manage the Firm's Future	36
3. Research Methodology	39
3. 1 Approach	39
3. 2 Data Collection	40
3. 3 Interview Protocol	42
3. 4 Data Analysis and representation procedures	42
3. 5 Ensuring validity of results	43
4 Data Analysis	45
4. 1 CASE 1: COMPANY 1	45
4. 2 CASE 2: COMPANY 2	56
4. 3 CASE 3: COMPANY 3	66
4. 4 CASE 4: COMPANY 4	75
4. 5 CASE 5: COMPANY 5	85
4. 6 CASE 6: COMPANY 6	95
5 Discussion of Results and Conclusion	103
5. 1 Cross - Case Analysis	103
5.2 Result Validation	109

5.3Discussion	111
5. 4Contribution of the study and implications	115
5. 5Limitations of the study	116
5.6Conclusion.....	117
References	119
Appendix I – Interview Guide.....	128
Appendix II – Themes from interviews	131
Appendix III – Ethics certificate and consent form	135

List of Tables

Table 1: Summary of distinction between Effectuation and Causation	16
Table 2: Companies' Profile	41
Table 3: Company 1 Profile	45
Table 4: Company 2 Profile	56
Table 5: Company 3 Profile	66
Table 6: Company 4 Profile	75
Table 7: Company 5 Profile	85
Table 8: Company 6 Profile	96
Table 9: Breakdown of effectuation in the Companies	104
Table 10: Indicators of growth	107
Table 11: Means available to entrepreneurs and themes	131

1. Introduction

Small firms have been found to be important to the economic growth of a country and a fuller understanding of the nature of this contribution is warranted. Small firms usually have limited resources, limited exposure and small number of employees who work in less structured conditions. In spite these limitations, small firms are very important in an economy because they generate employment opportunities and they complement large firms in the provision of goods and services. Many studies have examined firm growth without a general model of firm growth, and from the perspective of growth mechanisms, growth stages and the factors that lead to firm growth (McKelvie and Wiklund 2010). Much of this firm growth literature over-simplifies the process and fails to recognize the very unconventional manner in which small firms grow, hence, the need for this study (Sarasvathy, 2001). Most studies focus on how firms are created with the entrepreneur's vision, thereby starting off with a detailed business and strategic plan of where the new firm is heading and how such vision would be achieved (Mazzarol, Reboud and Soutar, 2009). Planning precedes the creation of the firm and market research helps in capturing important information about the new market that is being proposed to be entered (Chandler et al, 2011; Mazzarol et al, 2009). But this pattern is less relevant to situations where little or no information is available to guide an entrepreneur's decision, yet these decisions must be made (Chandler et al, 2011). These circumstances are present in new or unstructured markets or in highly turbulent ones.

This study adopts the theory of effectuation to explain the growth of small, knowledge-intensive firms (SKIFs) in a way that examines the firm after its creation and the adoption of effectual processes to their growth. This theory is particularly relevant in the context of decision making under uncertainties – the environment in which SKIFs operate.

For the purpose of this study, SKIF refers to small and medium firms (SMEs) whose core business is based on advanced knowledge. Examples of firms in this category include engineering and computer consultancy companies, R&D firms, high tech companies, advertising agencies, management firms, law and accounting firms (Alvesson, 2000).

Knowledge-intensive firms (KIF) are companies where the work can be said to be that of developing intellectual property and where well-educated, qualified employees form the major

part of the workforce (Alvesson, 2000, p 1101). The most important characteristic of KIFs is the management of specialized knowledge as the core asset used to gain a competitive advantage in the market (Majeed, 2009).

According to Sarasvathy (2001), effectuation processes take a set of means as given and focus on selecting between possible effects that can be created with those set of means (p 245). It is put forward in contrast to the causation model, which considers a particular effect as given and focuses on selecting between means to create that effect (Sarasvathy, 2001). In other words, causation involves a rational decision-making process where goals are pre-determined and selection is made between means to achieve such goal (Sarasvathy, 2001; Fisher, 2012). Effectuation, being a theory of decision making under uncertain circumstances (Saravasthy, 2008) is particularly appropriate for firms that generally operate in this context.

Effectuation is therefore defined as a decision-making process that involves choosing between possible effects using a given set of means (Goel and Karri, 2006). In other words, it is a course of action which depends on: (1) The firm's resources and the entrepreneur's characteristics; (2) the acceptable level of risk involved in taking any such actions; and (3) constraints and opportunities in choosing any given course of action (Sarasvathy, 2001).

Effectuation implies that a set of heuristics for decision making in uncertain environments (Read, Song and Smit, 2009) can be applied to the growth of small firms, and in particular SKIFs, to the extent that the little resources they have include their most important resource which is knowledge. Effectuation can be used to start-up a firm, make it survive and also efficiently and effectively generate profitable opportunities. Even though the firm start up is not the focus of this study, it is still important to state for instance, in knowledge-intensive firms, a firm can be created merely by chance as the entrepreneur did not set out to create such a firm initially but the creation is contingent on the occurrence of certain events. "Contingencies" are defined as unexpected events which can be turned into profitable opportunities leading to unanticipated result (Fisher, 2012).

Effectuation can be applied in all stages of small firm development from creation to growth. Growth could be by learning from other firms, creating strategic alliances and partnerships,

identifying opportunities in unconventional ways in order to survive and subsequently generating profitable opportunities that lead to the growth of the firm.

Since Sarasvathy (2001) introduced effectuation as a form of decision making in uncertain and dynamic environments, much has been done in respect to its application to many fields of study like management, economics, finance and marketing. Effectuation has been the focal point of studies done on generic small firms, but few studies have applied it to specific situations. Two exceptions are Andersson (2011) who examined the internationalisation path of technology born global firms, or Reid, Bussiere and Greenaway (2001) who focus on cooperative strategies being effectuated in knowledge-based firms. This study intends to fill this gap of in the literature in the application of effectuation theory to the growth of SKIF. This study focuses on the application of effectuation to the growth of small firms as opposed to the creation of new firms which is the focus of the majority of the literature on entrepreneurship. Secondly, the study intends to present a framework of effectuation which brings together the important elements that aid the growth of small firms.

This study adds to the entrepreneurship literature by contributing to the increasing body of knowledge on the application of effectuation to firm growth. This builds on the prior literature in that the focus is on SKIFs, in which leveraging knowledge is integral to achieving growth and securing a competitive advantage.

1.1 Statement of Purpose and Research Questions

The purpose of this study is to describe and understand how effectuation can be applied in the growth of knowledge-intensive small firms. Such firm growth can be measured using any or some of the more commonly-used indicators of growth such as sales revenues, growth in firm assets, profitability, market shares and growth in the firm's physical and production output (Wiklund et al, 2009; Dobbs and Hamilton, 2007; Freel and Robson, 2004).

This study is based on two research questions which are:

- 1) What role does effectuation play in the growth of small knowledge-intensive firms?
- 2) In what ways do contingencies lead to growth in small knowledge-intensive firms?

The study starts with a literature review which is divided into two parts. The first part contrasts causation with effectuation with the model and stages of enterprise growth. The second part examines effectuation with respect to the assessment of means by the entrepreneur, followed by contingencies and opportunity exploitation. Affordable loss, strategic relationships and adaptation as a means to control a firm's future conclude the review of literature. A description of research methodology follows, including data collection strategy, interview protocol, data analysis and representation procedures, and the steps taken to ensure validity of results. Next is the data analysis that consists of within-case analysis of the six case sites selected for the study, followed by cross-case analysis. This is followed by result validation. Future research questions are discussed next along with the contribution, implications and limitations of the study.

2.Literature Review

The section begins with Part 1 which contrasts causation to effectuation. The models of enterprise growth with the stage theory are discussed. The general principles of effectuation are discussed and contrasted with causation. Part 2 elaborates on effectuation as an alternative strategy with discussion of the four principles underlying the concept and their applications.

Part 1.Causation contrasted with effectuation

2. 1 Models of enterprise growth

2. 1. 1 Stage Theory

Penrose, (1995) defines a firm as an administrative unit that has boundaries with distinctive internal activities where members work towards a common goal and entails the use of its resources in the best possible way that lead to the growth of the firm. In this way, Penrose argues that individual firms are able to build firm specific competences which are useful to the attainment of their goals. Penrose specifically argues that human resources play a huge role in giving a firm the required competence which leads to the firm's growth. Knowledge management which is an important extension of the resource-based view of the firm is pivotal to this, ensuring that the right skills and knowledge, distinct and limited to the firm alone are used in exploring and exploiting opportunities to contribute to the required growth (Penrose 1995).

According to Penrose (1995), firm growth is essentially borne out of the unique resources that a firm has which makes it possible to explore opportunities and exploit them to its advantage. These concepts can be seen to have evolved into the resource based view of the firm (Garnsey, 1998). Firm growth is defined as a change in the size of the firm over a given period of time and as such the rate of growth is observed and measured through its size at beginning and the end of the specified period (Dobbs and Hamilton 2007). Firm growth has thus been measured in different ways over the years (Wiklund, Patzelt and Shepherd, 2009). These measurements include sales growth, financial growth, total firm assets, employment, level of profitability, market share and equity (Garnsey, 1998; Dobbs and Hamilton, 2007; Wiklund et al, 2009). Sales and employment are two indicators widely used in the study of firm growth because they are easy to measure, easy to access and not controversial from the research point of view (Delmar,

2006). In addition, sales as growth measurement is also relatively insensitive to capital intensity and degree of integration (Delmar, Davidsson and Gartner, 2003, p 194), while employment is both an objective measure and an indicator of the dynamics of job creation. Other indicators present challenges that limit their use, especially when they fall outside certain contexts. For instance, market share and production output become problematic when the firms studied are not within the same industry or that offer similar services. Changes in events and time make the use of assets and profits challenging because assets are related to the level of a firm's capital while profits can be examined in relation to the size of the firms (Delmar et al, 2003).

Penrose (1959) introduced the concept of path dependence which highlighted that firm growth is dependent on past decisions that have been made and that the firm does not operate in a vacuum. Path dependence has also been described as each step adding to the firm's knowledge where previous experience results in the present knowledge base of the firm (Eriksson, Majkgard and Sharma, 2000). Penrose views the firm as operating in an open system where it continuously interacts with its environment in a bid to grow. The firm's interaction with the environment is critical, to the extent that Garnsey calls it the "input-output systems" where the firm's resources are derived from the environment, and opportunities are derived from key players like customers, suppliers, distributors, government policies and even the competitors. However, Penrose's shortcoming was her concentration on how already established firms can grow as opposed to growth in new firms.

According to Garnsey (1998), the growth of a new firm is such that it must first access resources, then it mobilizes such resources and then deploy these resources before generating new resources required for growth to take place. Such pattern is known as the stage model of growth and several authors suggested variations of this model (Mazzaro et al, 2009).

The growth of firms in stages was likened to the biological concept of growth where humans are born, grow in different stages and die. Similarly, researchers described how firms are created, the growth processes they undergo and finally their "death" (Lester, Parnell and Carraher, 2003). The growth literature over the years has seen researchers classify the firm growth into different stages ranging from 3 to 10 depending on the criteria of classification, but they all appear to have emphasized connection between the stages (Lester et al, 2003).

For instance Kazanjian (1988) examines the processes that firms go through as they move from one stage of life to another. This is somewhat similar to an earlier work done by Scott and Bruce (1987) where five stages of growth in small firms were identified. Scott and Bruce identify the stages to include inception, survival, growth, expansion and maturity.

In contrast to Scott and Bruce (1987) and Kazanjian (1988) that adopted life cycle approaches, other approaches to firm growth include resource application of the firm and the firm's entrepreneurial orientation. Garnsey's (1998) firm model examines growth from the point of view of resources as the basis of growth and how these resources can be harnessed in the best possible way to achieve growth reinforcement or growth reversal. Wiklund, Petzelt and Shepherd (2009) based their integrated model of growth on five perspectives which include entrepreneurial orientation and the impact of the environment on growth. The third perspective examines the strategic fit between a firm and its environment; they argued that this, not a firm's entrepreneurial orientation in itself, was the key to producing results. The fourth perspective is the role of resources in the growth of small firms. This resource based view of the firm is examined to achieve sustainable competitive advantage for a firm (Wernefelt, 1984). The fifth perspective examines growth attitude of owner-manager in relation to growth as not all of them are favourably disposed to firm growth, for instance managers of family firms who are not keen on growing the firm (Kotey, 2005). In the Wiklund et al (2009) model of growth, entrepreneurial orientation occupies a central position as it is connected to the other four perspectives identified. For instance, financial resources can be key factors that help in exploiting opportunities, while human capital gives a firm the required knowledge in identifying and creating profitable opportunities. It also shows the importance of networking resources to the growth of small firms. All these required resources can only be harnessed to the advent age of the firm with a firm with entrepreneurial orientation in terms of innovativeness, pro-activeness and risk taking attitude.

Kazanjian's (1988) model of enterprise growth has been quite popular and frequently cited by researchers in the growth of small firm. In contrast with the more recent work of Garnsey examined above, Kazanjian also examines growth of firms in stages. These stages include: (1) conception and development; (2) commercialization; (3) growth; and (4) stability. These have similarities with Scott and Bruce's (1987) stages of firm growth examined earlier.

As detailed as the stages of growth as presented by Kazanjian and others that presented a four stage model were, they omitted a relevant part of the pattern which is the decline stage. This stage is important because some firms go through periods of turbulence during which they try out different strategies and bounce back from the brink– and this can be experienced at any stage of the firm’s life cycle. Lester et al (2003) cite an example of IBM that went through difficult times in the early 90’s. According to the researchers, IBM had losses in revenues from year to year, they experienced drastic reduction in the company to the extent that Fortune described the company as a dinosaur holding on desperately to life. After years of strategic decision making, the company was fully back in a comfortable position with restored profits and stock prices were back at high levels. Even though the decline can lead to the death of a firm, with proper decision making and strategies, the firm’s demise can be avoided.

2. 1. 2 Criticisms of stage theory

Andersson (2011) argues that the theory is predicated on the assumption that all small firms pass through all stages of growth. Evidence suggests otherwise. For example, ‘born global’ enterprises grow and internationalise from inception. Born global enterprises do not have to go through the traditional life-cycle stages before they adopt the use of ICT for instance as such firms might adopt the most sophisticated ICT within a short period of their existence to support their international expansion. Also, high-tech firms defy the stage model of growth because they face unique challenges and they apply strategies that are different from the conventional firms (Jones and Crick, 2001).

Stage or life cycle models of SME growth represent a heuristic classification scheme of development rather than capturing the process of firm growth (e.g., failure to capture actual processes) (O’Farell and Hitchen, 1988). The theory also infers linear progression from one stage to another. Firm growth has been reported to be non-linear and sustained growth is rarely achieved as growth experience periods of fluctuations and stagnation (Dobbs and Hamilton, 2007; Garnsey, Stam and Heffernan, 2006). The theory also fails to account for events that occur prior to start-up (O’Farell and Hitchen, 1998) and emphasize events within the transition process from small to medium-sized. The events that occur before a firm starts up are not usually considered in the life cycle model. Effectuation thus has a role in the pre-start-up period especially under conditions of uncertainty.

The stage theory focuses on internal processes rather than external factors in the social, economic and business environments (O’Farell and Hitchen, 1988). By doing so, it fails to account for other measures of firm growth and emphasizes growth defined solely by revenue and number of employees. Finally, O’Farell and Hitchen, (1988) state that researchers assume construct validity without empirical evidence or efforts to validate models. For example, O’Farell and Hitchen (1988) state that in validating the life-cycle model, small samples of cross-sectional data rather than longitudinal data are typically used.

Levie and Lichtenstein (2010), in their assessment of the stage theory of firms, concluded that there is no uniformity in what constitutes the stages that firms go through in their lifetime. In their review of 104 published works that use stage theory, Levie and Lichtenstein (2010) claim that “there is no agreement as to what the stages are, how they progress, or why they shift” (p 336). They conclude by stating that the stage model of firm growth should be discontinued altogether by scholars as it limits the advancement of research work in the growth of entrepreneurial firms. While a lot of criticism has emerged challenging the usefulness of the life-cycle model of firms, Lester et al (2003) contend that the model helps managers and entrepreneurs match the appropriate type of strategies to each stage of the firm’s growth in order achieve further growth. This is evident in Lester and Tran’s (2008) example which shows how ICT is used to solve the challenges faced by firms in every stage of development.

A review of literature on models of enterprise growth reveals similarities and differences in the approaches adopted.

Some of the similarities identified include:

- (1) A significant impact of these models lies in the fact that firms are faced with managerial challenges as firms move from one stage to another (Mazzarol et al 2009).
- (2) The managerial challenges become more complex as the firm grows (Mazzarol et al, 2009).
- (3) There is the need for appropriate changes in management behaviour as firms are faced with changes in the form of growth.
- (4) The need to make decisions under dynamic and complex conditions.

(5) The approaches all tend to be predicated on offering products to the market as a basis for growth.

For instance Kazanjian (1988), Scott and Bruce (1987) talked about products from when they are conceived until they achieve a good market share. Garnsey (1998) and Garnsey et al (2006) talked about resource mix in a bid to provide the market with efficient and effective products.

The identified differences include:

(1) Different approaches were adopted. For example, while some adopted the firm as the unit of analysis by examining events as firms move from one stage to other, others adopted resources as a unit of analysis.

(2) Some of the studies of growth merely examined factors that influence firm growth.

(3) Different indicators of growth have been adopted. For example, Dobb and Hamilton (2007) examined different indicators used by various researchers over a long period of time, some of which include financial growth, total assets, sales, employment, and turnover.

2. 2 Modes of growth

The entrepreneurship literature refers to organic growth and growth by acquisition as the two main modes of firm growth. A third mode of growth called hybrid growth is however introduced by McKelvie and Wiklund (2010). Organic growth is a form of growth which occurs internally by using existing resources of a firm (McKelvie and Wiklund, 2010). Lockett, Wiklund, Davidsson and Girma (2011) state that organic growth “involves the internal generation of resources, for example by employing and training new staff” (p 52). According to Penrose (1959) organic growth occurs when a firm uses and combines similar resources in the most productive manner. Penrose goes further to state that there is a limit to which a firm can grow internally or organically. The firm grows organically before it reaches its peak and needs to explore external growth. This limit as stated by Penrose stems from an inability to continue to combine existing or similar resources in perpetuity.

Growth by acquisition, the second mode of growth, involves a “firm buying a controlling interest in another firm while the acquired firm is integrated within current operations or becomes a subsidiary of the acquirer’s portfolio” (Lockett et al, 2011, p 52). Penrose states that growth by

acquisition requires complementary resources which would be an option that a firm that desires to continuously grow needs to explore as organic growth would limit the growth of a firm. This position was also stated by Harrison, Hoskisson and Ireland (2001) when it was stated that acquisition is a way that enables a firm to grow by taking advantage of opportunities that new and complementary resources would offer the firm. However, as attractive as growth by acquisition seems to be, it has been argued by some scholars that it is not really a desirable option (Parker et al, 2010). In their study of some British internet companies (Gazelles), Parker et al (2010) found out that firms that restrict ownership within (workers, directors are not also given shares in the firm) tend to experience a much higher growth.

Hybrid mode of growth is the third mode of growth and it is the form of growth that shares similarities of both organic growth and growth by acquisition. McKelvie and Wiklund (2010) state that hybrid mode of growth involves “contractual relationships that bind external actors to the firm at the same time as the firm maintains a certain amount of ownership and control on how any assets are used” (p 274). This mode of growth includes franchising, licensing and strategic alliances/joint venture.

Lockett et al (2011)’s work however countered some of the critics of growth by acquisition who found this mode of acquisition less desirable. Taking Penrose work a little further, Lockett et al (2011) discover that growth by acquisition is very important for the long-run organic growth of a firm after all the necessary integration of the activities of the involved firms have been concluded. In other words, their findings show that growth by acquisition can have a positive effect on the future organic growth of a firm (p 66).

2. 3 Theory of effectuation

2. 3. 1 General principles

Sarasvathy (2001) describes effectuation as the processes that take on a set of a means as given and focus on selecting between effects that can be created with that set of means (p 245).

Since firms operate in a world of uncertainties, effectuation can be seen to be applied quite frequently in order to respond to contingencies. An entrepreneur in the effectuation model is the major actor on whom every other decision, action and activity depends. Sarasvathy goes further

to state that the entrepreneur starts up with three categories of means which are applicable to the growth of small firms and they are divided into the individual level, firm level, and the level of the economy. The individual level includes three categories that include the entrepreneur's characteristics which Sarasvathy refers to as: (1) "Who am I" which include his traits, tastes and their abilities; (2) "What they know" in terms of the knowledge corridors they are in; and (3) "Whom they know" in terms of the social networks.

At the firm level, we examine the resource-based theory in terms of the physical resources, the human and organizational resources (Sarasvathy, 2001). This leads us to investigate how the resource based view of the firm could complement the theory of effectuation. Wernerfelt (1984) defines resources as those tangible and intangible assets which are tied permanently to the firm. Wernerfelt gives examples to include a firm's brand name, the possession of technological skills in the firm, possession of a skilled workforce, trade contacts, physical resources like plants and machinery, and capital, just to mention a few. In a similar vein Lockett and Thompson (2001) refer to the resource-based approach as viewing the firm as a historically determined collection of assets or resources which are tied semi-permanently to the firm's management. These resources are firm-specific and valuable, rare to come by, not perfectly mobile, or imitable and not easily substitutable (Das and Teng, 2000). The authors explain that firms are continuously heterogeneous in terms of their resource base, and as such, the sustained firm resources heterogeneity (which represent a diversity in the firm's resources) becomes a source of gaining competitive advantage over competitors. Firms that possess resources that are valuable and rare would be able to achieve competitive advantage over other firms that do not possess such resources in the short run, but the resources must be inimitable and non-substitutable to sustain this competitive advantage over the long run (Barney, 1991). Barney in a later work as cited in Newbert (2007, p 124) admits that it is not enough for firms to have resources that are valuable, rare, inimitable and non-substitutable as these features are not in themselves enough to achieve the best output for firms but rather how well these resources are managed and are exploited in order to achieve their maximum potentials. The research shows that firms' resources have value both in themselves and for what they help the firm to achieve. According to Newbert (2007) the products of a firm directly influence the results achieved by that firm and such results are in turn directly influenced by the resources that go into the production of the products.

The resource-based view of the firm (RBV) as a means of assessment of a firm is at the core of effectuation as it is in the second level of the means available to a firm that can be used as an assessment of the strengths and weaknesses of such firms and how they can be used to pursue the firms' growth (Sarasvathy, 2001).

The level of the economy includes means such as the country's demography, technology and socio-political institutions to complete the Who I am, What I know and Whom I know means of effectuation. The effectuator, being the major actor after identifying these three categories chooses from a variety of possible effects by evaluating the level of loss he can afford to be faced with. He/she goes further to analyze his degree of control of the unpredictable future while also taking advantage of strategic alliances and partnerships in a way to achieve firm growth.

Sarasvathy (2001) identifies four principles that underlie the process of effectuation which are applicable to small firm growth. These include:

(1) Identifying the level of affordable loss as opposed to evaluating expected returns on the firm's activities. Fisher (2012) explains that in this process, the entrepreneur makes a conscious effort in determining what level of loss he can afford to be exposed to, and at the same time making efforts to pursue those loss-exposing activities with his lean resources. This is opposed to the causal approach which emphasises allocation of resources based on probabilities. The effectuation process tends to favour creating a wide number of options rather than just creating only one option (Sarasvathy, 2001).

(2) Taking advantage of relationships as opposed to competing with others. Porter (1979) introduces his concept of competitive analysis where a firm examines other rival firms and makes policies on how to gain advantage over these rival firms based on strategies that involve pricing, differentiated products, promotion and distinct distribution channels. Effectuation, on the other hand, draws strength from other rival firms by entering into pre-commitments in the form of strategic alliances and partnerships with such firms in order to take advantage of synergy in such alliances, and also to reduce uncertainties and diversify risks involved in taking certain courses of actions (Mthanti and Urban, 2013; Fisher, 2012, p.1025; Sarasvathy, 2001). Strategic partnerships have been described as an alternative to market research where the partners provide information and the platform to expand a small firm's business (Mainela and Puhakka, 2009).

(3) Contingency exploitation: Fisher (2012) states that in order to generate unexpected returns, entrepreneurs should take advantage of contingencies as they arise. These contingencies come in the form of unexpected events that come the effectuator's way that would enable the firm to earn income that will lead to the growth of the firm. Contingencies therefore call for a great deal of flexibility in the firm's operation (Sarasvathy, 2001).

(4) Controlling an unpredictable future rather than predicting an uncertain one. The process of effectuation entails the fact that if an unpredictable future can be controlled, predicting it becomes less important especially with the flexibility of the firm (Mthanti and Urban, 2013). Attention therefore centres on laying hold of the controllable aspects of an uncertain and unpredictable future as a way of achieving growth of a small firm (Sarasvathy, 2001). The entrepreneur can have a greater degree of control by bringing in stakeholders to buy into his idea in order to sustain his firm over the long run (Sarasvathy, 2001, p 252). The actions taken by these stakeholders in terms of the commitments they make would make predicting or forecasting the future needless.

Read et al (2009) advanced Sarasvathy's work by stating that consideration is only given to those means that are relevant to the firm. As such, they are viewed as effectual means and are the only ones given consideration when examining the path to follow to achieve performance of a venture. Secondly, irrespective of the level or type of partnership that an entrepreneur has, consideration is only given to the relevant partnerships that the partners stand to either gain from the success of the firm or stands the risk of loss in the event of business failure (Read et al, 2009). They further stated that for affordable loss to be considered, the worst level of loss that a firm or entrepreneur can afford to be exposed to should be identified and not the level of risk that is inherent in the firm's industry sector. In terms of leveraging contingencies, effectuation would be more applicable when an entrepreneur readily adapts to new conditions when he is exposed to new information, new means and even new surprises (Read et al, 2009, p 573- 574).

2. 3. 2 Distinction between causation and effectuation

Sarasvathy (2001) draws a distinction between the traditional model of decision making in entrepreneurship which she terms causation, and the theory under examination which is effectuation. Causation according to Sarasvathy (2001) takes a particular effect as given and focuses on selecting between means to create that effect (p. 245). Causation occurs when an

entrepreneur starts with a predetermined goal and then selects between alternative means in order to achieve such goals. Causation has also been termed by Perry, Chandler and Markova (2012) as an entrepreneurial decision model which is driven by goals and consists of a deliberate model of decision making.

Causation, according to Sarasvathy (2001), follows a logical decision-making process that includes:

- 1) A starting point with a well-structured given goal that the entrepreneur sets out to achieve in the foreseeable future.
- 2) A set of alternative means in achieving these goals.
- 3) Possible barriers and constraints on the means identified.
- 4) Selection of means to achieve stated goals with the criteria for the selection of such means.

However, Sarasvathy identifies effectuation process to include:

- 1) A starting point with a given set of means. The means are the starting point as they serve as the basis for decision making.
- 2) A possible set of effects that can be achieved given the available set of means at some undefined point in time.
- 3) Barriers and possible opportunities for eventual effect. This according to Sarasvathy can be imposed by the environment and contingencies.
- 4) Selection of eventual effects in terms of the particular course of action based on the effectuator's acceptable risk acceptance.

In Table 1, a summary of the major differences between causation and effectuation is provided. Firstly, the effect or simply put the outcome is given in causation while in effectuation, the entrepreneur only has a limited means or tools available to him. According to Fisher (2012) since the entrepreneur is faced with only a limited set of means, he does not start with specific, clear or quantified end goals, as in causation. The entrepreneur starts out with a generalized idea of what he aims to achieve and uses his/her resources in a way to bring his/her idea into reality.

Table 1: Summary of distinction between Effectuation and Causation

Effectuation	Causation
Only some means or tools are given	Effect is given
Select between possible effects that can be created with those means by: 1)Starts with means 2)Applying the principle of affordable loss 3)Establishing and leveraging strategic relationship 4)Leveraging contingencies	Select between means to achieve that outcome by: 1)Starting with ends 2)Analyzing expected returns 3)Doing competitive analysis 4)Controlling the future
Actor-dependent	Effect-dependent
Useful at exploiting contingencies	Useful at exploiting knowledge
Focuses on the controllable aspects of unpredictable future	Focuses on the predictable aspects of an uncertain future
Believes in the fact that once the future can be controlled, there is no need to predict it	Believes in the fact that once the future can be predicted, it can be controlled
New markets are created through alliances, strategic partnership and other cooperative strategies	Market share in existent market is gained through competitive strategies

Source: Sarasvathy (2001)and Fisher (2012)

Because he/she starts out with no clear effect of what he aims to achieve, he has the flexibility to take advantage of economic contingencies along the way (Perry et al, 2012). The entrepreneur in effectuation would get things done only by focusing on the available resources and by making reference to important questions: who am I (to consider his abilities, traits and tastes), what do I know (to focus on knowledge corridors) and whom do I know (social networks) in order to uncover or create profitable opportunities. These three questions help the entrepreneur in answering the ultimate question of “what can I do” (Fisher, 2012) which translates in this study into how they can be used to achieve growth in the firm.

Since causation has a definite goal and a more formalised plan of how the goal(s) would emerge, the entrepreneur can choose between his means in order to achieve the given effect or outcome

that he set out to achieve and such decision of what means to choose is based on the expected return from such means. Fisher (2012) describes a process that includes selection of a means to start with ends and analysis of expected return is made by a thorough means of competitive analysis. Effectuation, on the other hand, simply involves the entrepreneur choosing between a number of possible effects that can be created with the given means. In other words, an entrepreneur can choose between various effects to pursue, given the available resources (means). Starting with means, the process focuses on established criteria of selection based on affordable loss or acceptable risk (Sarasvathy, 2001), the application of alliance and strategic relationship and exploitation of contingencies.

Another notable difference is that causation is effect-dependent, while effectuation is actor-dependent. Sarasvathy states that the effect that an entrepreneur intends to create determines what kind of means is to be selected. She goes on to explain that the entrepreneur in effectuation is the actor on whom every decision to be taken depends and this is influenced by his personal characteristics and his ability to leverage on contingencies and create strategic alliances as the need arises. It is also worthwhile to note that causation is applicable and useful in environments that are static, linear and independent where entrepreneurial opportunities are objective and a priori (Fisher, 2012). Effectuation is most applicable in dynamic, non-linear and ecological environments (Sarasvathy, 2001) with uncertain future. In effectuation, unlike causation, opportunities are rather socially constructed by an entrepreneur's active creativity through a process of enactment (Fisher, 2012).

Also, causation focuses attention of an entrepreneur to making prediction about the future which is uncertain while effectuation focuses the entrepreneur's attention to those controllable aspects of the unpredictable future. Lastly, causation enables an entrepreneur to increase its market share in existent market through a process of competitive strategies in order to gain dominance in the market and have an edge over competitors (Porter, 1979). Effectuation, for its part, creates new markets by forming alliances, strategic partnership and other cooperative strategies in order to gain advantages of synergy and also in order to capture profitable opportunities (Sarasvathy, 2001).

There are certain boundary conditions notable in these two approaches. Firstly, in causation, the market is already in place for products and services prior to a firm coming to exploit such need in

order to present such service. This is in contrast to effectuation where there is no market in place and requires an entrepreneur to use his abilities and networks to create such markets. Secondly, in causation, there is information about the market and the industry which an entrepreneur can take advantage of in exploiting opportunities, Sarasvathy opines such information is not available for an effectuator.

Also, Sarasvathy states that causation works on the premise that the future can and should be adequately predicted as an effective way of controlling it. Wiltbank, Read, Dew and Sarasvathy (2009) state that causation is a predictive strategy that employs the use of formal research tools which include but not limited to sophisticated financial models, probabilities and surveys which are used in predicting the future all in a bid to grow the firm. Such prediction is however flawed with the uncertainties and complexity in the business environment which makes such prediction inaccurate and renders the control of the future unattainable. However, effectuation as a non-predictive strategy works on the notion that once the future can be controlled, there is no need to predict it (Wiltbank et al, 2009; Sarasvathy, 2001).

Overall, there is a difference between timing and cost of failure of firms in these two approaches. In effectuation, new firms that fail would fail rather early and would fail when the amount invested in the firm is still fairly small and negligible while in contrast to failed firms in causation where the amount invested would have been more significant (Sarasvathy, 2001). Similarly, in a bid to grow an established firm, effectuation ensures that rate of failure is grossly reduced as a result of control used by an entrepreneur as the affordable loss concept is used before investment for growth are made. This is in contrast to causation, emphasizes prediction which can lead to huge losses due to large investments in growth and inaccuracy of prediction (Wiltbank et al, 2009).

It is however of interest to note that due to the complexity involved in the use of causation for the growth of small firms especially in terms of time, planning and the financial implications which make it challenging for small firms to completely embrace it, effectuation can come in as an alternative to achieve growth. For instance, embarking on extensive market research which represents causation requires the deployment of resources such as money, time, employing the services of experts to conduct the research and time may be an uphill task for an entrepreneur managing a small firm. The use of effectuation therefore becomes a possible alternative

especially when the four principles are utilised. These include being open to contingencies, assessing affordable loss, the use of strategic relationships and the use of adaptation as a means of getting a firm grip of the firm's future

Part 2 Effectuation as an alternative to a firm's growth

2. 4 Application of the theory of Effectuation to firms' growth

This section starts with the assessment of the means as a basis for the firm's growth and then contingencies and opportunity exploitation are discussed after. Affordable loss and opportunity exploitation are covered next, after which strategic relationship and adaptation as a means to control the firm's future ends the section.

2. 4. 1 Assessment of means as a basis for the firm growth

It has been pointed out in the general principles of effectuation, entrepreneurs start out with their assessment of means. Assessment of means by effectual entrepreneur gives a basis for direction because opportunities for growth are generated through these means which come in the form of knowledge, contacts and the firm's resources (Read et al, 2009).

In order to achieve firm growth, there has to be a continuous assessment of the firm's means in order to always get the firm ready for contingent events which present opportunities that lead to growth. According to Goel and Karri (2006) effectuation involves "reconfiguration of means until the desired effect emerges from the possible of effects (p 481). The Who I am, What I know and Whom I know assessments are therefore vital for firms that want to achieve growth.

The entrepreneur continuously reviews his/her personal characteristics ("Who am I") to find out changes in motivation, changing characteristics, tastes and abilities. For instance, such assessment can take the form of evaluation of changes in his/her orientation in terms of his/her motives or economic goals and growth orientation (Routamaa and Vesalainen,1987).

2. 4. 2 Assessment of "Who I am" means

This is the first assessment of the means available to an entrepreneur in his/her quest to achieve growth through the process of effectuation (Sarasvathy, 2001). In determining the effects that would be created with a given set of means, an entrepreneur starts out by continuously assessing his/her traits, tastes and abilities which are not static but always changing. This would in fact be

important as an entrepreneurial firm goes through the various stages in its life cycle. The traits, tastes and ability of the entrepreneur which determines who he/she is would be in the form of his/her motivation, education/formal training and personal characteristics (Sarasvathy, 2001).

The motivation of the entrepreneurs shows why they are running the firm at each stage of the life of the firm. This brings about the pull and push factors involved in being in business. The pull factors on the one hand show if he/she was indeed motivated to be running the firm as a result of expectation of exploiting opportunities (Hamilton and Lawrence, 2003). This assessment would show if the entrepreneur is still willing to grow the firm as will be evident in the capacity and ability to discover and exploit opportunities for the firm's growth (Hamilton and Lawrence, 2003). The push factors would show other motivations which might be to assess if the entrepreneur just sees running the firm as a means of escaping unemployment or ego reasons with no motivation for growth (Dobbs and Hamilton, 2007; Hamilton and Lawrence, 2003).

Secondly, the entrepreneur's assessment of his education and formal training would show the level of competence of the entrepreneur in carrying out sound decision making which would affect the firm's rate of growth. Education of an entrepreneur enhances his/her search skills, foresight, imagination, computational and communication skills which all go into defining who the entrepreneur is (Dobbs and Hamilton, 2007). For instance, university degrees and other qualifications which show formal training in the field of computer science, engineering and technology would be of immense advantage for an entrepreneur who is in the knowledge-intensive industry (Barringer and Jones, 2004).

In addition to the above is the assessment of team that would show his/her ability to find individuals with similar skills, education and formal training who would be complementary to his/hers in every stage of the firm's growth processes.

2.4.1.2 The entrepreneur's experience ("What I know") and the firm's growth

In achieving growth through the process of effectuation, the entrepreneur's previous experience would be a focal point in determining how to respond to contingencies which enable opportunities to be created and exploited in order to achieve growth of such firms. It is of relevance to examine entrepreneur's prior experience and how this helps in achieving growth within the context of effectuation (Dobbs and Hamilton, 2007). According to Politis (2008)

entrepreneurs' prior experience leads to the development of skills and managerial expertise which are quite useful in dealing with the uncertainties of the business environment firms operate in. In effectuation, an entrepreneur continuously assesses his/her experience in complex business environments and markets and thus his/her prior experience would go a long way in dealing with complexities and novel events that s/he is faced with in the market.

While Politis applied experience to firm start up, Dew et al (2009) refer to experienced entrepreneur as those with many years of experience as entrepreneurs. In the course of years of engagements of an entrepreneur, he/she acquires skills, preferences and positive attitudes which Politis (2008) terms bundle of resources. These bundles of resources make it much easier for the expert entrepreneur to weather the storm of uncertainties and enable him/her to take measures that limit the impact of the complexity and uncertainties the market would have on the firm.

Ucbasaran, Westhead and Wright (2009) opine that experienced entrepreneurs are able to develop cognitive skills over time which enable them to acquire and process important business information to the advantage of the firm unlike a novice entrepreneur that would not readily identify such information. This experience was again referred to as schema by Gaglio and Katz (2001) and it represents knowledge or cognitive structures which develops over time as a result of learning. Wright and Stigliani (2013) in describing the cognitive structures that defines an entrepreneur further describe schema as script which refers to the "knowledge structures that entrepreneurs rely upon in order to make assessments and judgements, identify and evaluate opportunities and make decisions regarding the creation and growth of their business" (p 6). The cognitive abilities that determine "What I know" for an entrepreneur, such as mental capabilities combined with experience, influence how he/she makes sense of the world around him (Wright and Stigliani 2013).

In continuously assessing the "What I know" the entrepreneur is faced with two scenarios: (1) experience and the application of effectuation; and (2) revelation of his/her attitude towards business failure/risk.

(1) Experience and the application of effectuation

The experience can readily be applied to effectuation as it entails the entrepreneur focusing his attention on how best to allocate and appropriate his limited means in generating expected results

(Sarasvathy, 2001). According to Sarasvathy, effectuation is a problem solving decision model which is anchored on control and control can best be approached with experience as this helps a firm in being flexible in order to adjust to contingencies and also ensures reduction of losses.

Experienced entrepreneurs apply the concept of effectuation as they are provided with tacit knowledge that enables effective decisions to be made under the most severe environment of uncertainties and time pressure (Johannisson et al, 1998). The more experienced an entrepreneur is, the better he is able to work with limited resources, the better he would be able to work in uncertain environments and within an ill-defined market and with little information (Sarasvathy, 2001).

(2) Entrepreneurial attitude towards business failure

An ongoing assessment of an entrepreneur's experience would reveal his/her attitude towards failure and the ability to take advantage of contingent events as they occur (Politis, 2008).

Failure constitutes part of the experience of a seasoned entrepreneur as he/she is capable of learning from previous unpleasant events in order to achieve growth in his/her firm (Politis, 2008). An experienced entrepreneur would of essence be able to learn from past mistakes about the reasons for his business failure, what was done that was not supposed to have been done and what was supposed to be done that was never done.

A proper analysis of prior failure witnessed by an entrepreneur could serve as a basis of unravelling the mysteries behind failure and this can well serve as a means to reducing uncertainties that may pervade the present business environment. It has been suggested by McGrath (1999) that failure has a tendency of having a positive impact on entrepreneur's experience as it helps in the reduction of uncertainties and the possible expansion of profitable opportunities while increasing the variety of opportunities.

Experienced entrepreneurs having witnessed failures in the past would most likely view failures as "temporary phases in the development concept, rather than as an end in themselves" (Politis, 2008, p 478). Experience would make entrepreneurs have a rather positive approach towards failure as opposed to the novice entrepreneur who would be averse to failure.

2. 4. 1. 3 Assessing networks (“Who I know”) and the small firm growth

A continuous assessment of what the entrepreneurs know would reveal how opportunities for growth would be uncovered (Sarasvathy, 2001).

Granovetter (1983) examines networking within a social system while Schweizer (2013) examines networking from economic point of view all achieving the same outcomes. Granovetter (1983) identifies that the relationships between people or organisations result into strong or weak ties. Strong ties are formed by people who are family members, neighbours, close friends and associates and such relationships are intimate to form a unique clique within a social system. In short they are people that can be relied upon at all times, whether the situation is favourable or not (Elfring and Hulsink, 2003). Strong ties specifically deals with the transfer of fine grained information and tacit knowledge, trust based governance and resource cooptation (Elfring and Hulsink, 2003). On the other hand, weak ties exist among people who are mere acquaintances or friends of friend who are not members of the same clique and whose interactions are limited. That is to say, that there is a high degree of similarities between people with strong ties and they, therefore share similar ideas and information whereas people with weak ties share little or no similarities and have different thoughts and ideas. Granovetter (1983) points out that people with weak ties have access to new information and resources that are not available within the circle that one has close ties with. That is to say that weak ties gives access to novel information as they serve as a link to divergent networks (Elfring and Hulsink, 2003). It should be noted that weak ties are not effective unless they are able to serve as a bridge between different groups of people in different social circles. In addition, Zhongqi and Shuiying (2005) identify measures that show the strength of ties and they include the amount of time used for interaction by people, the intensity of emotions shared by people, the intimacy between people and reciprocal service between people. Relationships with strong ties tend to involve more time of interaction, high level of emotions among members, high level of intimacy and wider reciprocal service. People with weak ties have little time of interaction, low level of emotions and intimacy and narrower reciprocal service (Zhongqi and Shuiying, 2005, p 101).

Of particular importance is the need for economic networking and leveraging on such networks to growing into new markets or market penetration. A business network can be defined as a “set of connected business relationships between firms (customers, distributors, suppliers and

competitors) doing business with one another” (Schweizer, 2013, p 83). Economic and business transactions do not just occur between firms but are as a result of trust and the social relationships that occur between the parties involved (Elfring and Hulsink, 2003). In order to grow to new markets leverages on the strength of networks in a bid to enjoy the advantages of insidership (Schweizer, 2013). An assessment of his/her network resources is important as it reflects the resource based view of the firm (Schweizer, 2013). The firm, in achieving growth, enters into relationships in terms of networking with other firms that have complementary resources. Such relationships help to mitigate against unanticipated threats that markets most certainly would present the firm with (Schweizer,2013).

Strong ties and weak ties are both useful to a firm in different ways. For instance, strong ties makes it easy to respond to contingencies as they arise as firms are saved time that would have ordinarily been lost due to negotiations and reaching agreements and also reduces the transaction cost (Elfring and Hulsink, 2003). Furthermore, strong ties are effective in situations that present firms with uncertainties and complexity and a great deal of insecurities that are hard to deal with. Strong ties help to overcome these by the dedication and loyalty to one another and this is done through protection, mutual learning and reduction in uncertainties and joint approach to solving problems that are offered (Elfring and Hulsink, 2003). On the other hand, weak ties offer an advantage of opportunities for diverse new information and profitable opportunities that are not available to people in the same network (Elfring and Hulsink, 2003).

Networks assessment by the entrepreneur would reveal inter-personal and inter-organizational networks that the firm has and these will serve as two main means through which firms can gain access to the resources and expertise of networks (Hoang and Antoncic, 2003). Inter-personal networks involve individual managers and entrepreneurs’ interactions with other people who are actively transferring the required knowledge, information, advice and the emotional support required (Eberhard and Craig, 2013). On the other hand, inter-organizational networks involve co-operation in the form of collaboration in functional activities such as logistics, research and development, value chain which makes it easier for exploitation of opportunities in the new market (Eberhard and Craig, 2013).

Ultimately, the best approach is to find the right blend of the strong and weak ties that can be used that would be of immense benefit to a firm. Strong and weak ties are both useful to the

growth of a firm even though the two offer their benefits in different ways. A good blend of the two is desirable (Elfring and Hulsink, 2003). Elfring and Hulsink (2003) carry out a study into discovering how firms use strong and weak ties to discover opportunities, secure resources and gain legitimacy which lead to the growth of the firm. Their study was based on incremental and radical innovation. The study discovers the following:

- (1) Discovering opportunities - that weak ties are more important than strong ties in discovering opportunities for firms pursuing an incremental innovation whereas a blend of strong and weak ties are essential for firms pursuing radical innovation than firm that do not use a mix of the two. On the other hand, strong ties are more important for firms pursuing radical innovation as they enable appropriate feedback and exchange of tacit knowledge on the nature of opportunity.
- (2) Securing resources-the study reveals that for firms pursuing both incremental and radical innovation, firms that use more strong ties are likely to secure more resources than firms that use weak ties as strong ties allows for the exchange of tacit knowledge required in the deployment of resources.
- (3) Legitimacy-the study reveals that for firms pursuing incremental innovation, firms that use strong ties are likely to gain more legitimacy than firms that do not whereas weak ties are more important for firms that pursue a radical innovation in order to gain legitimacy as external approval is required in order for radical innovation to become acceptable.

It is therefore of great importance for an entrepreneur to assess continuously his his/her network in order to discover the best mix of strong and weak ties in order to exploit possible opportunities that they would present.

2. 4. 2 Contingencies and Opportunity Exploitation

Exploiting contingencies is a key factor in the growth of firms when viewed from the effectuation point of view. Exploiting contingencies is the ability of entrepreneurs to embrace unexpected events and turning them into profitable opportunities thereby getting unanticipated

outcomes. It is a way of developing positive attitude to unexpected events rather than developing a negative attitude towards it (Dew et al, 2009). Contingency exploitation calls for a great deal of flexibility in the operations of a firm (Chandler et al, 2011) in order to discover or create opportunities (Alvarez and Barney, 2007). The flexibility in the firm's operations which enables it to take advantage of contingent events shows less dependence on "master plan" (Goel and Karri, 2006, p, 482). It is important to note that growth would be achieved in the firm when an entrepreneur uses the means available to him/her and combines them with contingencies (Sarasvathy, 2001).

2. 4. 2. 1 Contingencies and Discovering Opportunities

Alvarez and Barney (2007) make a classification of opportunities which include the discovery and creation theories of entrepreneurship and they went on to describe entrepreneurial action as the activities that entrepreneurs take right from initially identifying opportunities to assembling resources to exploit such opportunities to generating and appropriating the economic profits created by exploiting opportunities to produce new products and services. The underlying factor to discovering and creating opportunities is the ability to produce new products and services for the firm's growth (Alvarez and Barney, 2007). In getting a concrete grasp of effectuation and how it can lead to the growth of the firm, it is necessary to analyse and view its overlap with the theories of opportunities viz discovery and creation (Sarasvathy, 2001).

In approaching these theories, it is pertinent to note that opportunities exist whenever competitive imperfections in an industry or market exist (Alvarez, Barney and Anderson, 2013; Alvarez and Barney 2007) and such competitive imperfections are often different for discovery and creation theories of opportunities.

Kirzner (1973) show that in the discovery theory, competitive imperfections arise exogenously from changes in technology, consumer preferences or some other attributes of the context within which an industry or market exists. Such competitive imperfections are contingent events if well responded to by entrepreneurs are capable of being turned into opportunities that would be exploited for the growth of the firm (Alvarez et al, 2013). The discovery theory aligns with effectuation as opportunities arise unexpectedly which calls for the action of an entrepreneur in

order to make a profit (Sarasvathy, 2001). The entrepreneur under the discovery theory is passive and responsive to the exogenous shocks to an industry or market that are rather not created by the entrepreneur. Examples of such shocks which are contingencies include changes in technology, changes in political and other societal institutions and shifts in consumer choices (Alvarez et al, 2013). The opportunities exist by the natural occurrences in the market which are usually forces not within the reach of the entrepreneur while he/she is only expected to look for them (Alvarez et al, 2013). In other words, the entrepreneur has no control over such forces. This may be why Shane and Venkataraman (2000) describe opportunities as being objective which always exist to all, even though not everyone would notice it, while their recognition is subjective. It is to be noted however, that whether or not the entrepreneur looks for it, the opportunities are there and when such opportunities are sighted by competitors in the market, some of them exploit it thereby making it difficult for the entrepreneur to make profits out of such opportunities. In such cases where opportunities are meant to be discovered by how alert entrepreneurs are, the willingness, readiness and flexibility of firms to understand and identify contingent events would give them first mover advantages and earn them temporary competitive advantage before other firms are able to identify such profitable opportunities (Alvarez and Barney, 2013, Company and McMullen, 2007).

In showing a simplified manner of opportunity discovery, Alvarez et al (2013) opine that consumers have a wide variety of needs which are not yet satisfied and the entrepreneur's duty is also to identify and understand these needs. He/she should be able to categorise these needs in terms of which is more valuable in order to produce goods and services in a manner that would not only satisfy the customers' needs but also profit the firm. It is therefore of interest to know how some entrepreneurs are aware of customers' needs while some are not. Hayek (1945) argued that no single entrepreneur has all the knowledge and information about customers' needs in terms of what to produce, the means of production to use and the co-ordination of the means of production as each entrepreneur has knowledge that is distinct from that of the others. The entrepreneur who has the appropriate knowledge in terms of customers' needs, who knows what means of production to use and how well to co-ordinate these means of production would be able to generate appropriate opportunities (Hayek, 1945). It puts the onus on the entrepreneur to be alert to changing needs of customers and also constantly reviewing his/her means to meet such needs (Sarasvathy, 2001).

Kirzner (1973, 1979) shows that opportunities exist at any given time but an enormous amount of ignorance stands in the way of the complete coordination of the actions and decision of the many market participants, therefore many opportunities are lost. He goes further to say that even though opportunities are uncovered by pure chance or by certain contingent events, some firms have more information than others and this information gives them advantage in ascertaining the existence of market inefficiencies and therefore the ability to exploit it. It is thus the role of an entrepreneur to gather, evaluate and utilize information and be ahead of other competitors because of the possession of superior information at all times.

2. 4. 2. 2 Contingencies and Creation of Opportunities

In contrast, the creation theory is an endogenous view of opportunities which is as a result of active actions taken by entrepreneurs to explore ways of creating opportunities rather than responding to already existing opportunities. Sarasvathy (2001) notes that opportunities are co-created by the entrepreneurs and other stakeholders. The creation theory therefore suggests “seeds of opportunities to produce new products or services do not necessarily lie in previously existing industries or markets” (Alvarez and Barney, 2007, p 15). Therefore, opportunities do not exist but are rather constructed by an entrepreneur through a process of enactment where the entrepreneur is a major actor in his environment by taking actions and interpreting those actions (Alvarez et al, 2013). Creation of opportunities here would be examined by the enactment process by Alvarez et al(2013) and the Austrian school of strategy (Jacobson, 1992). Opportunities in the creation theory is socially constructed to the extent that it is acceptable to be what it is within the society in which it exists just like the society has come to accept a piece of paper with certain qualities as legal tender (Pinker, 1991). In other words, creation of opportunities in this way is subjective to the extent that there exists ambiguities in an environment that requires entrepreneurs to be knowledgeable enough to interpret and define them as opportunities (Companys and McMullen, 2007). It is thus the case that opportunities become created when they become socially constructed within the four walls of the entrepreneur’s society and this way can be able to generate the required economic wealth for the firm’s growth (Alvarez et al, 2013). Again, this enactment process entails the entrepreneur’s prior beliefs about the nature and extent of opportunities they will face in addition to his/her capacity in terms of resources required to exploit such opportunities. These beliefs in the opportunities that would come his/her way and the extent of his/her belief in his/her ability to

match such opportunities with the required resources are socially constructed and may or may not be consistent with reality. The entrepreneur completes this enactment process by obtaining feedback on the extent of the consistency between the opportunities and his resources in order to take corrective measures in a way that would allow the adjustment of his beliefs in order to align with his resources and capabilities (Alvarez et al, 2013). In this manner, the creation of opportunities is an ongoing process where enactment precedes creation.

Using the Schumpeterian approach, Jacobson (1992) states that opportunities can only be created when there is disequilibrium in the market in terms of information and knowledge (Companys and McMullen, 2007). Disequilibrium occurs in the market when information is not readily available to all the parties (Jacobson, 1992). In analyzing how an entrepreneur can create opportunities in the market, the Schumpeter approach was again used. Schumpeter (1934) states entrepreneur intentionally disrupts the market and moves it away from equilibrium. This can occur in certain unexpected events that can lead entrepreneurs to develop new products, new production processes and then introduce such into the market thereby outplaying others. The growth of a firm through this process is short-lived as the realization of huge profits serves as an incentive to other competitors who immediately imitate the entrepreneur thereby bringing back the state of equilibrium and then reducing the profit (Companys and McMullen, 2007). Schumpeter describes this process as creative destruction; it can be used as a means of growth (Jacobson, 1992). This however can be prevented by an entrepreneur especially in knowledge-intensive firms by making information about actions ambiguous thereby making it complex to understand by competing firms (Jacobson, 1992). Lippman and Rumelt (1982) also assert that firms are able to earn long-term profits when uncertainty surrounds their superior performance thereby making competitors unsure of what actions to follow. They go on to state that ambiguity should not only surround innovation but also its implementation. Jacobson (1992) illustrates an example of raising product quality. This might be inadequate for a competing firm to act upon as product quality is capable of taking many forms and they will not be able to know which elements of product quality impact on profitability.

In effectuation, emphasis is laid on opportunities that are created wilfully by entrepreneurs to the extent that entrepreneurs are willing to be flexible in a way that allows quick response to unexpected events that would lead to desirable opportunities for growth (Sarasvathy, 2001).

2. 4. 2. 3 Contingencies and Growth through Internationalisation

Effectuation is very useful for a small knowledge firm to enter into an international market with the entrepreneur playing an active role in this process by taking advantage of contingencies. It is of particular interest to discover how effectuation can lead to opportunities of entering international markets. Harms and Schiele (2012) give conditions that lead to the unexpected ways of creating new international markets merely by chance while the entrepreneur is on holidays in a foreign country, having a class reunion or having employed a staff who has international networks that would lead to exploitation of the foreign market. There are also serendipitous and timely events that offer firms the opportunity to exploit opportunities in foreign markets with existing resources with such opportunities not being exploited had the events not occurred (Crick and Spence, 2005). Since there exists a great deal of unpredictability in foreign markets that a small firm may want to exploit, Harms and Schiele (2012) identify certain elements such as the psychic distance which influences the extent to which an entrepreneur is able to quickly establish itself in the new market. Psychic distance as defined by Sousa and Bradley as cited by Harm and Schiele (2012, p 101) is an individual's perception of the difference between the home country and the foreign country. They went on to state that the higher the degree of psychic distance, the more complex and unfamiliar an entrepreneur will view the foreign market in question.

The unpredictable nature of a foreign market would mean that there is a high degree of uncertainty in the market which requires a great level of effectuation for the firm to be able to enter and make some level of success in such market. This can be done by an entrepreneur by trying to control such market in the best possible way while taking advantage of contingencies. The extent of effectuation is also revealed when an experienced entrepreneur is able to use a means driven action instead of ends driven action by considering the firm's affordable loss and the use of cooperative strategies like partnership in entering the foreign firm market (Harm and Schiele, 2012). Also, the nature of certain firms makes it essential for them to internationalise their operations. Crick and Jones (2000) give examples of KIFs who, because of their level of innovativeness as revealed by their research and development (R&D) activities, find it almost inevitable to exploit other opportunities for their technologies in other unexploited markets which are foreign and which can improve their level of profitability and give them some form of growth.

An interesting part of effectuation can be seen in “born global” firms as they create international new markets right from the inception. Andersson (2011) describe born global firms as small and medium-sized firms that enter foreign markets early in their life time, like in the first few years of the firm’s operations and are able to generate a significant part of their revenues from such foreign markets. It is of interest that these firms enter foreign market amidst risk and uncertainties which make the concept of effectuation applicable in every sense. In a causation approach, a firm entering a foreign market is bound to adopt an export type of entry mode (Harms and Schiele, 2012) while born global firms that tend to enter the new foreign market through effectuation do not predetermine the entry mode in such market (Harms and Schiele, 2012).

Andersson and Wictor (2003) carried out a case study analysis of a born global firm in Sweden that shows how firms can enter new foreign markets with the process of effectuation with little resources at the firm’s disposal. The case study involves a firm named Alfa that in a few years of the firm’s existence established itself in 80 nations. The firm was able to achieve this by entering into strategic relationships with distributors who adopted their products into their portfolio. These firms were already established firms in the foreign countries that Alfa was trying to enter into. There were some effectuation factors that made this possible within a short period of time. The first as reported by Andersson and Wictor (2003) is that the entrepreneur fulfilled the "Who am I" question because of the fact that the entrepreneur was experienced in international business as a result of his prior work where he worked as a CEO. He was also able to connect with workers who had complementary skills who brought competencies into the firm. Secondly, the entrepreneur had local and international networks which made it possible for the firm to enter these markets in spite of the firm’s little resources. The firm was able to enter those firms through alliances with established distributors and they set up sales subsidiaries in countries where they could not find suitable distributors to partner with. However, the investment on such sales subsidiaries were however very low in order to keep faith with the firm’s affordable loss in case of any eventualities.

The above case shows how effectuation played out in the firm and this was due to the firm’s little resources, experience and networks of the entrepreneur as they were able to take advantage of contingencies in the form of alliance instead of going into such foreign market with causation

which would have meant adequate planning and doing market research and then going there to compete with the other established firms over there. It was also noted in the example that the entrepreneur had no prior knowledge of the foreign market, which all aligns with the theory of effectuation (Sarasvathy, 2001).

2. 5 Affordable Loss and Opportunity Exploitation

Affordable loss is an important element in effectuation as it involves the entrepreneur assessing the level of risk that can be taken as opposed to being attracted by expected returns on opportunities (Sarasvathy, 2001). “Affordable loss involves decision makers estimating what they might be able to put at risk and determining what they are willing to lose in order to follow a course of action” (Dew, Read, Sarasvathy and Wiltbank, 2009). It involves considering the worst case scenario in embracing contingencies that would culminate into opportunities for the firm growth (Read et al, 2009). The concept is important as it considers lowering losses for the firm in the event that failure occurs in the exploitation of opportunities (Sarasvathy, 2001).

In the event that failure occurs, the entrepreneur will be able to reduce the impact of such failure by an assessment of any proposed investment before it commences (Mthanti and Urban, 2013).

Affordable loss entails:

- (1) Risking no more than an entrepreneur can afford to lose in the pursuit of opportunities (Read et al, 2009).
- (2) How much in monetary terms can be afforded to lose in case of failure in the pursuit of opportunities (Dew et al, 2009).
- (3) An assessment of the non-monetary aspects of the loss in case of failure (Dew et al, 2009).
- (4) Possible ways that the impact of losses can be reduced on the firm (Dew et al, 2009).

While not so much work exist in the literature of affordable loss, the few that exist only apply the concept to new ventures/start-ups and its application to firms’ growth is neglected. Dew et al (2009) delve into how entrepreneurs make decisions on what they can afford to lose and what exactly they are willing to lose. In taking a plunge as to either take a particular course of action or make an investment decision for growth, affordable loss is much in favour of making

decisions that control downward loss as opposed to maximising a potential upside especially in cases where the outcome of such decisions cannot be accurately predicted. In other words, an entrepreneur is more concerned about information that would reveal potential losses in any investment than information on potential profits to be realised (Dew et al, 2009). In causation, while making investment decision based on profitable outcomes, entrepreneurs usually use the net present value (NPV) of future risk-adjusted returns while taking careful note of opportunity costs in terms of job market value while investments based on effectuation focuses on the application of affordable loss heuristics (Dew et al, 2009).

Risk and rationality was interestingly introduced by Miller (2007) to opportunity exploitation as an avenue for an assessment of affordable loss which can lead to the growth of a firm.

Firstly, the concept of opportunity recognition was described by Miller (2007) as involving a situation whereby there is a pre-existence of both demand and supply and are therefore matched by an entrepreneur in either an existing firm or a new one. The risk involved here pertains to unpredictability where there is a lack of complete knowledge of the market which brings about a subjective probability estimates by entrepreneurs (Miller, 2007). Secondly, the concept of opportunity discovery involves mutual exclusivity of demand and supply. The role of an entrepreneur is to search and discover which is missing thereby making an exploitation of the missing part for the growth of the firm (Alvarez and Barney, 2007). The risk involved here according to Miller has to do with the nature and form that the search processes might take which may in fact be novel to the entrepreneur. The risk is that of unknowability in the search processes leading opportunity exploitation (Miller, 2007, p62-63). Lastly is the opportunity creation which involves the non-existence of both demand and supply. The role of an entrepreneur is to create both and match them in a profitable manner perhaps through effectuation for the growth of the firm (Sarasvathy, 2001). The risk involved here is a lack of control of the market in the sense that other players' actions make it tough for the entrepreneur to have absolute control.

2. 6 Strategic Relationships and the Firm's Growth

As earlier identified in the four principles of effectuation, the theory focuses on making use of relationships and pre-commitments from other stakeholders like customers, suppliers and even competitors as a possible way of reducing uncertainties by getting other people involved (Brettel, Mauer, Engelen and Kupper, 2012). Such relationships do not only bring these stakeholders on the side of the firm, but also serve as a form of barrier to other firms (Sarasvathy, 2001). Such relationships take the form of partnerships that involve entering into contractual relationship such as strategic alliances which include joint ventures, minority equity alliances, joint R&D, joint marketing (Teng, 2007). Other forms of such cooperative strategies include franchising, licensing (McKelvie and Wiklund, 2010) as it is in this era of competition that no one firm can do it alone (Teece, 1992). Strategic relationships between firms especially knowledge-intensive firms are inevitable as they help them to develop new technical skills, technical capabilities and lead to reduction of costs and risks (Mowery, Oxley and Silverman, 1996). Strategic relationships between firms come in different forms such that which include supplier-buyer partnerships, agreements on outsourcing, agreements on channels of distribution, technical collaboration, agreements on cross selling, production and manufacturing agreement with a good number of these applicable in the knowledge based industry and beyond (Grant and Baden-Fuller, 2004). Strategic relationships like alliances according to Grant and Baden-Fuller are especially good in knowledge-intensive firms as they lead to knowledge generation and knowledge application. The knowledge generation (also knowledge exploration) helps as a platform for learning as each of the firms involved are able to learn from each other, in other words, all parties involved are able to exchange knowledge. On the other hand, knowledge application (exploitation) ensures that the knowledge is specifically used to create value. In the words of Grant and Baden-Fuller, “each member firm accesses its partner’s stock of knowledge in order to exploit complementarities, but with the intention of maintaining its distinctive base of specialised knowledge” (p. 64).

A distinction is made between explicit and tacit knowledge. While explicit knowledge can be communicated and transferred among parties/organizations, tacit knowledge comes to the fore in its application as transferring such is usually hard to achieve in terms of cost and time (Grant and Baden-Fuller, 2004). In the use of knowledge and how firms are able to use and share knowledge

among different parties, Grant and Baden-Fuller give useful assumptions that underlie it in respect to production of goods and services:

- (1) Knowledge forms the most productive resource in terms of market value.
- (2) Ability to transfer from one party to the other is different for different kinds of knowledge. For instance, while it's easy to transfer explicit knowledge, tacit knowledge is hard to transfer.
- (3) Economies of scale and economies of scope are essential features of knowledge. Explicit knowledge enjoys economies of scale as it is easily reproduced on a large scale and easily. On the other hand, economies of scope come in when knowledge can be used for a wide variety of products and services without restriction.
- (4) There is the need for specialization in order to get the best of knowledge. Each individual concentrates on improving in the specific knowledge area in which he/she has the highest capabilities.
- (5) Production of goods and services is not limited to a single knowledge; it rather calls for a combination of knowledge.

Furthermore, strategic alliance which is at the core of technology firms, improves firms' competitive position and their growth and this is as a result of sharing complementary resources (Ireland, Hitt and Vaidyanath, 2002). Similarly, Dyer and Singh (1998) examine the idiosyncratic inter-firm linkages that may be a source of what they termed relational rents and competitive advantage to firms. Firms combine resources in unique ways and this gives rise to profits and also give the combined firms an advantage over their rivals. Dyer and Singh (1998) describe strategic relationships as a basis for such relational rent which arise as a result of relation-specific assets, knowledge-sharing routines, complementary resources and capabilities.

According to Dyer and Singh (1998) inter-firm relation-specific assets occur when a firm chooses to seek advantages by creating assets that are specialized in conjunction with the assets of an alliance partner. It was stated that productivity gains in the value chain are possible when firms are willing to make relation/transaction specific investments (Perry 1989; Williamson 1985 as cited in Dyer and Singh, 1998).

Williamson, as cited in Dyer and Singh (1998) identifies three types of specificity to include site specificity, physical specificity and human specificity. Williamson (1985) refers to site specificity as the situation whereby successive production stages that are immobile in nature are located close to one another and this reduces inventory and transportation costs. Physical specificity refers to transaction-specific capital investments that tailor processes to particular exchange partners. Human asset specificity refers to transaction-specific know-how accumulated by transaction through long standing relationships. It results in co-specialization which increases as alliance partners develop experience working together and accumulating specialized information, language and know how (Dyer and Singh 1998, p 662).

Inter-firm knowledge-sharing routines refer to the inter-organizational learning that is critical to success. Firms that collaborate more with others tend to learn more than organizations that do not. The basis of this collaboration is to have a superior knowledge transfer mechanism among users, suppliers and manufacturers will be able to out-innovate other firms with less effective knowledge sharing routines (Dyer and Singh, 1998).

Complementary resource endowment occurs when distinctive resources of alliance partners that collectively generate greater rents than the sum of those obtained from individual endowments of each partner. These endowments should not be such that can be purchased in the secondary market by any of the firms and the resources must be indivisible in order to create an incentive to form an alliance in order to access the complementary resources (Dyer and Singh, 1998).

It has however been argued that strategic relationships like alliance helps firms to access knowledge and capabilities which is used in the production of goods and services other than just as a means of learning (Grant and Baden-Fuller, 2004; Mowery et al, 1996). It is of great advantage as the firms involved have their individual strength which compensates for other partners' weaknesses (Rothaermel and Boeker, 2007).

2.7 Adaptation as a Means to Manage the Firm's Future

Large firms have policies, procedures and routines in place that guide the firms' activities while small firms remain flexible and open to trying new things in the events of failure of existing experiments to achieve the required results (Chandler et al, 2011). Transforming the firm's

existing capabilities could be a way of controlling the firm's future as forecasting or predicting the future might lead to undesirable results (Chandler et al, 2011). The controllable aspects of the firm's future lies in what it has the power to experiment with in a way that future streams of revenue and profitability would be guaranteed. This is particularly in line with Sarasvathy (2001) that state that "effectuation focuses on the controllable aspects of an unpredictable future" (p. 252) thereby negating any need to forecast the future since it can be controlled. Such controllable aspects of the unpredictable future might come from feedback from the environment which helps in the process of adaptation and also the ability to co-create opportunities with other stakeholders.

In their study of Angel investors, Wiltbank et al (2009) find out that forecasting as a means of controlling the future largely depends on the accuracy of the predictions made. The firm might suffer very dire consequences as a result of wrong predictions. They go on to state that a non-predictive strategy however ensures that the future performance of the firm even if not too outstanding would be assured.

Wiltbank Dew, Read and Sarasvathy (2006) suggest that adaptation as a means of controlling avoids describing the future but rather uses its flexibilities to face the realities of its environment as they occur. According to Wilbank et al (2006) learning is a big part of the adaptation of the firm as it uses feedback gathered from the environment to make decisions of its next line of action. Schoemaker as cited by Wilbank et al(2006, p 985) describes it as a very realistic way to approach the future as adaptation allows the firm to know where its environment is at all times rather than predicting where it would be. Planning as evidenced by business plans described by Honig (2004) as a formal document that emphasises ideas rather than action for example makes flexibility hard to achieve as firms even though they might understand the need for adaptation find themselves tied to the plan (Wiltbank et al, 2006).

It is however important to note as stated by Svensrud and Asvoll, (2012) that effectuation theory is not a replacement of predictive rationality which is causation but is meant to exist in parallel to it. The two forms of decision making could both be adopted by firms as neither can be deemed to be superior to the other as the two concepts are necessary and important to undertaking decisions and actions (Dew and Sarasvathy, 2002). Causation is better suited for existing and developed

markets while effectuation is more applicable in latent and emerging markets developed by the actions of firms or the actions of others (Chandler et al, 2011).

3. Research Methodology

This chapter begins with the approach used for the study, then data collection method follows. The interview protocol, data analysis and representation procedures follow with steps taken to ensure validity of results.

3.1 Approach

This study seeks to examine the application of effectuation theory to the growth of small knowledge-intensive firms (KIF). Knowledge is regarded as the most important attribute of KIF as it is considered more important than physical resources. According to Starbuck (1992) knowledge is more valuable than other assets like physical or capital assets as a result of its input into the firm's productive capabilities. This was also corroborated by Alvesson (2000) who refers to knowledge as a firm's major resource on which the production of goods and services depends. Examples of firms in this category include engineering and computer consultancy companies, R&D firms, high tech companies, advertising agencies, management firms, law and accounting firms (Alvesson, 2000). This study focuses on firms on the technology and consultancy category of knowledge firms because of the ease of accessing such firms in Ottawa. In view of the important role of human resources who are custodians of knowledge, it is important to attract and more importantly retain its human resources for two reasons. First, it is probably the only resource available to a firm and so has to be kept and secondly is the possibility of losing old clients to such personnel (Alvesson, 2000).

This study adopts a case study qualitative research method. The case study approach is adopted in order to have an understanding of the processes involved in the growth of knowledge-intensive small firms within the context of effectuation (Eisenhardt, 1989). The Case Study approach is an important approach to qualitative research as it involves the study of an issue (Creswell, 2007) with multiple sources of evidence which include observations, archival materials, interviews, and questionnaires thereby allowing for triangulation which makes the findings from such research reliable and valid (Yin, 2003). Hence, the case study approach is adopted in order to have a thorough understanding of the cases involved.

Six interviews were conducted which follow a multiple case study (Yin, 2003). This makes it possible to obtain multiple perspectives on the application of effectuation to the growth of small knowledge-intensive firms. The unit of analysis is the entrepreneur whose actions and decisions are examined within the context of their firms (Yin, 2003, Miles and Huberman 1994).

3. 2Data Collection

Six interviews were conducted in the course of collecting my data and the interviewees were entrepreneurs who have been actively involved in setting up their firms and who have decision making power that has helped in the growth of the firms.

In selecting the firms that will participate in the study, the following criteria were used:

- 1) Size: Five of the participating firms are small firms with less than 100 employees as per Statistics Canada definition of firms in the service industry (Industry Canada, 2013). One of the firms however falls within the medium-sized businesses with employees of between 100 and 499 as per Statistics Canada's definition. One medium-sized company was selected to have another perspective and make a comparison with the small sized companies.
- 2) Number of cases: Purposive sampling was used in this study. Purposive sampling according to Onwuegbuzie and Leech (2007) is used to obtain insights into a phenomenon, individuals or cases in order to increase understanding of the case or phenomena. Six semi-structured interviews were conducted. The restriction to six participants is in order to gain in-depth insights without getting overburdened by information. This number falls within what was suggested by Eisenhardt (1989) and Yin (2003).
- 3) Population: These firms are part of the technology Knowledge-intensive industry in Ottawa. The industry comprises firms whose work can be said to be that of developing intellectual property and where well educated, qualified employees form the major part of the workforce (Alvesson, 2000).
- 4) Age of Firm: Four of the participating firms were established less than ten years ago while two were established over 10 years ago. That is in order to have a different perspective to the relatively young companies.

Table 2 shows a summary of the profile of all the companies in terms of year founded, nature of business, number of employees. Pseudo names are used throughout this study to represent the interviewee for all the companies. In the interviews conducted, five of those interviewed were the CEOs while one was the Executive Chairman who also founded the company. All interviews lasted between 51 and 73 minutes and were conducted in the location of the company. The interviews were recorded to keep the integrity of the exchange with the permission of the interviewee. For the sake of time and efficiency the interviews were transcribed verbatim by a professional typist.

They were analysed manually with the help of matrices first along the themes identified in the interview guide. Several iterations between the data and the notes revealed emerging themes that will be identified in the analysis. In vivo codes where the exact words used by the interviewee were used for coding the interviews (Strauss and Corbin, 1998).As suggested by Eisenhardt (1989) and Yin (2003) within-case and cross-case analysis are conducted.

Table 2: Companies' Profile

	Company 1	Company 2	Company 3	Company 4	Company 5	Company 6
CEO	Ben Adam	Andrew Young	Charles Smith	Adrian Martin (Executive Chairman)	Tim Gregory	Joe Allen
Year founded	2008	2009	2009	1997	2001	2007
Nature of business	Two -way radio applications provider	Game development technology for iOS, Android Smartphone and tablet devices	Consultancy for Digital Analytics	Database and systems management	Broadband wireless systems Provider	Serves the defense and aerospace market
Number of Employees	14	20	13	265	80	30

For the purpose of this investigation both within-case and cross-case analyses are used for all the cases as per Miles and Huberman (1994). The cross-case analysis is conducted to compare and contrast the results in order to gain a better understanding about all the cases to better appreciate the results (Eisenhardt, 1989, p 541; Yin, 2003, p 133).

3.3 Interview Protocol

Four different themes are used in the interviews to cover the effectuation processes in the participant's firms: 1) affordable loss; 2) contingencies; 3) strategic relationships; and 4) adaptation. It also covers entrepreneur's means which include: 1) who they are; 2) what they know; 3) whom they know, and finally the mode of growth.

Kindly refer to Appendix I for a sample of the interview protocol that was used. In addition, the University of Ottawa ethics requirement was satisfied and an ethics certificate was issued. In addition, all the interviewees read, understood and signed the consent form while they were all assured of confidentiality of information provided (Appendix III).

3.4 Data Analysis and representation procedures

In the process of analyzing the data, codes were assigned and a deductive analysis approach to coding was adopted. Deductive analysis is the approach that starts with established theories or generalization and then seeks to find out if these theories apply to specific situations (Hyde, 2000). In that case, the starting point was the general theory of effectuation and specific portions of the data were sought that align with this theory. The themes contingencies, affordable loss, strategic relationships and adaptation were all generated deductively from the answers provided by the respondents.

Secondly, in-vivo codes were also used. According to Strauss and Corbin (1998) in-vivo codes are those codes that use the exact words expressed by the interviewees or participants.

The themes drawn from the interviews include contingencies, affordable loss, strategic relationships and adaptation. Emerging themes include the monetary and non-monetary affordable loss and the direct and indirect impact of contingencies on the growth of companies

In analyzing the data from the six interviews two approaches were used. The first approach is within-case analysis which provides an in-depth understanding of the unique situations of each firm and allows the researcher to get familiar with the salient points of each case (Eisenhardt, 1989). The second approach is the cross-case analysis where the six firms were examined on the basis of the data that were collected to bring out similarities and differences between the cases. These approaches make the findings more robust and it is one of the many advantages of having multiple case studies over a single case study (Yin, 2003).

In order to simplify this process, matrices were used to show the similarities and differences between these six cases and the findings were reported in Appendix II.

3. 5 Ensuring validity of results

In order to improve result validity, findings from the six cases were triangulated with the CEO of a consulting company in Ottawa whose specialty is small firms' growth in the technology sector. Triangulation is done in order to have a different source to provide "corroborating evidence" (Creswell, 2007, p. 208). The company was founded over 17 years ago and it specializes in small and medium-sized companies and operates all over North America. It has been able help a large number of companies to achieve growth by increasing their channels, raising revenues, launching of new products. The CEO has no relationship with any of the companies under review but he knows the industry and how SKIFs operate. He was selected based on his experience. In order to ensure that results are valid, the CEO was interviewed using the same interview protocol used for the six companies. The interview shows evidences that supports the fact that effectuation can actually be used to grow companies as this had been evident in the dealings that the CEO has had with companies over the years. The interview lasted for 37 minutes.

Secondly, notes were taken: 1) when preparing for the interviews while reviewing the company web sites as well as sites where the companies under study were mentioned; and 2) during the interviews to record impressions, thoughts, comment linking what was said to the literature. These notes were then reviewed with the interview transcripts to add some richness to the text

and to clarify some comments. Finally, the transcripts of the interviews and the coding were reviewed by the thesis supervisor to ensure accuracy.

4 Data Analysis

This section contains the within case analysis of all the six companies. Each analysis begins with a brief description of the company's profile. Effectuation is discussed with the entrepreneurs' means while the four themes are discussed after in addition to the modes and indicators of growth. Each company's case ends with a summary.

4. 1CASE I: COMPANY 1

4. 1. 1Company's Profile

The Company was founded 6 years ago. It is in the business of providing two-way radio applications and has a total of 14 employees. A summary of the characteristics of the company can be found in Table 3.

Table 3: Company 1 Profile

Age of Entrepreneur	Over 25
Number of employees	14
Age of Company	6 years
Gender of interviewee	Male
Positions of interviewees'	CEO/ Director of Marketing
Date of interview	26-11-2013
Duration of interview	73 minutes

4. 1. 2 Founder of the Company

The Company was founded in 2008 by a successful serial entrepreneur in Canada who has had a long standing experience in creating new companies and nurturing them to growth. He founded a business incubator which brings together small firms in their early stages and ensures their growth. Company 1 was one of the firms hosted in this incubator that was started by identifying the needs in the market and filling those needs. According to Steve, the Marketing director:

“What they did was to find gaps in the market and to try to create companies.”

The founder spotted a need in Nunavut where there was no access to cell phone services and decided that the best thing to do was to create a company that will create a product that would meet the needs of the people in that region while returning some profit to the company. In the words of Steve:

“There were customers up north in Nunavut who wanted the ability to connect their phone systems over two way radio to walkie-talkie because they don’t have cell coverage over there.”

Having spotted the need for cell phone services in the region, he proffered a solution which was to create a company that would bring such services to those people. Steve goes on to state:

“So he went out and found 3 students from RIT, Rochester Institute of Technology in New York and he would create an algorithm and he said here is a phone, here is a radio, connect the two and that’s it and it took off from there.”

The objective of the founder at that time was to satisfy the first customer and he thought that if the first customer could have communication problem, then there must be a lot more people who have a similar problem. He subsequently he was able to expand the company because of the need identified.

4. 1. 3 The Company’s Products

The company provides two-way radio services to its customers where in the event of no cell phone coverage, the device can be used as a telephone and also a two-way radio.

Ben, the CEO summed up the company’s product this way:

“This radio is a professional mobile radio but it’s also a phone, it can make a call like a phone and it can receive a call like a phone and you can just throw away your phone.”

Over the years, this product evolved by modification to take on new uses for customers which has helped in increasing the company’s customer base. For instance, it has been adapted into an alarm system.

The company operates in an emerging market where there is a need for communication between people who operate in remote environments with no cell phone coverage. This need is

particularly felt in the manufacturing industry where communication is essential between executives and their employees who work in remote areas. As a latent industry that has no real history but emerged because of need, there is an expectation that effectuation which refers to choosing between difference courses of action which could lead to growth based on the available resources would be a more appropriate way to grow.

This is an emerging industry with no real history, a latent market which is not well defined, therefore we could expect that effectuation is more appropriate.

4. 1. 4Effectuation and the growth of the Company

4. 1. 4. 1Theme 1a: Who am I

Ben, the CEO of the company showed entrepreneurial traits right from when he left high school. Immediately after his high school, Ben became a truck driver and his passion for entrepreneurship with zeal made him move up the ladder in the company to become the Vice President.

“I worked my way up, from a truck driver to a senior vice president.”

Ben never had an undergraduate degree and when asked about his educational background, he simply said “I have no education”. He later acquired an MBA degree at Wharton School, University of Pennsylvania and he was also certified in Inventory and Material Management. He has had an operational and business operations management background.

His MBA degree has been helpful in forming who he is entrepreneurially. This degree has afforded him to be able to assess situations critically and has also aligned his thoughts more into being an entrepreneur. Furthermore, his professional certification has been a source of building him as he was able to go through the rigorous process of getting certified. All these formal educational training shows how well he has been prepared to take on the role of the CEO of this company.

Secondly, Steve, the Marketing director and a much younger person, has a Finance degree from the University of Ottawa. He was motivated to be become an entrepreneur just by passion. Steve says:

“I knew I wanted to work for a start-up, I have been here ever since.”

Also, all the employees of the company are well trained educationally and professionally and these define who they are in the company. In other words, the educational and professional skills of the employees and executives in the company complement one another and thus the growth of the company can be attributed to this.

4. 1. 4. 2 Theme 1b: What I Know

Ben is a very experienced individual as he had worked in the industry having worked for a company for 31 years starting out as a truck driver. Ben puts it this way:

“My career was with a well-known high tech-company, the telephone company, I was there for 31 years and I was, I started there as a truck driver.”

He gained tremendous experience working at various capacities in his previous company, all of these exposing him to the industry and thus preparing him for the role that he occupies at the moment in the company.

Ben says of his time at the telephone company:

“I left there as a senior vice-president, I was operations and sales, so I have global operations and I had sales responsibilities, so I worked in every position.”

After retirement, Ben did not stop there, he went ahead and did some consulting for companies in the USA and Canada. Also, his experience in the industry can be shown in his mastery of distribution channels. Having worked with the telephone company for 30 years, he had obviously been around enough to understand how the industry works. This is a good strength for the company.

“I guess the thing that I do understand the channel model because I grew up in the channel model and so I brought my experience of how to deal with channels.”

In further considering his experience and how he has been able to learn what he now offers the company, Ben revealed that his professional certification played an important role in shaping him into who he is today.

“I think that the other thing is the apex certification in operations management because I am certified there, that really taught me a lot about execution and business relationships.”

A great deal of experience also came while studying at the Wharton School as he met with executives from various companies thereby allowing them to exchange ideas on various topics on how to grow companies.

“And in going to Wharton and the MBA programme and the case studies and stuff, the people that I did that with is probably where I got the most out of that.”

In summing up his experience, he says that on the job training has been responsible for his experience.

“I am a sort of school of hard knocks guy, my biggest training was on the job training.”

Ben was approached even in retirement by the founder of the company to take up the role of the CEO because of his vast experience. The founder believed that with Ben’s over 31 years of experience in the telephone industry, he would be able to steer the company to the path of growth.

Also, the company’s certification with Motorola shows the company’s competence and this goes a long way to show the experience that the company has in the industry. Of course, this certification would not have been possible had the company not been deemed to be experienced.

On the other hand, Steve had no prior experience before joining the company and he joined after graduation. He has been with the company since its inception and has thus learnt while on the job.

4. 1. 4. 3Theme 1c: Whom I Know

The company has been able to build a network of people and companies that form the bulk of their contacts for revealing opportunities that lead to the growth of the company. In examining the company’s contacts, social and economic networks were seen to be the tools that the company uses for its growth and this can be broken into those it has strong or weak ties with.

The company is able to network effectively through professional events held by the founder’s incubator. These events bring together people and companies in the same industry where ideas and information are exchanged.

“Wesley Clover also hosts Tech Tuesday and that’s one of our principal funders and founders, so we participate in Tech Tuesdays and stuff like that, gives us networks into the community.”

This reveals strong ties between the people and companies it interacts with and quickly gains access to relevant information and ideas beneficial to the company. This is particularly in line with Elfring and Hulsink (2003) who describe strong ties as:

“Strong ties are associated with the exchange of fine-grained information and tacit knowledge, trust-based governance and resource cooptation.”(p. 410).

While events like the Tech Tuesday gives access to networks of strong ties, it also attracts people and companies that are not in the same line of business, meaning that they share little of nothing in common thereby giving them weak ties. Also, strong ties are revealed in the participation in “Java scripts meet-ups” which is a community of software developers that come together in order to network and learn about the latest development in the industry. The advantage is not limited to shared knowledge and information alone, it also enables the company to hire its best hands.

As Steve puts it:

“We are working with the java scripts meet-ups and all that, it allows us to recruit, one of the employees that we have, they met at one of those meetings. It’s also helping them to keep up to date, how to code.”

Also, the companies employ the use of social networking site LinkedIn as a means of attracting the best talents to the company. While this can serve as a form of strong ties, it can also be a form of networking with people and companies for weak ties.

Networking has been beneficial to this company as it gives them access to a lot of information in terms of resources and opportunities for growth. It allows them to always be ready to receive new information.

Ben summed up the benefits of networking:

“What’s going on in government funding, what’s happening up there, did you hear about grants coming this week? We get insights into opportunities that may be manifesting

themselves for resources, for funding. . . these associations allow us to keep an eye to the ground.”

4. 1. 4. 4Theme 2: Affordable Loss

In estimating what the firm can afford to lose in case of a failed opportunity or investment, the company first embarks on validation of the product with dealers, customers and investors before full commitment is given to such product. First of all, there is the validation of the idea to see the level of its acceptability to these stakeholders and after this is done, the company produces a prototype and shows it to dealers in order to know if the investment is worthwhile.

“The Alpha was a very basic prototype of the application and basically showing it to 10 dealers and saying what do you think? That’s really the approval concept. ”

Again customers’ feedback is sought to assess its commercial viability.

“The way we evaluate it is by direct customer feedback, giving them a prototype and telling them what do think, sending out surveys and things like that.”

The use of prototype as described here shows a non-monetary approach to assessing the company’s affordable loss in introducing a new product into the market. The product is discontinued completely if the prototype is not well received by the dealers.

Also, the company diversifies its risks in investments and it aims to bring mitigation against risk of failure. The company covers initial costs of investments with grants and this ensures no company’s money is lost in case of failure of investment at the early stages.

“And that’s when we went to get a grant to help pay for this, we did not want to take all the risk, so we worked with IRAP, (Industrial Research Assistance Program which provides funding services) they actually allowed us to hire somebody for this new opportunity without having to spend a dime of our own money.”

Full financial commitment of the company comes in when all indicators show that the product would succeed in the market and even if it fails, the company’s loss is reduced to the lowest minimum as the bulk of money invested was raised through IRAP. This illustrates how

effectuation is applied in the company and this aligns with the literature that an effectual entrepreneur examines possible ways that losses can be reduced (Dew et al, 2009)

Assessing the company's affordable loss by the use of grants represents a monetary approach as it involves a definite amount of money which the company receives in the form of grant from IRAP. Failure of the investment would make the company lose only the grant it had received and while the company's money is not lost.

4. 1. 4. 5 Theme 3: Strategic Relationships/Partnerships

The company shows a favourable disposition to partnership as a means to achieve growth by engaging in partnership and pre-commitments. The company had an objective to become a bigger applications provider and in a bid to have more application, they engaged in partnership with a company in Denmark. The company entered into partnership with another company and this increased their applications from three to nine.

“It enabled us to bring more than three applications we did not have access to at the time to develop. . . .we then partnered with another company, now we have nine applications.”

This has been beneficial to the company and these partnerships have made it to become a one stop shop for applications thereby increasing the company's customer base.

Ben summed up the benefit as follows:

“Why call six vendors to get six different things when you can just call us, one person and we went from having an application . . . to saying now we want to become a one stop shop for all applications.”

The Company's relationships have shown 2 important elements which are knowledge generation and knowledge application (Grant and Baden-Fuller, 2004). The company shows knowledge generation as they both exchange knowledge, they transfer skills and enjoy access to the best practices on both continents.

“We have taught them how we do things and vice versa, we have learnt from each other because we are in the same industry, doing the same thing but on different continents, they are doing it in Europe, we are doing it in North America.”

The company also shows knowledge application as they turn this skills, ideas and knowledge shared with partners into their service delivery with customers.

“It has taught us to get closer to our customers to better understand our customers.”

4. 1. 4. 6 Theme 4: Contingencies

This company has shown that contingencies can be converted into profitable opportunities by being flexible in its operations. The company had developed an application which was meant to be profitable but it turned out to be too complex to install and support thereby threatening the company’s existence. Ben puts it this way:

“The company was naive and they didn’t keep it simple and the complexity almost killed the company because as much as people like the end result, they could not get there easily.”

This event became an eye opener for the company and started making all its application simple in order to make more profits and also suited to the customers’ level of competence and knowledge. In that case, the value the company can add is commensurate to the competence of its customers.

“The company made the right decision re-engineered the product to be simple to install, simple to support allowing the dealers to make money.”

Soon after this near collapse event, the company developed an application which makes installation and support very easy. This event of near collapse made the company learn from its mistake and quickly adjusted its operations and this would have been impossible if the event had not occurred.

“If we hadn’t had all those headaches I am not sure we would have come up with this idea.”

This case shows an indirect impact of contingencies on the growth of the company. This is so because the event did not lead directly to the growth of the company but was able to help the company re-engineer its product in order to achieve future growth. This is opposed to other events that can lead directly to the growth of the company.

4. 1. 4. 7Theme 5: Adaptation over forecasting

The company as a way of controlling future streams of income does not engage in forecasting to achieve this. The company is not able to predict what would happen in the future by any formal process because it lacks the resources for doing so. It therefore embarks on adaptation as a means of ensuring future growth. Ben states:

“I wouldn’t say we have a formal process, we don’t have the time or the resources to spend on that.”

It was further revealed that as a way of controlling future income, opportunities for such are created by having a strong relationship with customers and by this the future is assured.

Ben states:

“The way we find opportunities is by talking to customers and what they want to tie into that. That’s the biggest thing, talking to the customers.”

A great deal of the company’s products is adapted to the needs of the customers as they have lots of their systems that are never integrated with the radio network and the company. By doing this they are always assured of futures streams of income. Ben puts it:

“We start to think about companies have a lot of systems that they never integrate with radio network. These have always been standalone . . . how can you take advantage of this.”

He states:

“So, lot of our applications are about taking the integration and making radios part of the unified communication you already have but they were never able to do that before.”

The company controls an unpredictable future by adaptation and transforming its products on an ongoing basis and continued relationship and communication with customers rather than

predicting or forecasting which aligns with Sarasvathy's principle that effectuation entails controlling the future rather than predicting it.

4. 1. 5 Mode of growth and Indicators of growth

The company has experienced organic and hybrid forms of growth. The organic growth has been through revenues and profits generated from its own applications while the hybrid growth has been possible through partnerships.

Even though, only three out of the nine applications which represent the company's products were generated within the company, the bulk of its revenue comes from its own application.

“In the majority, the majority of our revenues come from our own products.”

On the other hand, the other 6 applications (products) have helped the company to increase its customer base and achieve some form of growth.

“As a customer, when you look at us, we have nine applications and that's growth through our partnerships, being able to resell their applications, of course we have less margins on those applications but it allows us to be that one stop shop and grow.”

The growth indicators include the increase in the company's products, its intellectual property, the increase in its revenue base and the size of its employees.

4. 1. 6 Summary

In the context of this company, the effectuation process that influences its growth manifested itself in different ways. Effectuation was shown in the possession of the means, the use of contingencies, affordable loss, strategic relationships and adaptation. The possession of an advanced degree has served as a foundation for the CEO which shows in his sound decision making. He also had years of experience which defines what he knows and he also has networks (both strong and weak ties) which define who he is. In assessing affordable loss, it validates using prototypes and customer feedback and diversifies risks to mitigate against risk of failure. This shows both monetary and non-monetary basis of assessing affordable loss. Partnership is also important as that has drawn customers to the company as its product base has increased making it a one-stop shop for customers which is an advantage over other firms. The impact of contingencies was also felt and it has improved the company and this was shown to have an

indirect impact on the growth of the company. Lastly, it has shown that transforming its operation is a useful tool for controlling its future rather than forecasting.

4. 2CASE 2: COMPANY 2

4. 2. 1Company's Profile

The Company was founded 5 years ago. It is a technology company in the business of developing games for smart phones and tablet devices and has a total of 20 employees. A summary of the characteristics of the company can be found in table 4.

Table 4: Company 2 Profile

Age of Entrepreneur	Over 25
Number of employees	20
Age of Company	5
Gender of interviewee	Male
Position of interviewee	CEO
Date of Interview	11-12-2013
Duration of interview	68

4. 2. 2 Financier of the Company

Company 2 was financed by the same individual that financed the creation of the Company 1. New insights however emerged about the man in the interview with Andrew Young, the CEO of Company 2. The founder of the incubator is an Irish immigrant who moved to Canada in the 1960s and worked for a top company but was frustrated about how things were done in the company at the time. He then started his own company with a \$4,000 bank loan and grew it into a billion dollar company and thereafter sold it to British Telecom in the early 1980s. He then founded another company which he also grew into a billion dollar company before selling it off in 2003. He bought back his first company from British Telecom and as a serial entrepreneur has created over 100 companies over his career with most of them having successful outcomes. His investments in these companies have been in different industries.

4. 2. 3 Objectives of the Company

Company 2 was created by Andrew who has the responsibility of creating new companies for the financier and growing these companies. The company was created by Andrew as he felt doing things the usual way might lead to marginalisation. He projected that the future was moving digital and everything was moving online and decided to build a model that is a virtual goods model, a high margin content business. So, his initial objective was to gain experience and test the waters in the games industry and had to convince the financier to support him. Andrew says:

“It was just to get some experience to be honest with you and to see if it was something we could win at. . . A challenge, a personal challenge, personal interest.”

The objective has not changed as the company experiences growth but gets refined every year by the realities on the ground.

“All we’ve done really is refine that, so we’ve owned it down, we have polished the diamond so to speak in fact we’ve not started the diamond yet, we’ve just sort of chipped off the coal off this shinning looking object. ”

4. 2. 4 The Company’s Products

The company produces premium games that are launched on mobile platforms, iPhones, android phones with a large customer base. When asked about some customers of the company, Andrew said:

“We produce games for major stakeholders like Marvels from Avengers. We make games for people like Marvel, for George Lucas. We produce games for Disney. These are big brands with big impact in the market with big brands.”

The industry is a fast-growing one that has been undergoing rapid transformation over the years. The industry is one with many players which means that the competition is rife and it would be expected that causation would be widely used as means to achieve growth. However, because of the small nature of the company, it would also be expected that effectuation would be used as a means to achieve growth.

4. 2. 5 Effectuation and the growth of the Company

4. 2. 5. 1 Theme 1a: Who am I

Andrew, the founder and CEO of the company had been entrepreneurial since an early age. Even though he had parents who were doctors and could cater for his every need, Andrew chose to sell Ice cream in order to earn some money by himself.

“I would argue that I must have been more entrepreneurial when I was 12, I used to sell ice cream on the corner.”

He goes on to say:

“So I bought ice cream obviously from suppliers, buy low, sell high, with a little bicycle, a little refrigerator bicycle, that’s what I did to make my money. ”

His early foray into business exposed him a lot to things that were later to become valuable to him as he learnt how to buy and sell, how to negotiate with customers and deal with and inventories and how not to lose his margins.

He had an undergraduate degree in Economics from the University of British Columbia and upon graduation could not get a job and then became frustrated. He then went back to school to sharpen his skills in programming.

Andrew says:

“I was very frustrated, I thought I got this degree, I am going to find this great job but that’s not the case so I became a little bit disenchanted with my skills and my training so I went back to school.”

He was motivated to go back to school to study Computer Science and Engineering because of his passion for video game as he hoped he was going to learn programming as a way to kick start his career. He never completed his computer science degree but he was able to finish 90% of it.

“In a nut shell, I’ve got an honours degree in Economics from UBC University and I got about 90% of computer science and engineering but I never completed it.”

Andrew's entrepreneurial drive made him to create 2 companies at UBC and 1 company at the University of Victoria.

4. 2. 5. 2Theme 1b: What I Know

Andrew's experience has had a big impact on him as an entrepreneur. In the University he created a company which he grew and later sold to a public entity. He later created another a t-shirt company where he sold t-shirts to all the companies in the University and according to him he learnt valuable lessons. Also, while studying programming at the University of Victoria, Andrew created a software company he admitted learning so much of programming in the company rather than in school:

“I learnt far more learning for myself than I did in the University in programming. I would argue that I didn't really learn how to program until I started writing codes for customers.”

Rather than learning programming in school, he was able to learn some new things like enterprise software and early day internet.

He has established over 15 companies which has given him a lot of experience in growing his firm. Andrew talked about his experience:

“I have operated 15 companies over the last 20 years, I have grown some of them, sold some of them . . . lost a couple of them it happens, I've operated in all kinds of different levels.”

His 20 years of establishing companies with successes in some and failures in other have given him exposure in dealing with situations that come his way in companies. He has also learnt to see things from the point of view of an operator and an investor which has enabled him to broaden his horizon. His over 20 year experience has seen him work in virtually all the areas of business viz marketing, HR, accounting all helping to give him valuable experience. He was later to shift from programming into sales out of frustration that people in the marketing were not productive enough. Andrew says:

“I was a programmer and then discovered that I was frustrated because the front of the house wasn't operating in my opinion in the optimal performance.”

Andrew admitted that the shift from the back end of the house to the front end got him exposed and offered him valuable experience which has been helpful to him towards growing his firm:

“It was the best thing I ever did because it forced me to learn communication skills, figuring out to deal with sales processes, figuring how to market things, so all those skills made me a better operator.”

4. 2. 5. 3Theme 1c: Whom I Know

Andrew admits he is not a member of any formal professional group which he may look up to for networking. However, he takes part in some activities that helps him to network and these show elements of strong and weak ties (Granovetter, 1983).

He shows strong ties in networking with by interacting with people and companies that they share similar ideas and information:

“I do socialise with the community both the investor community and the start-up community and the games community. I network with those people constantly; it’s all about spreading the word, finding opportunities.”

He also admits that the company uses social networking sites as a means of networking with people and this can be a form of strong and weak ties:

“We do from a social perspective like I would say linkedin, so I use linkedin extensively and that’s a form of community, it’s close community I would say and I also have profiles on facebook to communicate and get feedback back.”

Andrew admitted that he plays hockey twice a week and he networks with his team-mates. These encounters go beyond just the game but also as a way to discuss business. They bond and share ideas with one another. While he admits that family members can be a source of strong ties to a company, he did not specifically mention how family members have been of a help to his company. He simply stated that:

“You may get your uncle Bob to introduce you to somebody, it could be a relationship that they are going to help you with.”

4. 2. 5. 4Theme 2: Affordable Loss

The essential part of estimating affordable loss in this company is assessment of the non-monetary part aspect of an opportunity. Andrew asserts that trust is a first way the company assesses affordable loss. As assessment of trust would mean that he is sure he can risk taking the plunge with the individual

“If I am getting negative vibes from that person in terms of trust issues, I will probably have a trust problem with them. No matter how good it is, it’s going to fail because of a relationship or a personality issue.”

This is in line with Dew et al (2009) that say that an important aspect of affordable loss is the assessment of the non-monetary aspects of any investment in case of failure.

Also, assessment of loss for the company entails validation both in utilisation and with customers for feedback. Validation through utilisation would show how the existing product is being used as a first step in knowing what should be invested in a new investment. Andrew gives an illustration of validation through utilisation:

“I am selling X and I maybe selling 5 or 10 of them but how much are the people using it, if I am using once a week or once a year, whatever I am selling is not very valuable”

Validation through customer feedback is also seen to be a way that determines the extent of risk that the company is willing to take. Andrew said of customer feedback:

“So, customer validation, hearing what you are doing is having an impact, all those things swell positive morale and allows the team to essentially take more risks.”

The use of validation in this case through utilisation and customer feedback represent a non-monetary basis of assessing the company’s affordable loss. This is so because it is not assessed on the basis of calculating the loss in dollars and cents but through usage.

Another way is the risk-returns trade off assessment by the company as this is done to determine if any risk involved in any investment is worth taking or not. The company tries to evaluate how much to be committed to an investment and the possible return from such an investment. This evaluation is however monetary as entails the use of dollar and cents in the calculation.

Additionally, the company tries to mitigate against any risk in investment by getting investors who put money in such investment as a way reduce the company's exposure in case of failure of the investment. The financier takes upon himself to look for investors who make such investments. Andrew said of the financier:

“We are very lucky because we have someone like Tim behind us. . .part of his job is to you have to go get other people to pay for this to keep the company healthy and to keep it whole.”

4. 2. 5. 5Theme 3: Strategic Relationships/Partnerships

Partnership has a been a big part of the growth of this company, as it grows, the Company enters into partnerships that aid its growth every step of the way. Finding the right partners whose objectives align with that of the company is very important to the Company as it believes that being in partnership with a wrong Company can end the company. Andrew analysed the right partnership thus:

“What's core to me is context to you, what's context to you is core to me, that's the perfect partnership. So, I am willing to outsource this part of my operations to that partner in return they are going to get money.”

This aligns well with the literature which states that a company can outsource that part of its operations that it does not have core competencies. For instance Gilley and Rasheed (2000) explain that outsourcing allows a company to concentrate on areas it has core competences while McIvor (2008) talks about outsourcing being borne out of transaction cost and the resource based view of the firm.

Andrew goes to say that partnership helps companies to grow faster especially in the face of little resources:

“It's just like exchange of goods, it could be commitment, it could be resource, it could be access but those partnerships are what allows you to grow faster with less resources.”

Another core of the growth of the company is that it is able reach global audience by partnering with companies that make this possible. A partnership with Apple, for instance, has made it

possible for the company to reach a large audience globally, something that would have been hard to achieve on their own.

“Apple is one of our biggest partners, so through itunes, itunes allows us to sell from a single source, itunes pushes that worldwide, same thing with the multinational company, same thing with Amazon.”

Partnership arrangements from the company’s perspective have to be formal. The firm noted that partnerships without formal contracts are “very risky”:

“Disney one, we started with no contract, we worked with them for almost a year with no contract before we signed a contract with them. That’s risky, that’s my point, there are no guarantees.”

Knowledge generation and knowledge application are also evident in the partnership entered into by the company (Grant and Baden-Fuller, 2004). The company shows knowledge generation as they both exchange ideas and information and this was apparent in the interview with Andrew.

The company also shows knowledge application as they turn these ideas and knowledge shared with partners into differentiating their products for customer satisfaction.

4. 2. 5. 6Theme 4: Contingencies

The company shows it is always willing and able to take advantage of contingencies and turn them into profitable opportunities for the growth of the firm by being constantly alert and flexible in its operations. Andrew remarks:

“You are constantly squeezing, can I get this done with less, if I reorganise the objects and change the path, like the linear path, can I get it done faster, quicker, sooner. . .you are constantly juggling , hundreds of different aspects of your business. ”

This shows the indirect impact of contingencies on the growth of the company as it has been able to help the company reorganise its internal process for efficiency.

Furthermore, in a bid to be constantly available to take advantage of future events for the good of the company, it was revealed that in order to keep its best talents, the enormity of the risk being

taken by the company is not disclosed to employees. Such disclosure may lead to panic which may result in the loss of talent to another company, according to Andrew.

“I would argue too that people outside this door, they don’t realise the risk that we are taking that’s between you and I, that’s between the management team, it’s just that most of the employees would freak out if I told them.”

4. 2. 5. 7Theme 5: Adaptation over forecasting

The company shows a great deal of flexibility in its operations which makes adaptation possible. It was revealed that the company does not in any way rely on business plans but rather faces the realities on ground because of the complexity of the business environment.

“I’ve never seen a business plan that was on paper that was executed 24 hours after you write the last sentence on that business plan, it’s out of date because it’s constantly changing the world is changing, the business is changing.”

The company uses both forecasting and adaptation in controlling its future. Andrew revealed that the company carries out forecasting the market only in principle as a way of generating opportunities for growth. In addition, the company embarks on formal planning as to figure out who the customers are and how to reach them. Andrew states:

“We have absolute target and the number of players we are targeting and where we are going to target them from, are we targeting them through advertisement, are we targeting them through cross promotion, are we targeting them through something else.”

Furthermore, the company shows a great deal of adaptation by embarking on a series of experimentations to determine which target customers to serve and how to serve them. This is however made possible partly because the company does not follow business plans which give room for lots of flexibility.

“In reality what happens, I love to say that we always, we usually get there by pure luck because you tried so many things.”

This in line with Chandler et al (2011) that state that experimentation involves a series of trial and error as a means of determining the best approach in the market.

It was further revealed that the realities on ground makes flexibility of the company's operations quite inevitable as pressure of failure stares the company in the face which leaves the company with no other choice than transforming or the company would face failure. Andrew says:

“The ones that really truly become successful are the ones that take incredible risk and they don't do it because they want to, they do it because they have to, they got their back against the wall literally.”

The games industry being a very dynamic one that requires the company to adapt its operation all the time to the changing trends in the market which has been a way that this company has achieved growth. Ben says of the industry and how they have been able to adapt:

“The whole industry has gone through massive transformation and we've been lucky enough to participate in that transformation, in fact we are starting to rise to the top of that transformation.”

Adaptation is possible through communication with customers and taking appropriate actions.

4. 2. 6Mode of growth and Indicators of growth

The company has undergone organic growth and hopes to continue to do so. It has also grown through partnership and Andrew sums up the company's growth this way:

“One by one depending on where we have relationship, competitive advantage, we will start putting in place more infrastructures, growing organically that way.”

The growth indicators include the increase in its revenue, customer base and the size of its employees, the size of projects handled, utilisation and its worldwide distribution model.

4. 2. 7Summary

The company's means have been valuable tools for the company's growth. The CEO's education and experience (a significant part of it in programming and software development) has been instrumental to the growth of the company. Equally valuable has been the use of networks to a means of generating opportunities for growth. The company also uses affordable loss principle and engages in partnership as a means to achieve growth. Contingencies were also shown and it was revealed further that the company is always ready to take advantage of it in the future. Adaptation has been used to achieve growth.

4.3 CASE 3:COMPANY 3

4.3.1 Company's Profile

The Company was founded 5 years ago. It is a digital analytics consulting and software company that works with major US retailers and large digital organisations. It provides managed services to its customers for a fee. The company has a total of 13 employees. A summary of the firm's characteristics is found in Table 5.

Table 5: Company 3 Profile

Age of Entrepreneur	Over 25
Number of employees	13
Age of Company	5
Gender of interviewee	Male
Position of Interviewee	Founder/CEO
Date of interview	18-12-2013
Duration of interview	71 minutes

4.3.2 Objectives of the Company

The founder/CEO, Charles Smith started the company because he did not want anyone to tell him what to do. Having worked in start-up companies as a sales person, Charles had gained valuable experience and he had what it takes to create a business that would be of value to people. Being a company that he raises the needed capital, Charles decided to grow the company by himself by first offering his services to small and medium businesses that sell on the internet with a gross revenue of between \$5m and \$10m annually. He was able to that because most of these companies are not large enough to have full-fledged IT departments.

Charles goes ahead to say:

“So what we did is that we entered a business services market place for web analysis or digital analysis where there is a significant demand for talented staff and there's not that many of them.”

Having had some level of success with the small and medium businesses, Charles decided to take the same model to directors of multi-billion dollar companies and from there the company has continued to grow. The growth was however with some challenges as the company was faced with the huge task of managing its growth.

“We basically doubled the business in 4 months and it started to catch fire, there was a lack of internal process, there was a lack of structure around provisioning our work. That was fine when we were little.”

The company was however able to get over these inefficiencies by re-organising its internal processes in a bid to manage its growth.

4. 3. 3 The Company's Products

The company offers IT managed services to companies and charges a fixed amount per month for all its customers irrespective of the size of the customers. They are all charged a flat rate. The company basically offered services to its customers but having experienced some level of growth, the company is now planning to sell software to its customers as way to further boost its growth.

The company operates in industry where it is the only player in the market where digital analytics is offered as a managed service. This gives room for enormous opportunities for growth and because it's the only player in the consulting space for digital analytics, effectuation would be expected to be applicable.

4. 3. 4 Effectuation and the growth of the Company

4. 3. 4. 1 Theme 1a: Who am I

Charles' entrepreneurial trait showed in the University as he tried to move with the tide that was blowing in the late 1990s and as a result developed a strong interest in technology:

“Yeah I graduated from university during the “Dot com boom”, so in '99 - 2000. And I ended up getting an on campus consulting gig. To get people to like sign up to a website, and I was really good at it.”

Charles has an undergraduate degree in Comparative Politics at Carleton University. Even though he obtained a degree in something completely different from what he does now as a

digital analyst, he said his university training has had an indirect impact on the growth of his company. He said:

“I mean the ability to write concisely you know like writing a good essay. That’s just a good life skill. I mean there were some good skills that I took out of it.”

Upon graduation and having an ambition of starting his own business but without any experience of any kind, Charles spent the first year learning about sales and how businesses operate.

“So then I realized that I couldn’t use my degree so I got a job in a call centre creating lead generation, so I could learn how a business works so I could start one.”

Charles is very ambitious and has growth intentions which justify why he has been able to grow the company to the present stage. Talking about his intention to further grow the company, he said:

“So my goal for this year, this fiscal year was to do a million dollars, we’re going to do it. My goal for next year is to do at least 2 million dollars and we’ve got everything in place.”

4.3.4.2 Theme 1b: What I Know

Charles has had a long business experience which has enabled him to successfully grow the company. He started out learning how to run a business with a company that he took up a call centre job with. He has also worked with 3- 4 start-ups companies in Ottawa over the past 10 years during which time he was introduced to the technology side of his business.

“I’ve always just been in sales so I’ve worked for 3 or 4 different start-ups in Ottawa over 10 years. Mostly direct sales and mostly solution selling, so I mainly sold managed services, hardware to IT companies.”

He gained tremendous experience by selling and even learnt the technology side of the business while working in a firm. Charles acknowledged that he only became a web analyst while trying to meet the target set for him by his former employers. He said:

“I ended up becoming a web analyst just so I could hit my sales quota as a sales person, that is when I sat back and went: “Wow! why don’t these companies have a full time person that does this thing.?”

In a bid to complement his own skills and experience in order to further grow the company, the company hired a Vice-President from IBM who has a technology background and is very experienced.

“We’ve worked extremely closely together on things that have nothing to do with product development and gave me a lot of advice and structure um just support on how to build these systems into the business.”

He admitted that having the VP in the company has been really helpful and in fact the company would have run into trouble if there was no Engineer in the leadership team of the company. The role of sales has also been seen to be of importance to the company as Charles said that sales is the most critical aspect of his experience. Illustrating the importance of sales to his company, he said:

“I don’t know how you could start a company and not have a sales background. I don’t even know how you could do it.”

4.3.4.3 Theme 1c: Whom I Know

Charles has been able to build a network of people socially and economically that have been helpful in the growth of the firm. The CEO’s relationship with other people can be grouped into strong and weak ties, each playing vital roles in aiding the growth of the company.

Having the bulk of his customers in the US, Charles attends conferences periodically in the US and thus is able to network effectively through these conferences. He forms close ties with the individuals that he meets with as they both share similar ideas and information since they are into similar businesses. Weak ties are also revealed in some of the conferences attended as some of them give him access to divergent information. Also, strong ties are revealed in his membership of Digital Analytics Association and the Fresh founders association which is the association for CEOs of start-up organisations in Ottawa. Equally important is the relationship that Charles

maintains with some former senior executives in big companies who have also been useful for the purpose of networking and in the internal processes of the company.

Strong is also reveals as one of Charles' closest friend who also doubles as the chairman of the company's board has also been helpful for the purpose of networking. Charles says of him:

“Josh has introduced me to a few people. I think I closed a deal in the first year or so from an introduction from him.”

However, Charles admits that he has not been able to use any social network to grow his firm. When asked about social network and the impact on the company's growth, Charles says:

“Yeah, not really. I'm not a member of really any of them. Um, Partly it's because I am not very good at networking partly it's because I'm just too busy. So every night from 5pm to 10pm that's family time.”

He goes on to state that the time he should spend networking socially, he spends with his family while also admitting closing all of the company's business over the phone.

4.3.4.4 Theme 2: Affordable Loss

Estimating affordable loss for this company is made quite easy as the company is bootstrapped (where funds and resources are raised solely by the founder) and according to Charles, this makes it easy for them because they do not have a lot of money to throw around. The interview revealed that in estimating the amount that the company can afford to lose in an investment, the company evaluates the monetary cost and opportunity cost before a decision is made to proceed with such an investment. Charles reveals:

“So there's only 2 things we need to evaluate before we try something and it's cost, I guess dollar cost and opportunity cost.”

When talking about opportunity in a previous investment, he says:

“So you know I took all the, again the opportunity cost risk on myself and that ensured that it never impacted staff utilization and customer satisfaction.”

He goes on to state that in implementing a new service, he put upon himself to validate the service by taking on 6 customers and implemented the service with these customers until he was sure it could be introduced to other customers. This signifies the use of non-monetary way of assessing affordable loss for the company. To him, it was better to put it upon himself rather than on his employees who have wasted time and effort that could have been used for other productive purposes had it not turned out fine.

In also evaluating affordable loss, it was revealed risk diversification as the company has put itself in a position where it has a controlling power over its customers and in taking up an investment opportunity, effort is made to see that no one customer is big enough to make the company fail. Regardless of the size of any customer, a fixed rate is charged which places the company in a strong position to reduce its losses in case of failure with any of the customers. This represents a monetary basis of assessing affordable loss as the company evaluates the dollar value that comes from each customer and know it can be regained from other customers. Charles says of his company relationship with its customers:

“We do that on purpose, specifically because I want to have the power and the customer relationship to say no, which we can do. I also want to be in the position where no customer can kill me. ”

In evaluating the acceptable level of risk that can be taken, it was also revealed that a personal key performance indicator is used where the CEO assesses the ratio of recurring revenue against the recurring costs or fixed cost. This also represents a monetary basis of assessing affordable loss in the company

“I always want our services revenue to exceed our fixed monthly cost, and that means that anything else we do you know the little bit of difference there, that’s my risk. I can take exactly that much risk.”

4.3.4.5 Theme 3: Strategic Relationships/Partnerships

Partnership has been an essential part of the growth of this company. It has enabled them to exchange ideas and generate leads that lead to profitable opportunities for the company. The interview reveals that on entering into partnerships, the company shows knowledge generation as

it tries to make itself available to the company to share ideas and skills they have acquired in analytics and vice versa. Charles describes partnership with companies in this way:

“So you know our goal with a partnership is to be as valuable to them partner as we would be to a customer, because it always turns into gold for us.”

The company however does not enter into formal agreements with its partners. It believes partnerships have to be based on “trust and value.” The only exception however is the multinational company which it has a formal agreement with. It also does not enter into partnership to resell its partners’ products.

4.3.4.6 Theme 4: Contingencies

This company’s activities have revealed that contingencies can be turned into profitable opportunities for the growth of the company. The company’s software development group developed a product for internal use which helped in internal efficiency, better staff utilisation and for better customer satisfaction. The commercial viability of the product was however revealed while interacting with the multinational company.

“And in some of the discussions that we have had with a multinational company we noticed that it is a very commercially viable product as a standalone thing.”

He goes on to say

“We sat back a few months ago and realized that this tool that we built for internal use would be a really valuable addition to people that do work similar to us and we’re going to sell it next year.”

The product is due for launching in 2014.

The interview revealed the firm’s flexible approach in taking advantage of events and turning them into avenues for growth. The CEO got a call from an agency based in New York that is equally a customer to take up an unfinished work involving analytics from a large company in the US. Everything pointed in the negative direction as the former company handling the work had gone out business thereby leaving a horrible statement of work which made continuation difficult for the company. The CEO reveals further that the company knew they would not make

money in the first few months but had to train the customer on how to have a smooth working relationship.

“It was a pre-existing statement of work that was a total mess and like it came in very hot. We just said “Let’s try and make it work.” And we did, it worked.”

He goes on:

“We were able to make our client fit our model better and it has been a great account for us for the past 3 years”

All the events in this company have a direct impact on the growth of the company as they led to increased profitability for the company.

4.3.4.7 Theme 5: Adaptation over forecasting

The company initially had a business plan at inception which was written on a napkin but lost it along the way. Due to its size and structure the company does not engage in forecasting as a means of generating future business opportunities. Charles says:

“Well it’s not through research, because we don’t have the time.”

The company creates opportunities for the firm’s growth by transforming its ideas and services to improve customers business by creating value for customers which in turn affects its own bottom line profitably. Charles says:

“I’ll come up with crazy ideas, and then I’ll call customers and say hey, I was thinking of this. I looked in your data, I think there might be a thing to work around this.”

The company does this constantly as a way to remain relevant with the customers and also to retain them.

It was again revealed that because of the robustness digital analytics, the company does a lot of adaptation of its services which creates opportunities for the company’s growth. This is possible by adaptation of analytics to create more uses that satisfy their customers

“So like you’ve got a big website, but you also have a catalogue and you have 300 stores. Why don’t we put all the data in one place and analyze your whole business in one spot.”

While not having any form of forecasting in place, the company generated strong customer loyalty by being on top of its game to meet its customers' needs profitably.

“We did some research, and I started calling the customers saying “How much do you spend on your mobile website? Do you have an app?” All those kinds of things. “Would you like us to do some additional analysis?”

The study also reveals that good interaction with customers led the firm to develop a measure of control as a way to ensure longevity of revenue flowing in from them not necessarily to increase it as they charge all customers a fixed rate.

Retaining its customers with adaptation of ideas and services has been a way for the company to grow.

“So, historically again the good ideas have been to get the customers to go “I could never fire these guys because I could never replace them.”

Charles goes on to say:

“And we're moving it forward to of course I could never replace these guys but now they can help me with this project, take things to the next level.”

4.3.5 Mode of growth and Indicators of growth

The company has grown organically from inception. It was revealed that the growth before the formal partnership agreement was entered into with the multinational company was achieved internally partly because its agreement with those partners puts no money on the table and partly because it does not resell its partners' software.

However, some form of hybrid growth has been achieved since entering into agreement with the multinational company. Charles says of his company's partnership with the company:

“With the multinational company and multinational reseller agreement we are entering into a quite detailed formal contractual agreement with them because we’re collecting money and giving something back to the multinational company.”

When asked how the company measures its growth, Charles simply says “monthly revenue” but another indicator revealed is the number of employees.

4. 3. 6 Summary

The company has been shown to use effectuation for its growth. The company’s means have been instrumental to the company’s growth. These means keep changing and this has helped in its growth. Education, experience and networks have all proved to be valuable. The study also shows affordable loss (which monetary and non-monetary), partnership (mostly informal), contingencies (which have direct impact on the company’s growth) and adaptation rather than forecasting have all been instrumental to the company’s growth.

4. 4 CASE 4: COMPANY 4

4. 4. 1 Company Profile

The Company was founded 17 years ago. It is a database and systems management company with 267 employees worldwide. A summary of the characteristics of the company can be found in Table 6.

Table 6: Company 4 Profile

Age of Entrepreneur	Over 25
Number of employees	267
Age of Company	17
Gender of interviewee	Male
Position of Interviewee	Executive Chairman
Date of interview	22-01-2014
Duration of interview	51 minutes

4. 4. 2 Objectives of the Company

The founder and Executive Chairman, Adrian Martin co-founded the company during the “Dotcom era” of the late 1990s. Having recently returned to Ottawa from Indianapolis where he worked as a consultant, he was not satisfied with the opportunities in Ottawa, in the technology sector and decided to create the company basically because of boredom and ambition. Adrian says:

“I had recently returned from Indianapolis where I worked as a consultant, and coming back to Ottawa I felt that the enterprise IT adoption here was a little bit boring not very ambitious.”

This was made possible because he had prior IT experience in a company where he developed the skills which at that time were not common. Spotting the need and armed with experience, he co-founded the company with a friend. They had their first customer in the fall of 1998 and shifted their focus to New York by the summer of 1999 in order to increase the company’s customer base. It took the Company 2 years to get off the as a result of the initial challenges it was faced with.

Their main objective was to do what they knew how to do best and serve customers anywhere in the world in order to grow the firm and that has been the target. The company has a long-term vision of being the employer of choice and the vendor of choice.

4. 4. 3 The Company’s Products/Services

The company manages customers’ database and systems infrastructures. It offers consultancy and outsourcing services. It has its focus on data management and Oracle practice with a large practice for disk systems and network and also offers operational support services around big data workload. It is responsible for keeping customers’ infrastructure up and running and has applications in retail, media, the financial sector and information services.

4. 4. 4Effectuation and the growth of the Company

4. 4. 4. 1 Theme 1a: Who am I

Adrian’s motivation in IT manifested from a very early age of 9 where he showed a great deal of passion for computers. He had always been interested in large mainframe computers even when

the PC revolution came, he was still interested in big computers. Adrian says he loved large computers from an early age, even after the PC revolution led to small computers:

“I was still only really interested in big computers. That’s what I cared about man. And so I’ve always been interested in those large scale computing systems.”

Adrian had his first multitasking server operating system at age 12 or 13 and when in the University, he had a Sun Microsystems workstation in his dormitory room at age 17 only because he did not want a PC. All these built his interest in enterprise computing that his company is into now. Adrian says:

“And I’ve always been very excited about enterprise computing. So, this is not a normal 17 year old’s hobby. It certainly was even less so in ‘89.”

Adrian has an undergraduate degree in Management Information systems from the University of Ottawa, which is relevant to his current role in managing customers’ information.

Adrian talked about his entrepreneurial drive and his ambition for co-creating the company. He had a mission “to do things differently” and he set out to work. This has however helped him in growing the company.

4. 4. 4. 2 Theme 1b: What I Know

Adrian has had significant experience that he can draw on and apply to his current company. The firm represents his fourth start up; he previously created two companies while in the University and created one after graduating.

Adrian says:

“When I was in university I did a couple of quick start-ups, using voice response technology and after university we did an online medium advertising medium start-up and the advertising medium that we imagined was a video out of home.”

Adrian's experience grew more while he worked with an employer where he had no access to the server room but still had to get the job done. Adrian talks of his employment experience in this way:

“Because I didn't have access to the server room I had to figure out how to do all of the DVA's job and all of the SysAdmin's job without ever physically touching the server.”

This experience went a long way in preparing him for the task ahead and this he acknowledged has been of tremendous help in growing the company. He also learnt a lot by himself as he aimed to constantly improve his skills and be better at what he does. He says:

“But I think a lot of what I was really good at from a technology point of view though I learned myself.”

Adrian gained a great deal of experience, working as a consultant with the Government of Canada and with the National Capital Commission. He admits that all his previous jobs have been of relevance and helped the growth of his company. He says:

“All of my jobs have relevance to what I do here. I mean early on in my career I did some information science for National defense. And now data science has an important role now.”

4. 4. 4. 3 Theme 1c: Whom I Know

Adrian has built a network of people who have contributed in helping to growth the firm. His network shows strong ties with people of similar training, ideas and information. He is a member of many professional groups which include United Kingdom Oracle Users' Group, the US-based International Independent Oracle Users' Group, or IIOUG, and Sequel PAS, the Professional Association of Sequel Server Professionals.

Adrian admits that membership of these groups has been good for networking and he puts it this way:

“And you know those kinds of users' groups are really important for us because you know they give us a platform to do 2 things. The first one is to demonstrate expertise and the second one is to attract talent.”

It was also revealed that his participation in a variety of conferences such as Strada and National Retail Federation (NRF) have all been of immense benefit to the company by increasing its visibility to all in the community. Adrian also uses LinkedIn as a tool for networking as it brings together professionals whose membership is accepted only when it is verified that they are of the right skills and expertise. The LinkedIn forum, now with 1,500 members, has become valuable to the company as interesting conversations are exchanged from time to time. Adrian describes the forum as positioning the company within a community that cares about what the company does. He goes on to say:

“And as a result we get visibility and brand prominence out of all of those people, ultimately those 1500 people are all potential buyers of our service. So by organizing the community we’re able to place ourselves in the middle of it.”

4. 4. 4. 4 Theme 2: Affordable Loss

The company analyses its break- even point as a first step to assess affordable loss. In analysing whether the company would break even or not in an investment, a lot of emphasis is laid on analysing the cost that would be incurred in the investment. Cost is analysed such that the company is sure that no loss would be incurred. In giving an example of how this is done, Adrian illustrates how they had a new customer that they had never supported before asking for support, before they could go on with the job, a proper cost analysis was made. He illustrates:

“We looked at what it would cost us to organize to train the team to get them ready to support it. And what we wanted is, Ok so, an average customer needs to contribute a contribution margin to the bottom line.”

He goes on to say:

“But in this case we wanted to make sure that we had at least enough revenue to cover for our start-up costs in that one account and if we did then we would go for it.”

This shows the use of the monetary approach to the assessment of affordable loss in the company.

It was revealed that even though the company was already supporting other platforms and the new investment is coherent with the company’s vision, it had to make sure the new platform was

carefully launched “going deep in the red.” This shows a non-monetary basis of assessment of affordable loss as the company places emphasis on investments that are coherent with its vision.

Also revealed is in the process of evaluating the loss that the company can afford to take with minimum effect on the company in the case of any eventuality is what Adrian termed the game changer. The idea of a game changer is to make investments that if they succeed they are game changer for the company. He further explains:

“But in situations you win you win big, but when you lose you lose small then you can take on a lot of risk.”

The company takes the concept of game changer very seriously. The concept of game changer occurs when an investment is evaluated and there is reasonable assurance that when the company profits from the investment, it would be on a large scale. If however the investment leads to a loss, the loss would be very small with no negative impact on the company. It is by this means that the company assesses its affordable loss.

4.4.4.5 Theme 3: Strategic Relationships/Partnerships

The company has not recorded its growth through partnerships and strategic relationships even though it has partners. According to Adrian:

“We do have some working partnerships where we trade business one way or the other, but they don’t really represent a meaningful share of our growth.”

The company has partners but does not record much growth because of the relationship with such companies. Adrian states of the company’s partners:

“You know we are partners with Oracle. We are partners with Microsoft. You know what I mean? We signed the partnership agreement. But we don’t rely on them for our growth”

Partnership however has some advantages which is why the company still values its relationship with other companies. It gives the company credibility in the eyes of its customers. Adrian states the advantage as:

“It’s important to be an Oracle partner, because otherwise your customer doesn’t really consider you credible, Ok? So we use that kind of partnership and that kind of umbrella partnership as an air cover as a table stakes.”

The company rather grows internally through direct sales and what Adrian terms “slow motion viral” where employees that quit their jobs at Company 4 bring the company into their new jobs. Adrian says of slow motion viral:

“But we do grow that way quite well, and it has represented most of our growth over the years.”

4. 4. 4. 6 Theme 4: Contingencies

The company takes contingent events seriously as a way to exploit profitable opportunities for the company’s growth. As a way to make this happen, the company invested heavily in its brand over the years to develop more prominence in the technology community. It has worked hard to prove that it is worthy of the trust demanded of customers.

Some contingent events occurred because of the prominence and trust and the company took advantage of such events which turned out in the company’s favour. For instance,

“Totally unsolicited, we got an email from a guy named Sullivan and he was writing to us from [the headquarters of a large multinational] and within 6 weeks from receiving that email right out of the blue, [this company] itself became a customer.”

The company also showed that contingency is a good way to achieve growth as they had a small company MOG as a customer that was not successful and was quite unpopular. The company is a streaming radio service and so the music industry decided to take distribution back from Apple and the next thing was that Beats Music bought over the MOG. This take-over made Beats Music to become the company’s customer all because they were there when MOG needed them. Adrian explains further:

“This is huge, there’s a Superbowl add next week to promote this service that we’re supporting. So, we’re involved in this huge launch but it’s really because we were there for a small company that needed our help.”

Other contingent events include the loss of a large customer Western Union which was a big blow to the company. The company instead of laying off as its team members became larger than its revenues, retained them in order not to affect people's morale. As bad as the situation seemed to be, the employees were rallied to look for new customers. As a consequence, the company worked its way out of the crisis and grew by 20% that year.

Contingencies in this company have had a direct impact on the growth of the company in terms of gaining a new multinational company as a customer and the growth of 20% achieved because of the loss of a large customer.

Contingencies in the company are possible because of the company's flexibility in learning new things as a basis for exploiting opportunities for growth. Adrian gives an illustration of a customer who said they would be launching a new app and wanted the company to support them. The customer goes on to say the new application does not work on Oracle but on their own company's SQL. In that case the company had to quickly learn how to make the new app work with the customer's platform. Adrian says of how its flexibility in learning has helped the company:

“Our NETEZZA practice launched the same way or Sequel server launched the same way, but I do want, I do want when we do that sort of stuff, I do want it to be coherent with the actual vision for the company.”

4. 4. 4. 7 Theme 5: Adaptation and forecasting

The company shows that it uses both adaptation and forecasting. Adaptation is used to control the company's future while forecasting helps in predicting its future and the market in which it operates.

The company's understands the long-term trends by forecasting the trends and the consequences. Adrian admits that the market relatively understands the trends but not the consequences. The forecast shows that computers would become faster and more valuable. The trends around current virtualization, in consolidation and automation and building deployments are going to keep on reducing the amount of human labour required. Andrew goes ahead to predict that

providing exceptional services would be a way to unlock future opportunities for the company. He states:

“Now when the system becomes more valuable, but the system requires less to do it, what ends up happening is there’s a flight to excellence, people will turn towards a generally more excellent team.”

Also revealed is adaptation of future ways of generating future opportunities by experimenting with different ways of doing things. Adrian states that:

“Especially in our sales model we are experimenting a lot. With different campaigns, different marketing campaigns, different sales campaigns, different strategies and the idea is to always be measuring what the success of those campaigns actually are.”

The company also plans to experiment with new ways of making people aware of the company and what it does by trying out new ways. The company’s traditional practice has been outbound calling in setting up meetings, and for the sales team to discuss a workload or an opportunity with a potential client. It now wants to experiment an alternative way that could lead to a better result. Adrian states:

“So, you know obviously that means that we need to create those networking events, but this all part of the process of experimenting, measuring, and then as a result optimizing your business.”

Lastly, the company has used adaptation as a means to manage its future. The company started out with consultancy but things did not work well as the company needed some growth and needed to achieve some landmarks as a basis to earn some level of trust with customers before its advisory services could be embraced by customers. The company had to drop the consultancy service and transformed into outsourcing. That helped to give the company stability until a few years and consultancy services was later re-introduced.

“We moved only towards the outsourcing workload, you know staff augmentation, outsourcing, piece of it without having all that advisory work. But over the years the high level advisory has come back and it’s a large part of our business.”

4. 4. 5 Mode of growth and Indicators of growth

The company's growth has been organic with only an insignificant part being through the hybrid mode. The company hopes to explore more partnerships to grow the company in the future.

Adrian says:

“I mean, for us, I would love to understand what we need to do to get partnering working that way, but we you know, we've tried many times and we've never really cracked that nut.”

This is particularly in line with Penrose (1959) that states that there is a limit to which a firm can grow internally before it reaches its peak and therefore has to explore external growth.

The growth indicators for the company include revenue which is broken into 2 different measures. One is how much business is lost and secondly is quota in terms of new sales assigned to sales people. Another indicator is the monthly customer lifetime value which shows whether revenues from each customer is growing or shrinking so that additional services could be offered if needed to ensure it grows.

4. 4. 6 Summary

The company's growth has been largely attributed to its effectuation as contingencies, affordable loss, strategic relationships were all revealed. However, both adaptation and forecasting were used. The means show in the Executive Chairman's education and experience gained with the three previous start-ups and the company he worked with have been very valuable and relevant to his current job. Strong ties observed in the Executive Chairman's networks have also been helpful to the company's growth. The affordable loss principle was seen to be taken seriously in the company and this are measure suing both monetarily and non-monetarily but partnerships hold little significance to the company's growth. The company flexibility has made contingencies very important as a way to exploit profitable opportunities and this have had a direct impact on its growth while a combination of forecasting and adaptation have used for the company's growth.

4. 5 CASE 5: COMPANY 5

4. 5. 1 Company Profile

The Company was founded 13 years ago. It is a broadband wireless systems provider with 80 employees worldwide. A summary of the characteristics of the company can be found in Table 7.

Table 7: Company 5 Profile

Age of Entrepreneur	Over 25
Number of employees	80
Age of Company	13
Gender of interviewee	Male
Position of Interviewee	CEO
Date of interview	28-02-2014
Duration of interview	04-02-2014

4. 5. 2 Objectives of the Company

The company was founded by two people, one being the main founder and a co-founder in 2001. The objective of the company has been to be a dominant player in the wireless equipment industry while at the same time building wealth. Tim Gregory says of his objective for the company:

“I wanted to see a significant growth in the business and that’ll drive a curve of employment and at the same time build wealth. Well, at the end of the day every entrepreneur is working to build wealth.”

This objective has however not changed as Tim asserts that what has changed is the way in which the objective is reached.

“So our objectives still remain the same, but it’s just the mechanism in which we wanted to grow, or the mechanisms in which we wanted to meet the objectives have changed.”

4. 5. 3 The Company's Products/Services

The company provides broadband wireless systems that go on top of a tower or on top of a roof to provide high speed internet to various locations with a distance from 2 to 100 kilometres. It provides its services from its headquarters in Ottawa while having offices in the USA, South America, Singapore, the Middle East and Africa.

4. 5. 4 Effectuation and the growth of the Company

4. 5. 4. 1 Theme 1a: Who am I

Tim has had a good foundation in a field that is relevant to what his Company does. Armed with an Undergraduate degree in Electrical and Communication Engineering from an Indian University, he proceeded to the University of Toronto where he obtained his MSc and PhD in Electrical and Communication Engineering. When asked about the impact that his education has had on his company, he admits that it has been a good foundation but has no direct impact. Tim says:

“If you take my actual education and if it is being used here directly the answer is no but the foundation of what I had helps us a lot.”

Tim's education has been a good foundation as he has been equipped with the required skills to be able to relate what he learnt to the realities he daily faces in his company. He illustrates further:

“So if I go in there and take a course in chemistry or physics, and see it really helps on the job?”

“Directly no, but the foundation is you develop in chemical reactions and how actually physics work helps you in your day to day life and buying things.”

Tim's motivation is to see that his company achieves growth and this goes a long way in defining who he is. He says:

“Basically I want to build a business which should be a dominant player in the wireless equipment industry and my personal objective of the business is growth.”

His quest for growth has enabled him to look for ways to achieve this by being innovative especially by introducing new technologies and new processes both as a way to achieve efficiency and also to achieve growth within the company. Asked if he is always willing to “try out new things,” Tim says:

“We do a lot of new things. Innovation, and then we work with Universities quite a bit, to understand some of the new technologies what are coming in there.”

The above goes to show that he collaborates with Universities as part of learning and as a need for introducing new innovations in the form of new technologies, new processes and applying them to his company in order to achieve growth. This is consistent with the pull factors as stated by Hamilton and Lawrence (2003) that shows that entrepreneur’s motivation to run a company is to achieve growth by his/her willingness to exploit opportunities in order to achieve growth.

4. 5. 4. 2 Theme 1b: What I Know

Tim has had a long experience which defines what he knows as a means which he applies on his day to day operations in the company. Upon the completion of his PhD, he worked for 3-4 years as a researcher with a research company. He subsequently joined a multinational telecommunications company where he worked as a General Manager and later rose to the position of a Vice-President. He was with the multinational company for 14 years and he gained tremendous experience as a result of his time in there. As a result of the experience he had gained from his previous employments, he created his first company and he has since created three more over the last 12 years. He states he has sold two of the companies while one is still in operation. He states:

“I still have one which is still continuing to operate, but I am not the CEO of that. So I start the company and then I have a new CEO hired. That's the way it is, so two companies I have sold.”

Tim states that most of the knowledge he has gained has been from creating and running his previous companies all by himself and essentially by his interaction with other people. He states:

“I think mostly right I have you know I have created more companies myself, and then most of my knowledge has been working with networking working with other people.”

He summarises how his experience has helped him to grow his present company in this way:

“Because we understand more of the investment market, we understand our customers' ways, we also understand some of the financial implications of some of the decisions. Because the other companies faced their own problems, and we know from that.”

4. 5. 4. 3 Theme 1c: Whom I Know

Tim has been able to build a viable social network for himself and for his company. He is a member of Indus Entrepreneurship Organisation (TIE), an organisation that brings about high profile entrepreneurs with diverse background from all over the world. Tim has been able to network with various people from around the world through this organisation and the network here presents him with strong and weak ties because TIE has entrepreneurs from various industries. He states:

“I am a charter member in Ottawa, I have a passport, literally a passport, to work with any TIE all over the world. There are 40 chapters all over the world. I can go in there and then talk to anybody. That's helped a lot.”

Tim is also a member of Young Professionals' Organisation, an organisation that brings about professional for the purpose of networking.

The interview reveals Tim's preference for weak ties as opposed to strong ties. He indicated that developing close ties with large firms in the same line of business as his could lead to more competition and threaten his firm's survival. He states:

“If I have a giant in wireless business I have lots of competition. [...] So if I try to grow they will pull me down. ”

Tim believes in the strength of networking to bring benefits to his firm, but he chooses his networks wisely:

“You have to have a solid networking. It is not what you know matters, it is who you know matters.”

“What you don't want is I don't want to be in a too close to you, like a wireless organization is an example, I don't want to be an organization too far from you, I want customers.”

When asked if networking has been of help to the growth of his company, Tim replies:

“Big time, in giving me advice in certain things even if you have a, you got a difficult employee. How do you deal with it? So if you have another CEO who has dealt with this in his life.”

4. 5. 4. 4 Theme 2: Affordable Loss

In assessing the company's affordable loss before embarking on an investment, the company tries to anticipate the worst case scenario that could happen in the case the investment would not generate any revenues. The company does this assessment by trying to know what maximum cost it can afford to incur without any risk of failure in case no revenues come from the investment.

Tim says:

“We do worst cases analysis assuming there is no revenue out of that. Is that something which you can afford to spend? If the answer is yes, you can still afford to spend. ”

This reveals that the company is more concerned about controlling its loss than having a focus on expected revenue, and this represents a monetary basis of assessing affordable loss. Tim's statement shows that affordable loss is much in favour of making decisions that control downward loss as opposed to maximising a potential upside especially in cases where the outcome of such decisions cannot be accurately predicted (Dew et al, 2009).

The company also reveals the adoption of affordable loss by conducting sensitivity analysis as a first step in assessing the acceptable loss in taking up an investment. Tim states that the company looks into its current forecast of revenue, and then conducts a sensitivity analysis.

He states:

“Assuming the forecast is off by 40%.What the risk is? Assuming your cost is overrun by 20%.What the risk is? And that is the way we do the risk. Purely we do it through the financial risk.”

The use of sensitivity analysis also shows a monetary basis of assessing affordable loss as it ensures that exact figures of what it can afford to lose are known. The interview reveals further that affordable loss by the company is ongoing as it continues even when an investment has taken off. Tim gave the example of one product begun in 2008. Six months into the product development, it was found that the product was not picking up as anticipated even after initial trials had been conducted. The entire product line was stopped and moved into something else in order to reduce the company’s loss.

When asked if the company recovered its cost, Tim says:

“In some cases we were able to recoup some of it, but in some cases no. We lost money there. But again it is not to the extent that the entire company was at risk.”

This shows that the company had noticed it could not afford to lose more than it had already lost and the best thing to do was to discontinue with the investment. That way, the loss incurred did not put the company at risk of failure.

Furthermore, the company adopts a multiple stage concept in its product development. Each of these stages calls for close monitoring to see if the product should be continued or discontinued.

Tim states further:

“Now, you know we have created multiple stages, and in every stage we decide if we are going to take it to the market or not.”

The multiple stage of product evaluation as described here represents a non-monetary approach to assessing affordable loss, revealing to the company if the product should be taken to the market or not.

4. 5. 4. 5 Theme 3: Strategic Relationships/Partnerships

The company has been able to achieve growth by building strategic relationships with other companies worldwide. It was revealed that the company only focuses on those aspects of its operation in which it has core competencies; it partners with other companies in areas in which it lacks the competencies.

Tim states:

“Our company focuses on two things. One is, we focus as a company, on our core capabilities of what we can do and then anything which is a non-core activity we always partner with other people.”

Manufacturing was identified as one example of a “non-core” area which the company handled through its partners. Tim illustrates:

“Then what we do is, we work with third parties. Like for example we don't have our own mechanical designers, right? We don't do complete manufacturing here. Right? We have our own manufacturing facilities for smaller value [products].”

The company also has a total of 165 sales partners worldwide which it uses in selling its products. Out of the 165 partners, 50 are gold partners as they are preferred partners that bring a lot of sales for the company. When asked if these partnership have formal agreements, Tim answers “oh yeah” and goes on to state that with the company, each of 7 directors of sales in different regions of the world is responsible for the partners in his/her region.

Tim states of the company’s channel partners:

“We do sell in Nigeria, in Dubai, we do sell in Saudi Arabia, we do sell in Qatar, in India, we do sell in all these places we have channel partners there. They actually sell on our behalf.”

Tim refers to most of the company’s partners as system integrators who take products from different markets and put them together to provide solutions. Tim illustrates:

“So for example, they take our wireless radios, they take camera from somewhere else they buy cable from somewhere else, and then they provide a video hardware solution, Wireless radio video surveillance solution for a mall in Nigeria.”

4. 5. 4. 6 Theme 4: Contingencies

The company shows that contingencies can be used to improve how things are done in a way to improve efficiency and performance. As mentioned earlier, an investment was discontinued after initial trials when it became obvious that further losses might harm the company. That event led the company to restructure its processes and operations much better and now has a more structured process in defining the market and product requirements.

Second, the company also shows that contingent events can lead to the expansion of the operations of the company. The company in 2011 lost a large customer which provided 30-35% of the company’s revenue. The customer became bankrupt and the event destabilised the company. The firm resorted to making tough decisions to stay afloat.

Tim states:

“So basically then you know you have to make tough decisions. Right? You need to really make tough decisions of going into the new markets. Then those two months were extremely aggressive.”

In this case contingency had a direct impact on the company’s profitability because due to the unexpected event that threatened its existence, it entered into new markets that were instrumental to its growth.

4. 5. 4. 7 Theme 5: Adaptation and forecasting

The company’s example shows that it uses both adaptation and forecasting. Adaptation is used to control the company’s future while forecasting helps in predicting its sales. A feedback mechanism is used to know trends in the market. Tim states that company does not do a lot of market studies but rather constantly listens to the customers well in order to know where the market is heading. He goes on to state:

“What they want and what the trends are. So our market feedback mechanism is not through analyst report. Our feedback is really based by the feet on the ground. So based on what our sales team comes back and tells us.”

As a way to control the company’s future, the company keeps modifying its products as a way to achieve future growth. In order to achieve growth, the company has short-term and long-term goals whereby the successful attainment of the short-term goals helps achieve the company’s long-term goals. The long-term goal is to capture new markets by offering its full products that meet the customers’ security needs in such markets. To achieve this long-term goal, it pursues a short-term goal by introducing some security features in its products for the sake of introducing the company’s security capabilities to the market.

Tim says of the short-term goals:

“So, what we do is, we have a near time, some features that we introduce as an extension of our product.”

Tim goes further to say:

“There is a long-term objective for us to be in the security market, but there is a short-term objective where we take our product and make some modification to provide some security features in our product.”

As the customers become fully aware of the ability of the customer to satisfy their security needs, the company transforms/modifies its product into the new market in a way to show the full security features. Tim goes further:

“As we start seeing a lot of traction from our customers, we start investing into the security platform that means that in the long-term we are able to show that to our customers we have a full-fledged security product.”

As the short objective is achieved, it paves the way for the company to introduce its full-fledged product to the market, thereby allowing it to achieve its long-term objectives in such markets.

The study reveals that the company engages in adaptation as a basis to control its future as it was able to transform from organic growth to growth by acquisition. In showing how the company was able to transform, Tim states:

“Originally we used to be thinking that we can build a certain type of products and we can build and grow, but we’ve found out that it is not possible and in between we started acquiring companies.”

The company also focuses on building common platforms as a basis for adaptation. It controls its future streams of income by adapting these platforms to meet the needs of its customers. These platforms are in various forms like slots or cards that can be plugged in.

Tim illustrates further:

“So we don’t have to go in there and build the products from scratch. So basically we have a platform, and you want to adapt the platform now to various new markets. That’s what we do.”

The company has a business plan that it follows closely. In addition to adaptation, the company also forecasts its sales. Tim says:

“We have a sales pipeline we have forecasting, we have tools for that. When you have a business, and international business you need a very strong forecasting tool.”

He goes further:

“And then every week we review the forecast. My team, my executive team reviews it every week and every week we keep adjusting it.”

4. 5. 5 Mode of growth and Indicators of growth

The company’s growth has been organic and largely by acquisition. When asked about the mode of growth of the company, Tim asserts that:

“It's a combination of acquisition and organic, but what we do is we acquire a company, and then what we do is based on the knowledge which we have acquired in the company, and the customer base.”

The company has acquired 4 companies in the past 11 years and 3 of the acquisitions have been successful while 1 was not successful. The company does not acquire companies with pure technology without customers but companies that have products and customers in order to increase its customer base. Tim states:

“What we do is we go into companies which have products, which have a customer base, which have sales channels, but what they don't have is they losing money they're inefficient.”

The growth indicator for the company is revenue growth. The study has additionally shown that employment size has also increased drastically.

4. 5. 6Summary

The company's growth has also been largely attributed to its means. The founder/CEO has a PhD degree which shows that he has a sound foundation that has been instrumental to the growth of his company. His prior experience in the research company, the multinational company and the 3 companies he created have been relevant to his current company. To develop the firm's resources more, he has been able to use social networks to the company's advantage. However, he favours mainly weak ties in order to reduce competition with companies in the same industry as his. Affordable loss in the company is assessed on monetary and non-monetary basis while contingencies had a direct impact on its growth. Partnerships have been very important to this company. It partners with other firms that help in its non-core activities while using partners to sell its products in different regions of the world. Finally, the company has shown that both adaptation and forecasting can be used side by side.

4. 6 CASE 6: COMPANY 6

4. 6. 1 Company Profile

The Company was founded 7 years ago. It is in the defense and aerospace market with 30 employees. A summary of the characteristics of the company can be found in Table 8.

Table 8: Company 6 Profile

Age of Entrepreneur	Over 25
Number of employees	30
Age of Company	7
Gender of interviewee	Male
Position of Interviewee	CEO
Date of interview	04-02-2014
Duration of interview	51 minutes

4. 6. 2 Objectives of the Company

Company 6 was founded in 2007 by Joe Allen. Having sold his last company to a multinational conglomerate corporation and subsequently retired, he felt the need that he still had a lot to contribute. He came back from retirement since he felt he was knowledgeable in an area that only few people were skilled in. He felt he could still contribute more. He started the company not because he knew he was going to make a lot of money or have a lot of power but he felt people would benefit from his wealth of experience. Joe states further:

“What drives you is that you know, you have an idea and you think that it will create product or service whatever that people will benefit from it.”

Joe reveals that people in his previous company left their good jobs at a multinational conglomerate corporation to work with him in the new start up because they enjoyed working with him.

4. 6. 3 The Company's Products

The company is an export oriented company that provides products that serve individuals, corporate organisations and governments that are involved in the defense and aerospace market. Some of the company's products include radio/radar, sonar/acoustics. Its customer base is mainly international with a good number of them in the USA.

4. 6. 4 Effectuation and the growth of the Company

4. 6. 4. 1 Theme 1a: Who am I

Joe had his Undergraduate degree in Electrical Engineering from India and subsequently obtained his Masters degree in the same field in Canada. He obtained a PhD in Electrical Engineering at Carleton University. Joe admits that even though he is not working in the same area he did his PhD, his University education offered him the background and knowledge that have been absolutely vital to the growth of his company.

Joe states further:

“That is criterion number 1. How would you compete with the giants of the world without having the necessary background? It’s a very complex world.”

He also states

“It is a technical company and it requires the knowledge you can only acquire from University.”

Joe described his entrepreneurial spirit. He had not worked for anyone for over the 35 years of his career. Having created six technology companies, he sold off his previous companies and headed to retirement only to be bored. So he came out of retirement to start his present company.

“In 2007, when I sold my last company, I had enough money to go spend the rest of my life in the Bahamas or some other nice warm place. But I found retirement to be very boring.”

4. 6. 4. 2 Theme 1b: What I Know

Joe’s experience spans over three decades, and this experience has been helping him tackle the challenges that he faces in his present company. He describes himself as a perpetual entrepreneur who has created six technology companies.

Joe says of his six companies:

“First was my big one with ICS which was in Ottawa. Second one was in Washington. Third in Denver, fourth one is based in Boston, and the fifth one is based in Toronto, and the sixth one is this one.”

It was revealed that he learnt everything on the job especially by making mistakes and learning from them and by growing with the company.

“You know so mistakes I made, I paid the price for it. Yeah by being with the business, and growing with the business. We were working on different projects, and you know you cannot really beat the experience.”

The environment of working in a small company differs from working in big companies as that has increased Joe’s experience as he states that he works in all aspects of the company as he is the one that has to face customers, he designs the company’s products and so for him it has been a complete training.

Joe admits that his experience has been instrumental to the growth of his company but goes on to state that every day presents a unique challenge because of the ever changing global environment in which his company operates. He goes on to say:

“But you know every challenge is so unique. And the biggest challenge, you cannot really take all the lessons from one to the next one because the challenges are unique.”

He states further:

“The competition is getting more and more complex, you learn a lot, I guess you have some core experience that is portable, but not all of it. And you have to learn to prepare yourself on a daily basis.”

The above shows that even though he believes his experience has been helpful, new challenges arise that defy his experience which calls for such situations to be treated in its unique way.

4. 6. 4. 2 Theme 1c: Whom I Know

Joe has been able to build a combination of strong and weak ties. He is a member of The Indus Entrepreneurs (TIE), a local network for entrepreneurs with a mandate to foster entrepreneurship. The membership of the TIE includes people from various industries which mean he is able to network with entrepreneurs in industries similar to his and also entrepreneurs from other

industries. He is also a member of ICOPC, and he reveals that he gets useful information in his association with people in these organisations.

“Well you learn about what’s going on around you. You get to know people that could help you find employees, you know? You create business contacts.”

Joe admits that these networks have been helpful to him as he needs to be in touch with people in order to achieve the goals of his company. He states further:

“You cannot do everything yourself and the only way to meet people is through various networking or professional working organizations. It is very important, at least it has been very important for me.”

4. 6. 4. 3 Theme 2: Affordable Loss

As a way to minimise the company’s loss in case a business fails to generate income for the company, Joe reveals that the company diversifies its risk. Joe gives an example of his previous company which was on a defense contract with the American government. After the terrorist attack of September 11, 2001, the contracting process was halted and the US government became more concerned about safety and security than giving contracts to companies. The company’s revenue from the US government ceased for nine months and the company had to look to other places for its revenues for that period.

Joe states further:

“But we are diversified geographically that we got revenues from Japan and other countries to keep the company going.”

He believes that putting all the company’s eggs in one basket is a recipe for disaster, and so the company diversifies its risks in order to make losses minimal when they occur. This shows a non-monetary approach to assessing affordable loss.

Joe goes on to give examples:

“We are either doing business directly with the Japanese government or Mitsubishi, or NEC or one of those guys you know? Diversification is very important.”

4. 6. 4. 4 Theme 3: Strategic Relationships/Partnerships

The company believes building strategic relationships with other companies is a way of achieving growth.

“And it is very important that you know you get that leveraging wherever you can, whether it’s people, whether it’s companies, whether it’s market, whatever form, leveraging is important.”

He states that the company has been in formal partnerships agreements with other companies, mostly in the US., creating a multiplier effect on his company.

Joe gives an example of how his former company became a global player because of partnerships with other companies. He states that the company had invented a technical standards interconnection for data flow and had formed partnerships world-wide in order to have the standards adopted around the world. He states:

“And what was then happening is that the other companies were helping us to sell our product along with theirs. So we are getting the multiplier effect.”

Joe states of a current partnership:

“At this point in time we are working with a very large multinational in order to address specific market segment. And yes it is very important.”

4. 6. 4. 5 Theme 4: Contingencies

The company’s example shows the importance of contingencies to manage resources better. After key staff members left, the company was able to learn from the incident to always plan for turnover and to plan against the loss of other important resources.

Joe states:

“You know we have faced issues with respect to key employees leaving. It is of much bigger consequence in a high-tech company than in any other company, where you know reaping brains is not always easy, we had setbacks.”

He states further:

“You must have backups for things, in every aspect from your customers to employees, you know? That’s how you recover from situations like that. You work very hard you know to create backups.”

The creation of back-ups shows that contingencies have had a direct impact on the company’s growth.

4. 6. 4. 6 Theme 5: Adaptation and forecasting

The company shows that it uses transformation and adaptation as a tool to control its future. The company has a business plan which is only a guideline as market reality is different from what is presently in the plan.

He commented on the firm’s business plan in this way:

“The market reality may be different and so you have to be able to change and adapt to the new realities, you know? And I know people that have totally switched into totally new directions, because that’s what market demanded.”

Joe believes being flexible is the way to prepare for the future as it affords the company the opportunity to adapt to new changes that occur in the complex business environment in which it operates. Joe goes on to say:

“And unless you are able to cope with that change, you know the result could be very catastrophic. So you know things will change and you have to be prepared for it.”

The company had shown flexibility in adapting to the environment, operating by shifting focus as circumstances warranted. The company was originally involved in CTV cameras when this industry was still new and he found out that his company did not have the capabilities and resources to sustain itself in that area, the company had to change into a different field as a means to survive and grow. Joe states further:

“You know we completely moved in a different direction because you know that is where we were starting to get business. You know or we saw the potential.”

The company at some point moved in a different direction in order to get money to fund certain product ideas the company had. Joe states:

“You know we eventually got enough money to fund our product ideas, but to survive we had to do all kinds of things which is not relevant to our expertise.”

4. 6. 5 Mode of growth and Indicators of growth

The company’s growth has been organic, but Joe would like to try out the hybrid mode of growth in the future. The growth indicators for the company are revenue and profit. The study has additionally shown that employment size has also increased from two to thirty within seven years.

4. 6. 6 Summary

The company’s means have been good enough to allow the company to grow. Having had his education to the PhD level, the founder acquired a strong knowledge base to be able to effectively run and grow the company. The founder is well experienced as he had previously created five other companies, this being the sixth and this experience spans over thirty five years. The experience has been very helpful even though he reveals that every situation is unique and presents itself in different ways. Strong and weak ties were also revealed in the founder’s networks and this has been helpful to the company. The company believes in diversification as a way to spread its risk, thereby providing an illustration of the affordable loss principle from a non-monetary perspective. The firm has also been able to cash in on past experiences to better manage its resources thereby showing that contingencies can be a useful way to grow. The contingencies, however, have had an indirect impact on the growth of the company. Strategic relationships and adaptation are also used as avenues to achieve growth in the company.

5 Discussion of Results and Conclusion

This chapter begins with a discussion of the differences and similarities between the six companies through cross-case analysis. This is followed by the discussion of the role of effectuation and contingencies in the growth of SKIFs. The contribution, implications and limitation of the study are discussed after. The section ends with a conclusion.

5.1 Cross - Case Analysis

The first phase of the analysis examined the within-case analysis of each of the six cases along the line of the four themes identified. Table 9 shows the breakdown of the effectuation process in the companies. Appendix II (Table 11) shows the means available to the entrepreneurs and the themes drawn from the interviews in each company under study. The cross-case analysis will compare and contrast the six cases.

5.1.1 Differences

The study reveals some differences in the companies. While the entrepreneurs in Companies 1 and 3 had degrees that are not technology related, the entrepreneurs in companies 2, 4, 5 and 6 had degrees in disciplines related to technology even though the entrepreneur in Company 2 only finished 90% of his Computer Science and Engineering degree, he can be deemed to have had some degree of formal education in a technology related degree. The possession of advanced degrees is consistent with the literature that states that education of an entrepreneur enhances his/her search skills, foresight, imagination, computational and communication skills which define the entrepreneur (Dobbs and Hamilton, 2007). Advanced education is all the more important for SKIFs, whose core competences rely on the knowledge of their people. Also to be noted is that Companies 1 and 2 are both companies hosted in an incubator, Companies 3, 4, 5 and 6 are located in other parts of the City of Ottawa and not members of any incubators. Entrepreneurs in Companies 2, 3, 4, 5, and 6 have had multiple start-up experiences. The entrepreneur in Company 1 does not have prior start-up experience, but has had experience as corporate entrepreneur in a large telecommunication company where he rose to the position of Vice-President before retirement.

All the companies' networks as revealed in this study show a combination of strong and weak ties, except for Company 4 whose ties are only strong ones. The use of both of strong and weak

ties by Companies 1, 2, 3, 5, 6 conforms with Elfring and Hulsink's findings (2003) that the best approach is to find the right blend of strong and weak ties that can most benefit the firm. However, Company 5, in spite of having access to companies with both strong and weak ties, show a preference for weak ties. In particular, this entrepreneur contends that too much contact with companies with which he has strong ties might impede his company's growth.

Table 9: Breakdown of effectuation in the Companies

	Company 1	Company 2	Company 3	Company 4	Company 5	Company 6
1a. Who I am	Non-technology related degree & certification	Undergraduate degree & Unfinished technology related degree	Non technology related undergraduate degree	Technology related undergraduate degree	Technology related degree (PhD)	Technology related degree (PhD)
1b.What I Know	Prior Experience-Corporate entrepreneur	Prior Experience-Multiple start-up	Prior Experience-Multiple start-up	Prior Experience-Multiple start-up	Prior Experience-Multiple start-up	Prior Experience-Multiple start-up
1c.What I Know	Strong and Weak ties	Strong and Weak ties	Strong and Weak ties	Strong ties	Strong and Weak ties	Strong and Weak ties
2.Contingencies	Indirect Impact	Indirect Impact	Direct Impact	Direct Impact	Direct Impact	Indirect Impact
3.Affordable loss	Money and non-monetary	Money and non-monetary	Money and non-monetary	Money and non-monetary	Money and non-monetary	Non-monetary
4.Strategic Relationships/Partnership	Increases product offering	Non-core competencies outsource to partners	Generates leads & sales	Achieves customer credibility	Non-core competencies outsource to partners	Partnership with multi-national
5.Adaptation/Forecasting	Product adaption	Product adaption & forecasting	Product adaption	Product adaption & forecasting	Product adaption & forecasting	Adaptationbased on market realities

Contingencies as noted in this study have had a direct and indirect impact on the growth of the companies. While companies 3, 4 and 5 show a direct impact of contingencies on the growth of the companies because events took place that led to profitability, the acquisition of a big multinational customer and direct sales of product externally respectively, Companies 1, 2 and 6 however show an indirect impact. Contingencies in Companies 1, 2 and 6 are indirect as it led to improvement of internal operations and processes that allow for future flexibility and readiness to take up unexpected events as they occur. Company 1 had a re-engineered product, Company 2 keeps fine-tuning different aspects of the business for efficiency while company 6 has learnt to always create back-ups. This categorisation of contingencies based on direct and indirect impacts

on the firm growth is a noteworthy theme that emerged in the interviews. This is particularly interesting as they both are capable of yielding positive results for companies in cases where unexpected events are embraced and not avoided. This therefore constitutes a major contribution of this study to effectuation.

Affordable loss in the companies can be divided into monetary and non-monetary basis of loss assessment. The monetary basis assesses the maximum amount of losses that the companies can incur in monetary terms (dollars and cents) while non-monetary basis assesses it by means other than monetary. Company 1 uses both. Some of its methods, such as sourcing for funds, can be measured monetarily while its focus on developing prototypes can be considered non-monetary. Companies 2, 3 and 5 also have adopted both monetary and non-monetary assessment while company 6 have adopted only a non-monetary approach. Some examples of non-monetary approaches to measuring affordable loss identified in the study included customer validation through feedback, risk mitigation through the use of external investors and the multiple stages of product evaluation that determine whether a product should be introduced to the market or discontinued. The categorisation of affordable loss into monetary and non-monetary is also a novel one as this has not been mentioned in the literature. This is also a contribution of this study to the literature on effectuation.

Strategic relationships/partnerships have been used for various purposes to achieve growth in the companies. While the study reveals that Company 1 has been able to expand its product offerings to customers and has now become a one-stop shop for customers, Companies 2 and 5 outsource activities which are not part of their core competences to their partners. Additionally, Company 5 reaches its global audience through sales channel partners. Company 3 generates leads and sales through its partners. An insignificant part of Company 4's growth comes through partnership and the bulk of its growth is internal through the services that it offers to its customers. It has however been helpful as the partners have given the company credibility in the eyes of its customers which is needed for continued patronage.

All the companies control their future growth by adaptation as opposed to forecasting through prediction of future trends of the market and business environment. Adaptation requires learning and adapting to changing environments which have not been predicted in a formal way. Companies 2, 4 and 5, besides adopting adaptation, adopt forecasting as a way to predict the

firm's future. Companies 1 and 3 integrate and adapt their products to the changing customers' needs. Company 2 carries out forecasting in principle for segmenting, targeting and positioning, but also uses forecasting to discovering where future customers would come from and how to reach them. In other words, Company 2 uses forecasting to predict who future customers would be and how to reach them. It also transforms its products to meet the customers' needs by communicating with them on a regular basis. Company 4 and 5 also both use adaptation and forecasting like Company 2. Company 4's forecasts the future in a way that the future trends and consequences of such trends are known to them while Company 5's forecasts its sales. While Company 4 experiments with marketing, sales and new ideas to meet customers' needs, it predicts long-term trends by forecasting. Company 6 keeps transforming based on market realities as opposed to forecasting. Companies 2, 4 and 5 adopt for use in predicting long-term trends in the market. While Company 2 is to predict where customers are likely to come from, Company 4 seeks to understand not just the trend but the consequences while Company 5 predicts where sales would come from in the market.

All the companies have grown organically, with Companies 1 and 3 growing through hybrid means with Company 4 showing an insignificant growth through the hybrid means. However, Company 5 is the only company to have grown through acquisition. While all the companies have a common indicator of growth which is revenue, Table 10 shows the various growth indicators used by the companies. Table 10 shows that company 1 uses revenue, increase in products offered to customers, increase in its intellectual property and the number of employees as indicators of growth. The company has grown through the organic and hybrid modes. Company 2 measures its growth by revenue increase, increase in customer base and size of projects handled. Others include the utilisation of its products by customers and its worldwide reach. The company has grown through organic mode only. Company 3 measures its growth only by increased revenue and it has grown through the organic and hybrid modes. Company 4 and Company 5 also measure their growth by revenue while company 4's mode of growth has been organic with an insignificant hybrid growth experienced while company 5 has grown both organically and by acquisition. Company 6 uses revenue and profit as indicators of growth while its mode of growth has been organic. The three modes identified here thus align with McKelvie and Wiklund (2010) that identified the modes of firm growth to include organic growth, growth by acquisition and the hybrid growth.

5.1.2 Similarities

The six companies examined in this study have shown that the “Who am I” means is a good foundation upon which entrepreneurs tap into to achieve the growth of their companies. All the entrepreneurs examined have a minimum of undergraduate degrees with entrepreneurs of companies 5 and 6 having PhD degrees. The possession of these degrees by each of the entrepreneurs aligns with the literature on SKIFs in that education and knowledge are core competences of these entrepreneurs and contribute to helping them in carrying out sound decision making in turbulent environments which in turns affects the firm’s growth.

Table 10: Indicators of growth

	Company 1	Company 2	Company 3	Company 4	Company 5	Company 6
Indicators	Revenue	Revenue	Revenue	Revenue	Revenue	Revenue
	Increase in products	Increase in customer base				Profit
	Intellectual Property	Increase in the size of project				
	Employees	Utilisation				
		Worldwide reach				

In addition, a person’s foresight, imagination, computational skills for example are said to be enhanced by education (Dobbs and Hamilton, 2007, p 308). All the entrepreneurs have also been motivated by growth factors as they are not lifestyle entrepreneurs but have all indicated that the growth of their companies is a motivation for running their companies. This also represents the “pull factors” that determine why an entrepreneur is in business (Hamilton and Lawrence, 2003).

The “What I know” has been an important means for the six entrepreneurs examined as they have all had prior experience, which has been of great importance to the growth of their

companies. Their prior experience as entrepreneurs could be classified as Schema which has been described as “knowledge structures that entrepreneurs rely upon in order to make assessments and judgements, identify and evaluate opportunities and make decisions regarding the creation and growth of their business”(Wright and Stigliani,2013, p. 6).

It is also important to note that the six entrepreneurs value networks as a basis to reveal important information, recruit valuable employees and have access to ideas. Each of the entrepreneurs belongs to at least one form of group, be it business or social, which exposes him to people that he networks with, with the intent of benefiting firm’s growth.

Second, all six companies have experienced events that have led to unexpected outcomes for them. Exploiting contingencies is the ability of entrepreneurs to embrace unexpected events and turning them into profitable opportunities thereby getting unanticipated outcomes. The study reveals that the companies have been flexible enough in their operations to take advantage of such events pressure for survival, serendipitous call from a multinational company and the discovery of the commercial viability of products hitherto used only internally and they have used this flexibility to turn the companies around. It is in line with the literature which states that contingency exploitation calls for a great deal of flexibility in the operations of a firm (Chandler et al, 2011).

Third, the study reveals that all six companies use affordable loss in assessing the risk exposure of their companies. The entrepreneurs all show that in taking up opportunities for growth, the companies assess the maximum amount that the companies can afford to lose which would not put the companies at risk of failure. The evaluation of the maximum loss is seen to be evaluated in terms of maximum costs bearable by these companies irrespective of revenues, initial loss they can afford during product validation, diversification of projects to various classes of customers and geographical locations. This also aligns with the literature that states that the contingencies assess the worst case scenario that would culminate into opportunities for the firm growth (Read et al, 2009).

Fourth, the study reveals that the companies all value strategic relationships/partnerships with other companies. The companies all engage in different kinds of partnership arrangements with other companies. The companies all see it as a means of knowledge generation where they learn

from their partners and vice-versa. They also show knowledge application as the knowledge gained is used to create products and services of value to the customers (Grant and Baden-Fuller, 2004).

Fifth, they all show that they control their companies' futures by transforming and adapting their products/services and ideas to meet the ever-changing needs of their customers.

5.2 Result Validation

Triangulation was with the CEO of a consulting firm specialized in small- and medium-sized firms' growth. The interview lasted for 37 minutes. The interview corroborates the findings in this study on the importance of means and how they aid the growth of companies. It was revealed that education (who am I) gives the context to make better decisions quickly. Francis, the CEO says of the role of education:

“It allows people to make better decisions, quickly, because they have the context with which to understand.”

This supports this study's findings that education gives entrepreneurs the foundation upon which to tap into to achieve the growth of their companies.

Prior experience (What I know) was also revealed to give better probability of growth. Francis states of the role of prior experience:

“You know it's that field experience, it's that jungle experience that you have. So that when you go back in the jungle a second time, you know that I have got to watch this and this because I have learned.”

He goes further:

“I would say they have a better probability of growing quite quickly.”

The above also supports the positive impact that an entrepreneur's prior experience has on the growth of a firm has shown in this study.

The importance of networks (Who I know) was alluded to. It was revealed that both social and professional networks are needed by companies as they enable access to contacts and trusted advisors. Francis states:

“I think that well they matter because it gives them access to trusted advisors. In a wide variety of areas, you know if I had a legal question I would call a friend who’s a lawyer, if I have a financial question guys that I know who are accountants.”

New insights revealed the use of social and professional networks. Francis explained the difference between social and professional networks in this way:

“I think that social networks are usually pretty good for local businesses. If you’re operating nationally or internationally, your social network tends to be local. Whereas your professional network tends to be global.”

Affordable loss was also shown to take place in companies. Risk is assessed along the lines of what may be lost, but not in the context of the firm’s complete demise. Francis says of risk assessment in companies:

“Very few companies will go into a gambling type risk. So for most people the risk situation is more along the lines of this may not work out really well, and I may lose some money, but it’s not a everything fails.”

This is consistent with findings in this study that state that an entrepreneur seeks to know the maximum amount that he can afford to lose that would not threaten the existence of his/her company.

Partnership was also reported to aid growth especially in cases where such arrangements take into consideration the parties’ mutual interests. It was stated that most partnerships tend to be in the distribution of companies products. He explains:

“Most partnerships tend to be in sort of a distribution channel. So I’ll buy from you and you alone, and you will work with me in Canada let’s say so we have a distribution agreement, and I will have partners who sell for me.”

This supports the result for Company 5 that it is able to make worldwide sales because of partnership.

Contingencies were also reported as experience makes it easy to take advantage of contingencies as the entrepreneurs are able to understand the events well. Again, Francis said her ability to take advantage of contingencies depended on the ability to understand the event. He states:

“So the more experienced the business owner is, the better they can respond. Now the other thing that you didn’t touch on is the more successful business owners, a peer group or a business advisory board or something, that they can draw on.”

This shows again the impact of a company’s means on its ability to respond to contingencies in order to achieve unanticipated outcomes. It was also revealed that successful entrepreneurs turn to advisors in their circle to help them adapt to those contingencies.

“But it’s that advisory board that successful entrepreneurs have around them that helps them adapt to those weird unforeseen situations.”

It was stated that the common indicators of growth used include revenue, net profit, the market value of the company and the number of employees. This is consistent with some of the indicators of growth used by some of the entrepreneurs in the companies interviewed.

5.3 Discussion

This study examined two research questions namely:

- 1) What role does effectuation play in the growth of small knowledge-intensive firms?
- 2) What ways do contingencies lead to the small knowledge-intensive firm’s growth?

5.3.1 Role of effectuation in the growth of small knowledge-intensive firms

The study determined that effectuation can be used effectively to achieve growth in small knowledge-intensive firms that operate in a latent industry with emerging, ill-defined and complex markets with no historical data to guide entrepreneurs’ decision making. Rather than sole reliance on planning, which is at the heart of the traditional method of decision making known as causation, the companies have shown that decisions based on effectuation can equally achieve the growth objectives of companies. The findings in this study show that the four themes identified viz the (1) contingencies, (2) affordable loss, (3) strategic relationships and (4) adaptation/forecasting have been used to grow all the companies.

As mentioned earlier, the means which represent the controllable resources of the entrepreneur have been seen to have been effectively used by all the entrepreneurs examined. For instance, having had formal education that serves as the foundation, they all have been able to tap into this foundation as a basis for growth without which the story might have been a little bit different. Education thus forms a basis for the entrepreneurs' traits, abilities and personal characteristics. The study has also revealed the positive impact of knowledge and prior experience as being important element in the achievement of growth even if not all is applicable as has been revealed, a large part of it comes in handy. The skills and knowledge acquired through experience which Politis (2008) refers to as "bundle of resources" enable the entrepreneurs to make the right decisions in the face of complex business environments. Entrepreneurs relied frequently on their networks of contacts consistent with findings showing that people in similar or different backgrounds are important for accessing/sharing of valuable information, hiring of skilled workers and access to other opportunities like funding. This study has revealed the following about means:

- (1) They are controllable factors by entrepreneurs;
- (2) They can be easily manipulated by entrepreneurs to meet changing needs;
- (3) They are not static but always changing.

Based on the importance of means as being controllable and can be easily manipulated by the entrepreneur to the advantage of the firm, it is proposed:

Proposition 1: The extent to which an entrepreneur can effectively combine its means would likely influence positively its ability to embrace contingencies

Because of the limitations placed on small companies due to size, resources and threat of failure, effectuation can be used as a decision-making process to achieve firms' growth. Since small companies decisions are based on short- to medium-term. As stated by Joe:

"Long-term planning doesn't work in small business, everyday is a strategic option point."

Effectuation emerges as a useful concept of decision making in the companies examined, eliminating the need for long-term planning and taking of uncalculated risks. Findings also show

that contingencies, affordable loss, strategic relationships and adaptation are used when taking growth decisions in the companies examined. For instance, the study reveals that the entrepreneurs, as a first step, are more interested in making decisions about controlling the companies' losses than the revenue that would be made in exploiting opportunities.

This is consistent with the literature that affordable loss is much more about making decisions that control downward loss rather than maximising a potential upside especially in cases where the outcome of such decisions cannot be accurately predicted (Dew et al, 2009). Of particular interest is the revelation that affordable loss assessment can be monetary or non-monetary. Past research has always emphasised assessment of affordable loss in dollars and cents but the present study has shown that it can as well be assessed non-monetarily. As a result:

Proposition 2: The extent to which entrepreneurs are able to assess monetary and non-monetary affordable losses will likely influence positively the extent of opportunity exploitation.

However, it was observed that in addition to the four themes identified, elements of causation were also observed in decision making.

Forecasting as a tool for predicting the future was also adopted by Companies 2, 4 and 5 where it was used alongside adaptation. This illustrates that the two concepts are not mutually exclusive. This is consistent with the literature that states that effectuation theory is not a replacement of causation but is meant to exist in parallel to it (Svensrud and Asvoll, 2012). Dew and Sarasvathy (2002) also describe the two concepts as being necessary and important to undertaking decisions and actions (Dew and Sarasvathy, 2002). While causation is applicable in situations where markets already exist and firms look in those markets for opportunities for growth, effectuation is most applicable where in latent and emerging markets developed by the actions of firms or the actions of others (Chandler et al, 2011). It is based on this that it is proposed:

Proposition 3: The use of both forecasting and adaptation would likely lead to the firm's future growth positively than when either of them is used alone.

Effectuation therefore plays a complementary role to causation as a means to achieve growth especially when time and resources are in short supply.

5. 3. 2 Contingencies and the growth of small knowledge-intensive firms

Due to the complexity of the business environment in which small knowledge-intensive firms operate, the findings show that growth through contingencies is only made possible by flexibility in the operations of the companies examined. The findings show that the companies were easily able to adapt their operations to suit the unexpected events that came up. This is consistent with the literature that contingency exploitation would only be possible with flexibility in the operations of a firm (Chandler et al, 2011). The findings further show that by taking advantage of contingencies, especially because of uncertainties in the outcome of such events, more opportunities for growth can be revealed rather unexpectedly. The impact of contingencies was discovered to have a direct and indirect impact on the growth of the companies. For example, Company 3 has been shown to have extended the sales of an internal product for external use Company 4 was able to acquire a new large customer due to the fact that they had pursued contingencies.

Also revealed in the study is that markets can be expanded and new markets are entered into following the occurrence of certain events. These findings show that a company can become aggressive in its marketing operations when unpleasant events occur and in order to avoid failure, it can turn these events into opportunities to enter new markets. Company 5 showed this as it had lost a very valuable customer and had to devise a means of entering new markets both as a means of survival and in order to counteract declining trend in its revenue. This is consistent with the literature that states that contingencies involve embracing unexpected events and turning them into profitable opportunities thereby getting unanticipated outcomes (Fisher, 2012).

The present study further indicates the indirect impact that contingencies can have on the growth of a company. For instance, it was revealed that internal processes can be improved with contingencies as current lapses/shortcomings in the organisation of a company can be revealed. An improvement in the internal processes can mean that a company is either ready to take up contingent events or that it makes its operations flexible enough to adapt to changes as they occur. In order words, the company would be organised in a way that makes it flexible to take advantage of contingencies. It is based on this that it is proposed:

Proposition 4: The extent to which entrepreneurs embrace contingencies would likely have a direct or indirect impact on growth of the firm or a combination of the two.

Companies 4 and 5 with a larger number of employees than the other four companies show the need for formalisation and causation. Company 4 with 265 employees spread over 26 countries show that more of its operations are structured and formalised for the sake of coordination. Also, Company 5 with 80 employees and having achieved its growth through acquisition implies that its processes are formalised for the sake of coordination. However, the large size in terms of the number of employees in both companies 4 and 5 does not indicate any particular impact on the use of effectuation. They therefore both use effectuation just like the other companies in this study.

5.4 Contribution of the study and implications

This study makes two contributions to the entrepreneurship literature. Firstly, it contributes to the limited body of knowledge that applies effectuation to the growth of small knowledge-intensive firms. Effectuation has been used in the field of entrepreneurship to examine a lot of concepts, for instance, in the start-up of firms (Chandler et al, 2011), international market entry (Harms and Shiele, 2012; Andersson, 2011; Andersson and Wictor, 2003), comparison with traditional decision making concepts (Fisher, 2012; Chandler 2011; Sarasvathy, 2001) but not to growth of small knowledge-intensive firms. This study has addressed this issue. The four principles of effectuation have been demonstrated to be applicable and can help small knowledge-intensive firms (SKIFs) to achieve growth.

Secondly, the study has shown that two types of contingencies can be considered: those that have a direct impact on the growth of a firm and those whose impact are indirect to the growth of the firm. In addition to that, affordable loss is also categorised into monetary and non-monetary basis of assessment. This is a major contribution of the study to the literature as no such categorisation has been done in the literature.

Thirdly is the presentation of effectuation as a theory that complements causation and not as a replacement as only a few have suggested this, for instance Svensrud and Asvoll (2012) and (Dew and Sarasvathy, 2002). This study strengthens this by suggesting that both effectuation and causation can be used side-by-side with each other, as the situation demands, to achieve a small

knowledge-intensive firm's growth. In addition to the relevance of the four principles of effectuation, the study reveals elements of causation leading to the growth of the firms. Specifically, forecasting, which is causation, was used together with adaptation by three of the companies. This is consistent with the literature as stated earlier.

Efforts should therefore be devoted to extending research on these two theories and adequate time should be devoted to teaching students of entrepreneurship the intricacies involved in these two theories. Neither theory should be treated as superior to the other. Furthermore, the four propositions given in this study can be a basis of more research.

This research also has practical implications for managers and policy makers. This study has shown that flexibility is important for the success of firms. This is not to downplay the use of business plans or long-term planning in firms. Instead, the study helps to underline that this planning should be done in a way that makes flexibility possible in order to take advantage of contingent events that would give the firms pleasant unexpected outcomes. Also, decision makers and managers should consider the four themes identified in this study when taking decisions for growth in their firms.

5.5 Limitations of the study

It is important to point out some limitations in this study. The study's aim is not to generalise the findings to other cases but to compare and contrast the six cases. Firstly, it is important to state that this study is limited to six cases for the sake of time and convenience as all the companies are located in the city of Ottawa. The six companies were selected for the study because they are within reach and were those that responded favourably to the request for participation sent to them. Future research can extend to companies that are located in other cities and regions of the country in order to find out if geographical location plays any role in the use of this theory. In addition, a higher number of companies can be included in the sample for the sake of diversity and to have multiple perspectives. Moreover, companies in other less knowledge-intensive sectors could be investigated to assess the extent to which they use effectuation or causation or a combination of both in their path to growth.

Secondly, this study follows case study analysis approach. Future research can however extend this theory further by applying quantitative methods in a way that follows the sequence of the process as highlighted in the framework in this study. The use of quantitative methods can eliminate some bias that may have been part of the data collection adopted in this study.

Thirdly, the study covers the technology companies of the knowledge-intensive industry. The effect is that the findings are applicable to technology and consultancy companies and do not address other forms of small knowledge-intensive firms. Future research should be broader and consider other forms of small knowledge-intensive firms like management consulting, law and accounting firms just to mention a few.

Lastly, during the course of collecting data for this study, only one person per company was interviewed with the exception of company one that had both the CEO and the Director of Marketing in attendance for the interview. Future research can do more in this regard by interviewing some other principal officers in companies other than the CEO/Chairman. This would also give findings in such studies more credibility.

5.6 Conclusion

This study has addressed the application of the theory of effectuation to the growth of small knowledge-intensive firms. The study specifically set out to examine how the four principles of effectuation are applicable to six companies and how the companies have achieved growth using some or all of them. The means available to the entrepreneurs are first discussed before the four principles. The means consisting of who the entrepreneur is, what he knows and who he knows show how prepared the entrepreneurs are to take advantage of opportunities. The first principle examines contingencies. The second looks into how firms examines affordable loss while the third and fourth principles examine strategic relationships/partnerships and adaptation respectively. The results reveal that the means are important to entrepreneurs as they include the entrepreneurs' education, motivation and personal traits that determine who they are and what kind of companies they hope to manage. This has been shown to serve as a useful foundation which upon which the entrepreneurs build on to achieve growth in their companies. The entrepreneurs' prior experience in running previous companies and in corporate entrepreneurship

has proved to be valuable as it prepares them to face the day-to-day challenges faced in their companies. It has also been demonstrated that networks are important for small knowledge-intensive firms to grow as both social and economic networks expose entrepreneurs to new ideas, knowledge and new information for funding and recruitment of employees.

Contingencies represent a good way to achieve growth provided firms are flexible enough to take advantage of such events that do only expose opportunities for growth but also may be come links to future opportunities for growth. The outcome of contingencies has been shown to have either a direct and indirect impact on the growth of a small knowledge-intensive firm. The results have also shown that looking at affordable loss is a useful tool used by small knowledge-intensive firms to access the maximum loss that the firms can afford to incur without threatening their existence. The assessment of affordable loss has however been discovered to either be monetary or non-monetary.

Furthermore, strategic relationships/partnerships have been revealed to give companies the required leverage that is used not only to generate and exchange knowledge but also to apply such knowledge to the provide value to customers. It was also revealed that engaging with strategic partners is a useful way to grow companies into new markets, both locally and internationally. Finally, companies have been shown to adopt adaptation or a combination of adaptation and forecasting as a way to ensure future growth.

Finally, this study emphasizes the use of both effectuation and causation for small companies in the context of a knowledge-intensive industry that intends to achieve growth.

References

- Alvarez, S.A., & Barney, J. B. (2007). Discovery and creation: Alternative theories of entrepreneurial action. *Strategic Entrepreneurship Journal*, 1(1-2), 11-26.
- Alvarez, S. A., Barney, J. B., & Anderson, P. (2013). Forming and exploiting opportunities: The implications of discovery and creation processes for entrepreneurial and organizational research. *Organization Science*, 24(1), 301-317.
- Alvesson, M. (2000). Social Identity and The Problem of Loyalty In Knowledge-Intensive Companies. *Journal of Management Studies*, 37(8), 1101-1124.
- Andersson, S., & Wictor, I. (2003). Innovative internationalization in new firms: born globals—the Swedish case. *Journal of International Entrepreneurship*, 1(3), 249-275.
- Andersson, S. (2011). International entrepreneurship, born globals and the theory of effectuation. *Journal of Small Business and Enterprise Development*, 18(3), 627-643.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120.
- Barringer, B. R., & Jones, F. (2004). Achieving rapid growth: revisiting the managerial capacity problem. *Journal of Developmental Entrepreneurship*, 9(1), 73-86.
- Brettel, M., Mauer, R., Engelen, A., & Küpper, D. (2012). Corporate effectuation: Entrepreneurial action and its impact on R&D project performance. *Journal of Business Venturing*, 27(2), 167-184.
- Chandler, G. N., DeTienne, D. R., McKelvie, A., & Mumford, T. V. (2011). Causation and effectuation processes: A validation study. *Journal of Business Venturing*, 26(3), 375-390.
- Companys, Y. E., & McMullen, J. S. (2007). Strategic entrepreneurs at work: the nature, discovery, and exploitation of entrepreneurial opportunities. *Small Business Economics*, 28(4), 301-322.
- Creswell, J.W. (2007). *Qualitative inquiry and Research. Choosing among five approaches (2nded.)*. Sage Publications Inc, London.

- Crick, D., & Jones, M. V. (2000). Small high-technology firms and international high-technology markets. *Journal of International Marketing*, 63-85.
- Crick, D., & Spence, M. (2005). The internationalisation of 'high performing 'UK high-tech SMEs: a study of planned and unplanned strategies. *International Business Review*, 14(2), 167-185.
- Das, T.K. & Teng, B.S. (2000). A resource-based theory of strategic alliances. *Journal of Management*, 26(1), 31-61.
- Dobbs, M., & Hamilton, R. T. (2007). Small business growth: recent evidence and new directions. *International Journal of Entrepreneurial Behaviour & Research*, 13(5), 296-322.
- Delmar, F. (2006). Measuring growth: methodological considerations and empirical results. *Entrepreneurship and the Growth of Firms*, 1, 62-84.
- Delmar, F., Davidsson, P., & Gartner, W. B. (2003). Arriving at the high-growth firm. *Journal of Business Venturing*, 18 (2), 189-216.
- Dew, N., & Sarasvathy, S. D. (2002, August). What effectuation is not: Further development of an alternative to rational choice. In Annual Meeting of the Academy of Management, Denver, CO, (12).
- Dew, N., Read, S., Sarasvathy, S. D., & Wiltbank, R. (2009). Effectual versus predictive logics in entrepreneurial decision-making: Differences between experts and novices. *Journal of Business Venturing*, 24(4), 287-309.
- Dyer, J. & Singh, H. (1998). The relational view: cooperative strategic and sources of interorganizational competitive advantage. *Academy of Management Review*, 23(4), 660-679.
- Eberhard, M., & Craig, J. (2013). The evolving role of organisational and personal networks in international market venturing. *Journal of World Business*, 48, 385-397.
- Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review*, 14(4), 532-550.

- Elfring, T., & Hulsink, W. (2003). Networks in entrepreneurship: the case of high-technology firms. *Small Business Economics*, 21(4), 409-422.
- Eriksson, K., Majkgård, A., & Sharma, D. D. (2000). Path dependence and knowledge development in the internationalization process. *Management International Review*, 40 (4), 307-328.
- Fisher, G. (2012). Effectuation, Causation, and Bricolage: A Behavioral Comparison of Emerging Theories in Entrepreneurship Research. *Entrepreneurship Theory and Practice*, 36(5), 1019-1051.
- Freel, M. S., & Robson, P. J. (2004). Small firm innovation, growth and performance evidence from Scotland and Northern England. *International Small Business Journal*, 22(6), 561-575.
- Gaglio, C.M., & Katz, J. A. (2001).The psychological basis of opportunity identification: Entrepreneurial alertness. *Small Business Economics*, 16 (2), 95-111.
- Garnsey, E. (1998). A theory of the early growth of the firm. *Industrial and Corporate Change*, 7(3), 523-556.
- Garnsey, E., Stam, E., & Heffernan, P. (2006). New firm growth: Exploring processes and paths. *Industry and Innovation*, 13(1), 1-20.
- Gilley, K. M., & Rasheed, A. (2000). Making more by doing less: an analysis of outsourcing and its effects on firm performance. *Journal of management*, 26(4), 763-790.
- Goel, S., & Karri, R. (2006). Entrepreneurs, Effectual Logic, and Over-Trust. *Entrepreneurship Theory and Practice*, 30(4), 477-493.
- Granovetter, M. (1983). The strength of weak ties: A network theory revisited. *Sociological Theory*, 1(1), 201-233.
- Grant, R. M., & Baden-Fuller, C. (2004).A knowledge accessing theory of strategic alliances. *Journal of Management Studies*, 41(1), 61-84.
- Hamilton, R. T., & Lawrence, L. (2001).Explaining size differences in smaller firms. *International Small Business Journal*, 19(2), 49-60.

- Harrison, J. S., Hitt, M. A., Hoskisson, R. E., & Ireland, R. D. (2001). Resource complementarity in business combinations: Extending the logic to organizational alliances. *Journal of Management*, 27(6), 679-690.
- Harms, R., & Schiele, H. (2012). Antecedents and consequences of effectuation and causation in the international new venture creation process. *Journal of International Entrepreneurship*, 10(20), 95-116.
- Hayek, F. A. (1945). The use of knowledge in society. *The American Economic Review*, 35(4), 519-530.
- Hoang, H., & Antoncic, B. (2003). Network-based research in entrepreneurship: A critical review. *Journal of Business Venturing*, 18(2), 165-187.
- Honig, B. (2004). Entrepreneurship education: Toward a model of contingency-based business planning. *Academy of Management Learning & Education*, 3(3), 258-273.
- Hyde, K. F. (2000). Recognising deductive processes in qualitative research. *Qualitative Market Research*, 3(2), 82-89.
- Industry Canada. (2013). Key business statistics. Retrived March 5, 2014 from <http://www.ic.gc.ca/sbststatistics>.
- Ireland, R. D., Hitt, M. A., & Vaidyanath, D. (2002). Alliance management as a source of competitive advantage. *Journal of Management*, 28(3), 413-446.
- Jacobson, R. (1992). The "Austrian" school of strategy. *Academy of Management Review*, 17(4), 782-802.
- Johannisson, B., Landstrom, H., & Rosenberg, J. (1998). University training for entrepreneurship—an action frame of reference. *European Journal of Engineering Education*, 23(4), 477-496.
- Jones, M. V., & Crick, D. (2001). High-technology firms' perceptions of their international competitiveness. *Strategic Change*, 10(3), 129.

- Kazanjian, R. K. (1988). Relation of dominant problems to stages of growth in technology-based new ventures. *Academy of Management Journal*, 31(2),257-279.
- Kirzner, I.(1973). Competition and Entrepreneurship. *University of Chicago Press*, Chicago.
- Kirzner, I. (1979). Perception, opportunity, and profit. *University of Chicago Press*, Chicago.
- Kotey, B. (2005). Goals, management practices, and performance of family SMEs. *International Journal of Entrepreneurial Behaviour & Research*. 11(1), 3-24.
- Lester, D. L., Parnell, J. A., & Carraher, S. (2003). Organizational life cycle: A five-stage empirical scale. *International Journal of Organizational Analysis*,11(4), 339-354.
- Lester, D. L., & Tran, T. T. (2008). Information technology capabilities: Suggestions for SME growth. *Institute of Behavioral and Applied Management*, 10(1),72-88.
- Levie, J., & Lichtenstein, B. B. (2010). A terminal assessment of stages theory: Introducing a dynamic states approach to entrepreneurship. *Entrepreneurship Theory and Practice*, 34(2), 317-350.
- Lippman, S. A., & Rumelt, R. P. (1982). Uncertainty imitability: An analysis of interfirm differences in efficiency under competition. *Bell Journal of Economics*, 13, 418- 453.
- Lockett, A. & Thompson, S. (2001). The resource- based view and economics. *Journal of Management*, 27, 723-754.
- Lockett, A., Wiklund, J., Davidsson, P., & Girma, S. (2011). Organic and Acquisitive Growth: Re-examining, Testing and Extending Penrose's Growth Theory. *Journal of Management Studies*, 48(1), 48-74.
- Mainela, T., & Puhakka, V. (2009).Organising new business in a turbulent context: Opportunity discovery and effectuation for IJV development in transition markets. *Journal of International Entrepreneurship*, 7(2), 111-134.
- Majeed, Z. (2009). A review of HR practices in knowledge-intensive firms and MNEs: 2000-2006. *Journal of European Industrial Training*, 33(5), 439-456.

- Mazzarol, T., Reboud, S., & Soutar, G. N. (2009). Strategic planning in growth oriented small firms. *International Journal of Entrepreneurial Behaviour & Research*, 15(4), 320-345.
- McGrath, R. G. (1999). Falling forward: Real options reasoning and entrepreneurial failure. *Academy of Management Review*, 24(1), 13-30.
- McKelvie, A., & Wiklund, J. (2010). Advancing firm growth research: A focus on growth mode instead of growth rate. *Entrepreneurship Theory and Practice*, 34(2), 261-288.
- McIvor, R. (2008). What is the right outsourcing strategy for your process?. *European management journal*, 26(1), 24-34.
- Miles, Matthew, B. & Huberman, Michael, A. (1994). *Qualitative data analysis* (2nd edition). Sage Publications, California.
- Miller, K. D. (2007). Risk and rationality in entrepreneurial processes. *Strategic Entrepreneurship Journal*, 1(1-2), 57-74.
- Mowery, D. C., Oxley, J. E., & Silverman, B. S. (1996). Strategic alliances and interfirm knowledge transfer. *Strategic Management Journal*, 17, 77-91.
- Mthanti, T. S., & Urban, B. (2013). Effectuation and entrepreneurial orientation in high-technology firms. *Technology Analysis & Strategic Management*, 1-13.
- Newbert, S. L. (2007). Empirical research on the resource-based view of the firm: an assessment and suggestions for future research. *Strategic Management Journal*, 28(2), 121-146.
- O'Farrell, P. N., & Hitchens, D. M. W. N. (1988). Alternative theories of small-firm growth: a critical review. *Environment and planning*, 20(10), 1365-1383.
- Onwuegbuzie, A. J., & Leech, N. L. (2007). Sampling designs in qualitative research: Making the sampling process more public. *The Qualitative Report*, 12 (2), 238-254.
- Parker, S. C., Storey, D. J., & Van Witteloostuijn, A. (2010). What happens to gazelles? The importance of dynamic management strategy. *Small Business Economics*, 35(2), 203-226.
- Penrose, E. T. (1995). *The Theory of the Growth of the Firm*. Oxford University Press, USA.
- Penrose, E. T. (1959). *The Theory of the Growth of the Firm*. Basil Blackwell, Oxford.

Perry, M.K (1989). Vertical integration: Handbook of industrial organization. Amsterdam, North Holland, 185-255.

Perry, J. T., Chandler, G. N., & Markova, G. (2012). Entrepreneurial effectuation: a review and suggestions for future research. *Entrepreneurship Theory and Practice*, 36(4), 837-861.

Pinker, S. (1991). Rules of language. *Science*, 253(5019), 530-535.

Politis, D. (2008). Does prior start-up experience matter for entrepreneurs' learning? *Journal of Small Business and Enterprise Development*, 15(3), 472-489.

Porter, M.E. (1979). How competitive forces shape strategy. *Harvard Business Review*, 57(2), 137-145.

Read, S., Song, M., & Smit, W. (2009). A meta-analytic review of effectuation and venture performance. *Journal of Business Venturing*, 24(6), 573-587.

Rothaermel, F. T., & Boeker, W. (2008). Old technology meets new technology: complementarities, similarities, and alliance formation. *Strategic Management Journal*, 29(1), 47-77.

Reid, D., Bussiere, D., & Greenaway, K. (2001). Alliance formation issues for knowledge-based enterprises. *International Journal of Management Reviews*, 3(1), 79-100.

Routamaa, V. & Vesalainen, J. (1987). Types of entrepreneur and strategic level goal setting. *International Small Business Journal*, 5(3), 19-27.

Sarasvathy, S. D. (2008). Effectuation: Elements of entrepreneurial expertise. Edward Elgar Publishing.

Sarasvathy, S. D. (2001). Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management Review*, 26(2), 243-263.

Schweizer, R. (2013). SMEs and networks: Overcoming the liability of outsidership. *Journal of International Entrepreneurship*, 11(1), 80-103.

- Scott, M., & Bruce, R. (1987). Five stages of growth in small business. *Long Range Planning*, 20(3), 45-52.
- Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *Academy of Management Review*, 25(1), 217.
- Starbuck, W. H. (1992). Learning by knowledge-intensive firms. *Journal of Management Studies*, 29(6), 713-740.
- Strauss, A., & Corbin, J. (1998). Basics of qualitative research: Techniques and procedures for developing grounded theory (2nd ed). *Thousand Oaks, CA*:
- Svensrud, E., & Asvoll, H. (2012). Innovation in large corporations: A development of the rudimentary theory of effectuation. *Academy of Strategic Management Journal*, 11(1), 59-89.
- Teece, D. J. (1992). Competition, cooperation, and innovation: Organizational arrangements for regimes of rapid technological progress. *Journal of Economic Behavior & Organization*, 18(1), 1-25.
- Teng, B. S. (2007). Corporate Entrepreneurship Activities through Strategic Alliances: A Resource-Based Approach toward Competitive Advantage. *Journal of Management Studies*, 44(1), 119-142.
- Ucbasaran, D., Westhead, P., & Wright, M. (2009). The extent and nature of opportunity identification by experienced entrepreneurs. *Journal of Business Venturing*, 24(2), 99-115.
- Wernerfelt, B. (1984). A resource based view of the firm. *Strategic Management Journal*, 5, 171-180.
- Wiltbank, R., Read, S., Dew, N., & Sarasvathy, S. D. (2009). Prediction and control under uncertainty: Outcomes in angel investing. *Journal of Business Venturing*, 24(2), 116-133.
- Wiltbank, R., Dew, N., Read, S., & Sarasvathy, S. D. (2006). What to do next? The case for non-predictive strategy. *Strategic Management Journal*, 27(10), 981-998.
- Wiklund, J., Patzelt, H., & Shepherd, D. A. (2009). Building an integrative model of small business growth. *Small Business Economics*, 32 (4), 351-74.

Wright, M., & Stigliani, I. (2013). Entrepreneurship and growth. *International Small Business Journal*, 31(1), 3-22.

Yin, Robert, K (2003). Case study research. Design and methods (3rd edition). *Sage publications*, California.

Zhonghi, L., & Shuiying, W. Y. (2005). The Strength of Weak Ties and Issues of Embeddedness: a review of Granovetter's theories on social network and organization. *Canadian Social Science*, 2(2), 101-104.

Appendix I – Interview Guide

The interview guide was used as a guide for the semi-structured interviews conducted.

Below are the questions for the interview:

The questions are presented with reference to the means, themes and the modes of growth

“What I Know” means

- 1) Kindly tell me about this firm, what you do and your products
- 2) How long have you been running this firm?
- 3) What other firms did you run or work with before this firm? Tell me your experience in the other firms
- 4) How many years experience did you have in your previous firm?

“Who am I” means

- 5) Can you give me a bit of your educational background and professional training?
- 6) Describe to me how your professional experience (both in other firms and this) has been instrumental to your firm’s growth
- 7) What role has your academic background played in the growth of this firm?

Causation

- 8) Did you have a business plan when you were starting this firm? If yes
- 9) Tell me if the business plan is followed at all times or just a formality.
- 10) What are the major resources that you have that have been instrumental to the growth of your firm?

“Who I know” means

11) Do you belong to any professional or social groups?

12) Kindly describe to me how being a member of such groups has helped you in achieving growth in your firm.

13) What role have close relatives, friends played in the growth of this firm?

14) Have you always been willing to try out new things irrespective of the outcome (positive or negative)?

Contingencies

15) Can you tell me of some events that have occurred that led to pleasant or unpleasant outcomes

16) If you experienced unpleasant from such unexpected events, what do you think went wrong?

17) Can you tell me how such unexpected events led to positive results for your firm?

18) What gave you the assurance that such unexpected events will be favourable to your firm?

19) Apart from unexpected events that bring opportunities, do you just identify existing opportunities or you try to create opportunities where there is none? Kindly explain

Affordable loss

20) In such unexpected events, there will be risk of failure (in addition to favourable opportunities) which may lead to the failure of your firm, how did you anticipate such risks in order not to affect your firm?

Strategic relationship/Partnership

21) In the course of growing your firm, have you been doing it internally or you have had to enter into relationships with other firms that have been of support in achieving growth

22) If external, kindly describe such relationship

23) Are you into any licensing, franchising agreements? If yes, kindly explain

24) Have you entered in strategic relationship with firms in the same line of business with you?
If yes, how have such alliance helped in the growth of your firm?

25) Can you explain what experience you gained from such partnership?

26) Kindly explain to me how you are able to identify profitable opportunities in your market

Adaptation/Forecasting

27) Do you forecast market trends based on research or do you recognise opportunities that come by chance? Kindly explain

28) Which other market do you have your firm located? (Locally or internationally)

29) What factors facilitated your entry into such markets? Market research or through established firms in the market. Kindly explain.

Mode of growth

30) What ways do you measure your firm's growth?

31) I appreciate your time and response, are there other things you want to tell me that might be useful to me?

Thank you.

Appendix II – Themes from interviews

Table 11 shows a summary of the means available to entrepreneurs and themes

Table 11: Means available to entrepreneurs and themes

Means & Effectuation themes	Company 1	Company 2	Company 3	Company 4	Company 5	Company 6
Means (1a) Who am I	<ul style="list-style-type: none"> -Professional certification in Inventory Management -MBA degree at Wharton School, University of Pennsylvania Entrepreneurial -Moved up the ladder from truck driver to Senior VP of a large Telecom company -31 years of entrepreneurial activities in Telecom company 	<ul style="list-style-type: none"> - Degree In Economics at University of British Columbia - Enrolled at University of Victoria for Computer Science and Engineering (90% completed) -Passion for video games -Entrepreneurial spirit from age 12 	<ul style="list-style-type: none"> -Degree in Comparative Politics at Carleton University Passion for start-up of companies Valuable mentorship from experienced entrepreneur 	<ul style="list-style-type: none"> -Degree in MIS at the University of Ottawa -Education relevant to company's services -Passion for computers at a very early age -Developed interest in enterprise computing -Showed entrepreneurial spirit due to boredom and ambition -Previously established 3 companies 	<ul style="list-style-type: none"> -PhD degree in Electrical and Communication Engineering -Motivated by growth objective and also to build wealth -Shows zeal for innovation by working with Universities to understand new technologies -Previously created 3 companies 	<ul style="list-style-type: none"> -PhD in Electrical Engineering -Previously retired but came back from retirement -Motivated by the fact that he had a lot to contribute -Previously created five technology companies

Means (1b)	-31 years of knowing the Telecom industry	- Valuable knowledge from two companies started in University	-Over 10 years experience in start ups going through growth	-Experience working for the government and consulting	-VP at Nortel	-Learnt by on the job by making mistakes
What I know	-Consulting work for companies in US and Canada after retirement -Good mastery of the channel model -On the job training -Execution and business relationship experience from professional certification -Exchange of ideas and experience with top executives at Wharton -Company's competence as certified model application developer	- Established over 15 companies over 20 years -Gained experience from the operator and investor's point of view -Worked in every aspect of business -Moved from programming to sales	-Became a web analyst in order to hit sales quota -Campus consulting gig -Worked in a managed services software company -Sales skill acquired -VP with vast experience	-Company founded because of experience gained in previous job -All jobs have been relevant -Learnt a lot by himself	-Prior experience of significant impact in present company	-Experience has been instrumental to the growth of his company -Some core experience portable, others are not
Means (1c)	-Networks of tops executives at Wharton	-Not a member of any professional group	Networks through digital analytics association	-Membership of many professional groups	-Membership of social group	-Membership of social group
Whom I know	-Networks through Certified inventory and material Management -Networks through informal technology associations e.g Ruby meet up -Networks through Tech-Tuesdays	-Strong ties with investors start up and games community -Weak ties with hockey team mates -Social networking sites (Linkedin, facebook,twitter)	-Strong ties and weak ties	-Membership good for expertise and to attract talent -Strong ties -Networks through conferences -Networks through Linkedin	-Strong and weak ties -Prefers weak ties to avoid competition	-Strong and weak ties
Means (1c)	-Strong ties with Motorola					
Whom I know						

	-Weak ties with funding companies					
	-Linkedin as a tool for networking					
	-Validation					
	-Use of prototypes					
2 Affordable Loss	-Grants used to pay for initial cost	-Validation	-Validation	-Analysis is based on ability break even	-Assesses worst case in event of no revenue	-Geographical diversification of risks
	-Customer feedback	-Assessment of risk-return trade off	-Cost and opportunity cost CEO's assessment	-Cost is appropriately analysed	-Sensitivity analysis	
	-Increase in product offering by partnership as opposed to development in-house(Risk mitigation)	-Financier's backing	-Diversification of risk Fixed fee par company (Risk Mitigation)	-Customers contributes a contribution margin	-Multiple stages of product development where product can e dropped at any stage	
		-Financier networks other investors (Risk mitigation)	-Personal KPI	-Adopts big game change projects		
				-Company takes risks with game changers		
(3)Strategic relationships/Partnerships	-Partnerships and pre-commitments	-Partnership aids growth	-Partnership with companies	-Growth not achieved by partnership	-Focuses on core competences and outsources non competencies	-Former company became a global player through partnerships
	-Complementarity in product offerings	-Reaches global audience by partnership	-Exchange of leads	-Partnership signed for credibility in the eyes of customers	-Uses sales channel partners	-Partnership with multinational company
			-Based on trust	-Partnership represents an insignificant share of growth		
				-Growth comes from direct sale		
(5) Adaptation vs forecasting	-Customer feedback as a way of controlling the future	-Market forecasting done in principle	-Customer feedback as a way of controlling the future	-Understands long-term trends in the market through forecasting	-Forecasts sales	-Uses business plan as guideline
	-Exploring robustness	-Trial and error used (Experimentation) in		-Consequences of those	-Customer feedback mechanism to control the future	-Transformed focus from

	of company's products	determining best approach to reach markets -Customer feedback as a way of controlling the future	-Adaptation of the company's services	trends not known in the industry -Forecasting reveals where future opportunities lie -Experimenting internal processes through networking events	-Addition of security features to products to achieve long-term objectives	CTV to reflect company's capacities -Adapted to new areas to fund new product ideas
Mode of Growth	-Organic and hybrid growth	-Organic growth	-Organic growth and hybrid growth	-Organic growth with insignificant hybrid growth	-Organic and Acquisition	-Organic growth

Appendix III – Ethics certificate and consent form



Université d'Ottawa
Bureau d'éthique et d'intégrité de la recherche

University of Ottawa
Office of Research Ethics and Integrity

Ethics Approval Notice

Social Science and Humanities REB

Principal Investigator / Supervisor / Co-investigator(s) / Student(s)

<u>First Name</u>	<u>Last Name</u>	<u>Affiliation</u>	<u>Role</u>
Martine	Spence	School of Management / School of	Supervisor
Oluwaseun	Afolayan	School of Management / School of	Student Researcher

File Number: 09-13-02

Type of Project: Master's Thesis

Title: The growth of small knowledge intensive firms (SKIFs)

Approval Date (mm/dd/yyyy)	Expiry Date (mm/dd/yyyy)	Approval Type
10/31/2013	10/30/2014	Ia

(Ia: Approval, Ib: Approval for initial stage only)

Special Conditions / Comments:

N/A

Consent Form

Title of the study: **The growth of small firms: An alternative look through the lens of effectuation.**

Martine Spence, PhD
Telfer School of Management, University of Ottawa

Oluwaseun Afolayan
Telfer School of Management, University of Ottawa

Invitation to Participate: I am invited to participate in the above mentioned research study conducted by Oluwaseun Afolayan, MSc candidate at the Telfer School of Management, University of Ottawa, and supervised by Professor Martine Spence, Telfer School of Management, University of Ottawa.

Purpose of the Study: The purpose of the study is to apply the theory of effectuation to explain the growth of small knowledge-intensive firms (SKIF) in a way that examines the firm after its creation in situations where entrepreneurs adopt effectual processes to the growth of their firms. The study will specifically examine decision making under little or no planning where growth is achieved with a continuous assessment of the limited resources available to the firm in order to take advantage of opportunities that lead to the growth of the firm.

Participation: My participation will consist essentially of participating in an interview of approximately 60 to 90 minutes during which I will be asked to describe how decisions are made and specific actions taken in some instances that have led to growth of our firm. I agree to this session being recorded for data collection purposes only, and understand that this information will be kept private at all times. I will also be asked to provide additional documents (e.g. internal memos, documents showing contracts entered into with third parties and other relevant documents) that will allow the researchers to better understand the firm's international endeavours.

The interview session has been schedule for _____. I may be asked to participate to future interviews, at which time it will be at my discretion to continue my participation.

Upon the transcription of the interview completed, I will be sent a document by e-mail and asked to review its content to verify the data's integrity. At which point, I will be able to make amendments to the information provided during the interview, or to withdraw the data from the study.

Risks: My participation in this study will entail that I volunteer information regarding the decision-making processes that have led to the growth of our form . I have received assurance from the researcher that there are no anticipated risks associated to this study.

Benefits: My participation in this study will contribute to reducing the existing gap between the theory and practice of effectuation in the field of entrepreneurship.

Confidentiality and anonymity: I have received assurance from the researcher that the information I will share will remain strictly confidential. I understand that the contents will be used only for the above project and that my confidentiality will be protected by disguising my name and that of my employer when presenting the research's results. The researchers have signed confidentiality agreements to undertake this study.

Anonymity will be protected by using codes for which only the researcher knows the true identity.

Conservation of data: The data collected in form of digital interview recordings, hand written notes and recording transcript hard copies will be safely kept in a locked filing cabinet and in password-protected computer files. The data will be kept for 5 years and destroyed thereafter. Only the researcher and her thesis supervisor will have access to the digital interview recordings and the other data from the study.

Voluntary Participation: I understand that I am under no obligation to participate and if I choose to participate, I can withdraw from the study at any time and/or refuse to answer any questions, without suffering any negative consequences. If I choose to withdraw, all data gathered until the time of withdrawal will be destroyed, as to adhere to the protocol of this study.

Acceptance: I, _____, agree to participate in the above research study conducted by Oluwaseun Afolayan of the Telfer School of Management at the University of Ottawa under the supervision of Professor Martine Spence.

If I have any questions about the study, I may contact the researcher or his supervisor.

If I have any questions regarding the ethical conduct of this study, I may contact:

Protocol Officer for Ethics in Research,
University of Ottawa, Tabaret Hall,
550 Cumberland Street, Room 154,
Ottawa, ON K1N 6N5

There are two copies of the consent form, one of which is mine to keep.

Participant's signature: _____ Date: _____

Researcher's signature: _____ Date: _____