

The Impact of Effectuation on the Relationship between Entrepreneurship and Entrepreneurial Internationalisation

By

Mark Stoiko, MA

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Waterford Institute of Technology
INSTITIÚID TEICNEOLAÍOCHTA PHORT LAIRGE

School of Business

Waterford Institute of Technology

Research Supervisors: Dr Tom Egan and Dr Aidan Duane

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Authenticity Declaration

I declare that this thesis is wholly my own work except where I have made explicit reference to the work of others. I have read the DBA guidelines and relevant institutional regulations and hereby declare that this thesis is in line with these requirements. I have discussed, agreed, and complied with whatever confidentiality or anonymity terms of reference were deemed appropriate by those participating in the research and dealt appropriately with any other ethical matters arising.

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Mark Stoiko

Date: March 31, 2022

Dedication

This thesis is dedicated to Anne Stoiko, my spouse, and to the glory of God.

Acknowledgements

Dr Paul Griffin, Associate Dean of Humber College Institute of Technology and Advanced Learning, Toronto, inspired me to doctoral studies at WIT Business School, for which I want to thank him. I also want to acknowledge colleagues at Humber College, Antoniette Di Marco, Dr Siobhan Williams, and Dr Linda Jin-Troendle who supported me in meaningful ways.

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Abstract

This research study assesses the impact of effectuation on the relationship between entrepreneurship and entrepreneurial internationalisation. The study applies effectuation theory from entrepreneurship scholarship to the discipline of internationalisation, more particularly, entrepreneurial internationalisation.

Led by the seminal work on effectuation by Sarasvathy (2001), effectuation is the entrepreneur's ability to experiment, adjust and improvise in a market of uncertainty, and is now a fully-fledged theory of entrepreneurship. This study is based on two models of effectuation, the Effectuation Uppsala Model (UE Model) (Schweizer, et al., 2010), and the Sarasvathy (2008) model. It is these models that provide the foundation for the relationship between entrepreneurship and internationalisation and reveal how the relationship is impacted by effectuation.

Extant studies of effectuation have adopted both qualitative and quantitative methodologies. Especially important to this study are quantitative studies, which have consistently operationalized effectuation under four key variables: (1) affordable loss, (2) experimentation, (3) flexibility, and (4) pre-commitment. Aligned with the philosophical perspectives of the researcher and reflective of extant studies off effectuation, seeking a cause-and-effect relationship, this study adopted a positivist philosophical approach characterized by objectivism and functionalism and underpinned by established measurement instruments drawn from existing literature.

The primary data is collected using a self-administered web-based survey distributed to respondents via a purpose-built research network hosted on the LinkedIn portal. The research sample consists of founders and management of SMEs based in the United States of America (US) who manufacture and sell their products in international markets. Detailed findings begin with descriptive statistics and by establishing the reliability of measurement scales, before expanding to inter-correlation analysis, and regression analysis. The major finding of this study is that the variables of entrepreneurship (1. Innovation and technology, 2. Entrepreneurial knowledge and orientation, and 3. International networks) drive changes in effectuation, which in turn, drives changes in entrepreneurial internationalisation. Effectuation is found to have a positive mediating impact on the relationship between entrepreneurship and entrepreneurial internationalisation; in addition, the components of effectuation have a positive mediating impact on the relationship between entrepreneurship and entrepreneurial internationalisation.

Mediation is confirmed at the 95% confidence level. The impact of mediation may be explained as follows: when operating under high levels of effectuation an entrepreneur is exhibiting the characteristics of adaptability, improvisation, and flexibility. These characteristics are more conducive to rapid and early internationalisation (entrepreneurial internationalisation). Hence, the argument is made for a cause-and-effect relationship between effectuation and entrepreneurial internationalisation, and a mediating relationship in the model.

The study suggests that for the target audience (US SMEs), entrepreneurial internationalisation is intensified when entrepreneurship (innovation and technology, entrepreneurial knowledge and orientation, and international networks) work in conjunction with effectuation. The major contribution to practice is that entrepreneurs seeking to increase levels of entrepreneurial internationalisation can now focus on two ways to do this: (a) directly influence the entrepreneurship variables, and (b) use the mediating link through effectuation. The major contribution to theory is confirmation that effectuation mediates the relationship between entrepreneurship and entrepreneurial internationalisation. This means that entrepreneurs who are effectuators do not focus on the predictable (traditional entrepreneurship theory), but on the controllable (effectual approach); not on goal setting (traditional entrepreneurship theory) but on means-driving (effectual approach).

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List of Abbreviations

ABS	Association of Business Schools
ANOVA	analysis of variance
CPS	cumulative paper series
DBA	Doctorate of Business Administration
EDBAC	Executive DBA Council
EI	entrepreneurial internationalisation
GDPR	General Data Protection Regulation (European Union)
HIPAA	Health Insurance Portability and Accountability Act (United States)
IAM	Irish Academy of Management
JV	joint venture
MNE	multi-national enterprise
MTurk	Mechanical Turk
N	number
NPD	new product development
OEC	Observatory of Economic Complexity
OLS	ordinary least squares
PIPEDA	Personal Information Protection and Electronic Documents Act (Canada)
SME	small and medium enterprise
SOC	security operations center
SPSS	statistical package for social sciences
SSAE	statement on standards for attestation engagement
SSO	single sign-on
VRIO	value rarity inimitability organisational support
WIT	Waterford Institute of Technology

Section 1: Research Overview

1.0 Section 1 Overview

Section 1 begins with an introduction, followed by the research background as well as the conceptual model. It moves through the research methodology, research question and hypotheses, then the contribution and significance, and future dissemination. Section 1 closes with the thesis structure.

2.0 Background to the Author and Topic

The inspiration for the study flows from the author's experience as an entrepreneur in the service sector and the experience of internationalisation. The first vocational calling was entrepreneurship in the form of business owner and angel investor. For twenty years the researcher managed his own businesses, a marketing research firm, and an advertising agency. The marketing research business received more than eighty per cent of its billings from the US, which required travelling to serve US-based clients.

The researcher also watched and listened to other entrepreneurs, which led to experience as an angel investor. From 2006 to 2011 as a member of Toronto Angels and Maple Leaf Angels, the researcher supported start-up and early-stage ventures, investing in several of them. This experience placed the researcher in the arena with venture capital firms.

These are the experiences that explain the second vocational calling of the author, which is the teaching and scholarship of entrepreneurship. The premise for teaching entrepreneurship is one of intelligibility. Entrepreneurship can be systematically investigated, it can be learned, understood and it can be taught. Inspiration for the teaching and scholarship of entrepreneurship turned into a research topic on entrepreneurship that would explain internationalisation.

3.0 Background to the Research Topic

The three pillars that make up this research study are entrepreneurship, effectuation, and entrepreneurial internationalisation. Each of these will now be considered in turn.

3.1 Entrepreneurship

The word entrepreneurship is derived from the French word *entreprendre*, meaning to undertake. As early as the 18th century, entrepreneurship was studied using economics-based

models (Baumol, 1968). In the 20th century micro-view models appeared including the trait school, venture opportunity, and the strategic formulation school (Kuratko, et al., 2015). Macro-view models of entrepreneurship are the environmental school, capital school, and the displacement school (Kuratko, et al., 2015). Less static models were also developed, for example, dynamic states (Gregoire, et al., 2011), and a framework of framework approach (Kuratko, et al., 2015). What these schools and models have in common is a causation approach to the market. The causation approach suggests that the entrepreneur begins with the end state in view, and it is this end state that inspires the writing of a business plan and search for means and resources to execute it. The implication of causation is that entrepreneurs can predict the future (Sarasvathy, 2001), with some degree of certainty.

Scholars have identified several key variables of entrepreneurship, innovation, and technology (Andersson & Wictor, 2003; Sharma & Blomstermo, 2003; Guo, 2019), entrepreneurial knowledge and orientation (Sharma & Blomstermo, 2003; Chetty & Campbell-Hunt, 2004; Knight & Cavusgil, 2004; Guo, 2018), and international networks (Coviello, 2006; Jie, et al., 2021). These variables find their way into this researcher's model as the variables of entrepreneurship (Knight & Cavusgil, 2004; Zhou, 2007; Schweizer et al., 2010; Dimitratos et al., 2012; Covin & Miller, 2014; Efrat et al., 2017; Guo, 2018; Guo, 2019; Jie et al., 2021).

Innovation and technology. Global SMEs are typically launched into international markets by a world-leading innovation (Chetty & Campbell-Hunt, 2004). The early internationalisation of global SMEs has similar traits. However, in every case, the catalyst that launches them is the development of an innovative product with global potential (Guo, 2019). A strategy of innovation is thus the main driver for rapid internationalisation among global SMEs (Sharma & Blomstermo, 2003). Firms are driven to enter multiple markets quickly and to capitalize on the potential of an innovative product. Typically, they focus on a narrow product market that is consistent with their small size, and they use networks of business partners (Chetty & Campbell-Hunt, 2004). As well, the growth of global SMEs is positively associated with high innovation skills (Madsen & Servais, 1997). Knight and Cavusgil (2004) also extend innovation to early adoption of internationalisation (Knight & Cavusgil, 2004). Overall, innovation is a critical entrepreneurial process for firm performance in competitive international markets (Knight & Cavusgil, 2004).

Entrepreneurial knowledge and orientation. Entrepreneurial orientation is associated with a proactive approach to internationalisation (Guo, 2018). International entrepreneurial

orientation reflects the firm's proactiveness in the pursuit of international markets. It is associated with managerial vision, and proactive competitive posture (Knight & Cavusgil, 2004). Entrepreneurial orientation reflects a focused managerial mindset that leads global SMEs to maximize international performance (Zhou, 2007). Superior performance is an outcome of the firm's entrepreneurial and managerial knowledge (Sharma & Blomstermo, 2003). Entrepreneurial knowledge and orientation engender organizational capabilities for developing key strategic dimensions, consisting of technological competence, innovative products, and quality, which in turn lead to improved international performance (Guo, 2018).

International networks. A greater use of international networks achieves global reach quickly (Jie et al., 2021). Networks are a device that internationalising firms use; for global SMEs, networks enable extensive global reach and support exposure to multiple markets (Jie et al., 2021). International networks play an indispensable role in internationalisation (Chetty & Campbell-Hunt, 2004). Firms that operate in an international network may enjoy a "learning advantage" and find it "easier" to go abroad than firms whose exchange partners are domestic firms (Sharma & Blomstermo, 2003).

3.2 Entrepreneurial Internationalisation

Entrepreneurial internationalisation (EI) is a natural extension of the early economics-inspired models of Edith Penrose of the 1950s and then, the traditional or Uppsala model of 1977 (Vahlne & Johanson, 2017) which described how multinational enterprises internationalised, to the introduction of the term *born globals* to explain rapid internationalisation (Oviatt & McDougall, 1995). These three theories of internationalisation are introduced herein.

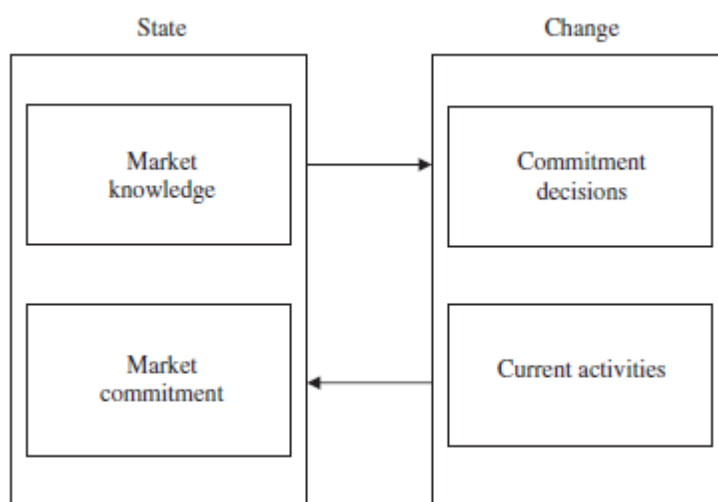
The predecessor to born-global and entrepreneurial internationalisation is traditional internationalisation. The question of internationalisation is important for understanding entrepreneurs and their relentless pursuit of growth and profitability. Many meet their needs and aspirations by trading locally. Yet, others pursue markets internationally and globally. The reasons ascribed for the latter are often the same ones ascribed to multi-national enterprises (MNEs) in their process of internationalisation. Thus, it may be said that early understanding of internationalisation was derived from studying the MNE, from which scholars developed the theory of traditional internationalisation (Oviatt & McDougall, 1995).

Internationalisation research has advanced with born-global and entrepreneurial internationalisation research. Born globals are defined as firms that conduct 25 per cent of their business in international markets in less than 5 years from start-up (Oviatt & McDougall,

1995). Born globals possess international market knowledge before exporting, and entry mode is based on their “knowledge and the knowledge supplied by their network ties” (Sharma & Blomstermo, 2003, p. 739). Knight and Cavusgil (2004) in a seminal work, identify born-global enterprises as those who internationalise early through entrepreneurial orientation and innovation (Knight & Cavusgil, 2004). Born-global scholarship advanced the research around networks (Coviello, 2006), international knowledge and entrepreneurial orientation (Zhou, 2007). Progressively, entrepreneurial internationalisation is manifest by rapid internationalisation (Madsen & Servais, 1997), and is characterized by high levels of innovation and technology (Madsen & Servais, 1997; Chetty & Campbell-Hunt, 2004), entrepreneurial knowledge and orientation (Zhou, 2007; Covin & Miller, 2014), and international networks (Sharma & Blomstermo, 2003; Dimitratos, et al., 2012). Yet, the literature on born-global and entrepreneurial internationalisation research is still restricted by its internal focus on the entrepreneur and the organization.

Traditional internationalisation is the dominant theory found in the literature on internationalisation. The most common model is the Uppsala internationalisation model (Johanson & Vahlne, 1977). In this model, internationalisation occurs incrementally. The Uppsala model was developed in the 1970s as an attempt to explain that firms internationalised slowly and incrementally (Johanson & Vahlne, 1977) (see Figure 2 for the Uppsala model).

Figure 1: Uppsala Model



Source: Uppsala Model 1977 (Johanson & Vahlne, 1977)

Traditional is often called incrementalistic or gradualist internationalisation (Johanson & Vahlne, 1977; Oviatt & McDougall, 1995; Madsen & Servais, 1997). In the Uppsala

internationalisation model, as firms learn more about a specific market, “they become more committed to it by investing more resources into that market” (Johanson & Wiedersheim-Paul, 1975, p. 307). The Uppsala model was revised by the authors in 2009 (Johanson & Vahlne, 2009) with more emphasis on business networks in an internationalisation process model. Then, Vahlne & Johanson (2013) propose a model considering the evolution of the multinational business enterprise and considering the process of change as it related to business relations. Still again, Vahlne and Johanson (2017) is also anchored in process ontology, that is, an augmented model explaining the MNE in general, not only its internationalisation process. The contribution of the foregoing can be observed in effectuation scholarship, which has revisited traditional internationalisation theory. One reason for revisiting traditional internationalisation is its focus on the externalities of international markets when giving voice to internationalisation. For example, Schweizer et al. (2010) and Sarasvathy et al. (2014) adapted the revised Uppsala model of 2009, a network internationalisation process model, which was seen as being consistent with effectuation processes. Schweizer et al. (2010) and Sarasvathy et al. (2014) eschew predictability in internationalisation; enterprises respond to uncertainties through experimentation, adaptability, and improvisation (see Figure 3).

It is for this reason that the traditional view must be touched on in any consideration of entrepreneurial internationalisation. Born-global internationalisation follows, as well as an introduction to the constructs that make up entrepreneurial internationalisation. The term born-global was coined to explain the internationalisation of small Australian manufacturers by Rennie (1993). Two types of exporters were identified. The first possessed a well-established core business, and growth by export occurred incrementally. The second group, the born-global firms, began exporting two years after their foundation and achieved 76% of their total sales through exports. Born globals are defined as firms that conduct 25 per cent of their business in international markets in less than 5 years from start-up (Oviatt & McDougall, 1995).

Born globals possess international market knowledge before exporting. Entry mode is based on their “knowledge and the knowledge supplied by their network ties” (Sharma & Blomstermo, 2003, p. 739). Knight and Cavusgil (2004) in a seminal work, identify born-global enterprises as those who internationalise early. Entrepreneurial orientation and innovation lead to early internationalisation (Knight & Cavusgil, 2004). Born-global scholarship advanced the research around networks (Coviello, 2006), international knowledge and entrepreneurial orientation (Zhou, 2007). In China, using survey data of international new enterprises, Zhou

tested international knowledge as it related to early internationalisation. Early internationalisation is driven by international knowledge and entrepreneurial orientation (Zhou, 2007).

Despite the contribution to the internationalisation literature, born-global theory remains incomplete in explaining when and how to internationalise. This author's critique of the born-global theory of internationalisation is that it is encumbered by the same limitations found with traditional internationalisation. Born-global theory focuses on entrepreneur- and firm-level constructs, and not on the context of the international environment. Subsequent research began to focus on the context of the international environment, which led to effectuation theory. The contribution of born-global theory to the conceptual model is the drivers of internationalisation, namely, entrepreneurial knowledge and orientation, innovation and technology, and international networks.

The most recent model of internationalisation is entrepreneurial internationalisation. It is said to be based on four concepts, namely international new ventures, born globals, rapid internationalisation, and general models of international entrepreneurship (Allen, 2016). Entrepreneurial internationalisation theory is traced to traditional internationalisation theory, the Uppsala model, wherein the encoding of overcoming fear and geographic distance is identified (Johanson & Vahlne, 1977). The Uppsala model, and much of the subsequent work on internationalisation focuses on risk aversion in internationalisation, an internal or inward emphasis. In contrast, entrepreneurial internationalisation is defined by relative performance (Zhou & Wu, 2014), and a greater speed of international entry, international commitment, and international scope (Prashantham, et al., 2019).

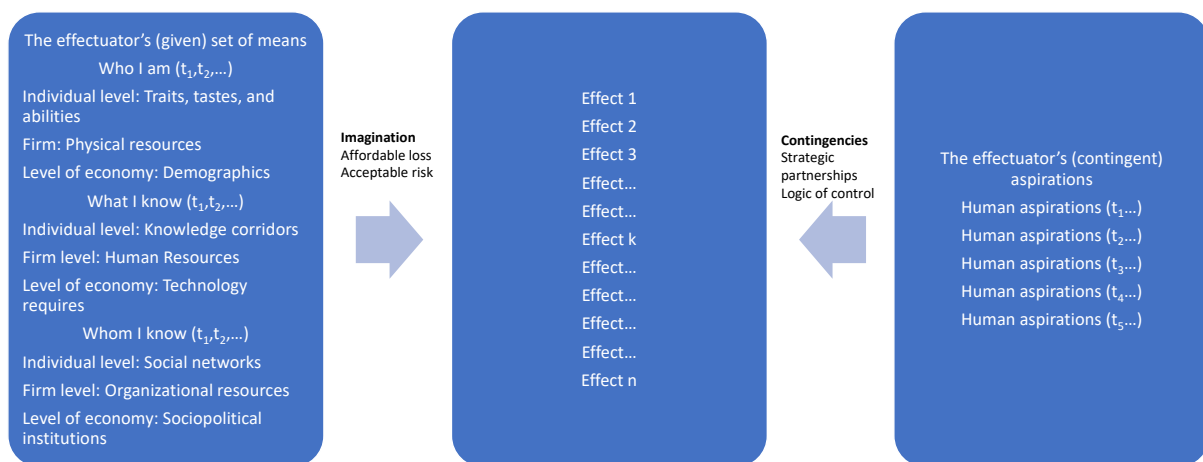
This researcher contends that entrepreneurial internationalisation (EI) is a natural extension of the early economics-inspired models of Edith Penrose of the 1950s and then, the Uppsala model of 1977 (Vahlne & Johanson, 2017) which explored how multinational enterprises internationalised, to the introduction of the term born globals to explain rapid internationalisation (Oviatt & McDougall, 1995). It may be said that early understanding of internationalisation was derived from studying the MNE, from which scholars developed the theory of traditional internationalisation (Oviatt & McDougall, 1995). Traditional internationalisation theory evolved over time with effort to embrace SMEs, process models, innovation, and networks. Traditional internationalisation theory found widespread scholarly support and adoption (Oviatt & McDougall, 1995; Madsen & Servais, 1997). Yet in the period

since the 1970s, conditions gave birth to entrepreneurial internationalisation, which includes born-global firms. The contribution of born-global theory to the literature is the variables of entrepreneurship, namely, innovation and technology, entrepreneurial knowledge and orientation, and international networks, which lead to accelerated internationalisation.

3.3 Effectuation

Effectuation is a new way of thinking of entrepreneurship. The term was introduced by Sarasvathy (2001) (see Figure 1), and since then has led to an increasing and significant body of research (Sarasvathy & Ventakaraman, 2011; Andersson, 2011; Chandler, et al., 2011; Harms & Schiele, 2012; Perry, et al., 2012; Arend, et al., 2015; Reuber, et al., 2016; Galkina & Lundgren-Henriksson, 2017; Deligianni, et al., 2017; Laine & Galkina, 2017). Effectuation introduced a new perspective that explores the entrepreneur’s proactive engagement with their environment, in which the entrepreneur sees the environment as a call to action (Reuber, et al., 2016).

Figure 2: A Framework for Effectuation Theory



Source: (Sarasvathy, 2001)

Effectuation defies easy explanation (Arend, et al., 2015). As a theory, effectuation represents a definitive break in thinking about entrepreneurship, that is, from the causation approach to entrepreneurship. Effectuation begins with the means at hand to the entrepreneur and explores how these means are a basis for controlling what can be controlled, experimenting, adjusting, and improvising. Sarasvathy (2001) terms entrepreneurial causation as predictive logic, and

entrepreneurial effectuation as non-predictive logic. Using effectuation an entrepreneur employs “existing means to select possible effects” (p. 245).

The definitions of effectuation found in the literature are a recasting of entrepreneurship away from traits and competencies towards addressing uncertainty. For example, Sarasvathy (2001) uses a process orientation with words such as “a set of means” (p. 245). The definition used in this research study acknowledges the importance of uncertainty. It adheres to that offered by Sarasvathy (2001) as all subsequent work whilst offering subtle differences is inspired by this work and broadly accepts the original articulation of the concept. So, the definition used in this research study is:

“Effectuation is the management of uncertainty, the entrepreneur’s ability to experiment, adjust and improvise in a market of uncertainty.”

Effectuation is now a fully-fledged theory of entrepreneurship (Galkina & Lundgren-Henriksson, 2017). It focuses on the complex interaction between entrepreneurs and the context in which they operate. Using effectuation an entrepreneur “employs existing means to select possible effects” (Sarasvathy, 2001, p. 245). For example, a chef writes out a menu for a three-course meal. The chef travels to the market to purchase the ingredients, then returns to the kitchen to prepare the meal. This is akin to the traditional or causal view of entrepreneurship. Alternatively, a chef looks through the kitchen for ingredients and utensils and then cooks a meal. Here, the chef imagines possible menus based on the given ingredients and utensils already in the kitchen, selects the menu, and then prepares the meal. This is a process of effectuation. It begins with given ingredients and utensils and focuses on preparing one of many possible desirable meals with them (Sarasvathy, 2001).

Effectuation is characterized along four variables, which have been researched, operationalized, and validated in the field (Chandler et al., 2011; Harms & Schiele, 2012; Deligianni et al., 2017). The four variables are: 1. experimentation, 2. affordable loss, 3. flexibility, and 4. pre-commitment. In experimentation, the entrepreneur is using “the cognitive perspective, and applies mental models and heuristics to explain complex strategic actions” (Deligianni et al., 2017, p. 364). In affordable loss entrepreneurs using effectuation “tend to make decisions that would not put the venture at stake” (p. 99), that is, investments are made incrementally (Harms & Schiele, 2012). Flexibility is “exploiting contingencies that arise as the new venture unfolds” (p. 99); it embraces opportunities that emerged subsequently (Harms

& Schiele, 2012). Pre-commitments are agreements made with customers, suppliers, and networks to provide low-cost resources; it allows for greatly expanding capabilities, and includes alliances and outside partnerships (Chandler, et al., 2011). It may be said effectuation is the management of uncertainty (Sarasvathy, 2001; Galkina & Chetty, 2015; Sarasvathy & Ventakaraman, 2011).

For example, experimentation is a learning-by-doing process and a “means of coping with complexity and uncertainty” (Deligianni, et al., 2017, p. 365). In affordable loss entrepreneurs using effectuation tend to make decisions that would not put the venture at stake. They avoid large initial investments, that is, “investments are made incrementally” (Harms & Schiele, 2012, p. 99). Flexibility is exploiting contingencies that arise as the new venture unfolds. Entrepreneurs using effectuation avoid sequential approaches and rational planning; instead, they embrace opportunities that emerge (Harms & Schiele, 2012). Pre-commitments are agreements made with customers, suppliers, and networks to provide low-cost resources; it allows for greatly expanding capabilities and includes alliances and outside partnerships. Pre-commitments “allow firms to test markets” and “to reduce uncertainty” (Chandler, et al., 2011, p. 386). Thus, it may be said effectuation is the management of uncertainty (Sarasvathy, 2001; Galkina & Chetty, 2015; Sarasvathy & Ventakaraman, 2011).

Not all scholars are supportive of the contribution of effectuation to the entrepreneurship literature. In an indictment of effectuation theory, Arend, et al., (2015) propose that effectuation has not been sufficiently tested, nor critically analyzed, arguing that effectuation is non-explanatory, it is a tautology by syllogism, is non-falsifiable, nonobvious, and counterintuitive (Arend, et al., 2015). Notwithstanding the critique, it is agreed that effectuation has not yet been fully tested, but the theory endures and has been the basis for a growing and impactful body of work.

The effectuation literature brings together the individual, the firm, and the network, creating a cohesive structure rather than separating them into silos. Harms & Schiele (2012) framed effectuation theory under conditions of uncertainty, wherein, goals and objectives emerge. Effectuation compares with causation, wherein, goals and objectives are planned (Harms & Schiele, 2012). Effectuation is summarized in Table 1.

Table 1: Operationalised Components of Effectuation

Variable	Description	References
Affordable loss	Entrepreneurs using effectuation avoid large initial investments; investments are made incrementally	(Crick & Spence, 2005; Freeman, et al., 2006; Harms & Schiele, 2012 ; Cai, et al., 2017)
Experimentation	In experimentation, the entrepreneur applies mental models to explain complex actions.	(Sarasvathy, 2001; Dew, et al., 2009 ; Chandler, et al., 2011; Brettel, et al., 2012 ; Sarasvathy, et al., 2014 ; Laskovaia, et al., 2017)
Flexibility	For entrepreneurs using effectuation, flexibility is exploiting contingencies that arise as the new venture unfolds	(Sarasvathy, 2001; Jones & Coviello, 2005 ; Harms & Schiele, 2012; Deligianni, et al., 2017; Karami, et al., 2020)
Pre-commitment	In effectuation, pre-commitments are agreements made with customers, suppliers, and networks to provide low-cost resources	(Sarasvathy, 2001; Freeman, et al., 2006 ; Chandler, et al., 2011; Deligianni, et al., 2017; Karami, et al., 2020)

Having now introduced the three main pillars that are core to this research study, a discussion on relationships between them will be undertaken.

4.0 Relationships Between the Main Pillars in this Study

Firstly, the relationship between entrepreneurship and entrepreneurial internationalisation has been studied for many years and Table 2 gives examples of relationships found.

Table 2: Variables of Entrepreneurship Driving Entrepreneurial Internationalisation

Variable	Description	References
Innovation and technology	For SMEs, global potential of innovation impels rapid internationalisation.	(Madsen & Servais, 1997; Sharma & Blomstermo, 2003; Andersson & Wictor, 2003; Knight & Cavusgil, 2004; Chetty & Campbell-Hunt, 2004; Covin & Miller, 2014; Dimitratos, et al., 2012; Guo, 2019)
Entrepreneurial knowledge and orientation	Entrepreneurial knowledge is the foundation of organizational capabilities. For internationalisation, knowledge facilitates early international market entry. Entrepreneurial orientation is internal skill set and resources.	(Johanson & Vahlne, 1977; Sharma & Blomstermo, 2003; Chetty & Campbell-Hunt, 2004; Knight & Cavusgil, 2004; Zhou, 2007; Covin & Miller, 2014; Guo, 2018)
International networks	Firms that operate in an international network enjoy a “learning advantage” and find it “easier” to go abroad.	(Sharma & Blomstermo, 2003; Freeman, et al., 2006 ; Coviello, 2006; Rutihinda, 2008 ; Dimitratos, et al., 2012; Zhang, et al., 2014 ; Jie, et al., 2021)

In addition, existing research linking entrepreneurial internationalisation and effectuation shows promise, and in every case, there is a call for more research linking the two fields. Using a business network internationalisation process model proposed by Johanson and Vahlne (2009) (see Figure 2), Schweizer et al. (2010) find that effectuation processes and the Johanson and Vahlne (2009) model are very similar. The authors remove themselves from a “predictive rationality view” (p. 368) which they consider dominates mainstream research on entrepreneurship (Schweizer, et al., 2010). Synthesizing effectuation and international entrepreneurship Sarasvathy et al. (2014) propose a new model built on a revision of the Uppsala model (Johanson & Vahlne, 2009). This model posits internationalisation as a by-product of entrepreneurs leveraging their networks in a globalized and technological economy, all the while facing uncertainties. Going further, Sarasvathy et al., (2014) suggest that in responding to uncertainties, entrepreneurs learn “that predictive rationality does not work” (p. 79), certainly not well enough to base decision-making on. Harms and Schiele (2012) analyze the antecedents and consequences of causation and effectuation in the entry mode selection. Operationally, they validate the scales of Chandler et al. (2011). Suffice it to say, the early research linking entrepreneurial internationalisation and effectuation points to a change in

thinking away from risk aversion and towards the management of uncertainty through experimentation and improvisation.

Influential research is found wherein effectuation logic is proposed as a cohesive agent between entrepreneurship and internationalisation (Sarasvathy, et al., 2008). Over the past twenty years or so, there have been considerable advances in thinking around how entrepreneurship happens, led by the seminal work on effectuation by Sarasvathy (2001). In this regard, effectuation has the potential to better explain how entrepreneurs internationalise their enterprises, by explaining how they exploit a context, rather than how they work to reduce risk (Read, et al., 2015). The research linking entrepreneurship, internationalisation, and effectuation is incomplete (Chandler, et al., 2011; Arend, et al., 2015; Chetty, et al., 2015; Laine & Galkina, 2017; Galkina & Lundgren-Henriksson, 2017; Deligianni, et al., 2017). The impact of effectuation on internationalisation must be understood with greater clarity (Deligianni, et al., 2017): how do entrepreneurs act under conditions of uncertainty (Arend, et al., 2015); how do entrepreneurs create “a more favorable environment for opportunities” (Galkina & Lundgren-Henriksson, 2017, p. 160); and how do entrepreneurs use effectuation to develop international markets (Deligianni, et al., 2017). By employing the quantitative measures of Chandler et al. (2011), this research study furthers the ongoing discussion in the empirical literature regarding the components of effectuation. The study provides a quantitative and empirical foundation for the discussion of effectuation and internationalisation that has been largely conceptual and qualitative in nature (Schweizer, et al., 2010). Previous provided conceptualisations of a complex concept, yet this study provides important quantitative empirical research, which is necessary to move effectuation to a more advanced state. Table 3 summarizes the links between effectuation and internationalisation that are found in the literature.

Table 3: Summarizing the Links between Effectuation and Internationalisation

Component	Definition	References
Affordable loss	Entrepreneurs using effectuation avoid large investments in internationalisation; investments are made incrementally	(Sarasvathy, 2001; Crick & Spence, 2005; Freeman, et al., 2006; Harms & Schiele, 2012 ; Cai, et al., 2017)
Experimentation	Experimentation is a learning-by-doing process of internationalisation	(Sarasvathy 2001; Dew et al., 2009 ; Chandler et al., 2011; Brettel et al., 2012 ; Sarasvathy et al., 2014 ; Laskovaia et al., 2017)
Flexibility	For entrepreneurs using effectuation, flexibility is exploiting contingencies that arise as internationalisation unfolds	(Sarasvathy, 2001; Jones & Coviello, 2005 ; Harms & Schiele, 2012; Deligianni, et al., 2017; Karami, et al., 2020)
Pre-commitment	In effectuation, pre-commitments are agreements made with customers, suppliers, and networks to provide low-cost resources for internationalisation	(Sarasvathy, 2001; Freeman et al., 2006 ; Chandler et al., 2011; Deligianni et al., 2017; Karami et al., 2020)

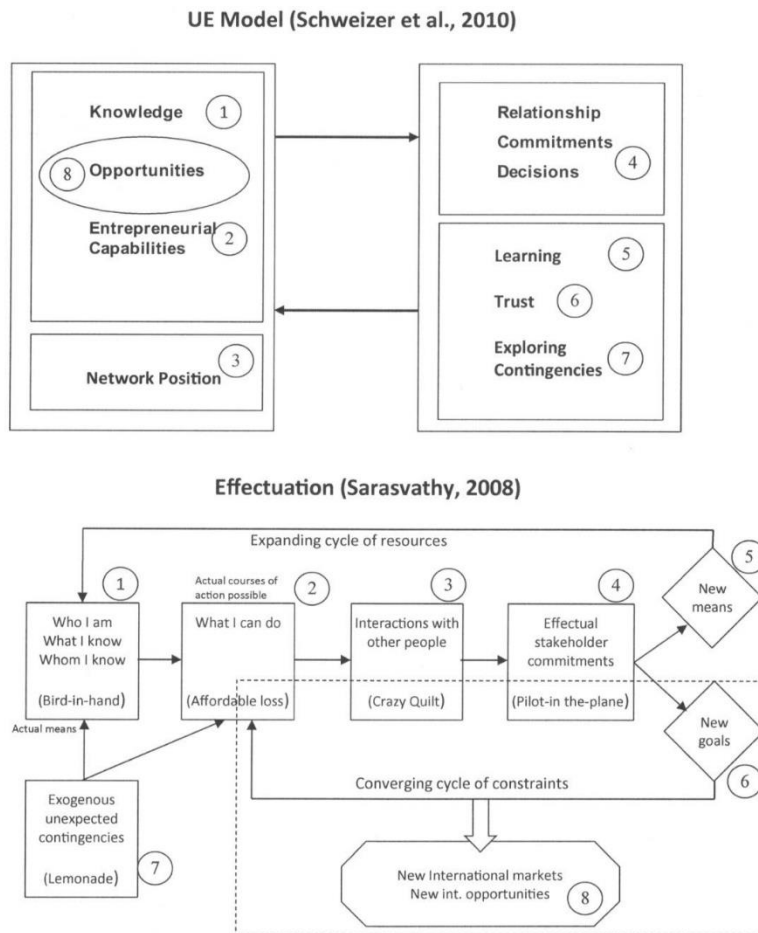
4.1 Antecedent models of Entrepreneurial Internationalisation

Recent work in the field of internationalisation suggests the introduction of effectuation. For example, Chetty et al., (2015) conclude that founders “interweave effectuation and causation” (p. 1436) during internationalisation, including questions of when and what mode of entry (Chetty, et al., 2015). Novel work is starting to emerge in the field of internationalisation that draws on the insights from effectuation theory. Using a business network internationalisation process model proposed by Johanson and Vahlne (2009), Schweizer et al. (2010) find that effectuation processes (Sarasvathy, 2008) and the Johanson and Vahlne (2009) model are very similar (see Figure 3). The authors remove themselves from a “predictive rationality view” (p. 368) which they consider dominates mainstream research on entrepreneurship (Schweizer, et al., 2010). Synthesizing effectuation and international entrepreneurship Sarasvathy et al. (2014) propose a new model built on a revision of the Uppsala model (Johanson & Vahlne, 2009). This model posits internationalisation as a by-product of entrepreneurs leveraging their networks in a globalized and technological economy, all the while facing uncertainties. It is these two models that provide the foundation for the relationship between entrepreneurship and

entrepreneurial internationalisation, but they fall short by not studying how effectuation impacts on the relationship.

Sarasvathy, et al. (2014) suggest that in responding to uncertainties, entrepreneurs learn “that predictive rationality does not work” (p. 79), certainly not well enough to base decision-making on. Still again, Andersson (2011) found that effectuation theory holds promise for developing the international entrepreneurship area because it “departs from the rational planning view that has been dominant in many earlier studies on born globals” (p. 637). Andersson (2011) concludes by suggesting that future research should include effectuation to capture the process of internationalisation. Harms and Schiele (2012) analyze the antecedents and consequences of causation and effectuation in the entry mode selection. Operationally, they validate the scales of Chandler et al. (2011). Suffice it to say, the early research linking internationalisation and effectuation points to a change in thinking away from risk aversion and towards the management of uncertainty through experimentation and improvisation, while still leaving incomplete the research on the impact of effectuation (and its components) on the relationship between entrepreneurship and entrepreneurial internationalisation.

Figure 3: UE Model and Sarasvathy (2008) models



Source: Schweizer et al. (2010) p. 365

The foregoing leads to the conceptual model which will now be presented and discussed.

5.0 Conceptual Framework

It is posited in the conceptual framework that effectuation has a mediating impact on the relationship between entrepreneurship and entrepreneurial internationalisation (Deligianni, et al., 2017). In a mediating role, the independent variables of entrepreneurship have an impact on effectuation, which in turn has an impact on entrepreneurial internationalisation. This is based on the antecedent models in figure 3 as well as the personal entrepreneurial experience of the primary researcher and the extant literature on effectuation. There appears a probability that effectuation can have a contrasting effect on internationalisation including

internationalisation speed of entry, speed of commitment, and speed of scope. Contrasting effects are likely to manifest as a mediating role for effectuation.

The conceptual framework (Figure 4) is based on two models, the Schweizer et al. (2010) model, renamed the Effectuation Uppsala Model (UE Model), and the Sarasvathy (2008) model. It is these models that provide the foundation for the relationship between entrepreneurship and internationalisation, and how the relationship is impacted by effectuation.

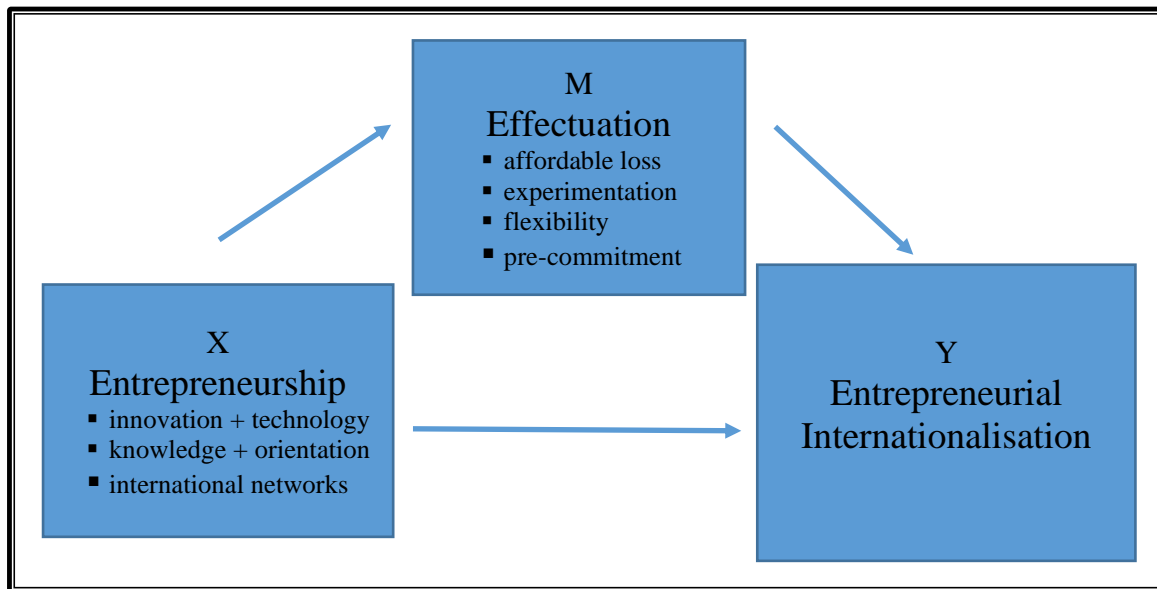
The independent variables of entrepreneurship are innovation and technology, entrepreneurial knowledge and orientation, and international networks (Knight & Cavusgil, 2004; Zhou, 2007; Schweizer et al., 2010; Dimitratos et al., 2012; Covin & Miller, 2014; Efrat et al., 2017).

The dependent variable, entrepreneurial internationalisation is defined by relative performance (Zhang, et al., 2014), and a greater speed of international entry, international commitment, and international scope (Prashantham, et al., 2019).

Effectuation is characterized by four components: experimentation, affordable loss, flexibility, and pre-commitment (Chandler et al., 2011; Harms & Schiele, 2012; Deligianni et al., 2017, Kalinic et al. 2014). It is posited in the conceptual model that effectuation impacts on the relationship between entrepreneurship and entrepreneurial internationalisation (Deligianni, et al., 2017). The author considers the role of mediation analysis as the impact of effectuation on the relationship between the independent variables and the dependent variable.

Mediation implies that entrepreneurship variables drive the effectuation variable which in turn drives the level of entrepreneurial internationalisation. The impact of mediation may be explained as follows. When operating under high levels of effectuation an entrepreneur is exhibiting adaptability, improvisation, and flexibility. These characteristics are more conducive to rapid and early internationalisation (entrepreneurial internationalisation). Hence, the argument is made for a cause-and-effect relationship between effectuation and entrepreneurial internationalisation, and a mediating relationship in the model. For example, it may be posited that the level of innovation + technology (independent variable: entrepreneurship) drive the level of experimentation (mediating variable: effectuation), which then drives early and rapid internationalisation (dependent variable: entrepreneurial internationalisation). A mediation finding is supported in the literature given the cognitive process associated with effectuation (Sarasvathy, 2001) (see Figure 4).

Figure 4: Conceptual Framework



5.1 Research Question

The Research Question is, formally stated as:

“How does effectuation impact on the relationship between entrepreneurship and entrepreneurial internationalisation (cf. Figure 4)?”

To understand the SME’s entrepreneurial internationalisation behavior, we must explain the role played by effectuation (Deligianni, et al., 2017). This leads to the generation of six hypotheses: three of which test the relationship between the independent variables of entrepreneurship and the dependent variable of entrepreneurial internationalisation, and three of which relate to the impact of effectuation on the relationship between entrepreneurship and entrepreneurial internationalisation as follows.

5.2 Research Hypotheses

The basis of the first hypothesis, centered on Innovation and Technology, is drawn from Knight and Cavusgil (2004), Dimitratos et al. (2012), Covin and Miller (2014), and Guo (2019). Innovativeness contributes to international entrepreneurship for SMEs; it drives capabilities for early internationalisation. Consequently, the first hypothesis is:

- H1 Innovation and Technology has a positive significant impact on Entrepreneurial Internationalisation.

Knowledge is seen as the driving force behind the internationalisation process (Johanson & Vahlne, 1977; Zhou, 2007; Brennan & Garvey, 2009; Guo, 2018). Knight and Cavusgil (2004) found entrepreneurial knowledge and orientation contributed to SME internationalisation. This leads to the following hypothesis:

- H2 Entrepreneurial Knowledge and Orientation has a positive significant impact on Entrepreneurial Internationalisation.

By participating in established international networks at an early stage, SMEs accelerated their internationalisation (Freeman, et al., 2006). It is argued international networking is a constitutive component of the international entrepreneurship model (Rutihinda, 2008; Zhang, et al., 2014). Dimitratos et al. (2014) confirmed international networking as a dimension of international entrepreneurship. Taken together, the hypothesis is proposed:

- H3 International Networks has a positive significant impact on Entrepreneurial Internationalisation.

The next three hypotheses relate to the mediating impact of effectuation on the relationship between the independent variables and the dependent variable (entrepreneurial internationalisation). Affordable loss is characterized by reducing risk and uncertainty and pursuing strategies of innovation that drive rapid internationalisation (Chetty & Campbell-Hunt, 2004). In mediation, it may also be said that high levels of risk minimization (affordable loss) affect the relationship between entrepreneurship and entrepreneurial internationalisation (Crick & Spence, 2005; Freeman, et al., 2006). To address these points, the following hypothesis is proposed:

- H4 Effectuation has a positive mediating impact on the relationship between Innovation and Technology, and Entrepreneurial Internationalisation.

Experimentation leads to unintended discoveries for the entrepreneur; it is learning-by-doing and contributes positively to outcomes under conditions of uncertainty (Deligianni, et al., 2017). Where returns are uncertain, high levels of experimentation strengthens the relationship between entrepreneurial knowledge and orientation, and entrepreneurial internationalisation (Dew, et al., 2009; Brettel, et al., 2012; Sarasvathy, et al., 2014). The hypothesis is:

- H5 Effectuation has a positive mediating impact on the relationship between Entrepreneurial Knowledge and Orientation, and Entrepreneurial Internationalisation.

Pre-commitments allow new ventures “to spread responsibility to other self-selected stakeholders” (Deligianni, et al., 2017, p. 357). When pre-commitment levels are high in effectual international networks, risk and benefits are shared. Customers, suppliers, even competitors positively impact on internationalisation through the sharing of information knowledge and resources (Freeman, et al., 2006; Deligianni, et al., 2017). Accordingly, the following hypothesis is proposed:

- H6 Effectuation has a positive mediating impact on the relationship between International Networks, and Entrepreneurial Internationalisation.

The conceptual model addresses gaps in the literature. First, there is the question of the role of effectuation when it comes to how and when to internationalise (Knight & Liesch, 2016). Then there is the gap of how effectuation mediates between international networks and internationalisation (Karami, et al., 2020). Third, there is the empirical gap of internationalisation performance of SMEs (Zhou, 2007). The gaps are discussed at length in the cumulative paper series.

6.0 Research Methodology

This research study assesses the impact of effectuation among SMEs on their internationalisation experience. In this section, methodological considerations are made, and the research approach is justified.

A careful study of the antecedent models from the internationalisation and the effectuation literature was made. Much of the research stream consists of qualitative studies of effectuation and internationalisation. For example, the Sarasvathy (2008) and Schweitzer et al. (2010) models synthesized effectuation and internationalisation conceptually and generalised to theory. But there remained a call to operationalise effectuation quantitatively and to put it to a quantitative testing (Chandler et al., 2011; Harms & Schiele, 2012; Deligianni et al., 2017). This research answered such calls and has developed a survey research design to enhance the variability and generalisability of results (Deligianni, et al., 2017). Measures of effectuation will be tested for reliability and validity, and hypotheses will be tested using regression analysis. This is not the first quantitative approach to studying effectuation; Chandler et al., (2011) also used a quantitative approach to their study which developed measures of effectuation supported by reliability and validity (construct, content, face, and predictive), and

proposed a research stream to examine the generalisability of their findings (p. 376). To build on the antecedent models of effectuation and internationalisation quantitative measures were developed and validated. This quantitative research study will provide empirical measures using a large sample size that allows statistical analysis, validation, and generalisation and this will generate a more precise assessment of the impact of effectuation on the relationship between entrepreneurship and internationalisation.

The adopted philosophical approach of the research study is positivist characterized by objectivism and functionalism. With objectivism, “a phenomenon has a truth to it which is independent of what individuals perceive” (Adcroft & Willis, 2008, p. 319). Accordingly, “most research is about further proving generalisability of theory through the use of quantitative methods” (Adcroft & Willis, 2008, p. 325). This research study accepts a universal reality, one in which order in entrepreneurship, effectuation, and internationalisation can be observed, measured, and tested. Consequently, the research study adopts a quantitative approach using a large sample self-administered web-based survey questionnaire. Validated scales, derived from the literature, are used for all the constructs.

Operationalisation of the key construct of entrepreneurial internationalisation is derived from Li, et al. (2012); Zhang, et al. (2013); and Prashantham, et al. (2019). Operationalisation is further supported in the literature by Knight and Cavusgil (2004); Zhou (2007); Schweizer et al. (2010); Dimitratos et al. (2012); Covin and Miller (2014); Efrat et al. (2017) ; Leatherbee, et al. (2018); Karami, et al. (2020); Monaghan, et al. (2020); Zucchella (2021); and Hunt, et al. (2021). Internationalisation is operationalised in Table 3. It is followed by a look at the antecedent models to this research study.

Table 4: Operationalisation of Internationalisation

Variable	Description	References
Entrepreneurial Internationalisation	Entrepreneurial internationalisation is operationalised by better relative performance, and a greater speed of international entry, greater speed of international commitment, and greater speed of international scope.	(Li, et al., 2012; Zhang, et al., 2013; Prashantham, et al., 2019; Leatherbee, et al., 2018; Karami, et al., 2020; Monaghan, et al., 2020; Zucchella, 2021; Hunt, et al., 2021)

The application for the study reflects the methodology. From the beginning of this research the author has been motivated to apply theories of entrepreneurship, effectuation, and

internationalisation. Application of theory can be found in Section 3 of the research study. There are original applications and validation contributions, which are contributions that support the extant literature.

The philosophical position of the researcher underpins the contribution to be made by the research to professional practice (Holden & Lynch, 2004). The researcher's assumptions are there is one defined reality; accordingly, it is fixed, measurable, and observable. To summarize the methodological assumptions, using quantitative research methods such as surveys and analytical models is the acceptable method to generate valid knowledge (Adcroft & Willis, 2008). The researcher's methodology is, accordingly, objectivist (Burrell & Morgan, 1979; Holden & Lynch, 2004). Furthermore, the methodology is highly structured, using large samples for measurement. Quantitative methods of analysis are used with deductive reasoning. Hypotheses are tested. Measurement gets to the truth (Adcroft & Willis, 2008).

6.1 Selection of a Sample Frame

In choosing a sample, the goal is to choose a sample that is representative of the population (Bryman & Bell, 2015) The target population consists of SMEs in the United States, specifically small and medium-sized manufacturers that are exporting at least twenty-five per cent of their production; founded in the past thirty years; privately owned; and employ less than 500 employees. This was in line with earlier studies in this field which considered firms that were less than thirty years old; had internationalised within three years of founding; and exported at least twenty-five per cent of production (Knight & Cavusgil, 2004; Harms & Schiele, 2012; Dimitratos et al., 2013; Efrat et al., 2017). This study is justified similarly. In its survey-based research Knight and Cavusgil (2004) sought a sample of firms that were less than twenty years old and had internationalized within three years of founding. They surveyed US manufacturers who exported at least twenty-five per cent of production. Efrat et al. (2017) followed the model set by Knight and Cavusgil (2004): they targeted Israeli firms that entered foreign markets within three years of start-up and exported twenty-five per cent or more of their sales. Dimitratos et al. (2013) drew their sample from a population of US- and UK-based manufacturers and service firms ranging from low-tech to high-tech. Cross-national comparisons, however, were relevant. SMEs were selected in order to increase the chance that the respondent would be someone responsible for international sales or marketing.

Contextual controls include the firm's age, size, financial resources, number of founders, internationalisation experience, level of dependence, industry, and environment uncertainty (Deligianni et al., 2017). They are important because they may help explain rapid internationalisation (Chandler et al., 2011). The firm's age is measured by the number of operating years, and size by the number of employees. Financial resources is measured by access to capital. The number of founders reflects the size of the founding team. Level of dependence measures how much of the firm's business is dependent on the largest customer. Harms and Schiele (2012) controlled for firm age and size, demographics, uncertainty, and internationalisation experience. Zhang et al. (2009, p. 311) controlled for firm size and environmental uncertainty. Zhou (2007, p. 289) controlled for firm size, internationalisation experience and industry.

There are several categories of questions included in the survey such as demographic questions, attitudinal questions, behaviour, and knowledge questions. In addition to assessing the main constructs, the survey also contained questions for valuable contextual controls including the firm's age, size, financial resources, number of founders, internationalisation percentage, level of dependence, industry, and environmental uncertainty (Deligianni et al., 2017) These are important because they may also help explain entrepreneurial internationalisation.

The survey questionnaire was completed by one hundred and fourteen (114) respondents. The final survey had eighty-nine (89) questions and the average completion time for respondents was 12 minutes and 48 seconds. All the respondents (one hundred and fourteen) sold at least twenty-five per cent of their products internationally (this is consistent with the standard used by Knight and Cavusgil, 2004). The high percentage of respondents selling twenty-five per cent or more of their products internationally lends confidence to the international focus of the study. All the respondents (100%) employed 500 or fewer employees (consistent with the standard used by Harms and Schiele, 2012). All the respondents (100%) had annual sales of less the US\$50 million (consistent with the standard set by Chandler et al., 2013); sixty-three per cent (63%) were male, and thirty-seven per cent (37%) were female. The modal age of respondents was in the 35-44 age category. All the respondents (100%) worked for enterprises that were thirty years or less since their founding (consistent with a standard set by Knight and Cavusgil, 2004). Seventy-seven per cent (77%) had an ownership in the company, and sixty-six per cent (66%) were members of the founding team. Forty-nine per cent (49%) had completed an undergraduate degree, and forty-one per cent (41%) had completed a graduate degree. For fifty-one per cent (51%) of respondents, the largest international customer

represented less than half of total sales; for forty-one per cent (41%) of respondents, the largest international customer represented fifty per cent (50%) or more of total sales (for eight per cent of respondents, the largest international customer represented 75% to 100% of total sales).

In sum, a targeted sampling approach was used to access a hard-to-reach population (Watters & Biernacki, 1989) and this did yield a valid set of voluntary responses. The timeline for respondent recruitment and data collection commenced July 2, 2021, and the researcher stopped collecting valid survey responses on November 12, 2021.

The target population started as SMEs in Canada, but it was found that sample frames did not possess a significantly large enough pool of eligible respondents in Canada. This led to a decision to shift the sample frame to the United States.

Several sample frames were considered for this study including major lists and databases; SurveyMonkey Audience panel; manufacturing associations; and Amazon Mechanical Turk (MTurk) before the researcher decided to use LinkedIn social media network (SMN). The first four sample frames proved unfeasible, before the fifth delivered the required number of respondents. Table 4 summarizes the process of sample in the study and shows that issues were found in generating a suitable number of responses.

In the spirit of conducting domestic research the target population started as SMEs in Canada, specifically small and medium-sized manufacturers that are exporting at least twenty-five per cent of their production; founded in the past thirty years; privately owned; and employ less than 500 employees. This was in line with earlier studies in this field which considered firms that were less than thirty years old; had internationalised within three years of founding; and exported at least twenty-five per cent of production (Knight & Cavusgil, 2004; Harms & Schiele, 2012; Dimitratos et al., 2013; Efrat et al., 2017). For this study, it was found that SurveyMonkey Audience, MTurk, and LinkedIn did not possess a significantly large enough pool of eligible respondents in Canada. This led to a decision to shift the sample frame to the United States. Once launched in the United States, the surveys were completed.

SMNs provide an innovative and relevant way to collect data all the while maintaining appropriate research standards and rigor (Dusek, et al., 2015). LinkedIn is one SMN, a digital network to build an online profile, produce and search for content, and connect with others. Increasingly, LinkedIn is useful for researchers to recruit candidates, leverage referrals, and gather survey data (Dusek, et al., 2015). LinkedIn, owned by Microsoft, is particularly relevant

for the researcher's purpose because it is primarily dedicated to professional networking and is well established with more than 700 million members in more than 200 countries. It can be used as a sample frame (Mirabeau, et al., 2013; Callegaro, et al., 2014; Smith, et al., 2016; Sugimoto, et al., 2017; Kees, et al., 2017) where it offers researchers the opportunity to create an online research profile, join groups, search, and disseminate content, and build connections (Mirabeau, et al., 2013). It is a long process, which requires more upfront work (Hays, et al., 2015); however, researchers conducting multiple studies and completing several projects over longer periods of time can find that an initial investment pays dividends down the road (Roberts, 2014).

Table 5: Sampling Process

Characteristic	Major List and Databases	SurveyMonkey Audience	Manufacturing Associations	Amazon MTurk	LinkedIn
Country of origin	Canada	Canada	Canada	US	US
Company size	500 employees or less	500 employees or less	500 employees or less	500 employees or less	500 employees or less
Industry sector	Manufacturing	Manufacturing	Manufacturing	Manufacturing	Manufacturing
Use of qualifying question	Yes	Yes	Yes	Yes	Yes
Professional position	Manager	Director/Manager.	Manager	Manager	Manager
# of respondents for rollout survey	Not available. Lists and databases cannot collect email addresses due to Canadian privacy legislation.	Not available. SurveyMonkey Audience restricts the number of questions to fifty, not leaving enough room for the necessary contextual control questions.	N=0 (rejected). Although nine manufacturing associations sent the questionnaire to four hundred and sixteen corporate members, there were zero completions.	N=177 (rejected). A paid response panel, MTurk was deemed unsuitable.	N=114 (accepted).
Evaluation	Not selected	Not selected	Not selected	Not selected	Selected

6.2 Additional Methodological Considerations

The sample frame used in the study also serves as a contextual consideration. For example, demographics (LinkedIn users may not be representative of manufacturing SMEs who internationalise) are identified as limitations in Mirabeau et al., 2013. To mitigate this matter, demographic information is collected and used to compare the sample demographic statistics to those reported in the extant literature (Knight & Cavusgil, 2004; Harms & Schiele, 2012; Dimitratos et al., 2013; Efrat et al., 2017).

Still other conditions also deserve acknowledgement. For example, there are the components of effectuation (affordable loss, experimentation, flexibility, and pre-commitments) and their impact on internationalisation, as well as the context of relative international performance. Yet, another context is the young nature of the SMEs in the study. What about the enterprises that are older, or enterprises that have failed: what is the impact of effectuation on their internationalisation experience (Deligianni, et al., 2017)? This would be required to validate entrepreneurial internationalisation. Another context is the US-enterprise sample. In addition, given the SME characteristics of the sample, the study does not represent large enterprises. Degrees of size and their impact on internationalisation are also important contextual considerations (Li, et al., 2012). With the research methodology introduced, Section 7 advances to contribution and significance before moving to publications and then thesis structure.

7.0 Contribution and Significance

The research study proposes that effectuation heightens the effects of entrepreneurship to substantially accelerate internationalisation. This means that entrepreneurs seeking to increase levels of entrepreneurial internationalisation in the future can not just look to directly influence the entrepreneurship variables but can now use the mediating link through effectuation. This contribution is further analysed in terms of the respective components of effectuation as it looks at whether each component of effectuation mediates on the above relationship – allowing entrepreneurs to see which components of effectuation offer the greatest potential to impact on levels of entrepreneurial internationalisation. For example, affordable loss reduces risks and uncertainties; experimentation gains you access to knowledge, which speeds up internationalisation; flexibility leverages circumstances for early internationalisation; and pre-commitments promote improvisation for faster internationalisation.

From a practice perspective, this research study suggests that entrepreneurs who use effectuation should exercise a means-driven approach, thereby, eliminating the strict use of a business plan during the process of internationalisation. For example, flexibility and experimentation permit the effectuator to uncover opportunities that realize internationalisation. Effectuators do not cast aside the goals-driven approach for the exclusivity of a means-driven approach but learn to use them in combination. For example, using goal-driven for market selection and means-driven for market entry. In place of planning the outcome, the effectuator learns to use affordable loss when dealing with uncertainty; for example, if the enterprise chooses a distributor who fails to sell their products, they allow for the loss that they can afford to make.

Equally important, the research study finds that entrepreneurs who use effectuation do not focus on the predictable (traditional entrepreneurship theory), but on the controllable (effectual approach); not on goal setting (traditional entrepreneurship theory) but on means-driving (effectual approach). The distinction implies that prediction may not be possible, and when not, effectuation navigates the entrepreneur through the available means by using affordable loss, experimentation, flexibility, and pre-commitment. Moreover, the research study findings are significant in that internationalisation becomes manageable through effectuation, which goes beyond the unpredictability of business planning, and makes effective use of the means at hand.

8.0 Conferences and Future Publications

Over the period of the DBA thesis the primary researcher submitted and presented Paper 1 of the cumulative paper series to the IAM Conference of 2019 in Waterford, Ireland. Additionally, Paper 1 was submitted and published as part of the EDBAC Conference proceedings of 2019 in Antwerp, Belgium. The reviews given of the paper were very helpful and especially, the Q&A session following the presentation at the IAM Conference.

The primary researcher is preparing two journal articles derived from the DBA thesis for publication in peer-reviewed scholarly journals. The first article is on the findings of effectuation as a mediator in the relationship between entrepreneurship and entrepreneurial internationalisation. The second article is a methodology paper comparing the results of the study from two samples – one from LinkedIn and one from a paid sample source (Amazon MTurk).

9.0 Thesis Structure

This DBA thesis is structured according to four sections and is shown in Figure 5 below. Section 1 presents an introduction and overview of the DBA thesis. Section 2 contains the cumulative paper series. Section 3 is a discussion of findings and contribution to practice and theory. Section 4 is a reflection on the five-year DBA journey, which is derived from a weekly reflective log. The four sections are described below.

Figure 5: DBA Thesis Structure



Section 1 begins with an introduction, followed by the research background as well as the conceptual model. It moves through the research methodology, research question and hypotheses, then the contribution and significance, and publications. Section 1 closes with the thesis structure.

Section 2 consists of the cumulative paper series, Papers 1 to 4. Paper 1 investigates the conceptual basis for introducing effectuation theory from entrepreneurship studies to the discipline of international entrepreneurship. The conceptual model proposed for this research is a response to calls for research in effectuation and internationalisation. The importance of this research lies in advancing the scholarship of internationalisation and effectuation, that is, bringing them together. The contribution to practice is explaining how and when to internationalise. Paper 2 in the cumulative paper series develops the conceptual model by means of the research objective and research hypotheses. The research objective is to answer, how does effectuation impact on the relationship between entrepreneurship and entrepreneurial internationalisation? The adopted philosophical approach of this research study is positivist characterized by objectivism and functionalism. Seeking a cause-and-effect relationship, the research study adopts a quantitative approach using a large sample self-administered web-based survey questionnaire.

Paper 3 proposes the design implementation using a self-administered web-based survey questionnaire and reports the initial findings of a pilot study. The initial findings of the pilot study commence with respondent analysis and followed by descriptive statistics. Tests of

statistical significance are presented along with measurements of reliability and validity of the relevant indicators. Regression and moderation analysis are presented. The initial findings are related to the research objective and research hypotheses. Paper 4 of the cumulative paper series presents the findings and discussion for the roll-out survey questionnaire. The findings provide significant support for effectuation mediating the relationship between entrepreneurship and entrepreneurial internationalisation. The findings have implications for the entrepreneurship literature, as well as the early and rapid internationalisation of enterprises.

Section 3 discusses the findings and reflects on the extant literature. The discussion takes the reader through the model and hypotheses. It includes a discussion on the impact of entrepreneurship on entrepreneurial internationalisation; the impact of entrepreneurship on effectuation; and the impact of effectuation (and its components) on the relationship between entrepreneurship and entrepreneurial internationalisation. The key findings show significant support for effectuation mediating the relationship between entrepreneurship and entrepreneurial internationalisation. Section 3 also reports on the contribution to practice and theory, as well as recommendations for practitioners and researchers. Section 3 closes with the limitations that contain this study.

Section 4 is a learning reflection in which the researcher is asked to be present, aware, and attentive to people and to the daily situation. The purpose of the reflection is to imagine the nature of improved practice over the six-year journey of the DBA.

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Section 2: Cumulative Paper Series

Preface to Paper 1

The submission of paper 1 and its presentation on April 27, 2018, resulted in a rewriting. Examiners asked for a justification of the conceptual framework and operationalisation of the same. Following a thorough rewriting, the model was clearly conceptualised and supported.

Participant Name: Mark Stoiko 20077315

Supervisors: Ray Griffin, Tom Egan, and Aidan Duane

Date: 30 / 12 / 2018

RESEARCH PAPER SERIES

Paper 1
Conceptual Paper

“Entrepreneurial Internationalisation: Taking the Effectuation Turn”

ABSTRACT

This paper investigates the conceptual basis for introducing effectuation theory from entrepreneurship studies to the discipline of international entrepreneurship. In the past fifteen years, entrepreneurship as a field has taken the effectuation turn. Effectuation is the management of uncertainty, the entrepreneur’s ability to experiment, adjust and improvise in a market of uncertainty. This new research agenda in entrepreneurship has yet to be developed in the adjoining field of entrepreneurial internationalisation. Thus, the research problem driving this paper is explaining the positive significant impact of effectuation on entrepreneurial internationalisation. The conceptual framework proposed for this research is a response to calls for research in effectuation and internationalisation (Arend et al., 2015; Galkina & Lundgren-Henriksson, 2017; Deligianni et al., 2017). The conceptual framework links constructs of entrepreneurial internationalisation to the four variables of effectuation. To understand entrepreneurial internationalisation, we must explain the role played by effectuation. The importance of this research lies in advancing the scholarship of internationalisation and effectuation, that is, bringing them together. The contribution to practice is explaining how and when to internationalize.

Keywords: entrepreneurship, effectuation, internationalisation.

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1.0 Introduction

This paper investigates the conceptual basis for introducing effectuation theory from entrepreneurship studies to the discipline of international entrepreneurship. Over the past fifteen years or so, there have been considerable advances in thinking around how entrepreneurship happens, led by the seminal work on effectuation by Sarasvathy (2001). Effectuation is the management of uncertainty, the entrepreneur’s ability to experiment, adjust and improvise in a market of uncertainty, and is now a fully-fledged theory of entrepreneurship (Galkina & Lundgren-Henriksson, 2017). Effectuation theory focuses on the complex interaction between entrepreneurs and the context they operate in. Using effectuation an entrepreneur “employs existing means to select possible effects” (Sarasvathy, 2001, p. 245).

Effectuation theory is characterized along four variables: experimentation, affordable loss, flexibility, and pre-commitment (Chandler, et al., 2011; Harms & Schiele, 2012; Deligianni, et al., 2017). In experimentation, the entrepreneur is using the cognitive perspective, and applies mental models and heuristics to explain complex strategic actions (Deligianni, et al., 2017). In affordable loss entrepreneurs using effectuation tend to make decisions that would not put the venture at stake (Harms & Schiele, 2012). Flexibility is exploiting contingencies that arise as the new venture unfolds (Harms & Schiele, 2012). Pre-commitments are agreements made with customers, suppliers, and networks to provide low-cost resources; it allows for greatly expanding capabilities and includes alliances and outside partnerships (Chandler, et al., 2011).

Internationalisation theory has grown since the seminal work of Johanson and Vahlne (1977), known as the Uppsala internationalisation model. The Uppsala model, and the subsequent work on internationalisation focuses on risk aversion in internationalisation, an internal or inward emphasis, in contrast to effectuation, which focuses on the invitation, the prospects and opportunity in a market, and how the firm or individual entrepreneur might respond creatively to them. Effectuation has the potential to better explain how entrepreneurs internationalize their enterprises, by explaining how they exploit a context, rather than how they work to reduce risk.

Sarasvathy (2001) terms effectuation as non-predictive logic, that is, entrepreneurs employ their “existing means to select possible effects” (p. 245). Employing effectuation,

entrepreneurial firms focus on networks at the founder level and show how uncertainty can be exploited to enter foreign markets successfully (Galkina & Chetty, 2015). A detailed discussion of effectuation is found in Section 2.0 including definitions of effectuation, recent advanced discussions on effectuation, critiques of the same, and, finally, how effectuation has been operationalized in the field.

In Section 3.0, entrepreneurial internationalisation is assessed. Entrepreneurial internationalisation theory is traced to traditional internationalisation, the Uppsala model, wherein the encoding of overcoming fear and geographic distance is identified. Section 3.0 also examines some other, early attempts to consider the implications for internationalisation theory of the effectuation turn that has happened in entrepreneurship. Having introduced the two literatures that are the basis for the conceptual framework - effectuation and internationalisation - Section 4.0 brings them together and explains it in detail.

The starting point for the conceptual framework is the gap in the literature, that is, bringing together the variables of entrepreneurial internationalisation and the variables of effectuation, and so this section commences by looking at calls for this research. To understand the firm's entrepreneurial internationalisation behavior, we must understand the role played by effectuation (Deligianni, et al., 2017); how do entrepreneurs act under conditions of uncertainty (Arend, et al., 2015); how do entrepreneurs create “a more favorable environment for opportunities” (Galkina & Lundgren-Henriksson, 2017, p. 160); and, how do we transfer effectuation to a venture's involvement in international markets (Deligianni, et al., 2017). The research problem driving this paper is explaining the positive significant impact of effectuation, which is the management of uncertainty, on entrepreneurial internationalisation. The research question is, how does effectuation explain entrepreneurial internationalisation? (cf. Figure 1). The importance of this research lies in advancing the scholarship of internationalisation and effectuation, that is, bringing them together. The contribution to practice is explaining how and when to internationalize.

2.0 Effectuation Theory

This section consists of a detailed discussion of effectuation. In a short few years, effectuation has had a considerable impact into understanding of entrepreneurship yet is still not an intuitively easy concept to grasp - so this section starts by exploring the literature that defines effectuation, parsing between subtle differences in how the concept is interpreted, before

setting on a robust definition for the purpose of this study. This sets the scene for a discussion on the recent advanced discussions on effectuation, and emerging critiques of the concept. Finally, this section scrutinizes how effectuation has been operationalized in the research - particularly its transformation or translation from a qualitatively researched interpretation into one that is increasingly being statistically operationalized. This discussion sets the scene for Paper 2 in this DBA series that will develop an instrument to parse between the variables of entrepreneurial internationalisation and effectuation.

2.1 Introduction to Effectuation

Effectuation is a new way of thinking of entrepreneurship. The term was introduced by Sarasvathy (2001) (see Appendix A: Framework for Effectuation Theory, p. 34), and since then has led to an increasing and significant body of research (Sarasvathy & Ventakaraman, 2011; Andersson, 2011; Chandler, et al., 2011; Harms & Schiele, 2012; Perry, et al., 2012; Arend, et al., 2015; Reuber, et al., 2016; Galkina & Lundgren-Henriksson, 2017; Deligianni, et al., 2017; Laine & Galkina, 2017). Prior to effectuation theory the entrepreneurship literature tended to be limited to exploring trait-based approaches (Knight & Liesch, 2016), that looked to the internal characteristics of entrepreneurs. Effectuation introduced a new perspective that explores the entrepreneur's proactive engagement with their environment, in which the entrepreneur sees the environment as a call to action (Reuber, et al., 2016).

Effectuation defies easy explanation (Arend, et al., 2015). Table 1 assembles the various definitions used in the most highly cited work on effectuation. As a theory, effectuation represents a definitive break in thinking about entrepreneurship, that is, from the traditional approach to entrepreneurship, which is causation. The causation approach suggests that the entrepreneur begins with the end state in view, their fully completed business plan, and it is this end state that inspires the writing of their business plan and search for means and resources to execute it. The implication of causation is that entrepreneurs can predict the future (Sarasvathy, 2001), with some degree of certainty. In contrast, effectuation begins with the means at hand to the entrepreneur and explores how these means are a basis for controlling what can be controlled, experimenting, adjusting, and improvising by employing the means at hand. Sarasvathy (2001) terms entrepreneurial causation as predictive logic, and entrepreneurial effectuation as non-predictive logic. Using effectuation an entrepreneur employs "existing means to select possible effects" (p. 245).

Table 1: Defining Effectuation

Author & Year	Definition of Effectuation	Metaphors and Illustrations Used
Sarasvathy 2001	Effectuation rests on the logic of control. Effectuation processes take a set of means as given and focus on selecting between possible effects that can be created with that set of means.	A chef looks through the kitchen for ingredients and utensils and then cooks a meal. Here, the chef has to imagine possible menus based on the given ingredients and utensils, select the menu, and then prepare the meal. This is a process of effectuation. It begins with given ingredients and utensils and focuses on preparing one of many possible desirable meals with them.
Chandler et al. 2011	Effectuation processes are consistent with emergent strategy and include a selection of alternatives based on loss affordability, flexibility, and experimentation	Effectuation frames the future as resulting from co-creation by networks of partnerships consisting of investors, partners, and customers who are “stitched together”
Harms & Schiele 2012	Effectuation is driven by both perceived uncertainty and by Experience	‘Curry in a Hurry’ thought experiment to build an Indian restaurant using effectuation. Instead of studying an optimal target segment from a predetermined market, a segmentation-target-positioning process, effectuation focuses on the means available, for example, \$30,000 savings, seek a strategic partner, co-brand with another restaurant.
Perry et al. 2012	Using effectuation, entrepreneurs begin with a generalized aspiration, remain flexible, take advantage of environmental contingencies as they arise, and learn as they go.	Sarasvathy used think-aloud protocols, to talk aloud and describe what expert entrepreneurs were thinking as they were faced with problems and decisions.
Arend et al. 2015	A resource-poor entrepreneur acts to create a new market artifact (e.g., a new and successful firm) in an environment characterized by uncertainty.	Effectuation seems to be similar to improvisation—that is, being urgent and of the immediate present.
Chetty et al. 2015	Effectuation processes take as given a set of means and focus on selecting between the possible effects that can be created with such means.	The founder collaborates with others to create the market by bringing together enough stakeholders who are committed to sustain the enterprise.
Reuber et al. 2016	Effectuation theory embraces the principles of action orientation, problem solving,	People acting effectually can shape the world they co-create.

	and situated freedom from the pragmatist tradition.	
Galkina & Lundgren 2017	Effectuation as a means-driven non-predictive logic of entrepreneurial reasoning that is an alternative to goal-driven causal logic.	Intelligent altruism becomes a fundamental behavioral assumption of affordable loss principle, and is rooted in the logic of bounded rationality, which is different to the opportunistic behavior of unbounded rationality logic in Transaction Cost Economics. The stakeholders involved in the venturing process do not share an existing “pie” but design, “bake”, and co-create it together.
Deligianni et al. 2017	Effectuation provides normative approaches to problem solving that are designed to be functional in uncertain situations	Entrepreneurs who adopt an effectual approach work with means within their control, use experimentation, select alternatives based on affordable loss to reduce the risk in case of failure, and maintain flexibility by making adjustments when necessary.

Source: author’s own.

The Andersson et al. (2011) and Chandler et al. (2011) definitions (Table 1), effectuation characterized by emergent strategy, is reminiscent of strategy as discourse literature, wherein a strategy emerges through communicating, explaining, and sustaining alternatives (Barry & Elmes, 1997). Sarasvathy (2001) uses a process orientation with words such as “a set of means”. It may be said that Perry et al. (2012) uses a learning theory approach to their definition, more specifically, organizational learning theory, which engages the entrepreneur in how problems are solved (Knowles, 1974). In sum, the definitions of effectuation found in Table 1 are a recasting of entrepreneurship away from traits and competencies towards addressing uncertainty. The definition used in this paper acknowledges the importance of uncertainty. It adheres to that offered by Sarasvathy (2001) as all subsequent work whilst offering subtle differences is inspired by this work and broadly accepts the original articulation of the concept. So, the definition used in this paper is:

“Effectuation is the management of uncertainty, the entrepreneur’s ability to experiment, adjust and improvise in a market of uncertainty.”

A student of Herbert Simon at Carnegie Mellon University, Sarasvathy (2001) based her theory on a series of qualitative interviews with 27 expert entrepreneurs, who are multiple-firm founders and had taken at least one firm into the public capital markets. Effectuation is characterized along four variables, which have been researched, operationalized, and validated in the field (Chandler, et al., 2011; Harms & Schiele, 2012; Deligianni, et al., 2017). The four

variables are: experimentation, affordable loss, flexibility, and pre-commitment. In experimentation, the entrepreneur is using “the cognitive perspective, and applies mental models and heuristics to explain complex strategic actions” (Deligianni, et al., 2017, p. 364). In affordable loss entrepreneurs using effectuation “tend to make decisions that would not put the venture at stake” (p. 99), that is, investments are made incrementally (Harms & Schiele, 2012). Flexibility is “exploiting contingencies that arise as the new venture unfolds” (p. 99); it embraces opportunities that emerged subsequently (Harms & Schiele, 2012). Pre-commitments are agreements made with customers, suppliers, and networks to provide low-cost resources; it allows for greatly expanding capabilities, and includes alliances and outside partnerships (Chandler, et al., 2011). It may be said effectuation is the management of uncertainty (Sarasvathy, 2001; Galkina & Chetty, 2015; Sarasvathy & Ventakaraman, 2011).

The effectuation literature brings together the individual, the firm, and the network, creating a cohesive structure rather than separating them into silos. Harms & Schiele (2012) framed effectuation theory under conditions of uncertainty, wherein, goals and objectives emerge. Effectuation compares with causation, wherein, goals and objectives are planned (Harms & Schiele, 2012). In an indictment of effectuation theory, Arend, et al., (2015) propose that effectuation has not been sufficiently tested, nor critically analyzed, arguing that effectuation is non-explanatory, it is a tautology by syllogism, is non-falsifiable, nonobvious, and counterintuitive (Arend, et al., 2015). Notwithstanding the critique, it is agreed that effectuation has not yet been fully tested, but the theory endures and has been the basis for a growing and impactful body of work. Recent work in the field of international entrepreneurship suggests the potential of the theory. Chetty et al., (2015) conclude that founders “interweave effectuation and causation” (p. 1436) during internationalisation, including questions of when and what mode of entry (Chetty, et al., 2015). Effectuation is an important and still emerging line of enquiry in entrepreneurship scholarship; indeed, entrepreneurship as a field has taken the effectuation turn, and the novel work is starting to emerge in the field of internationalisation that draws on the insights from effectuation theory.

Effectuation theory has richly contributed to entrepreneurship. Table 2 introduces the significant studies in the field. (The literature is ranked in the ABS Academic Journal Guide 2015 at level 3 or higher with the exception of Harms and Schiele (2102). The exception represents a quantitative study.) This literature review demonstrates the mix of qualitative and quantitative methodologies used to investigate effectuation. Especially important to this study is the quantitative work of Chandler et al. (2011) and Deligianni et al. (2017), which have

operationalized effectuation under the variables of experimentation, affordable loss, flexibility, and pre-commitment.

Table 2: Effectuation Literature Research Methods and Results

Author & Year	Sample	Research Method	Main Results
Sarasvathy 2001	Case studies (n=27)	Qualitative	Effectuation is the logic of control, contrasting it with causation, the logic of prediction. It is a focus on means; leveraging means and possibilities; permitting affordable loss; and cooperative networks. Effectuation is managing uncertainty instead of predicting it.
Chandler et al. 2011	Surveys (n=189)	Quantitative	Develop validated measures of causation and effectuation along the variables of experimentation, affordable loss, flexibility, and pre-commitment.
Harms & Schiele 2012	Surveys (n=65)	Quantitative	Effectual entrepreneurs utilize a host of entry modes for internationalisation
Perry et al. 2012		Conceptual paper and literature review	Entrepreneurial orientation, innovativeness, risk-taking and global vision lead to early global expansion.
Arend et al. 2015		Conceptual paper and literature review	Entrepreneurs use effectual logic, which is available means to exploit contingencies in an unpredictable rush to internationalisation.
Chetty et al. 2015	Case studies (n=10)	Qualitative	Personal international networks help to find opportunities and internationalize early.
Reuber et al. 2016		Conceptual paper	Authors encourage the study of habit in effectuation research.
Galkina & Lundgren 2017	Case studies (n=3)	Qualitative	Effectual entrepreneurs exploit contingencies by treating uncertainty as an opportunity and a resource.
Deligianni et al. 2017	Surveys (n=143)	Quantitative	The role of effectuation in new venture performance along the variables of experimentation, affordable loss, flexibility, and pre-commitments.

Source: author's own.

Effectuation theory is developing from its routes in re-orientating entrepreneurship studies away from the internal characteristics of the entrepreneur. By way of illustration, Galkina & Lundgren-Henriksson (2017) present coopetition, which is an entrepreneurial process that involves coping with uncertainty, risk taking behavior, exploring, and exploiting opportunities,

and developing innovative solutions. Notably, they suggest that in effectuation, clear goals do not drive the stakeholder selection process, but rather emerge from dynamic interactions (Galkina & Lundgren-Henriksson, 2017).

In a separate study, Laine & Galkina (2017) conduct a multiple-case study that identifies “effectuation driven by opportunity” and “effectuation driven by survival” (p. 905). Similarly, Chandler et al. (2011) “developed and validated quantitative measures for the study of effectuation” (p. 351); however, they were not applied to internationalisation (Deligianni, et al., 2017). These advances bring us to the early research connecting entrepreneurial internationalisation and effectuation.

In summary, this section introduced effectuation theory and sets the stage for Section 3.0, on internationalisation, which has yet to fully address effectuation. Before moving to Section 3.0, methods of exploring effectuation are addressed.

2.2 Methods of Exploring Effectuation

Effectuation emerges from a qualitative study. Indeed, many of the contributions to effectuation employ a qualitative approach. Yet, quantitative studies that aspire to operationalize effectuation are now appearing.

The operationalization of effectuation logic is derived from three quantitative studies, Chandler et al. (2011), Harms and Schiele (2012), and Deligianni, et al., (2017), as well, Laine and Galkina (2017) which operationalized effectuation in a qualitative study. In all three cases, effectuation is researched according to the variables of experimentation, affordable loss, flexibility, and pre-commitment (see Appendix B: Operationalization of Effectuation, p. 34).

Appendix B illustrates the quantitative operationalization of effectuation, the four variables of experimentation, affordable loss, flexibility, and pre-commitment. Confidence can be taken from the measures and items. Three research studies have quantitatively operationalized effectuation.

In closing Section 2, a substantial body of work on effectuation has been reported, including its definition and a summary of how it is being operationalized in field studies. Moving on, over the past twenty years a considerable body of entrepreneurial internationalisation research has emerged, along with emerging approaches to measuring it. A detailed discussion on

entrepreneurial internationalisation is found in Section 3.0. It sets the stage for applying effectuation to entrepreneurial internationalisation in Section 4.0, the conceptual framework.

3.0 Internationalisation: Traditional Models to Born Globals to Entrepreneurial Internationalisation

Entrepreneurial internationalisation (EI) is a natural extension of the early economics-inspired models of Edith Penrose of the 1950s and then, the traditional or Uppsala model of 1977 (Vahlne & Johanson, 2017) which described how multinational enterprises internationalised, to the introduction of the term *born globals* to explain rapid internationalisation (Oviatt & McDougall, 1995).

In Section 3.0 internationalisation is discussed by means of three theories, traditional, born global and entrepreneurial internationalisation. The predecessor to born-global and entrepreneurial internationalisation is traditional internationalisation. The question of internationalisation is important for understanding entrepreneurs and their relentless pursuit of growth and profitability. Many meet their needs and aspirations by trading locally. Yet, others pursue markets internationally and globally. The reasons ascribed for the latter are often the same ones ascribed to multi-national enterprises (MNEs) in their process of internationalisation. Thus, it may be said that early understanding of internationalisation was derived from studying the MNE, from which scholars developed the theory of traditional internationalisation (Oviatt & McDougall, 1995).

Traditional, often called incrementalistic or gradualist internationalisation, is the dominant theory found in the literature on internationalisation (Johanson & Vahlne, 1977; Oviatt & McDougall, 1995; Madsen & Servais, 1997). In the Uppsala internationalisation model, as firms learn more about a specific market, “they become more committed to it by investing more resources into that market” (Johanson & Wiedersheim-Paul, 1975, p. 307). The Uppsala model was revised by the authors in 2009 (Johanson & Vahlne, 2009) with more emphasis on business networks in an internationalisation process model. Then, Vahlne & Johanson (2013) propose a model taking into account the evolution of the multinational business enterprise and considering the process of change as it related to business relations. Still again, Vahlne and Johanson (2017) is also anchored in process ontology, that is, an augmented model explaining the multi-national enterprise (MNE) in general, not only its internationalisation process. The contribution of the foregoing can be observed in effectuation scholarship, which has revisited

traditional internationalisation theory. One reason for revisiting traditional internationalisation is its focus on the externalities of international markets when giving voice to internationalisation. For example, Schweizer et al. (2010) and Sarasvathy et al. (2014) adapted the revised Uppsala model of 2009, a network internationalisation process model, which was seen as being consistent with effectuation processes. Schweizer et al. (2010) and Sarasvathy et al. (2014) eschew predictability in internationalisation; enterprises respond to uncertainties through experimentation, adaptability, and improvisation. How traditional internationalisation, including its updated models, differs from effectuation is the nuance of focusing on risk aversion, as opposed to effectuation, which focuses on the management of uncertainty.

Traditional internationalisation theory, as summarized in Table 3, has evolved over time with effort to embrace SMEs, process models, innovation, and networks. In sum, traditional internationalisation theory found widespread scholarly support and adoption (Oviatt & McDougall, 1995; Madsen & Servais, 1997). It was appropriated from MNE models and refined to explain internationalisation of enterprises. This author's critique is that traditional internationalisation theory is largely descriptive and bereft of application. Nonetheless, recently, effectuation scholars have recognized its contribution to internationalisation because of its focus on the externalities of international markets. (The literature in Table 3 is ranked in the ABS Academic Journal Guide 2015 at level 3 or higher.)

Table 3: Traditional Internationalisation

Author & Year	Sample	Research Method	Main Results
Johanson & Wiedersheim-Paul 1975	Case studies (n=4)	Qualitative	Internationalisation is the consequence of a series of incremental decisions.
Johanson & Vahlne 1977	Case study (n=1)	Qualitative	The Uppsala internationalisation model: gradual acquisition, integration, and use of knowledge about foreign markets and operations.
Oviatt & McDougall 1995	Case studies (n=12)	Qualitative	Global movement of markets, competitors, resources, and capabilities are ushering in early internationalisation.
Madsen & Servais 1997	Case studies (n=3)	Qualitative	A network approach and an evolutionary economic approach led to understanding internationalisation.

The significance of the traditional view for the study at hand is that it has influenced how we think about international entrepreneurship, and so international entrepreneurship tends to look at the economics inspired discourse on internationalisation, rather than to the lively debates

that emerge from the field of entrepreneurship. It is for this reason that the traditional view must be touched on in any consideration of entrepreneurial internationalisation. Born-global internationalisation follows, as well as an introduction to the constructs that drive entrepreneurial internationalisation.

The term born-global was coined to explain the internationalisation of small Australian manufacturers by Rennie (1993). Two types of exporters were identified. The first possessed a well-established core business, and growth by export occurred incrementally. The second group, the born-global firms, began exporting two years after their foundation and achieved 76% of their total sales through exports. The following paragraphs are given to considerations for born globals, which are defined as firms that conduct 25 per cent of their business in international markets in less than 5 years from start-up (Oviatt & McDougall, 1995).

Sharma and Blomstermo (2003) contribute to the theory of born-global internationalisation. They propose a model of knowledge and networks. Born globals possess international market knowledge before exporting. Entry mode is based on their “knowledge and the knowledge supplied by their network ties” (Sharma & Blomstermo, 2003, p. 739). Knight and Cavusgil (2004) in a seminal work, identify born-global enterprises as those who internationalize early. Entrepreneurial orientation and innovation lead to early internationalisation (Knight & Cavusgil, 2004). Still, another framework to study internationalisation is proposed by Chetty and Campbell-Hunt (2004), wherein, born-global firms “have prior experience and knowledge that reduce uncertainty and risk” (Chetty & Campbell-Hunt, 2004, p. 62). From early on, born-global research identified new variables that characterized accelerated internationalisation such as innovation and entrepreneurial orientation, but it failed to explain how and when to internationalize.

Born-global scholarship advanced the research around networks (Coviello, 2006), international knowledge and entrepreneurial orientation (Zhou, 2007). In China, using survey data of international new enterprises, Zhou tests international knowledge as it related to early internationalisation. Early internationalisation is driven by international knowledge and entrepreneurial orientation (Zhou, 2007).

Before continuing, it can already be seen by way of synthesis that the born-global literature has identified key variables that drive internationalisation. Networks (Andersson & Wictor, 2003; Sharma & Blomstermo, 2003), entrepreneurial knowledge (Sharma & Blomstermo, 2003; Chetty & Campbell-Hunt, 2004; Knight & Cavusgil, 2004), international networks (Coviello,

2006), and entrepreneurial orientation (Zhou, 2007) are prominent. These variables appear in the proposed conceptual framework. They are variables that drive internationalisation. Table 4 summarises the key studies in born globals from both a quantitative and qualitative method approach. (The key studies are ranked in the ABS Academic Journal Guide 2015 at level 3 or higher. The seven-year gap in literature (2008 to 2015) can be explained as the beginning of the shift in research from born-global to entrepreneurial internationalisation.)

Table 4: Born Global Internationalisation

Author & Year	Sample	Research Method	Main Results
Sharma & Blomstermo 2003	Case study (n=1)	Qualitative	Born globals possess international market knowledge before their first foreign market entry. Selection is based on existing knowledge and knowledge supplied by network ties.
Knight & Cavusgil 2004	Interviews (n=33). Surveys (n=203).	Qualitative and quantitative	Innovative nature develops particular knowledge, which leads to early internationalisation.
Chetty & Campbell-Hunt 2004	Case studies (n=16)	Qualitative	Internationalisation risk is reduced by international knowledge and experience, especially product and market strategies
Coviello 2006	Case studies (n=3)	Qualitative	Early internationalisation is facilitated by network relationships.
Zhou 2007	Interviews (n=300)	Quantitative	Foreign market knowledge is sourced from entrepreneurial opportunities, which leads to early internationalisation of Born Globals.
Weerawardena, et al. 2007	Content analysis of literature.	Qualitative. Inductive model development using dynamic capabilities framework.	Dynamic capabilities on internationally oriented founders lead to early internationalisation of Born Globals.
Gabrielsson, et al. 2008	Case studies (n=8).	Qualitative	Risk assessment, resource development, networks, and organizational learning lead to early internationalisation of Born Globals.
Coviello 2015		Conceptual paper	Better understanding of founders required to explain internationalisation

Zander et al. 2015	Literature review	International entrepreneurship literature has greatly contributed to international business (IB) as well as entrepreneurship theories and literature
Knight & Liesch 2016	Conceptual paper	Deepen knowledge of entrepreneurial internationalisation by studying external environment, resources, capabilities, and strategies

Source: author's own.

The research in Table 4 has greatly contributed to the explanation of the born-global phenomenon. Despite that, the theory remains incomplete in explaining when and how to internationalize. This author's critique of the born-global theory of internationalisation is that it is encumbered by the same limitations found with traditional internationalisation as reported in the earlier section. Born-global theory focuses on entrepreneur- and firm-level constructs, and not on the context of the international environment. Subsequent contributions to theory were made by the strategy literature (Roudini & Osman, 2012; Efrat, et al., 2017). Even more, research began to focus on the context of the international environment, which led to effectuation theory. The contribution of born-global theory to my conceptual framework is the drivers of internationalisation, namely, entrepreneurial knowledge and orientation, innovation and technology, and international networks.

3.1 Constructs of Entrepreneurial Internationalisation

The constructs for entrepreneurial internationalisation are derived from Knight and Cavusgil (2004); Zhou (2007); Schweizer et al. (2010); Dimitratos et al. (2012); Covin and Miller (2014); Efrat et al. (2017). They are innovation and technology, entrepreneurial knowledge and orientation, and international networks. The scale used for operationalization in Covin and Miller (2014) is called the Miller/Covin and Slevin (1989) EO scale (Covin & Slevin, 1989). This same scale was also used by Knight and Cavusgil (2004) and Zhou (2007). The construct of international networks is operationalized in the work of Dimitratos et al. (2012). The variables and itemization of entrepreneurial internationalisation of the foregoing authors contribute to the definition of entrepreneurial internationalisation used in this paper. So, the definition used in this paper is:

“Entrepreneurial internationalisation is manifest by rapid internationalisation (Madsen & Servais, 1997), and is characterized by high levels of innovation and technology (Madsen & Servais, 1997; Chetty & Campbell-Hunt, 2004), entrepreneurial knowledge and orientation (Zhou, 2007; Covin & Miller, 2014), and international networks (Sharma & Blomstermo, 2003; Dimitratos, et al., 2012).”

Yet, the frameworks used by the foregoing authors are weighted towards planning and goal-orientation. In contrast, entrepreneurs that use effectuation rarely use traditional market research and planning, but “value little opportunities that ignite incremental path creation” (Galkina & Chetty, 2015, p. 670) (See Table 5. The literature is ranked in the ABS Academic Journal Guide 2015 at level 3 or higher with the exception of Zhang et al., 2009. The exception represents a quantitative study.)

Table 5: Entrepreneurial Internationalisation

Author & Year	Sample	Research Method	Main Results
Chetty & Campbell-Hunt 2004	Case studies (n=16)	Qualitative	Innovation and technology push small entrepreneurial firms into rapid international growth, known as “the gusher”.
Gabrielsson, et al. 2008	Case studies (n=8)	Qualitative	Personal international networks help to find opportunities and internationalize early.
Zhang, et al. 2009	Personal structured interviews (n=210)	Quantitative	Entrepreneurial knowledge, international learning capability influence the pace of internationalisation.
Galkina & Chetty 2015	Case studies (n=7)	Qualitative	Entrepreneurs use effectual logic, which is available means to exploit contingencies in an unpredictable rush to internationalisation.
Roudini & Osman 2012		Literature review.	Capabilities and its dimensions contribute to entrepreneurial internationalisation.
Efrat et al. 2017	Data set of born globals (n=127)	Qualitative and quantitative.	A capabilities view of the contribution made by marketing intelligence and innovation to internationalisation.
Covin and Miller 2014		Conceptual paper and literature review.	A review of the constructs entrepreneurial orientation and international entrepreneurial orientation, as well as several measurement-related issues pertinent to the same.

Source: author’s own.

Internationalisation research has advanced with born-global and entrepreneurial internationalisation research. From the literature in Table 5, drivers of internationalisation are identified, and appear in the conceptual framework of this paper. Yet, the literature is still restricted by its internal focus on the entrepreneur and the organization. Effectuation bids a focus on the international opportunity, the abundant context of the international environment. These advances bring us to the early research connecting entrepreneurial internationalisation and effectuation.

3.2 Links between Effectuation and Internationalisation

Existing research linking entrepreneurial internationalisation and effectuation shows promise, and in every case there is a call for more research linking the two fields. Using a business network internationalisation process model proposed by Johanson and Vahlne (2009) (see Appendix C: Uppsala Models, p. 36), Schweizer et al. (2010) find that effectuation processes and the Johanson and Vahlne (2009) model are very similar. The authors remove themselves from a “predictive rationality view” (p. 368) which they consider dominates mainstream research on entrepreneurship (Schweizer, et al., 2010). Synthesizing effectuation and international entrepreneurship Sarasvathy et al. (2014) propose a new model built on a revision of the Uppsala model (Johanson & Vahlne, 2009). This model posits internationalisation as a by-product of entrepreneurs leveraging their networks in a globalized and technological economy, all the while facing uncertainties. Going further, Sarasvathy, et al., (2014) suggest that in responding to uncertainties, entrepreneurs learn “that predictive rationality does not work” (p. 79), certainly not well enough to base decision-making on. Andersson (2011) found that effectuation theory holds promise for developing the international entrepreneurship area because it “departs from the rational planning view that has been dominant in many earlier studies on born globals” (p. 637). Andersson (2011) concludes by suggesting that future research should include effectuation to capture the process of internationalisation. Harms and Schiele (2012) analyze the antecedents and consequences of causation and effectuation in the entry mode selection. Operationally, they validate the scales of Chandler et al. (2009). Suffice it to say, the early research linking entrepreneurial internationalisation and effectuation points to a change in thinking away from risk aversion and towards the management of uncertainty through experimentation and improvisation. (See Table 6.)

3.3 Summary of the Internationalisation Literature

It is argued that traditional internationalisation is the dominant theory found in the literature on internationalisation. In the Uppsala model, internationalisation occurs incrementally (Johanson & Vahlne, 1977). Yet in the period since the 1970s, “markets are internationally opened, supply chain and logistics are less costly and faster, and e-commerce has arrived” (Oviatt & McDougall, 1995, p. 88-89), spawning entrepreneurial internationalisation theory, which includes born-global firms.

What does all this mean? The findings by Deligianni et al. (2017) are the departure for the current research. Effectuation must be examined for its contribution to internationalisation. The question to be asked is, how does effectuation explain entrepreneurial internationalisation?

Most of the research on internationalisation favours entrepreneur- and firm-level factors. It is characterized by a focus on risk aversion to internationalisation, an internal or inward emphasis. The surface-level external factors, such as market characteristics, sectoral and regional export patterns, international trade incentives, and demand characteristics offer only limited explanation for how and when to internationalize (Knight & Liesch, 2016). The analysis brings us to the research problem driving this paper, which is explaining the positive significant impact of effectuation on entrepreneurial internationalisation. The research question is, how does effectuation explain entrepreneurial internationalisation?

With this summary, it is useful to repeat what is missing in the research. The coming-together of internationalisation research and effectuation research has only begun. To understand the firm's entrepreneurial internationalisation behavior, we must understand the role played by effectuation. It is argued that effectuation holds out the best opportunity for an entrepreneur to direct or adjust outcomes in internationalisation (Deligianni, et al., 2017).

4.0 Towards a Conceptual Framework

This section introduces the conceptual framework for this study. It draws from Section 2.0, effectuation theory, its definitions and operationalization in field work. Effectuation theory is a distinctive break in the entrepreneurship literature. The conceptual framework also draws together internationalisation and effectuation, which is still nascent.

A research question is advanced in this paper. There are three entrepreneur- and firm-level variables that drive entrepreneurial internationalisation (Knight & Cavusgil, 2004; Zhou, 2007; Schweizer, et al., 2010; Dimitratos, et al., 2012; Covin & Miller, 2014; Efrat, et al., 2017). The research question also evolves effectuation. Effectuation represents the realm beyond the firm and entrepreneur levels, that is, the invitation to opportunity in the international market. There are four effectuation variables that drive entrepreneurial internationalisation. Current research exhibits a knowledge gap, the degree to which effectuation drives entrepreneurial internationalisation. The research problem driving this paper is explaining the positive significant impact of effectuation on entrepreneurial internationalisation. The research question is, how does effectuation explain entrepreneurial internationalisation? (See Figure 1 and Table 6.)

Before the conceptual framework is examined closely, consideration is given to the call for research.

4.1 Call for the Research

The justification for the conceptual framework is drawn from the call for research from Chandler et al. (2011), Arend et al. (2015), Chetty et al. (2015), Laine and Galkina (2017), Galkina and Lundgren-Henriksson (2017), and, Deligianni et al. (2017). More specifically, Arend et al. (2015) call for research of “what expert entrepreneurs do and how they act under conditions of uncertainty to explain why the decisions and actions are effective” (Arend et al., 2015, p. 644). Equally, “the first issue concerns transferring effectuation from the field of new venture creation to other areas of entrepreneurship research, adhering to the original understanding of effectuation, as introduced by Sarasvathy (2001), but applying it to interpret complex entrepreneurial phenomena that may arise during a venture’s lifetime, such as the venture’s involvement in international markets” (Deligianni et al. 2017, p. 368). In sum, the call to bring together effectuation and internationalisation research represents a recognition that effectuation expands the boundaries of internationalisation frameworks in the variables of

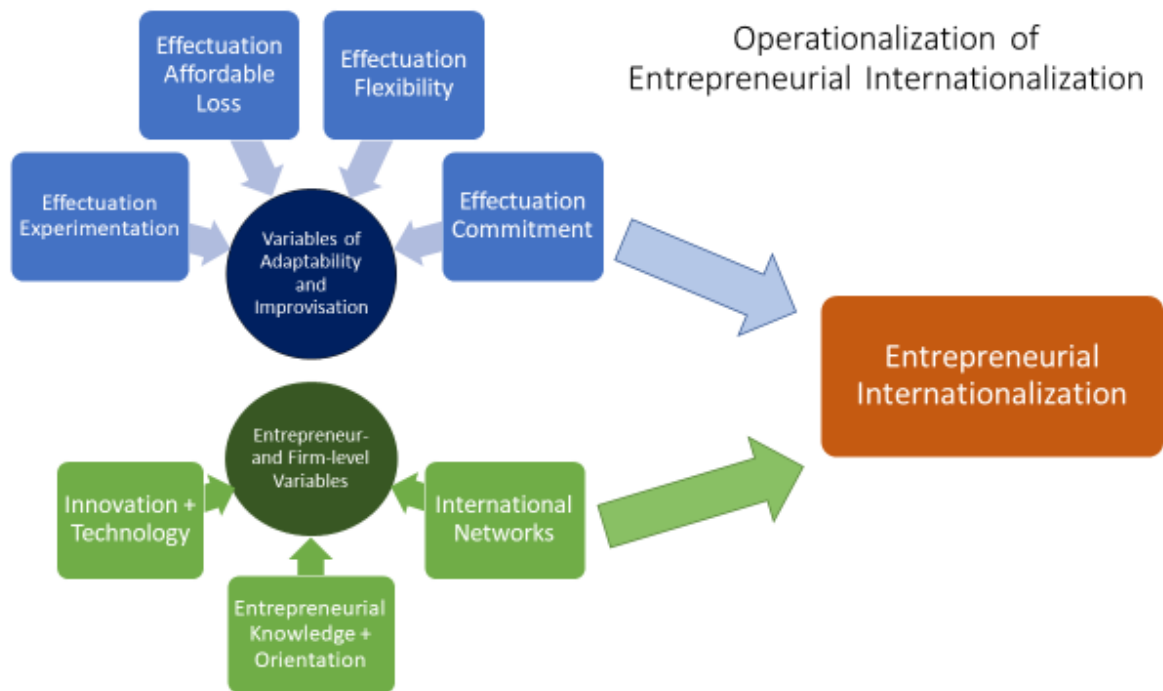
experimentation, affordable loss, flexibility and pre-commitment. Table 6 introduces the terms used in the framework, defining them and detailing the source material. Figure 1 presents the Conceptual Framework.

Table 6: Unpacking the Conceptual Framework

Category	Definition	References
Entrepreneurial Internationalisation	Entrepreneurial internationalisation is manifest by rapid internationalisation.	(Madsen & Servais, 1997).
Innovation and technology	Small firm size and global potential of innovation impels rapid internationalisation.	(Madsen & Servais, 1997); (Chetty & Campbell-Hunt, 2004).
Entrepreneurial knowledge and orientation	Emphasizes brokering, resource leveraging, value creation, and opportunity seeking through innovation, and proactive risk-seeking behavior. Encouragement of experimentation, supporting new ideas, anticipating future needs, pioneering new products and processes, and taking risks.	(Zhou, 2007); (Covin & Miller, 2014).
International networks	Firms that operate in an international network enjoy a “learning advantage” and find it “easier” to go abroad.	(Sharma & Blomstermo, 2003); (Dimitratos, et al., 2012).
Effectuation Logic	The focus of effectuation logic is how, and with whom, entrepreneurs formed networks, rather than their having predefined internationalisation goals.	(Perry, et al., 2012); (Sarasvathy, et al., 2014)
Affordable loss	Entrepreneurs using effectuation avoid large initial investments; investments are made incrementally	(Sarasvathy, 2001); (Harms & Schiele, 2012)
Flexibility	For entrepreneurs using effectuation, flexibility is exploiting contingencies that arise as the new venture unfolds	(Sarasvathy, 2001); (Harms & Schiele, 2012)
Pre-commitment	In effectuation, pre-commitments are agreements made with customers, suppliers, and networks to provide low-cost resources	(Sarasvathy, 2001); (Chandler, et al., 2011)

Source: Author’s own.

Figure 1: Conceptual Framework



At its core, the conceptual framework sets out to recast the drivers of entrepreneurial internationalisation that are widely accepted in the field of international entrepreneurship in light of the turn to effectuation.

Section 4.2 presents a discussion on the variables that make up effectuation and entrepreneurial internationalisation.

4.2 Entrepreneurial Internationalisation and Effectuation

The three variables making up the entrepreneur- and firm-level framework are innovation and technology, entrepreneurial knowledge and orientation, and international networks (Knight & Cavusgil, 2004; Zhou, 2007; Schweizer, et al., 2010; Dimitratos, et al., 2012; Covin & Miller, 2014; Efrat, et al., 2017). Effectuation expands the boundaries of the framework and goes beyond the entrepreneur and the firm.

4.2.1 Innovation and Technology

The first of the variables is innovation and technology. Entrepreneurial firms leverage a distinctive mix of orientations and strategies that allow them to succeed in international markets. Innovation is shown as a prominent variable in early internationalisation (Knight &

Cavusgil, 2004). The ability to internationalize early and succeed in foreign markets is a function of the internal capabilities of the firm. Internal capabilities lead to the development of organizational capabilities for internationalisation. Innovation results from research and development, and imitation (Knight & Cavusgil, 2004). Innovation and technology are internal to the organization, as currently understood within the born-global and entrepreneurial internationalisation perspective. The effectuation approach considers it dialogically as an interaction with the environment.

4.2.2 Entrepreneurial knowledge and orientation

Much of the perspective on entrepreneurial knowledge finds its origins in strategic management literature (Zhou, 2007; Covin & Miller, 2014). Entrepreneurial knowledge is the foundation of organizational capabilities. For internationalisation, knowledge facilitates early international market entry. Knowledge is used here to refer to the capacity of the firm to apprehend and use relationships among informational factors to achieve intended ends (Autio et al., 2000). Using the VRIO analytical tool, knowledge is valuable, rare, inimitable, and organizationally supported. Ultimately, organization knowledge becomes a strategic asset (Teece et al., 1997). Zhou (2007) explained and revealed the strong connection between the dimensions of international entrepreneurial capability (IEC) and international performance (IP) in born globals. It encouraged experimentation, supporting new ideas, anticipating future needs, pioneering new products and processes, and taking risks (Zhou, 2007). Entrepreneurial knowledge is an entrepreneur- and firm-level trait. Effectuation shifts the focus to opportunities leveraged through experimentation and flexibility. Entrepreneurial orientation is internal skill set and resources. Effectual entrepreneurs secure pre-commitments from suppliers and customers to manage uncertainty, trying different approaches until the business works.

4.2.3 International networks

The next point concerns international networks, the third variable. Firms that operate in an international network may enjoy a “learning advantage” and find it “easier” to go abroad than firms whose exchange partners are domestic firms (Sharma & Blomstermo, 2003). It was concluded that the ongoing globalization has made it easier to conduct born global strategies (Dimitratos, et al., 2012). In their most recent iteration of internationalisation, Johanson and Vahlne produce a business network internationalisation process model (Johanson & Vahlne, 2009), exploring “a web of simultaneously enabling and constraining relationships” (Schweizer, et al., 2010, p. 345). Yet, the focus is on network relationships, and disregards the

vital role played by the other drivers of internationalisation. Vahlne and Johanson (2017) is anchored in process ontology, also disregarding the critical role of the drivers of internationalisation. Moreover, existing networks are consistently domestic, with a view to going international. Effectuation can see a network beyond its domestic relationships.

In sum, effectuation theory amplifies the variables of the entrepreneur- and firm-level framework. It changes the thinking by stretching the boundaries ordinarily assumed by entrepreneurs and their organizations: effectuation is the management of uncertainty, the entrepreneur's ability to experiment, adjust and improvise in a market of uncertainty.

4.3 The four Effectuation variables

The next Paper 2 in this series will present in greater detail how the four variables of effectuation theory explain entrepreneurial internationalisation. So briefly I introduce the four variables here.

The four variables are experimentation, affordable loss, flexibility, and pre-commitment. In experimentation, the entrepreneur is using the cognitive perspective, and applies mental models and heuristics to explain complex strategic actions. It is a learning-by-doing process and a “means of coping with complexity and uncertainty” (Deligianni, et al., 2017, p. 365). In affordable loss entrepreneurs using effectuation tend to make decisions that would not put the venture at stake. They avoid large initial investments, that is, “investments are made incrementally” (Harms & Schiele, 2012, p. 99). Flexibility is exploiting contingencies that arise as the new venture unfolds. Entrepreneurs using effectuation avoid sequential approaches and rational planning; instead, they embrace opportunities that emerge (Harms & Schiele, 2012). Pre-commitments are agreements made with customers, suppliers, and networks to provide low-cost resources; it allows for greatly expanding capabilities and includes alliances and outside partnerships. Pre-commitments “allow firms to test markets” and “to reduce uncertainty” (Chandler, et al., 2011, p. 386). It may be said effectuation is the management of uncertainty (Sarasvathy, 2001; Galkina & Chetty, 2015; Sarasvathy & Ventakaraman, 2011).

Following a review of effectuation theory and entrepreneurial internationalisation theory, hypotheses and propositions will be proposed in Paper 2. Hypotheses, propositions, and constructs are to be grounded using established quantitative practices found in the domain of internationalisation. These are Knight and Cavusgil (2004) (variable of innovation and technology); Efrat, et al. (2017) (variable of innovation and technology); Zhou (2007) (variables of entrepreneurial knowledge and orientation as well as international networks);

Dimitratos, et al. (2012) (variable of international networks); Covin and Miller (2014) (variables of innovation and technology as well as entrepreneurial knowledge and orientation); and, Chandler et al. (2011), Harms & Schiele (2012), Deligianni et al. (2017) (variables of effectuation).

5.0 Summary

This paper introduces an effectuation turn to international entrepreneurship, proposing a new conceptual framework to be investigated over the next papers in this DBA. In the past fifteen years, entrepreneurship as a field has taken the effectuation turn. Effectuation is the management of uncertainty, the entrepreneur's ability to experiment, adjust and improvise in a market of uncertainty. This new research agenda in entrepreneurship has yet to be developed in the adjoining field that describes entrepreneurial internationalisation. In addition, this work researches the gap in the literature by applying effectuation to internationalisation.

Effectuation is characterized along four variables: experimentation, affordable loss, flexibility, and pre-commitment (Chandler, et al., 2011; Harms & Schiele, 2012; Deligianni, et al., 2017). Effectuation theory focuses on the abundant context of the international environment (Sarasvathy, 2001). Internationalisation grows from the seminal work of Johanson and Vahlne (1977), known as the Uppsala internationalisation model (Johanson & Vahlne, 1977). The Uppsala model, as well as its revised successors, focus on risk aversion in internationalisation, an internal or inward emphasis, in contrast to effectuation, which is an invitation to opportunity in the market. Entrepreneurial internationalisation is characterized by three variables in the literature (Knight & Cavusgil, 2004; Zhou, 2007; Dimitratos, et al., 2012; Covin & Miller, 2014; Efrat, et al., 2017). The conceptual framework for this paper proposes four variables of adaptability and improvisation (effectuation), and three variables at the entrepreneur- and firm-level that drive entrepreneurial internationalisation. Effectuation recasts entrepreneurship away from traits and competencies towards a proactive engagement with the international environment.

The research problem driving this paper is explaining the positive significant impact of effectuation, which is the management of uncertainty, on entrepreneurial internationalisation. The research question is, how does effectuation explain entrepreneurial internationalisation? With this research question, it is useful to repeat what is missing in the research. To understand the firm's entrepreneurial internationalisation behavior, we must understand the role played by

effectuation (Deligianni, et al., 2017); how do expert entrepreneurs act under conditions of uncertainty (Arend, et al., 2015); and, how do we transfer effectuation to a venture's involvement in international markets (Deligianni, et al., 2017).

In the conceptual framework the research makes the crossover from the academic to the practitioner world. The approach may be described as academic research engaged with practice. It aims to serve academic and practitioner communities. Advanced business research means to help the entrepreneur. By this the author hopes to advance the practice of entrepreneurial internationalisation. Future teaching and learning of effectuation and internationalization will benefit.

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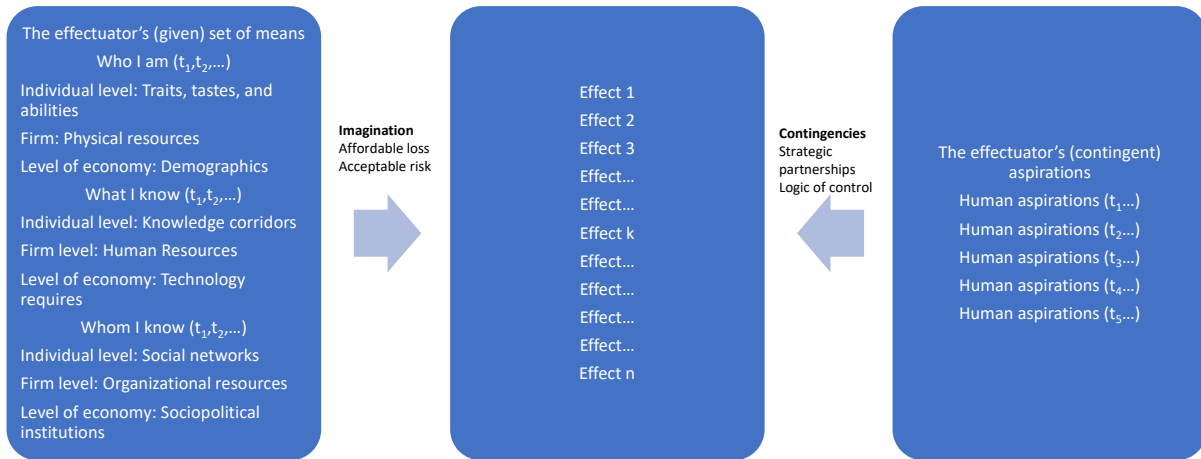
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7.0 Appendices

Appendix A: Framework for Effectuation Theory



Source: (Sarasvathy, 2001)

Appendix B: Operationalization of Effectuation

Operationalization of key variables (Harms & Schiele, 2012)

Construct	Item
Effectuation (Experimentation)	We experimented with different products and/or business models
	The product/service that we now provide is substantially different than we first imagined
	We tried a number of different approaches until we found a business model that worked
Effectuation (Affordable loss)	We were careful not to risk more money than we were willing to lose with our initial idea
Effectuation (Flexibility)	We allowed the business to evolve as opportunities emerged
	We adapted what we were doing to the resources we had
	We avoided courses of action that restricted our flexibility and adaptability
Effectuation (Pre-commitment)	We used pre-commitments from customers and suppliers as often as possible
	We used a substantial number of agreements [...] to reduce the amount of uncertainty

Source: (Harms & Schiele, 2012)

Operationalization of Effectuation (Chandler, et al., 2011)

Construct	Item
-----------	------

Effectuation (Experimentation)	We experimented with different products and/or business models
	The product/service that we now provide is substantially different than we first imagined
	We tried a number of different approaches until we found a business model that worked
Effectuation (Affordable loss)	We were careful not to risk more money than we were willing to lose with our initial idea
Effectuation (Flexibility)	We allowed the business to evolve as opportunities emerged
	We adapted what we were doing to the resources we had
	We avoided courses of action that restricted our flexibility and adaptability
Effectuation (Pre-commitment)	We used pre-commitments from customers and suppliers as often as possible
	We used a substantial number of agreements [...] to reduce the amount of uncertainty

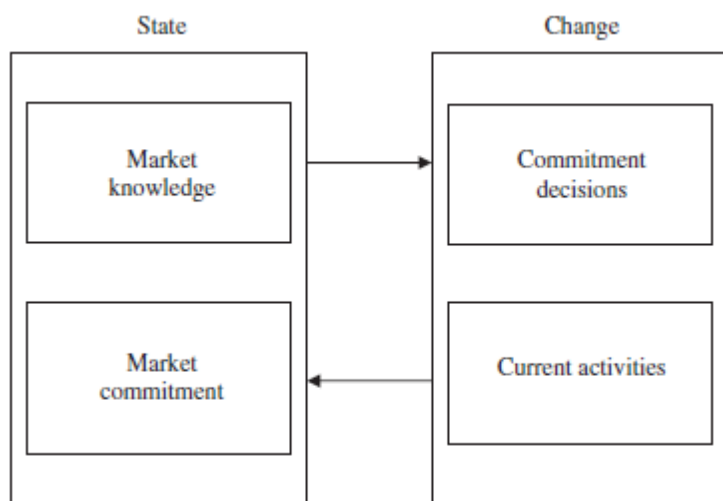
Source: (Chandler, et al., 2011)

Criteria for behavior and decision-making (Deligianni, et al., 2017)

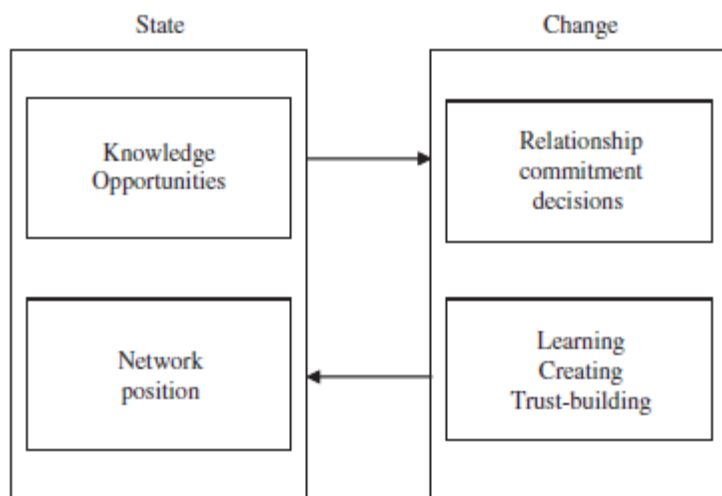
Construct	Item
Effectuation (Experimentation)	We experimented with different product markets till finding product market(s) that worked
	The product market(s) that we now serve are essentially the same as originally conceptualized
	The product market(s) that we now serve are substantially different than we first imagined
	We tried a number of different approaches till finding product market(s) that worked
Effectuation (Affordable loss)	We were careful not to commit more resources than we could afford to lose
	We were careful not to risk more money than we were willing to lose
	We were careful not to risk so much money that the venture will be in a real financial problem if things didn't work out
Effectuation (Flexibility)	We allowed product market(s) to evolve as opportunities emerged
	We adapted what we were doing to the resources we had
	We were flexible and took advantage of opportunities as they arose
	We avoided courses of action that restricted our flexibility
Effectuation (Pre-commitment)	We used a substantial number of agreements with customer, suppliers, and other organizations and people to reduce the amount of uncertainty
	We used pre-commitments from customers and suppliers as often as possible

Source: (Deligianni, et al., 2017)

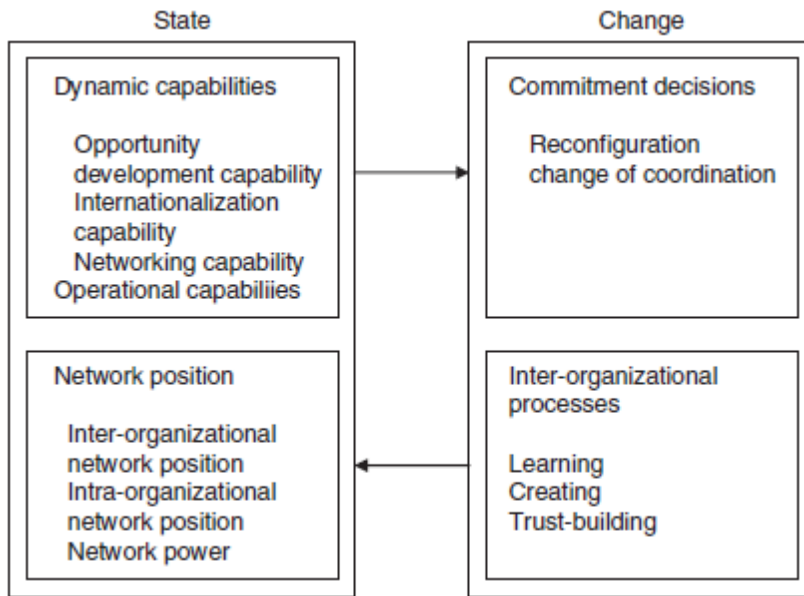
Appendix C: Uppsala Models



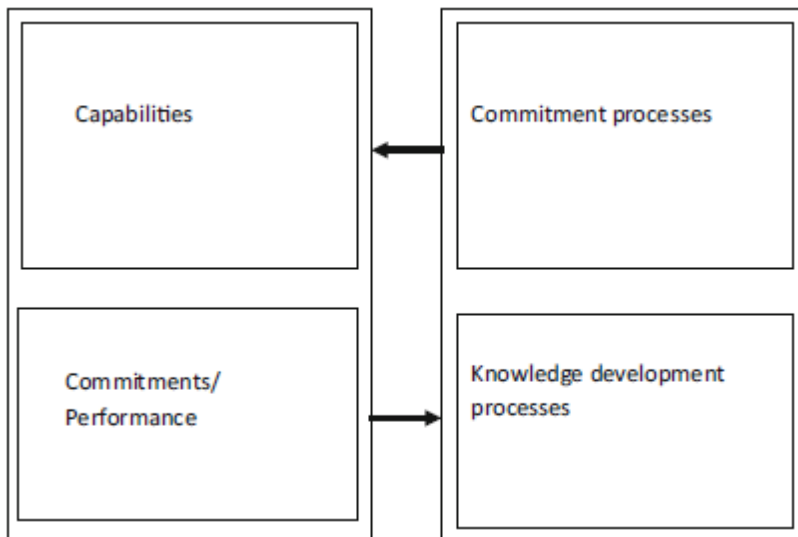
Source: Uppsala Model 1977 (Johanson & Vahlne, 1977)



Source: Uppsala Model 2009 (Johanson & Vahlne, 2009)



Source: Uppsala Model 2013 (Vahlne & Johanson, 2013)



Source: Uppsala Model 2017 (Vahlne & Johanson, 2017)

Preface to Paper 2

Paper 2 was presented on April 4, 2019. The final version reflects updates required by the examiners. Hypotheses required rewriting to make them testable. The scope and justification of the quantitative approach also required more clarity. A rewriting delivered the literature basis for each hypothesis. The moderating hypotheses were rewritten, and the dependent variable was reoperationalised. The hypothesized relationships were clearly justified. The final version delivered a paper that was supported by theory; it contained a methodology that was justified and projected a likely contribution to the literature.

Participant Name: Mark Stoiko 20077315

Supervisors: Tom Egan and Aidan Duane

Date: 20 / 12 / 2019

RESEARCH PAPER SERIES

Paper 2
Methodology Paper

**“The Impact of Effectuation on the Relationship between
Entrepreneurship and Entrepreneurial Internationalisation”**

ABSTRACT

This paper outlines the research process to test the conceptual framework presented in Paper 1. Effectuation theory, derived from the entrepreneurship literature, is applied to the related field of entrepreneurial internationalisation, or rapid internationalisation. Effectuation is the management of uncertainty, the entrepreneur’s ability to experiment, adjust and improvise in uncertain markets. Effectuation has yet to be developed in the field of entrepreneurial internationalisation. Following a summary of the research problem and the gap in the literature, this paper develops the conceptual framework by means of the research objective and research hypotheses. The research objective is to answer, how does effectuation impact on the relationship between entrepreneurship and entrepreneurial internationalisation? The contribution to practice is explaining how to internationalize, including why, when, where, and how fast. Philosophical perspectives are subsequently addressed. They include the paradigms found in the internationalisation and effectuation literature. The adopted philosophical approach of this research study is positivist characterized by objectivism and functionalism. Methodological considerations are made, and the research approach is justified before the research strategy is given. Seeking a cause-and-effect relationship, the research study adopts a quantitative approach using a large sample self-administered web-based survey questionnaire. The method and design include sampling strategy, ethical considerations, and the role of the pilot study. The paper closes with the plan for data analysis.

Keywords: entrepreneurship, effectuation, internationalisation.

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Appendix A: Survey Questionnaire 108

1.0 Introduction

This paper outlines the research process to test the conceptual framework presented in Paper 1. Entrepreneurial internationalisation is defined by better relative performance (Zhou & Wu, 2014), and a greater speed of international entry, greater speed of international commitment, and greater speed of international scope (Prashantham, et al., 2019). Entrepreneurship, over the past fifteen years, has advanced considerably led by the seminal work on effectuation by Sarasvathy (2001). Effectuation is the management of uncertainty, the entrepreneur's ability to experiment, adjust and improvise in uncertain markets (Sarasvathy, 2001). In this paper, effectuation theory, derived from the entrepreneurship literature, is applied to the related field of entrepreneurial internationalisation, where it has yet to be developed. The research objective is to answer, how does effectuation impact on the relationship between entrepreneurship and entrepreneurial internationalisation?

Effectuation theory is characterized along four variables: experimentation, affordable loss, flexibility, and pre-commitment (Chandler, et al., 2011; Harms & Schiele, 2012; Deligianni, et al., 2017). The gap in the literature is testing how does effectuation impact on the relationship between entrepreneurship and entrepreneurial internationalisation, thus Section 2.0 includes the calls for this research by Chandler et al. (2011), Sarasvathy et al. (2014), Arend et al. (2015), Chetty et al. (2015), Laine and Galkina (2017), Galkina and Lundgren-Henriksson (2017), and Deligianni et al. (2017).

Following a summary of the research problem and the gap in the literature in Section 2.0, this paper develops the conceptual framework by means of the research objective and research hypotheses. Philosophical perspectives are addressed in Section 3.0. They include the paradigms found in the internationalisation and effectuation literature. The adopted philosophical approach of this research study is positivist characterized by objectivism and functionalism. Methodological considerations are made, and the research approach is justified before the research strategy is addressed in Section 4.0. The purpose of the research is to test how does effectuation impact on the relationship between entrepreneurship and entrepreneurial internationalisation. It is posited in the conceptual framework that effectuation has a moderating impact on the relationship between entrepreneurship and entrepreneurial internationalisation (Deligianni, et al., 2017). Under high levels of effectuation, the impact of entrepreneurship on entrepreneurial internationalisation will be higher. Seeking a cause-and-effect relationship, the research study adopts a quantitative approach using a web-based survey self-administered to a large set of SMEs. The method and design include sampling strategy,

ethical considerations, and the role of the pilot study. The paper closes with the plan for data analysis in Section 5.0.

2.0 Research Framework

It is useful to begin Section 2.0 with the conceptual framework followed by the research objective, and then the research hypotheses.

Conceptual Framework

The conceptual framework addresses the impact of effectuation on the relationship between entrepreneurship and entrepreneurial internationalisation. The variables of entrepreneurship already found in the literature are innovation and technology, entrepreneurial knowledge and orientation, and international networks (Knight & Cavusgil, 2004; Zhou, 2007; Schweizer et al., 2010; Dimitratos et al., 2012; Covin & Miller, 2014; Efrat et al., 2017). Entrepreneurial internationalisation is defined by better relative performance (Zhang, et al., 2014), and a greater speed of international entry, greater speed of international commitment, and greater speed of international scope (Prashantham, et al., 2019). It is proposed that effectuation moderates the relationship between entrepreneurship and entrepreneurial internationalisation (Deligianni, et al., 2017) which means that the impact of entrepreneurship on entrepreneurial internationalisation is higher when effectuation is high and that the impact is lower when effectuation is low.

Internationalisation is already seen as an entrepreneurial process (Schweizer, et al., 2010). Sarasvathy et al. (2014) adopted the Schweizer et al. (2010) model of internationalisation and integrated effectuation with internationalisation. Chetty et al. (2015) argue effectuation is exploiting contingencies, thereby allowing firms to accelerate the acquisition of knowledge and resources by way of relationships. Moreover, the authors suggest further research to measure the impact of effectuation on internationalisation: “Since our propositions and findings only generalize to theory this provides an opportunity for future researchers to develop a questionnaire that is used in a large quantitative survey so that statistical generalizations can be made” (Chetty, et al., 2015, p. 1455).

Johanson and Vahlne (2009) found the use of effectuation consistent with their revised model, which opened the way for a series of studies on internationalisation and effectuation (Schweizer, et al., 2010; Chandler, et al., 2011; Arend, et al., 2015; Chetty, et al., 2015; Laine & Galkina, 2017; Galkina & Lundgren-Henriksson, 2017; and, Deligianni, et al., 2017). Similarly, Schweizer et al. (2010) call for the same research, “In employing an effectuation

perspective, we distance ourselves from the prevailing literature on internationalisation” (p. 368). “An effectuation process view, with its stress on the exploitation of contingencies, can strongly contribute to our understanding of the internationalisation of firms as a by-product of efforts to improve the position of the firm in its network(s)” (p. 368).

Before summarizing the conceptual framework, a word on the variables of effectuation. In experimentation, the entrepreneur is using the cognitive perspective, and applies mental models and heuristics to explain complex strategic actions. It is a learning-by-doing process and a way of managing complication and uncertainty (Deligianni, et al., 2017). In affordable loss, entrepreneurs using effectuation tend to make decisions that would not put the venture at stake. They avoid large initial investments, that is, investments are made incrementally (Harms & Schiele, 2012). Flexibility is exploiting contingencies that arise as the new venture unfolds. Entrepreneurs using effectuation avoid sequential approaches and rational planning; instead, they embrace opportunities that emerge (Harms & Schiele, 2012). Pre-commitments are agreements made with customers, suppliers, and networks to provide low-cost resources; it allows for greatly expanding capabilities and includes alliances and outside partnerships. Pre-commitments manage uncertainty and erect entry barriers (Chandler, et al., 2011). It may be said effectuation is the management of uncertainty (Sarasvathy, 2001; Galkina & Chetty, 2015; Sarasvathy & Ventakaraman, 2011).

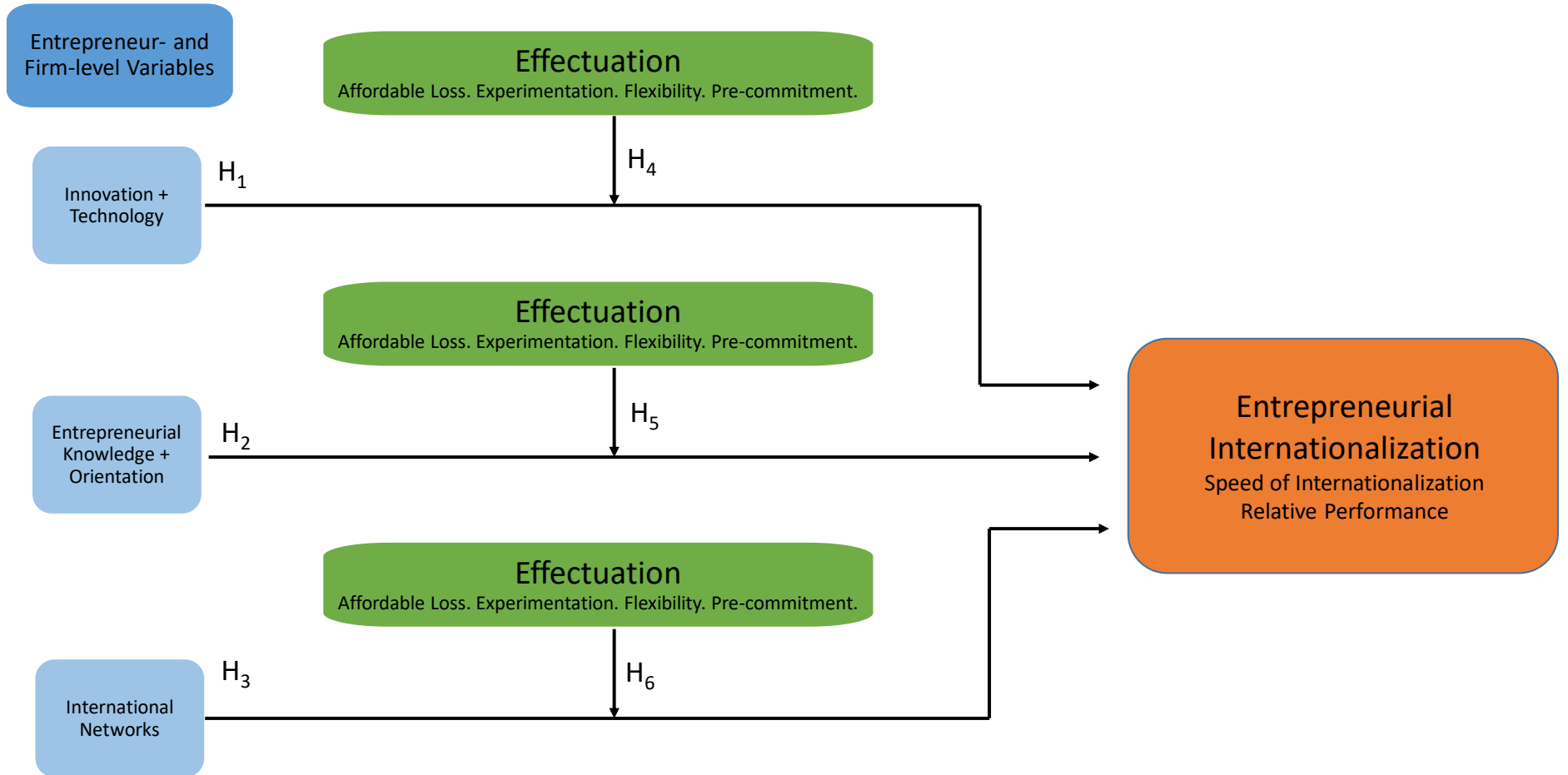
The conceptual framework is arrived at after a careful study of the models derived from the internationalisation, as well as the effectuation literature. A summary of the extant models follows. The Madsen and Servais (1997) model depicts rapid internationalisation as the variables of founder, organization, and environment, consistent with the variables found in this author’s conceptual framework. Similarly, the Knight and Cavusgil (2004) model of rapid internationalisation and performance in international markets, provides corroboration of the same.

Sarasvathy et al. (2014) explores two models, the Schweizer et al. (2010) model, renamed the Effectuation Uppsala Model (UE Model), and, the Sarasvathy (2008) model. It is these models that provide the foundation for the relationship between entrepreneurship and internationalisation, and how the relationship is impacted by effectuation. The results are models wherein internationalisation is a by-product of entrepreneurs leveraging their networks in a globalized and technological economy. The conceptual framework of this research study can be seen as applying the effectuation variables of the Sarasvathy (2008) model and the Harms and Schiele (2012) model, to the entrepreneur- and firm-level variables found in

Madsen and Servais (1997), Chetty and Campbell-Hunt (2004), Zhou (2007), Dimitratos et al. (2012), and Covin and Miller (2014).

The Harms and Schiele (2012) model focuses on international entry mode, rapid internationalisation, and effectuation. Under conditions of uncertainty, effectuation is found to explain international entry mode. In the Efrat et al. (2017) model, the drivers of innovativeness are seen to have a significant impact on internationalisation. The Prashantham et al. (2019) model is a three-part model linking entrepreneurship, network building and internationalisation. The focus of the model is on demarcating causal and effectual approaches to international networking, and conceptualizing their effects on internationalisation. The model depicts entrepreneurial internationalisation as entry speed, international scope speed and international commitment speed. The model offers useful implications for the complexity of rapid internationalisation (Prashantham, et al., 2019). Figure 1 presents the conceptual framework, which builds on the preceding models.

Figure 1: Conceptual Framework and Hypotheses



The conceptual framework of this study tests effectuation at an in-depth level, that is, at the level of affordable loss, experimentation, flexibility and pre-commitment. To illustrate, affordable loss is realized, indeed expanded, through sharing and managing risks (Freeman, et al., 2006). Furthermore, entrepreneurs use experimentation to secure pre-commitments from stakeholders (Deligianni, et al., 2017). Moreover, flexibility allows entrepreneurs to shape opportunities that may appear through international networks (Jones & Coviello, 2005). Equally, pre-commitment, in the form of alliances and collaborative partnerships, accelerated internationalisation in the cases studied by Freeman et al., (2006). Altogether, the relationship between entrepreneurship and entrepreneurial internationalisation increases with effectuation logic, "...when organizations faced with uncertainty learn what action to take next by minimizing commitment to plans and instead moving rapidly to leverage changing circumstances" (Deligianni, et al., 2017, p. 356). Consequently, the impact of effectuation as a moderator on the relationship between entrepreneurship and entrepreneurial internationalisation will be examined. Moderation occurs when the level of effectuation affects the strength of the relationship between entrepreneurship and entrepreneurial internationalisation.

The conceptual framework is derived from the models described earlier. Additionally, the conceptual framework follows from the progression of internationalisation models that were reviewed and analyzed in Paper 1. There, it was argued that entrepreneurial internationalisation (EI) is a natural extension of the early economics-inspired models of Edith Penrose of the 1950s and then, the Uppsala model of 1977 (Vahlne & Johanson, 2017) which explored how multinational enterprises internationalised, to the introduction of the term born globals to explain rapid internationalisation (Oviatt & McDougall, 1995). It may be said that early understanding of internationalisation was derived from studying the MNE, from which scholars developed the theory of traditional internationalisation (Oviatt & McDougall, 1995). Traditional internationalisation theory was summarized in Table 3 of Paper 1. It evolved over time with effort to embrace SMEs, process models, innovation and networks. Traditional internationalisation theory found widespread scholarly support and adoption (Oviatt & McDougall, 1995; Madsen & Servais, 1997). Yet in the period since the 1970s, markets are internationally opened, supply chain and logistics are less costly and faster, and e-commerce has arrived (Oviatt & McDougall, 1995), conditions giving birth to entrepreneurial internationalisation, which includes born-global firms. Table 4 of Paper 1 summarised the key studies in born globals from both a quantitative and qualitative method approach. The

contribution of born-global theory to the conceptual framework in this paper is the drivers of internationalisation, namely, entrepreneurial knowledge and orientation, innovation and technology, and, international networks.

In sum, the call to integrate effectuation and internationalisation research represents a recognition that effectuation expands the boundaries of internationalisation frameworks. Having summarized the research problem, the gap in the literature, and presented the conceptual framework, it is time to examine the research objective and hypotheses.

Research Objective

The research objective is to answer:

How does effectuation impact on the relationship between entrepreneurship
and entrepreneurial internationalisation?

The contribution to practice is explaining “the how to internationalize question including why, when, where, and how fast, to internationalize?” (Sarasvathy, et al., 2014, p. 84). Combined, the approach may be described as academic research engaged with practice. It aims to serve academic and practitioner communities.

Research Hypotheses

The hypotheses are derived from the literature. To understand the firm's entrepreneurial internationalisation behavior, we must explain the role played by effectuation (Deligianni, et al., 2017): “the first issue concerns transferring effectuation from the field of new venture creation to other areas of entrepreneurship research, adhering to the original understanding of effectuation, as introduced by Sarasvathy (2001), but applying it to interpret complex entrepreneurial phenomena that may arise during a venture’s lifetime, such as the venture’s involvement in international markets” (p. 368).

The basis of the first hypothesis, centered on Innovation and Technology, is drawn from Covin and Miller (2014) who write that innovativeness contributes to international entrepreneurship, entrepreneurial orientation, and international entrepreneurial orientation. Similarly, Dimitratos et al. (2012) write, “international entrepreneurship has hitherto been perceived to be the aggregate of the firm’s innovativeness, risk attitude and proactiveness in international markets” (p. 709). Knight and Cavusgil (2004) find that innovation is clearly linked to early internationalisation: “Innovation develops particular knowledge, driving capabilities for early internationalisation. Thus, our investigation also contributes to the innovation literature by

linking innovation to the phenomenon of early adoption of internationalisation” (p. 135). Consequently, the first hypothesis reads:

- H₁ Innovation and Technology has a positive significant impact on Entrepreneurial Internationalisation.

In the decision to commit resources to the internationalisation process, as early as the Uppsala model (Johanson & Vahlne, 1977), knowledge was seen as the driving force behind the internationalisation process (Brennan & Garvey, 2009). Knight and Cavusgil (2004) found entrepreneurial knowledge and orientation contributed to internationalisation: “superior performance is an outcome of the firm’s entrepreneurial and managerial knowledge” (p. 127), and “entrepreneurial orientation is associated with an innovative and proactive approach to internationalisation” (p. 128). In further support of entrepreneurial knowledge, “It is found that foreign market knowledge leads to early and rapid internationalisation” (Zhou, 2007, p. 290). This discussion leads to the following hypothesis:

- H₂ Entrepreneurial Knowledge and Orientation has a positive significant impact on Entrepreneurial Internationalisation.

In a case of four software development firms in New Zealand it was found that internationalisation was rapid (Coviello & Munro, 1997): “The rapid and successful growth of the case firms appears to be a result of their investment in international networks” (p. 372). By participating in established international networks at an early stage, the firms accelerated their internationalisation. Freeman, et al., (2006) focused their study on how SMEs use international networks to “bring their unique innovations and technology to international markets early and rapidly” (p. 34), and within two years of establishment. Rutihinda (2008), in a study of SMEs in Canada’s Eastern Townships found “a more proactive approach to internationalisation that guarantee successful international operations through establishing international networks” (p. 52). Zhang et al. (2009) argue international networking is a constitutive component of the international entrepreneurship model; Dimitratos et al. (2014) confirmed international networking as a dimension of international entrepreneurship. Taken together, the hypothesis is proposed:

- H₃ International Networks has a positive significant impact on Entrepreneurial Internationalisation.

The next three hypotheses relate to the proposed moderating impact of effectuation on the relationship between the independent variables and the dependent variable (Entrepreneurial Internationalisation).

Alternatives based on affordable loss reduce the risk of failure (Deligianni, et al., 2017); and affordable loss “involves efforts to minimize risks associated with overspending” (p. 351). Consequently, it is argued that high levels of affordable loss are reduced risks and uncertainties. Chetty and Campbell-Hunt, (2004) argue firms that internationalize rapidly “believe that foreign markets are less risky and less costly” (p. 61). Discussing how some SMEs internationalize more rapidly Crick and Spence (2005) found the firms operated in innovative and high-tech markets. Chetty and Campbell-Hunt (2004) observed that early internationalisation was achieved by world-leading innovation: “a strategy of innovation is thus the main driver for rapid internationalisation among born-global firms” (p. 74). Freeman, et al., (2006) found in a case firm that risk was reduced by investing in innovation, driving rapid internationalisation. In sum, affordable loss is characterized by reducing risk and uncertainty and pursuing strategies of innovation that drive rapid internationalisation (Chetty & Campbell-Hunt, 2004). In moderation, it may also be said, high levels of risk minimization (affordable loss) affect the strength of the relationship between entrepreneurship and entrepreneurial internationalisation.

Deligianni et al. (2017) write, “Experimentation can have considerable utility in driving successful diversification in new ventures” (p. 354). Experimentation allows for the justification of choices that complement the early identification of opportunity. Confirming their hypothesis that experimentation has a positive moderating impact on product diversification and performance in new ventures, Deligianni, et al., (2017) conclude “entrepreneurs need to experiment and remain flexible to adjust to unexpected situations while securing pre-commitments with self-selected stakeholders. Engaging in experimentation will provide rapid access to information and knowledge, thereby allowing entrepreneurs to determine the best markets for their given means” (p. 366).

Flexibility is exploiting unexpected contingencies (as opposed to pre-existing knowledge) that arise as the new venture unfolds (Sarasvathy, 2001); flexibility encourages the pursuit of alternative courses of action (Deligianni, et al., 2017). Sarasvathy et al. (2014) borrow from Bretel et al. (2012) who found support for flexibility as a contributing factor in highly innovative R&D settings (p. 74). Flexibility has a moderating impact on the relationship

between innovation and technology, and entrepreneurial internationalisation (Dew, et al., 2009; Deligianni, et al., 2017). It is based on learning theory from Mosakowski, (1997): “the learning school generally suggests that performance increases when organizations faced with uncertainty learn what action to take next by minimizing commitment to plans and instead moving rapidly to leverage changing circumstances” (Deligianni, et al., 2017, p. 356). To address these points, the following hypothesis is proposed:

- H₄ Effectuation has a positive moderating impact on the relationship between Innovation and Technology, and Entrepreneurial Internationalisation.

A moderating impact from Affordable Loss on the relationship between Entrepreneurial Knowledge and Orientation, and Entrepreneurial Internationalisation is given by Deligianni et al. (2017): embracing affordable loss “enables diversified ventures to learn more rapidly without risking the entire operation” (p. 355). Further, the approach using affordable loss “tightens the learning cycle” (p. 355), increasing the possibility of international diversification. Given that high levels of affordable loss are reduced risks and uncertainties, Knight and Cavusgil (2004) offer support for affordable loss moderating the relationship between entrepreneurial orientation and entrepreneurial internationalisation: “whereas, unbridled risk seeking may engender inferior performance, having an entrepreneurial orientation in diverse foreign environments tends to support the realization of key strategic initiatives that augment international success” (p. 129). The orientation of the firm to undertake internationalisation is influenced by the management of risks (Dimitratos & Plakoyiannaki, 2003).

Experimentation supports the entrepreneurial process of gathering information, which nurtures aspirations and directs outcomes in the market (Deligianni, et al., 2017). Further, experimentation leads to unintended discoveries for the entrepreneur; it is learning-by-doing and contributes positively to outcomes under conditions of uncertainty (Deligianni, et al., 2017). Where returns are uncertain, high levels of experimentation strengthens the relationship between entrepreneurial knowledge and orientation, and entrepreneurial internationalisation: “engaging in experimentation will provide rapid access to information and knowledge, thereby allowing entrepreneurs to determine the best markets for their given means, which may even be artificially created by the venture’s actions” (Deligianni, et al., 2017, p. 366).

Flexibility contributes positively to the relationship between Entrepreneurial Knowledge and Entrepreneurial Internationalisation when entrepreneurs leverage changing circumstances (Deligianni, et al., 2017). Flexibility promotes improvisation in a market of uncertainty.

Paradoxically, it is argued by Deligianni et al. (2017) that the pursuit of alternative choices creates a balance of stability under conditions of uncertainty. Changes that occur in knowledge drive opportunity-related decisions. Support for the moderating impact of flexibility is further found in Chandler, et al., (2011) who argue that unexpected contingencies (flexibility) contribute new knowledge and are thereby leveraged into opportunities. Flexibility is seen to promote the use of improvisation, enabling creative and non-routine responses to situations (Deligianni, et al., 2017); the subsequent experiential knowledge improves chances for success: “These benefits are crucial for new ventures that diversify because they allow them to shape opportunities in new product markets as information emerges” (p. 356). The arguments on flexibility are extended to the relationship between entrepreneurial knowledge and orientation, and entrepreneurial internationalisation.

Pre-commitment can contribute to entrepreneurial internationalisation as it enhances entrepreneurial knowledge, thereby reducing the high level of uncertainty (Deligianni, et al., 2017). This process generates positive market signals enabling the firm to leverage its knowledge into more rapid internationalisation. Sarasvathy et al. (2014) call the effectual approach a means-based one, characterized by what the entrepreneur knows (entrepreneurial knowledge) and who the entrepreneur knows (international networks). It follows that pre-commitments encourage the use of what an entrepreneur knows, which leads to what the entrepreneur can do, rather than what the entrepreneur should do (Deligianni, et al., 2017). Knight and Cavusgil (2004) found entrepreneurial orientation contributed to internationalisation: “entrepreneurial orientation is associated with an innovative and proactive approach to internationalisation” (p. 128). The hypothesis that follows is:

- H₅ Effectuation has a positive moderating impact on the relationship between Entrepreneurial Knowledge and Orientation, and Entrepreneurial Internationalisation.

Zhang et al. (2009) argues that “international networking capability refers to firms’ ability to obtain resources from the environment through alliance creation and social embeddedness” (p. 298) to enhance entrepreneurial internationalisation. Management can also use different entry modes to mitigate risk (Freeman, et al., 2006): “During economic downturn, our managers were able to use a risk-reducing strategy, moving from outward (exporting) to inward (importing as an exclusive dealer in a strategic alliance) business activities, allowing them to remain ‘connected’ and, later, to reestablish the relationship as an outward one (JV with NPD)” (p. 54). Still again, Freeman et al. (2006) researched how risks were reduced through

international networks, which led to rapid internationalisation: “The strategies are how they minimize and manage the risks. Thus, risk minimization through adaptation, use of multiple strategies (exporting, importing, strategic alliances, and JVs), and persistence, especially in the early stages of their growth (first two years), enabled the three SMEs to maintain an international presence and to grow, despite considerable risks of nonpayment, cancellation, switching, and economic downturn” (p. 54); “seeing the global market through the eyes of our managers, we get the strong impression that the perceived constraints, rather than being a barrier to internationalisation, prompt them to seek rapid involvement in multiple markets to gain access to multiple resources and to share the risks” (p. 55).

Experimentation is characterized as fluidity and responsiveness to the market (Deligianni, et al., 2017), a priori, to act through international networks without the need to test all conditions. Even more, the effectual process encourages the use of experimentation for international stakeholder self-selection (Sarasvathy, et al., 2014), thereby bypassing the need to legitimize the enterprise. Risk for the venture is shared by the entrepreneur and the network.

“Flexibility allows new ventures to reduce the costs of failed experiments when entering new markets” (Deligianni, et al., 2017, p. 357). It allows them to shape opportunities that may appear through international networks, which leads to entrepreneurial internationalisation (Jones & Coviello, 2005).

Pre-commitments allow new ventures “to spread responsibility to other self-selected stakeholders” (Deligianni, et al., 2017, p. 357). When pre-commitment levels are high in effectual international networks, risk and benefits are shared. Customers, suppliers, even competitors positively impact on internationalisation through the sharing of information knowledge and resources (Deligianni, et al., 2017). Under conditions of pre-commitment Freeman et al. (2006) researched how risks were reduced through international networks leading to rapid internationalisation, finding “rapid and substantial international activity within two years of establishment” (p. 35). Accordingly, the following hypothesis is proposed:

- H₆ Effectuation has a positive moderating impact on the relationship between International Networks, and Entrepreneurial Internationalisation.

Having summarized the gap in the literature, the research objective, and developed the conceptual framework, Section 3.0 addresses the philosophical perspectives.

3.0 Philosophical Perspectives

This part of the paper examines Philosophical Perspectives, whose importance lies in their application on the research subject. Section 3.0 is divided into three parts, Paradigms, Methodological Considerations, and Justifying the Research Approach. Paradigms includes a discussion on ontology and epistemology.

Paradigms

Ontology has to do with the nature of reality. The researcher's view of reality is the corner stone to all other assumptions, that is, "what is assumed here predicates the researcher's other assumptions" (Holden & Lynch, 2004, p. 401). Ontologically, objectivism begins with the notion that the nature of being can be understood in an external and objective manner. "A phenomenon has a truth to it which is independent of what individuals perceive" (Adcroft & Willis, 2008, p. 319). Accordingly, "most research is about further proving generalisability of theory through the use of quantitative methods" (Adcroft & Willis, 2008, p. 325). The ontological application for this study is accepting a universal reality, one in which order in internationalisation can be observed, measured, and tested.

Epistemology is the nature and scope of knowledge. How is it possible to gain knowledge of the world? Much of the research that has been completed in management research "has been based on the assumption that reality is objective and out there waiting to be discovered and that this knowledge can be identified and communicated to others" (Holden & Lynch, 2004, p. 401). The application for this study is to seek causal relationships derived from a methodological stance of testing and expanding theory. In this study, objective paradigms are embraced and applied.

A third dimension is human nature and the environment. It involves whether the researcher perceives man as the controller or as the controlled (Burrell & Morgan, 1979). Being a research study of causal relationships, it is suitable to apply objective paradigms of testing and explaining relationships. From the philosophical dimensions, there are derived four major philosophical positions (Burrell & Morgan, 1979): 1. Positivism; 2. Interpretivism; 3. Critical Realism; and 4. Pragmatism.

Positivism is the philosophical position best suited for this study because of the application of objectivity, validity, and generalisability. In a positivist approach, theory and structure precede the research. An emphasis is placed on protocols and techniques. The deductive method follows a logical and rational process. The research problem is observed through the lens of theory and

experience. Effectuation and entrepreneurial internationalisation are operationalized by drawing variables from the literature (Bryman & Bell, 2015). The application of the positivist approach in this research study is to validate an opportunity-based instrument using the variables of effectuation (Dimitratos et al., 2012, p. 717). Moreover, there are two extensions of positivism, which are objectivism and functionalism. The world of internationalisation can be measured and tested. Further, the relationship can be tested for reliability and validity. Inferences can be drawn from the data to explain behaviour in entrepreneurial internationalisation (Burrell & Morgan, 1979).

The implications of the aforesaid on methodological assumptions is that quantitative research methods such as surveys, explanatory, and analytical models—which require objective measurement and analysis—is the acceptable method to generate valid knowledge (Hammersley, 2006; Hammersley, 2014). Table 1 presents the philosophical perspectives for the study.

Table 1: Philosophical Perspectives for the Study

Dimension	Objectivism	Subjectivism
Ontology	✓ Universal reality. Nature is ordered.	Socially constructed through culture and language.
Epistemology	✓ Observable, measurable. Causal explanations.	Focus on narratives, stories, perceptions, and interpretations.
Human Nature	✓ Determined. Causal laws explain social behavior.	History and society are human creations.
Axiology	✓ Researcher is objective.	Researcher is reflexive.
Methodology	✓ Deductive. Tests hypotheses. Measures.	Inductive for theory expansion. In-depth investigations. Qualitative methods.

Having discussed the philosophical paradigm, the discussion moves to the implications for methodological considerations.

Methodological Considerations

Preceded by a discussion of ontology and epistemology, in this section the nature of social science and the nature of society are examined. Burrell and Morgan (1979) contribute four paradigms for the analysis of social theory. By benefit of the objectivist and regulation characteristics, this research study adopts the functionalist paradigm. Functionalism is underpinned by positivism. It holds a rationalist perspective, assumes that organisations and

relationships are concrete, identifiable, and rationally explained by science. Reality is intelligible. Assumptions can be made to study reality. There is an accepted social order. The purpose of the functionalist approach in this research study is to confirm the validity of the independent variables and the moderating variables of effectuation by confronting them with empirical reality of a large-scale quantitative research method (Dimitratos, et al., 2012).

Positivism also aids our understanding of the contemporary social world. “It has been argued that the quantifiable methods of the natural sciences are also appropriate for studying the social world, such as large-scale social surveys and cross-country social research” (Hasan, 2016, p. 317). “Methodological choice should be consequential to the researcher’s philosophical stance and the social science phenomenon to be investigated” (Holden & Lynch, 2004, p. 397).

Given the objectivist perspective taken in this research study on ontology, epistemology, and human nature, the methodology is predominantly objectivist. Furthermore, the methodology is highly structured, using large samples for measurement. Quantitative methods of analysis are used. Hypotheses are tested. The application of the objectivist perspective for this research study is its ability to capture the multidimensional nature of effectuation (Chandler et al., 2011, p. 377).

From the objectivist perspective of this study, the aim of developing universal principles in organizations necessitates stripping away the idiosyncrasies of the particular to reveal what is generally applicable to all organizations. The separation of the universal from the particular is accomplished through several processes. “With the aid of sampling, aggregation, and other analytic techniques, the uniqueness of individual organizations is randomized, controlled for, and otherwise washed, revealing the kernel of presumed common truths” (Evered & Louis, 1981, p. 391). The validity of such efforts rests on the comparability of measurements across settings, and times (Evered & Louis, 1981). Another application of the objectivist perspective in the research study is to contribute to the quantitative empirical foundation of effectuation and internationalisation, which has been largely studied qualitatively (Deligianni et al., 2017, p. 366).

Having advanced the paradigms and methodological considerations, attention is now given to the justification for the research approach.

Justifying the Research Approach

The quantitative approach of the positivist paradigm is illustrated in Figure 2 below:

Figure 2: The Positivist Paradigm



Source: (Corley & Gioia, 2011)

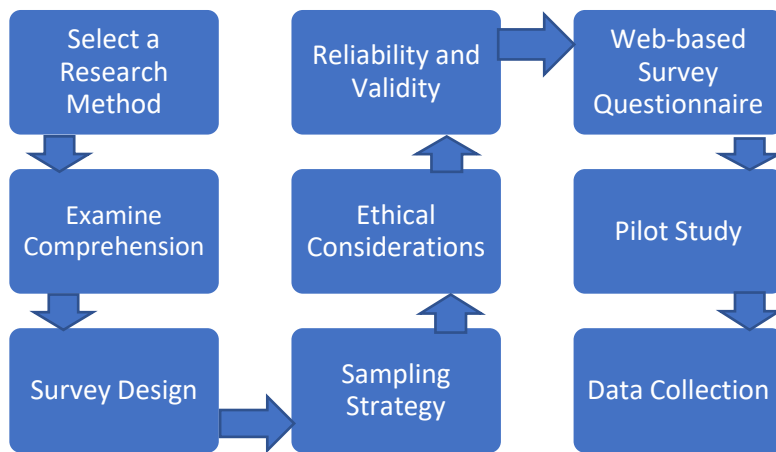
In the positivist paradigm, the research begins with theory (Corley & Gioia, 2011). The purpose of the research is to test the cause-and-effect relationship between the independent variables and the dependent variable, entrepreneurial internationalisation. The approach of this research study is drawn from the extant literature. Deligianni, et al. (2017) adopted “a survey research design to enhance the variability and generalizability of our results” (p. 357). New ventures were surveyed (n=129). Measures of effectuation were tested for reliability and validity. Hypotheses were tested using regression analysis. Chandler, et al. (2011) used a quantitative approach to their study of effectuation. They developed measures of effectuation supported by reliability and validity (construct, content, face and predictive). They tested firm founders (n=189), discussed their findings, and proposed a research stream to examine the generalizability of their findings (p. 376). Harms and Schiele (2012) surveyed a sample of rapidly growing SMEs (n=65). The scales used by Chandler, et al. (2011) were validated during the study. Results were analyzed using regression-based techniques.

In sum, the call for research integrates effectuation and entrepreneurial internationalisation research, a recognition that effectuation expands the boundaries of internationalisation frameworks in the variables of experimentation, affordable loss, flexibility, and pre-commitment.

4.0 Research Strategy

Having discussed the paradigms, methodological considerations and justifying the research approach it is appropriate to describe the research design and select the research method. The research study is centered on a cause-and-effect relationship wherein the dependent variable is entrepreneurial internationalisation. Consequently, the unit of analysis is the enterprise(s) under study. Figure 3 illustrates the step-by-step approach to the research strategy. The research objective is to answer, how does effectuation impact on the relationship between entrepreneurship and entrepreneurial internationalisation? The type of data to be used is drawn from a concurrent design using a large sample self-administered web-based survey. Multi-variable regression and moderation analysis will be conducted.

Figure 3: Research Strategy flow chart



Selecting a Research Method

The study will adopt a concurrent (cross-sectional) regression design. This contrasts with a time series design. In keeping with the regression design, the research method is a large sample self-administered web-based survey (Bryman & Bell, 2015). Table 2 compares the requirements of the study with the characteristics of the large sample survey approach.

Table 2: Research Objective and Methodology

Requirements of the Study	Large Sample Survey Questionnaire Characteristics
<p>Explanatory To identify the moderating impact of effectuation on the relationship between entrepreneurship and entrepreneurial internationalisation.</p>	<p>A large-scale sample survey questionnaire permits a regression path analysis of the impact of the moderating variable on the relationship between the independent variables and the dependent variable, entrepreneurial internationalisation (Field, 2013).</p>

Adapted from (Field, 2013).

Before moving to the Survey Design, along with a discussion on Reliability and Validity, a note on the selection of web-based surveys as the instrument of data collection. It is received that the web-based approach to surveys has become the dominant choice all the while maintaining satisfactory response rates (Baatard, 2012). The design, delivery, accessibility, and administration advantages of web surveys far outweigh other survey approaches.

Survey Design

Best practices are followed in questionnaire design (Krosnick & Presser, 2010). Design of rating scales, response bias, ordering of questions, and evaluating questions are the best practices required (Krosnick & Presser, 2010). In this web-based questionnaire, question

ordering is governed by serial and semantic aspects. Serial concerns the management of fatigue in responding, and semantic concerns the sequence of meaning. A balance is achieved through the funneling approach, the movement from general to specific questions. Variables and their scale items are drawn from the literature. Questions will also be drawn from earlier surveys in the literature, which allows for comparative analysis. Questions will be pretested in the pilot study (Forsyth, et al., 2004).

The first step in survey design “is to review and understand the information requirement of the problem, opportunity, or decision that led to the need for a questionnaire” (Ambrose & Anstey, 2010, p. 83). Historically, the quantitative research paradigm was the first research design in management studies. It became the embedded research design “because it was the first research paradigm that incorporated ontological, epistemological, axiological, rhetorical, and methodological assumptions and principles” (Leech & Onwuegbuzie, 2008, p. 266).

Strong theory underpins each variable in the conceptual framework. Data collection using the large sample self-administered web-based survey will confirm or not confirm theory. The investment in research strategy is squandered if attention is not given to “designing clear, relevant, meaningful and unambiguous survey for eliciting the desired information from selected respondents” (Baker, 2003, p. 343). When the procedures for survey design are followed, researchers “can then structure an effective questionnaire and capture the information” (Ambrose & Anstey, 2010, p. 84). Table 3 details the measures and scales used for effectuation in the literature.

Table 3: Operationalization of Effectuation

Variable	Item	References
Effectuation (Experimentation) Cronbach alpha: .78	We experimented with different products and/or business models	Chandler et al., 2011
	The product/service that we now provide is substantially different than we first imagined	
	We tried a number of different approaches until we found a business model that worked	
Effectuation (Affordable loss) Cronbach alpha: .85	We were careful not to commit more resources than we could afford to lose	Chandler et al., 2011
	We were careful not to risk more money than we were willing to lose	
	We were careful not to risk so much money that the venture would be in real trouble financially if things didn't work out	

Effectuation (Flexibility) Cronbach alpha: .70	We allowed the business to evolve as opportunities emerged	Chandler et al., 2011
	We adapted what we were doing to the resources we had	
	We avoided courses of action that restricted our flexibility and adaptability	
	We were flexible and took advantage of opportunities as they arose	
Effectuation (Pre-commitment) Cronbach alpha: .62 (Chandler, et al., 2011); .86 (Harms & Schiele, 2012); .82 (Brettel, et al., 2012); .71 (Roach, et al., 2016)	We used pre-commitments from customers and suppliers as often as possible	Chandler et al., 2011; Harms & Schiele, 2012; Brettel, et al., 2012; Roach, et al., 2016;
	We used a substantial number of agreements with customers, suppliers, and other organizations to reduce the amount of uncertainty	Chandler et al., 2011; Harms & Schiele, 2012; Brettel, et al., 2012; Roach, et al., 2016
	Network contacts provided low-cost resources	Chandler et al., 2011
	By working closely with people/organizations external to our organization we have been able to greatly expand our capabilities	Chandler et al., 2011
	We have focused on developing alliances with other people and organizations	Chandler et al., 2011
	Our partnerships with outside organizations and people play a key role in our ability to provide our product/service	Chandler et al., 2011
	We focus on risk reduction by approaching potential partners and customers	Brettel, et al., 2012; Roach, et al., 2016
	We reduced risks through internal or external partnerships and agreements	Brettel, et al., 2012
	We jointly decided with our partners/stakeholders on the basis of our competences	Brettel, et al., 2012
	In order to reduce risks, we started partnerships and received pre-commitments	Brettel, et al., 2012

Table 4 details the operationalization of entrepreneurship.

Table 4: Operationalization of Entrepreneurship

Variable	Item	References
Innovation Technology	+ Our enterprise always encourages new product ideas for international markets	Zhou, 2007
	Our enterprise is very receptive to innovative ways of exploiting international market opportunities	
	Our enterprise believes the opportunity of international markets greater than that of the domestic market	
	Our enterprise continuously searches for new export markets	
	Our enterprise is willing to consider new clients abroad	
	Our enterprise is willing to consider new suppliers abroad	
Entrepreneurial Knowledge Orientation	+ In this foreign country, our enterprise generally favors low-risk projects (with normal and certain rates of return)	Dimitratos et al., 2012
	In general, our enterprise believes that owing to the nature of the environment in this foreign country it is best to achieve the firm's objectives in its marketplace using cautious and incremental behavior	
	In dealing with its competitors in the marketplace of this foreign country, our enterprise typically responds to actions which competitors initiate	
	In dealing with its competitors in the marketplace of this foreign country, our enterprise is very seldom the first firm to introduce new products/services	
	In dealing with its competitors in the marketplace of this foreign country, our enterprise is very seldom the first firm to introduce new administrative techniques	
	In dealing with its competitors in the marketplace of this foreign country, our enterprise is very seldom the first firm to introduce new operating technologies	
	In dealing with its competitors in the marketplace of this foreign country, our enterprise typically seeks to avoid competitive clashes, preferring a 'live-and-let-live' posture	
	In the past five years our enterprise has not marketed any new lines of products or services in this foreign country	
	In the past five years in this foreign country changes in product or service lines have been mostly of a minor nature	
International Networks	In this foreign country, my firm cooperates/participates intensively with competitors in joint manufacturing agreements	Dimitratos, et al., 2012
	In this foreign country, my firm cooperates/participates to a very large extent with competitors in joint research	
	In this foreign country, my firm cooperates/participates heavily with competitors in advertising and marketing	

In this foreign country, my firm cooperates/ participates intensively with non-competitors (partners, distributors, suppliers, clients, firms of other sectors, government) in joint manufacturing agreements
In this foreign country, my firm cooperates/ participates to a very large extent with noncompetitors in joint research
In this foreign country, my firm cooperates/ participates heavily with non-competitors in joint advertising and marketing

Note: For the items in Entrepreneurial Knowledge & Orientation, a higher level of agreement is a lower level of entrepreneurial knowledge and orientation; consequently, it is anticipated the items will be reverse coded in the findings stage of Paper 3.

Table 5 details the operationalization of entrepreneurial internationalisation. In this study a four-item scale comparing the enterprise with competitors (Zhang, et al., 2014) is used. In addition, four other items are being tested, three of which are adapted from Prashantham, et al., (2019), and the fourth is adapted from Li, et al., (2012).

Table 5: Operationalization of Entrepreneurial Internationalisation

Variable	Item	References
Entrepreneurial Internationalisation	Our firm is much better than competitors in relation to sales growth in international market	Zhang, et al., 2014 (4 items)
	Our firm is much better than competitors in relation to revenue growth	
	Our firm is much better than competitors in relation to net income growth	
	Our firm is much better than competitors in relation to overall firm performance	
	From start up our enterprise quickly identified and enacted our first foreign market entry	Adapted from Prashantham, et al., 2019 (3 items)
	From start up our enterprise quickly grew foreign market revenue as a percentage of total revenue	
	From start up our enterprise quickly entered multiple foreign markets	
	From start up management established foreign operations within three years of the founding	Adapted from Li, et al., 2012

The discussion now moves to reliability and validity.

Reliability and Validity

Table 6 outlines the process to verify reliability and validity (Knight & Cavusgil, 2004).

Table 6: Tests of Reliability and Validity

Test	Large Sample Survey Questionnaire Design	Application in the Study
Internal reliability	A large sample survey questionnaire will use scales with internal reliability. Internal reliability is overall consistency, producing similar results under consistent conditions (Hair, et al., 2006).	Scales and measures used in the literature have shown internal reliability (Chandler et al., 2011; Harms & Schiele, 2012; Deligianni et al., 2017; Covin & Slevin, 1989; Zhou, 2007; Zhang et al., 2009; Dimitratos et al., 2012).
Convergent validity	A large sample survey questionnaire will use scales with convergent validity, which is the desirable relatedness of items in a scale (Hair, et al., 2006).	Scales and measures used in the literature have shown convergent validity (Chandler et al., 2011; Harms & Schiele, 2012; Deligianni et al., 2017; Covin & Slevin, 1989; Zhou, 2007; Zhang et al., 2009; Dimitratos et al., 2012).
Factorial validity	A large sample survey questionnaire will use scales with factorial validity, meaning the items in the scale are independent, and contribute significantly to a single factor scale (Hair, et al., 2006).	Scales and measures used in the literature have shown factorial validity (Chandler et al., 2011; Harms & Schiele, 2012; Deligianni et al., 2017; Covin & Slevin, 1989; Zhou, 2007; Zhang et al., 2009; Dimitratos et al., 2012).

Source: based upon Hair et al. (2006).

It is recognized that the existing scales from the literature will be tested for reliability and validity in the current research study. The author will conduct tests of internal reliability, convergent validity and factorial validity. Having completed the discussion on Survey Design, as well as Reliability and Validity, the discussion moves to Sampling Strategy and Web-Based Survey Questionnaire.

Sampling Strategy

The population is made up of SMEs in Canada. They will be (a) small and medium-sized manufacturers that are exporting at least 25% of their production, (b) founded in the past twenty years; (c) privately owned; and (d) less than 500 employees. The study of SMEs and the use of these criteria are grounded as follows. Knight and Cavusgil (2004) targeted small and medium-sized manufacturers founded within twenty years and exporting at least 25% of production. Efrat et al. (2017) targeted SMEs with at least 25% of sales from exports. Harms and Schiele (2012) defined SMEs as firms with 10 to 500 employees. Dimitratos et al. (2013) targeted SMEs employing 50 to 249 people and were independently owned.

The goal is to choose a sample that is representative of the population (Bryman & Bell, 2015). Probability sampling is the preferred approach. The sampling frame for probability sampling must be accurate and inclusive. The sampling frame is a list of all the members of the population of interest (Bryman & Bell, 2015). There is a random selection of 3,000 SMEs drawn from two databases, Scott's Directories (Canada) and Dun & Bradstreet Canada. SME lists are readily available from the directories. When drawing random samples from two databases, the random selection will be in proportion to the size of the database. Duplicates will be removed and replaced with a different random firm (as firms may be listed in both databases). The survey will be conducted electronically with founders, or senior managers who oversee exporting or other types of international businesses for their respective firms.

Contextual controls will include the firm's age, size, financial resources, number of founders, internationalisation experience, level of dependence, industry, and environment uncertainty (Deligianni et al. 2017). They are important because they may help explain rapid internationalisation. The firm's age is measured by the number of operating years, size by the number of employees. Financial resources are measured by access to capital. The number of founders reflects the size of the founding team. Level of dependence measures how much of the firm's business is dependent on the largest customer. "Environmental uncertainty is measured as a three-item scale that captures the rate at which products/services become obsolete, the predictability of competitors' actions, and the predictability of demand and customer tastes (Miller & Droge, 1986)" (Deligianni, et al., 2017, p. 360). Harms and Schiele (2012) controlled for firm age and size, demographics, uncertainty and internationalisation experience (p. 106). Zhang et al. (2009) controlled for firm size and environmental uncertainty (p. 311). Zhou (2007) controlled for firm size, internationalisation experience and industry (p. 289).

The sample of 3,000 firms is expected to result in a response of 300, or 10%. These numbers are grounded as follows. "Although Hair et al. (2006) recommend a sample-to-variable ratio of 20:1, several researchers have suggested that 5:1 is adequate (Bryant & Yarnold, 1995; Everitt, 1975; Gorsuch, 1974; Gorsuch, 1983) (Chandler, et al., 2011, p. 378). In Chandler et al. (2011) the sample-to-variable ratio was 7:1 for one study, and 9:1 for the second study (p. 378). It is expected the sample response of 300 will be reached for this study, and would deliver a ratio of 25:1, which exceeds the minimum recommendations. In Chandler et al. (2011) the response rate was 17.8% (p. 379) and Dimitratos et al. (2017) yielded a response rate of 27% (p. 712).

Next, we turn to the web-based survey questionnaire, which is completed on a server where the questionnaire is hosted.

Web-Based Survey Questionnaire

Once a draft questionnaire is completed (see Appendix A), it will be circulated among three international business scholars, who provide commentary that leads to further refinement of the instrument. Consideration is given to issues that “concern the overall design, delivery and administration of web surveys and the accessibility, structure, presentation, and layout of their questions. The decisions made in these areas can influence the efficacy of a web survey in a number of ways, including the rate, integrity, and quality of responses” (Baatard, 2012, p. 101). Email-based surveys are avoided; only web-based surveys are considered. However, an email to contact potential respondents can be used. “It should introduce the survey, tell the reader how long it should take to complete, mention an incentive if one is offered, and present a clear link to the survey itself” (p. 102). Emails are also used for following up, to thank respondents, and, as a reminder. “Web surveys should be hosted on the Internet as standard Web pages” (Baatard, 2012, p. 103). Two recommendations are made regarding the length of web-based surveys. “Lengthy surveys should be avoided if possible, and the ordering of questions should be considered in longer surveys – acknowledging that the quality of responses to questions towards the end may be lower than that of those near the beginning” (p. 104). Second, respondents should be given the option to save their responses and resume later (Baatard, 2012). Questions that are of highest interest to respondents should appear early in the survey. The survey can be divided into sections, displaying one section at a time. Some researchers use progress indicators in surveys (Baatard, 2012). The web-based survey is conducted using Survey Monkey Enterprise edition. In sum, by understanding the information requirement of the problem and decision that led to the need for a questionnaire the researcher can construct a useful questionnaire (Ambrose & Anstey, 2010).

Having completed the discussion on Sampling Strategy and Web-Based Survey Questionnaire, the discussion moves to Ethical Considerations, Pilot Study and Data Collection.

Ethical Considerations

Attention to the ethical and legal implications of research is an accepted and inherent part of good research practice (Bryman & Bell, 2015). Research ethical standards are established in this study: identifying, promoting, and adopting clearly set principles and procedures that guide the action of the researcher. The Research Ethics Committee of Waterford Institute of

Technology received application to obtain ethical clearance for this study, which was granted in a letter dated August 9, 2019.

- The researcher is a holder of the Certificate of Practice in the Canadian Tri-Council Policy Statement: Ethical Conduct for Research Involving Human Subjects, 2nd edition (TCPS2).
- Conflict of interest. There are no anticipated conflicts expected to arise in this study.
- Human participants. Individuals whose data is relevant to the research question may have identifiable private information. This data is confidential and is protected by the researcher.
- Principles of research. Respect for human dignity is the underlying value of this research. Research that benefits society and advances knowledge will be guided by respect for vulnerable persons; respected for privacy and confidentiality; respect for fairness and equity; respect for free and informed consent; and protecting from harm.
- Authority of the Research Ethics Committee. The Committee of the Waterford Institute of Technology is vested with the authority to review, approve, reject, or modify this research study. It may suspend or terminate the study should it not comply with policy.
- Researcher. The researcher will ensure that all research meets the highest standards of scientific rigor and ethics; review protocols to verify there is adherence policy and practice.
- Information guidelines. The information guidelines to participants will contain the title of the Research Project; name of the Researcher; a statement of research Purpose; a description of the research; Potential Risks; Potential Benefits; Confidentiality, to ensure confidentiality of data and participants; Withdrawal Procedures, the right to withdraw at any time; Conflict of Interest, if any; Follow up, any plans to contact participants for follow-up or related research; and Statement of Approval. The information guidelines appear on the home page for the survey.
- Consent. For informed consent, participants are given adequate explanation of the study, its anticipated outcome, and risks. Contact information of the researcher is given, as well as contact information of the Research Ethics Committee of WIT. Consent appears on the home page for the survey.
- Participant recruitment guidelines. Recruitment will take the form of emails and phone calls. Recruitment tools will provide the title of the research study; name of the

researcher; brief description of the study; contact information of the researcher; and contact information of the Research Ethics Committee of WIT.

- Data privacy, storage, and disposal. Guidelines of the Research Ethics Committee of WIT will be followed. The web-based survey is conducted using Survey Monkey Enterprise edition, which is governed by encryption, SSO, SSAE-16 SOC II compliant data centers, HIPAA and GDPR compliance.

A summary of ethical considerations is found in Table 7.

Table 7: Ethical Considerations

Ethical Principles	Description
Primary goal	Protect all participants, researcher, WIT.
Core values	Respect for each person. Concern for welfare of each person. Fair and equitable treatment.
Participant safety	Physical, emotional, or social risks.
Informed consent	Participants are informed of potential risks and have clearly consented.
Participant anonymity	Preserved throughout recruitment, research, and data storage.
Vulnerable groups	Vulnerable group identity not to inhibit informed consent.
Recruitment strategy	Fair, inclusive, and non-coercive.
Withdrawal	Withdrawal process is clear and easy.
Data storage	Secure storage until destroyed.
Conflicts of interests	Avoided.

Pilot Study

A pilot study will be conducted among 50 small exporting firms to refine the questionnaire. Firms are identified using two databases: Scott’s Directories (Canada), and Dun & Bradstreet Canada. The purpose of the pilot study is to test for confusion and ambiguity among major themes. Appearance of the questionnaire, its length, readability, and sequencing will be verified. The wording and language of the questions will be considered. The pilot test results will be studied for overall quality and to ascertain if the questions were understood correctly. Corrections and refinements will be made as required.

Data Collection

Web-based surveys is the instrument of data collection. There are seven categories of questions to be asked beginning with demographics, which includes years of business experience and years of international experience. Attitudinal questions assess attitudes, beliefs, and preferences. Beyond demographics and attitudes, there are behaviour and knowledge questions. Intentions focus on anticipated future behaviour; propositions are “what if” questions; and

predispositions are questions that have to do with forecasting sales, capital investments and plans for growth (Ambrose & Anstey, 2010).

Having completed Section 4.0 Research Strategy, the discussion moves to Section 5.0 Data Analysis.

5.0 Data Analysis

A multivariate data analysis will be conducted using regression using SPSS software (Field, 2013; Bryman & Bell, 2015). Additionally, as the conceptual framework contains moderating variables, it is foreseen that a modeling tool such as Hayes PROCESS will be used to conduct regression path analysis of observed variables. The Hayes model contributes to understanding the when question; it is moderation analysis. For example, it is posited, when there are high levels of effectuation, the impact of entrepreneurship on entrepreneurial internationalisation will be higher. Stated another way, the Hayes PROCESS model empirically quantifies and tests hypotheses about the contingent nature of effectuation, by which entrepreneurship exerts its influence on entrepreneurial internationalisation (Hayes, 2013).

The process will begin with a reliability and validity testing of the variables in the model. The second step is testing the hypotheses. Variables will be tested for unidimensionality using factor analysis (EFA test) (Bryman & Bell, 2015). Principal test is varimax rotation (Bryman & Bell, 2015). Cronbach's alpha values will also be shown for the reliability test (Hair, et al., 2006). Factor analysis will reveal unidimensionality (Bryman & Bell, 2015). Confirmatory factor analysis will check for the reliability and validity of the model as a whole (Hair, et al., 2006). The variable scales will be tested for internal reliability and convergent validity (Hair, et al., 2006). EFA will test for the presence of one factor (Hair, et al., 2006). Scales will be confirmed for factorial validity. Where scales are not valid, consideration will be given to combining items. Inter-item correlation scores will be reported for acceptability (Field, 2013). Item loadings will be reported for significance (Hair, et al., 2006).

Face validity of the variables and the measurement model will be examined by subject experts (Bryman & Bell, 2015). Their suggestions will be important, especially at the pilot study stage. Correlations between variables will be observed to test for multicollinearity (Field, 2013). The model will be measured for construct reliability and validity (Bryman & Bell, 2015). Significance tests are to be conducted on the cause-and-effect relationship. Tests will confirm or not confirm the theory.

In sum, the regression and moderation analysis will perform the following functions (Bryman & Bell, 2015; Hayes, 2013):

- Determines whether the independent variables explain a significant variation in the dependent variable. It answers the question: does a cause-effect relationship exist?
- Determines how much of the variation in the dependent variable can be explained by the independent variables, by strength of relationship, and, whether the relationship is positive or negative.
- Determines whether there is a positive moderating impact by effectuation on the relationship between the independent variables and the dependent variable, entrepreneurial internationalisation.
- Determines the structure of the relationship: the mathematical equation relating the independent variables and the dependent variable
- Identifies the relative importance of each of the multiple independent variables in predicting the single metric dependent variable (from most to least)
- Controls for other independent variables when evaluating the contributions of a specific variable or set of variables.

6.0 Summary

Table 8 highlights each of the components of this research design.

Table 8: Research Design Summary

Stages	Study Particulars
Philosophy	Positivist
Paradigm	Objectivist. Functionalist.
Research Method	Quantitative. Statistical.
Population	SMEs in US and Canada that conduct at least 25% of their business internationally.
Sampling Frame	Scott's Directories (Canada) Dun & Bradstreet Canada
Sampling Strategy	Simple random sampling
Sample Size	3000
Unit of Analysis	Enterprise
Data Collection	Large sample self-administered web-based survey questionnaire
Time Factor	Cross-sectional
Data Analysis	Multi-variable regression and moderation analysis using SPSS

This paper outlines the research process of the conceptual framework presented in Paper 1. Entrepreneurial internationalisation, or rapid internationalisation, is seen in the literature as driven by three independent variables: innovation and technology; entrepreneurial knowledge

and orientation; and international networks (Knight & Cavusgil, 2004; Zhou, 2007; Schweizer, et al., 2010; Dimitratos, et al., 2012; Covin & Miller, 2014; Efrat, et al., 2017). Entrepreneurship, over the past fifteen years, has advanced considerably led by the seminal work on effectuation by Sarasvathy (2001). In this paper, effectuation theory, derived from the entrepreneurship literature, is applied to the related field of entrepreneurial internationalisation, where it has yet to be developed.

This Paper 2 develops the conceptual framework by means of the research objective and research hypotheses, based on the moderating impact of effectuation on the relationship between entrepreneurship and entrepreneurial internationalisation. In sum, it is useful to repeat the research objective, to answer the question, how does effectuation impact on the relationship between entrepreneurship and entrepreneurial internationalisation?

7.0 References

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8.0 Appendices

Appendix A: Survey Questionnaire

The purpose of this research is to investigate how an enterprise internationalizes its business. One concept investigated is called effectuation, which consists of four components: affordable loss, experimentation, flexibility, and pre-commitment. A definition of effectuation follows.

Definition of Effectuation

Effectuation is the ability to experiment, adjust and improvise in a market of uncertainty. Effectuation begins with the means at hand to the entrepreneur and explores how these means are a basis for controlling what can be controlled, by experimenting, adjusting, and improvising. The four dimensions of effectuation are: experimentation, affordable loss, flexibility, and pre-commitment. In experimentation, the entrepreneur applies mental models to explain complex actions. In affordable loss entrepreneurs make decisions that would not put the venture at stake. Flexibility is exploiting contingencies that arise as the new venture unfolds. Pre-commitments are agreements made with customers, suppliers, and networks to provide low-cost resources. It may be said effectuation is the management of uncertainty. The scholar who first employed effectuation theory in business used a chef metaphor to illustrate effectuation. A chef may approach the preparation of a three-course meal two ways. In the first way, a planned approach, the chef writes out the menu, purchases the ingredients and prepares the meal. In the second approach, the chef looks through the kitchen for ingredients and then cooks a meal. The chef has to imagine menus based on the available ingredients, select the menu, and then prepare the meal. This is a process of effectuation. It begins with given ingredients and focuses on preparing one of many meals.

The following items describe thoughts and actions you may have taken in your enterprise. Please indicate the degree to which you agree or disagree with the following: (where 1=Strongly Disagree; 2=Disagree; 3= Neither Agree nor Disagree; 4=Agree; 5=Strongly Agree).

Affordable Loss					
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
<i>1. The first series of questions relate to the Affordable Loss component of effectuation.</i>					
1.1 We were careful not to commit more resources than we could afford to lose					
1.2 We were careful not to risk more money than we were willing to lose					
1.3 We were careful not to risk so much money that the venture would be in real trouble financially if things didn't work out					
Experimentation					

<i>2. The next series of questions relate to the Experimentation component of effectuation.</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
2.1 We experimented with different products and/or business models					
2.2 The product/service that we now provide is substantially different than we first imagined					
2.3 We tried a number of different approaches until we found a business model that worked					
Flexibility					
<i>3. The next series of questions relate to the Flexibility component of effectuation.</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
3.1 We allowed the business to evolve as opportunities emerged					
3.2 We adapted what we were doing to the resources we had					
3.3 We avoided courses of action that restricted our flexibility and adaptability					
3.4 We were flexible and took advantage of opportunities as they arose					
Pre-commitment					
<i>4. The next series of questions relate to the Pre-commitment component of effectuation.</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
4.1 We used pre-commitments from customers and suppliers as often as possible					
4.2 We used a substantial number of agreements with customers, suppliers, and other organizations to reduce the amount of uncertainty					
4.3 Network contacts provided low-cost resources					
4.4 By working closely with people/organizations external to our organization we have been able to greatly expand our capabilities					
4.5 We have focused on developing alliances with other people and organizations					
4.6 Our partnerships with outside organizations and people play a key role in our ability to provide our product/service					

4.7 We focus on risk reduction by approaching potential partners and customers					
4.8 We reduced risks through internal or external partnerships and agreements					
4.9 We jointly decided with our partners/stakeholders on the basis of our competences					
4.10 In order to reduce risks, we started partnerships and received pre-commitments					

Innovation + Technology					
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<i>5. The next series of questions relate to Innovation and Technology:</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
5.1 Our top management always encourages new product ideas for international markets					
5.2 Our top management is very receptive to innovative ways of exploiting international market opportunities					
5.3 Our top management believes the opportunity of international markets is greater than that of the domestic market					
5.4 Our top management continuously searches for new export markets					
5.5 Our top management is willing to consider new suppliers/clients abroad					

Entrepreneurial Knowledge + Orientation					
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<i>6. The next series of questions relate to Entrepreneurial Knowledge and Orientation. Thinking of the largest foreign market in which you sell your products or services:</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
6.1 In this foreign country we favor high-risk projects (with chances of very high return)					
6.2 In general, we believe that owing to the nature of the environment in this foreign country it is best to achieve the firm's objectives in its marketplace via bold and wide-ranging acts					
6.3 In dealing with its competitors in the marketplace of this foreign country, my firm typically initiates actions to which competitors then respond					
6.4 In dealing with its competitors in the marketplace of this foreign country, my firm is very often the first firm to introduce new products/services, administrative techniques, and operating technologies					
6.5 In dealing with its competitors in the marketplace of this foreign country, my firm typically adopts a very competitive 'beat-the-competitors' posture					

6.6 In the past five years my firm has marketed very many new lines of products or services in this foreign country					
6.7 In the past five years in this foreign country changes in product or service lines have usually been quite dramatic					

International Networks					
<i>7. The next series of questions relate to International Networks:</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
7.1 We have technology-based links with customers in international markets					
7.2 We have technology-based links with suppliers in international markets					
7.3 We have entrepreneurial collaborations with external partners					
Entrepreneurial Internationalisation					
<i>8. The next series of questions relate to international market entry, international scope, and international commitment:</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
8.1 From enterprise start up management quickly identified and enacted our first foreign market entry					
8.2 From enterprise start up management quickly grew foreign market revenue as a percentage of total revenue					
8.3 From enterprise start up management quickly entered multiple foreign markets					
8.4 From enterprise start up management established foreign operations within three years of the founding					

With respect to your current organization, how predictable were the behaviors of various external environmental sectors: (Where 1=highly unpredictable and 7=highly predictable)

External Environment: Suppliers of your raw materials and components							
<i>9. The next series of questions relate to how predictable was the behaviour of suppliers of your raw materials and components:</i>	Highly Unpredictable	Unpredictable	Unpredictable Somewhat	Neither Predictable nor Unpredictable	Predictable Somewhat	Predictable	Highly Predictable
9.1 Their price changes are							

9.2 Quality changes									
9.3 Design changes									
9.4 Introduction of new materials or components									
External Environment: Competitors' actions									
<i>10. The next series of questions relate to how predictable was the behaviour of competitors' actions</i>	Highly Unpredictable	Unpredictable	Unpredictable Somewhat	Neither Predictable nor Unpredictable	Predictable Somewhat	Predictable	Highly Predictable		
10.1 Their price changes are									
10.2 Product quality changes									
10.3 Product design changes									
10.4 Introduction of new products									
External Environment: Customers									
<i>11. The next series of questions relate to how predictable was the behaviour of customers</i>	Highly Unpredictable	Unpredictable	Unpredictable Somewhat	Neither Predictable nor Unpredictable	Predictable Somewhat	Predictable	Highly Predictable		
11.1 Their demand for existing products is									
11.2 Their demand for new products is									
External Environment: Financial and capital markets									
<i>12. The next series of questions relate to how predictable was the behaviour of financial and capital markets</i>	Highly Unpredictable	Unpredictable	Unpredictable Somewhat	Neither Predictable nor Unpredictable	Predictable Somewhat	Predictable	Highly Predictable		
12.1 Interest rate changes in short-term debt									
12.2 Interest rate changes in long-term debt									
12.3 Changes in financial instruments available for short-term debt									
12.4 Changes in financial instruments available for long-term debt									
12.5 Availability in credit for short-term debt									
12.6 Availability in credit for long-term debt									
External Environment: Government regulatory agencies									

13. The next series of questions relate to how predictable was the behaviour of government regulatory agencies	Highly Unpredictable	Unpredictable	Unpredictable Somewhat	Neither Predictable nor Unpredictable	Predictable Somewhat	Predictable	Highly Predictable
13.1 Changes in laws or agency policies on pricing are							
13.2 Changes in laws or policies on product standards or quality							
13.3 Changes in laws or policies regarding financial practices							
13.4 Changes in labour (personnel) laws or policies							
13.5 Changes in laws or policies affecting marketing and distribution methods							
13.6 Changes in laws or policies on acceptable accounting procedures							
Enterprise outcomes							
14. The next series of questions relate to how you rate your performance relative to competitors with respect to:	Well Below	Below	Neither Above nor Below	Above	Well Above		
14.1 Sales							
14.2 Profitability							
14.3 Achievement of benchmarks							
14.4 Relationships with customers							
14.5 Time to market							
14.6 Profit margin							
14.7 Cash flow							
14.8 Market share							
14.9 Return on investment							

The next series of questions relate to **Company and Founder Information**.

15. In what year was your company founded? _____

16. At startup, how many individuals had both ownership and involvement in managerial decision making? _____

17. Were you a member of the founding team? _____ Yes _____ No

18. How many full-time employees do you employ? _____

19. What is your gender? _____ Male _____ Female

20. Is this a family-owned firm? _____ Yes _____ No

21. What is your age range? (Please select the most correct response)

a. Less than 25 years old c. 35-44 years old e. 55-64 years old

b. 25-34 years old d. 45-54 years old f. More than 64 years old

22. What is your percentage of ownership in the company? (Please select the most correct response)

a. No ownership 74% c. 5% to 24% e. 50% to 74%

b. less than 5% than 75% d. 25% to 49% f. More than 75%

23. What is the highest educational level you have achieved? (Please select the most correct response)

a. Did not complete high school Degree c. Some technical, college or university e. Master's Degree

b. High school or equivalent equivalent d. Bachelor's Degree f. Ph.D. or equivalent

24. What were your company's annual sales (nearest \$100,000)? _____ FY 18 _____ FY 17 _____ FY 16

25. Our international sales represent what percentage of our total sales? (Please select the most correct response)

a. Less than 25% c. 50 to 74%

b. 25 to 49% d. 75 to 100%

26. Our largest international customer represents what percentage of our total sales? (Please select the most correct response)

a. Less than 25% c. 50 to 74%

b. 25 to 49% d. 75 to 100%

If you would like us to send you a copy of the executive summary, please enter your email address:

Thank you for completing the questionnaire. If you have questions about the project, contact Mark Stoiko (mark.stoiko@humber.ca; 416-675-6622 x 3358) at any time during the project.

Preface to Paper 3

The DBA paper examination process was newly operationalised on March 13, 2020, following the outbreak of COVID-19. Paper 3 was submitted on March 30, 2020, with no requirement to present it.

The examiners expressed a concern that only two of six hypotheses were supported in the pilot study. Even more, none of the three hypotheses of moderation were supported. In Paper 3 it is posited in the conceptual framework that effectuation has a moderating impact on the relationship between entrepreneurship and entrepreneurial internationalisation (Deligianni, et al., 2017). Moderation was found in the conceptual frameworks of some of the literature that informed this research study (Zhang et al., 2014; Deligianni et al., 2017); however, it was found in the pilot study that under high levels of effectuation the impact of entrepreneurship on entrepreneurial internationalisation was not higher. Therefore, moderation was rejected. In short, effectuation is not shown to have a significant moderating impact on the relationship between innovation + technology (independent variable) and entrepreneurial internationalisation (dependent variable) H4; nor is effectuation a moderator of the relationship between entrepreneurial knowledge + orientation and the dependent variable, thus not providing significance for H5; nor does effectuation show statistical significance for moderation in H6. None of the three hypotheses of moderation were supported. Examiners expressed a need for a stronger contingency for the roll-out survey, and to that end, recommended mediation as a strong possibility. Paper 3 was revised to show that a mediation model is a contingency for the study.

Paper 3 closes by announcing plans to shift the sample frame from Survey Monkey Audience to manufacturing associations. Twenty manufacturing associations supplemented by three government agencies were targeted to provide the sampling frame. The plan consisted of multi-point contacts with the associations soliciting their cooperation to send the web-based survey link to their members. Contact alternated between emails and phone calls to the associations, three of each, for a total of six contacts. The twenty associations were made up of more than 6,000 corporate members. Of the twenty associations, nine associations agreed to participate by sending an email invitation to its members to complete the survey. The nine associations represented four hundred and sixteen corporate members. Five of the nine participating associations also published an invitation to complete the survey questionnaire in their e-newsletter. This combined participation delivered zero survey completions. It was reasonable

to conclude that Canadian manufacturers do not have close relationships with their associations and that this avenue of research was futile. It was further reasonable to conclude that manufacturers were impeded from completing the survey questionnaire because of the exigencies of COVID-19. Anecdotally, the manufacturing associations reported challenges in communicating with their members.

Participant Name: Mark Stoiko 20077315

Supervisors: Tom Egan and Aidan Duane

Date: 05 / 09 / 2020

RESEARCH PAPER SERIES

Paper 3

Design Implementation and Initial Findings

**“The Impact of Effectuation on the Relationship between
Entrepreneurship and Entrepreneurial Internationalisation”**

ABSTRACT

Paper 3 proposes the design implementation using a self-administered web-based survey questionnaire and reports the initial findings of a pilot study. The design model is shown and supported by the measurement instruments. The pilot-study sample is explained; survey administration is conducted through SurveyMonkey. Ethical considerations are made clear. The origin and development of the questionnaire is described. The design implementation section closes with data collection.

The initial findings of the pilot study commence with respondent analysis and followed by descriptive statistics. Tests of statistical significance are presented along with measurements of reliability and validity of the relevant indicators. Regression and moderation analysis are presented. The initial findings are related to the research objective and research hypotheses. It is found that the moderator has an enhancing effect; that increasing the level of effectuation (moderator) increases the effect of entrepreneurship (independent variable) on entrepreneurial internationalisation (dependent variable). Finally, the paper closes with considerations for the final survey.

Keywords: entrepreneurship, effectuation, internationalisation.

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1.0 Introduction

This paper presents the design and pilot study findings for a DBA research study which commenced in 2018. This research study proposes to assess if effectuation moderates the relationship between entrepreneurship and entrepreneurial internationalisation. In paper 1 the conceptual framework of the study was presented while paper 2 outlined the research methodology which was a quantitative survey approach with validated scales for all the key constructs.

Paper 3 expands the design implementation by providing greater details of the chosen self-administered web-based survey questionnaire and explains how the target audience was accessed. The survey administration of the pilot study was conducted through SurveyMonkey, and the ethical considerations are described. A pilot study was then conducted, and the findings of this pilot study commence with details of the respondents in the form of descriptive statistics. Tests of statistical significance are presented along with measurements of validity and reliability of the relevant indicators. Regression and moderation analysis are presented. The findings are related to the research objective and hypotheses. Finally, the section closes with considerations for the final survey.

The independent variables of entrepreneurship as shown in the Conceptual Framework (figure 1) are innovation and technology, entrepreneurial knowledge and orientation, and international networks (Knight & Cavusgil, 2004; Zhou, 2007; Schweizer et al., 2010; Dimitratos et al., 2012; Covin & Miller, 2014; Efrat et al., 2017). They are derived from the progression of internationalisation models that were reviewed and analyzed in Paper 1. Sarasvathy et al. (2014) explores two models, the Schweizer et al. (2010) model, renamed the Effectuation Uppsala Model (UE Model), and, the Sarasvathy (2008) model. It is these models that provide the foundation of the Conceptual Framework in this paper series, the relationship between entrepreneurship and internationalisation, and how the relationship is impacted by effectuation.

The conceptual framework argues that entrepreneurial internationalisation (EI) is a natural extension of the early economics-inspired models of Edith Penrose of the 1950s and then, the Uppsala model of 1977 (Vahlne & Johanson, 2017) which explored how multinational enterprises internationalised, to the introduction of the term born globals to explain rapid internationalisation (Oviatt & McDougall, 1995). It may be said that early understanding of internationalisation was derived from studying the MNE, from which scholars developed the theory of traditional internationalisation (Oviatt & McDougall, 1995). Traditional

internationalisation theory was summarized in Table 3 of Paper 1. It evolved over time with effort to embrace SMEs, process models, innovation and networks. Traditional internationalisation theory found widespread scholarly support and adoption (Oviatt & McDougall, 1995; Madsen & Servais, 1997). Yet in the period since the 1970s, conditions have given birth to entrepreneurial internationalisation, which includes born-global firms. Table 4 of Paper 1 summarised the key studies in born globals from both a quantitative and qualitative method approach. The contribution of born-global theory to the conceptual framework in this paper series is the drivers of internationalisation, namely, innovation and technology, entrepreneurial knowledge and orientation, and, international networks.

The dependent variable, entrepreneurial internationalisation is defined by better relative performance (Zhang, et al., 2014), and a greater speed of international entry, greater speed of international commitment, and greater speed of international scope (Prashantham, et al., 2019).

Effectuation is characterized along four variables: experimentation, affordable loss, flexibility, and pre-commitment (Chandler, et al., 2011; Harms & Schiele, 2012; Deligianni, et al., 2017, Kalinic et al. 2014). The gap in the literature is testing how effectuation impacts on the relationship between entrepreneurship and entrepreneurial internationalisation, thus answering calls for this research by Laine and Galkina (2017), Galkina and Lundgren-Henriksson (2017), and Deligianni et al. (2017). It is posited in the conceptual framework that effectuation has a moderating impact on the relationship between entrepreneurship and entrepreneurial internationalisation (Deligianni, et al., 2017). Under high levels of effectuation, the impact of entrepreneurship on entrepreneurial internationalisation is proposed to be higher and vice versa.

2.0 Design Implementation

The design is a consequence of the research objective and research hypotheses which are outlined below.

2.1 Design Model

The research objective is to answer:

How does effectuation impact on the relationship between entrepreneurship
and entrepreneurial internationalisation?

The research hypotheses test the relationship between three variables of entrepreneurship (independent variables) and entrepreneurial internationalisation (dependent variable):

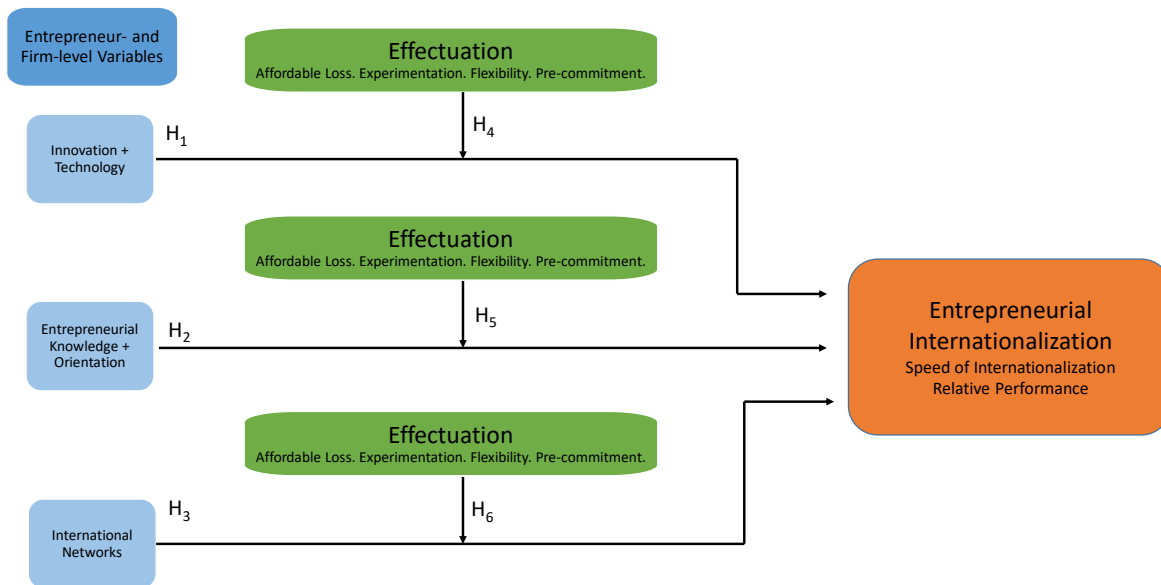
- H1: Innovation and Technology has a positive significant impact on Entrepreneurial Internationalisation.
- H2: Entrepreneurial Knowledge and Orientation has a positive significant impact on Entrepreneurial Internationalisation.
- H3: International Networks has a positive significant impact on Entrepreneurial Internationalisation.

The hypotheses also posit that there is a moderating impact between entrepreneurship and entrepreneurial internationalisation from effectuation. They are:

- H4: Effectuation has a positive moderating impact on the relationship between Innovation and Technology, and Entrepreneurial Internationalisation.
- H5: Effectuation has a positive moderating impact on the relationship between Entrepreneurial Knowledge and Orientation, and Entrepreneurial Internationalisation.
- H6: Effectuation has a positive moderating impact on the relationship between International Networks, and Entrepreneurial Internationalisation.

The design and hypotheses can be viewed in Figure 1.

Figure 1: Conceptual Framework and Hypotheses



The design model is supported by measurement instruments.

2.2 Measurement Instruments

Best practices are followed in survey design, which include the design of rating scales, management of response bias, ordering of questions, and evaluating word usage in questions (Krosnick & Presser, 2010). In this web-based questionnaire, question ordering is governed by serial and semantic aspects. Serial concerns the management of fatigue in responding, and semantic concerns the sequence of meaning. A balance of serial and semantic aspects is achieved by placing the most important questions earlier in a web-based questionnaire and placing the questions of most interest earlier (Baatard, 2012). Variables and their scale items are drawn from the literature. Questions are also drawn from earlier surveys in the literature, which allows for comparative analysis (Forsyth, et al., 2004).

The first step in survey design “is to review and understand the information requirement of the problem, opportunity, or decision that led to the need for a questionnaire” (Ambrose & Anstey, 2010, p. 83). Historically, the quantitative research paradigm was the first research design in management studies. It became the embedded research design “because it was the first research paradigm that incorporated ontological, epistemological, axiological, rhetorical, and methodological assumptions and principles” (Leech & Onwuegbuzie, 2008, p. 266).

Strong theory underpins each variable in the conceptual framework. Attention is given to “designing a clear, relevant, meaningful and unambiguous survey for eliciting the desired

information from selected respondents” (Baker, 2003, p. 343). When the procedures for survey design are followed, researchers “can then structure an effective questionnaire and capture the information” (Ambrose & Anstey, 2010, p. 84). Table 1 summarizes the operationalization of the independent variables. (See Appendix A for the full survey.)

Table 1: Independent Variables: Scale Reference

Variable	Scale Reference
Innovation + Technology	Innovativeness contributes to international entrepreneurship (Covin & Miller, 2014); international entrepreneurship is perceived to be the aggregate of the firm’s innovativeness (Dimitratos, et al., 2012); innovation is linked to the early adoption of internationalisation (Knight & Cavusgil, 2004). Cronbach alpha: 0.825
Entrepreneurial Knowledge + Orientation	Brokering, resource leveraging, value creation, and opportunity are sought through innovation, and proactive risk-seeking behavior. Encouragement of experimentation, supporting new ideas, anticipating future needs, pioneering new products and processes, and taking risks (Dimitratos et al., 2012). Cronbach alpha: 0.813
International Networks	Firms that operate in an international network enjoy a “learning advantage” and find it “easier” to go abroad (Dimitratos, et al., 2012). Cronbach alpha: 0.809

Table 2 summarizes the operationalization of the dependent variable, entrepreneurial internationalisation. In this study a four-item scale comparing the enterprise with competitors (Zhang, et al., 2014) is used. In addition, four other items are being tested, three of which are adapted from Prashantham, et al., (2019). Prashantham et al. (2019) is a theoretical paper that posits propositions for speed of internationalisation, hence, there are no survey questions. This author adapted the three dimensions for speed of internationalisation as they appear in the theoretical framework. The fourth item is adapted from Li et al. (2012): “Early internationalisation reflects the degree to which the STEs had established foreign operations within three years or less of their founding” (p. 548). The adapted item is found in Table 2.

Table 2: Dependent Variable: Scale Reference

Variable	Scale Reference
Entrepreneurial Internationalisation	Better relative performance (Zhang, et al., 2014). (4 items) Cronbach alpha: 0.813 A greater speed of international entry, greater speed of international commitment, and greater speed of international scope (adapted from Prashantham, et al., 2019) (3 items) Cronbach alpha: na Internationalisation is achieved through the application of resources within three years of start-up (adapted from Li, et al., 2012). Cronbach alpha: na

Table 3 summarizes the definition and scales used for the moderating variable, effectuation.

Table 3: Moderating Variable: Scale Reference

Variable	Scale Reference
Effectuation (Experimentation)	The entrepreneur is using the cognitive perspective and applies mental models and heuristics to explain complex strategic actions. It is a learning-by-doing process and a way of managing complication and uncertainty (Chandler et al., 2011). Cronbach alpha: 0.78
Effectuation (Affordable loss)	Entrepreneurs using effectuation avoid large initial investments; investments are made incrementally (Chandler et al., 2011). Cronbach alpha: 0.85
Effectuation (Flexibility)	For entrepreneurs using effectuation, flexibility is exploiting contingencies that arise as the new venture unfolds (Chandler et al., 2011). Cronbach alpha: 0.70
Effectuation (Pre-commitment)	Pre-commitments are agreements made with customers, suppliers, and networks to provide low-cost resources (Chandler et al., 2011; Harms & Schiele, 2012; Brettel, et al., 2012; Roach, et al., 2016). Cronbach alpha: 0.62 (Chandler, et al., 2011); 0.86 (Harms & Schiele, 2012); 0.82 (Brettel, et al., 2012); 0.71 (Roach, et al., 2016)

Having explained the measurement instruments, the discussion moves to sampling.

Before finalizing the scales for the main variables, a draft questionnaire was circulated among three international business scholars, who provided commentary that led to further refinement of the pilot-study instrument.

2.3 Sampling

The population is made up of SMEs in Canada, small and medium-sized manufacturers that are exporting at least twenty-five per cent of their production; founded in the past twenty years; privately owned; and employ less than 500 employees. Earlier studies have justified the

population using the criteria of national studies of SMEs. This study is justified similarly as follows. In its survey-based research Knight and Cavusgil (2004) sought a sample of firms that were less than twenty years old and had internationalized within three years of founding. They surveyed US manufacturers who exported at least twenty-five per cent of production. Efrat et al. (2017) followed the model set by Knight and Cavusgil (2004): they targeted Israeli firms that entered foreign markets within three years of start-up and exported twenty-five per cent or more of their sales. Dimitratos et al. (2013) drew their sample from a population of US- and UK-based manufacturers and service firms ranging from low-tech to high-tech. Internationalisation date from inception was not relevant, nor was the foreign market mode of service. Cross-national comparisons, however, were relevant. SMEs were selected to increase the chance that the respondent would be someone responsible for international sales or marketing. Harms and Schiele (2012) derived their sample from German SMEs.

In choosing a sample, the goal is to choose a sample that is representative of the population (Bryman & Bell, 2015). Five major list and database providers were sourced to access the target population of Canadian SMEs namely Scott's Directories Canada; Dun & Bradstreet Canada; Statistics Canada; Simply Analytics; and OEC Observatory of Economic Complexity. None of the five sources collected email addresses due to Canadian privacy legislation (The Privacy Act; and, Personal Information Protection and Electronic Documents Act, known as PIPEDA). While probability sampling is the preferred approach, due to the unavailability of opt-in email lists in Canada, the study turned to quasi-random sampling approaches. One such approach was offered from SurveyMonkey's Audience for Scholars. Through the millions of people who complete surveys each month, SurveyMonkey offers panels of participants from whom academics collect data. It offers an audience that allows researchers to collect data according to company size, industry sector and professional position. Additionally in the context of this study, it was possible to set a qualifying question that disqualified a respondent if their company did not sell its products internationally. Table 4 summarizes the criteria set using Survey Monkey to target a sample for this study.

Table 4: Sample Characteristics

Characteristic	Category
Company size	500 employees or less
Industry sector	Manufacturing
Qualifying question	Does your company sell some of its products in international markets? Yes (accept). No (reject).
Professional position	Director/Manager. Other decision-maker.

Consideration was then given to “the overall design, delivery and administration of web surveys and the accessibility, structure, presentation and layout of their questions” (Baatard, 2012, p. 101). In this regard, a restriction of the SurveyMonkey platform was that it limits the total number of questions to a maximum of fifty. Given that the main variables outlined in section 2.2 covered 43 questions, this left just seven remaining questions for contextual control variables. This list was reduced from seven to five when it was learned that two of the questions were mandated by the Survey Monkey platform. Ideally, the researcher would have liked to have more than five contextual variables and to get a sense of how these contextual variables would vary across the respondents, a decision was taken to do a pre-pilot survey which includes all variables across two separate studies – a part A focused on the variables in section 2.2 related to the six hypotheses, and a part B, which related to the contextual control questions. Appendix B summarizes the results of the pre-test which yielded useful information for the actual pilot study; it helped clarify the importance of the various contextual variables; such an approach is consistent with literature (Knight & Cavusgil, 2004).

2.4 Survey Administration

Survey respondents were required to answer all questions, reach the end of the survey, and click the “Done” button. Unfinished survey respondents were those who started the survey but abandoned or left the survey before completing it. Unfinished respondents were not calculated in the results.

The sampling frame consisted of a population in SurveyMonkey Audience. This is a diverse online population that voluntarily takes surveys. An initial qualifying question was asked of all respondents, ‘Does your company sell some of its products in international markets?’ If answered, ‘No’, then the respondent was not permitted to continue the survey. Respondents were further restricted to owners or decision-makers; to be employed with a manufacturer in Canada; and, having 500 or fewer employees. Respondents were required to answer all

questions, to reach the end of the survey and click the 'Done' button. Contextual questions further controlled the respondents.

As stated above, SurveyMonkey Audience asks two of its own questions that are included as part of the fifty questions. So, while the questionnaire started with fifty questions, two had to be eliminated for the survey to be accepted by the platform. At the end, forty-eight questions were asked. Questions of the highest importance appeared early in the questionnaire. Subsections of the questionnaire were displayed one at a time so that the respondents were not overwhelmed by screen overload. The platform provider advised against a progress indicator as it can act as a deterrent for survey completion.

2.4.1 Finalisation of Contextual Controls

Contextual controls include the firm's age, size, financial resources, number of founders, internationalisation experience, level of dependence, industry, and environment uncertainty (Deligianni et al., 2017). They are important because they may help explain rapid internationalisation. The firm's age is measured by the number of operating years, and size by the number of employees. Financial resources are measured by access to capital. The number of founders reflects the size of the founding team. Level of dependence measures how much of the firm's business is dependent on the largest customer. Environmental uncertainty is measured as a three-item scale that captures the rate at which products/services become obsolete, the predictability of competitors' actions, and the predictability of demand and customer tastes (Miller & Droge, 1986; Deligianni, et al., 2017, p. 360). Harms and Schiele (2012) controlled for firm age and size, demographics, uncertainty, and internationalisation experience. Zhang et al. (2009, p. 311) controlled for firm size and environmental uncertainty. Zhou (2007, p. 289) controlled for firm size, internationalisation experience and industry.

As stated above, the Survey Monkey platform restricted the number of contextual variables to five for the pilot study and the chosen variables were international sales, the year of foundation, the number of full-time employees, the % of ownership, and the annual sales. These were found to be the most relevant variables in the pre-pilot study which was described earlier.

2.4.2 Ethical Considerations

Attention to the ethical and legal implications of research is an accepted and inherent part of good research practice (Bryman & Bell, 2015). Research ethical standards are established in this study: identifying, promoting, and adopting clearly set principles and procedures that guide the action of the researcher. The Research Ethics Committee of Waterford Institute of

Technology received the application for ethical clearance of the study, which was granted in a letter dated August 9, 2019 (see Appendix C).

- The researcher is a holder of the Certificate of Practice in the Canadian Tri-Council Policy Statement: Ethical Conduct for Research Involving Human Subjects, 2nd edition (TCPS2).
- Conflict of interest. There are no anticipated conflicts expected to arise in this study.
- Human participants. Individuals whose data is relevant to the research question may have identifiable private information. This data is confidential and is protected by the researcher.
- Principles of research. Respect for human dignity is the underlying value of this research. Research that benefits society and advances knowledge is guided by respect for vulnerable persons; respected for privacy and confidentiality; respect for fairness and equity; respect for free and informed consent; and protecting from harm.
- Authority of the Research Ethics Committee. The Committee of the Waterford Institute of Technology is vested with the authority to review, approve, reject, or modify this research study. It may suspend or terminate the study should it not comply with policy.
- Researcher. The researcher ensures that all research meets the highest standards of scientific rigor and ethics; review protocols to verify there is adherence policy and practice.
- Information guidelines. The information guidelines to participants contain the title of the Research Project; name of the Researcher; a statement of research Purpose; a description of the research; Potential Risks; Potential Benefits; Confidentiality; Withdrawal Procedures; Conflict of Interest, if any; Follow up, any plans to contact participants for follow-up or related research; and Statement of Approval.
- Consent. For informed consent, participants are given adequate explanation of the study, its anticipated outcome, and risks. Contact information of the researcher is given, as well as contact information of the Research Ethics Committee of WIT. Consent appears on the home page for the survey.
- Participant recruitment guidelines. Recruitment is conducted by SurveyMonkey Audience. Recruitment tools provide the title of the research study; name of the researcher; brief description of the study; contact information of the researcher; and contact information of the Research Ethics Committee of WIT.

- Data privacy, storage, and disposal. Guidelines of the Research Ethics Committee of WIT are followed. The web-based survey is conducted using SurveyMonkey Enterprise edition, which is governed by encryption, SSO, SSAE-16 SOC II compliant data centers, HIPAA and GDPR compliance.

A summary of ethical considerations is found in Table 5.

Table 5: Ethical Considerations

Ethical Principles	Description
Primary goal	Protect all participants, researcher, WIT.
Core values	Respect for each person. Concern for welfare of each person. Fair and equitable treatment.
Participant safety	Physical, emotional, or social risks.
Informed consent	Participants are informed of potential risks and have clearly consented.
Participant anonymity	Preserved throughout recruitment, research, and data storage.
Vulnerable groups	Vulnerable group identity not to inhibit informed consent.
Recruitment strategy	Fair, inclusive, and non-coercive.
Withdrawal	Withdrawal process is clear and easy.
Data storage	Secure storage until destroyed.
Conflicts of interests	Avoided.

2.4.3 Information Guide, Informed Consent, Publication Agreement

Research that benefits society and advances knowledge must be guided by ethical principles of conduct (Bryman & Bell, 2015). These include respect for human dignity, including respect for vulnerable persons; respect for privacy and confidentiality; respect for fairness and equity; respect for free and informed consent; and a balance of harms and benefits, maximizing benefits and protecting from harm. All participants in the study were required to read an Information Guide, Informed Consent and Publication Agreement which were embedded in the questionnaire (see Appendix A) and were given the opportunity to withdraw from the study.

An important mechanism for respecting participants' autonomy in research is the requirement to seek their free and informed consent. This requirement reflects the commitment that participation in research should be a matter of choice and that, to be meaningful, the choice must be informed. An informed choice is one that is based on as complete an understanding as is possible of the purpose of the research, what it entails, its risks and potential benefits, both to the participant and to others. Therefore, research may only proceed if:

- potential participants have voluntarily and freely agreed to participate in the research study based on well understood information about the objectives of the research and the nature of their participation; and
- their consent is maintained throughout the duration of their participation in the research.

Participation is strictly voluntary and is recorded in the documentation of consent.

2.4.4 Data Collection Considerations

A web-based survey is the instrument of data collection. There are seven categories of questions to be asked beginning with demographics, which includes years of business experience and years of international experience. Attitudinal questions assess attitudes, beliefs, and preferences. Beyond demographics and attitudes, there are behaviour and knowledge questions. Intentions focus on anticipated future behaviour; propositions are “what if” questions; and predispositions are questions that have to do with forecasting sales, capital investments and plans for growth (Ambrose & Anstey, 2010).

The data is collected in SurveyMonkey and transferred to SPSS v25. The initial procedures are followed as described hereafter. In Variable view of the SPSS file, it is ensured that each variable has the appropriate ‘measure.’ In the case of missing values, 999 is input. In the Data view of the SPSS file, it is checked that data has been inputted correctly by running frequencies; values are checked against the response set; for incorrect values, the missing data code, 999, is input. Missing data is also checked in the Data view, and if any is found, the missing data code, 999, is input. For each variable, the reliability of the scale is checked using Cronbach’s alpha. If necessary, items are eliminated, and the reliability checks are rerun. Then, the scale for each variable is summated. A range, mean and standard deviation is obtained for each summated scale. Using frequency analysis, contextual variables are reported, accordingly. Remaining variables are reported by counts and percentages.

3.0 Pilot-Study Findings

Section 3.0 begins with respondent analysis, which is followed by an examination of underlying data assumptions and diagnostic testing. Descriptive statistics are discussed. Tests of significance are presented along with measurement of validity and reliability of the relevant indicators. Relevance of the findings to the hypotheses are reported. The initial findings are related to the research objective and research hypotheses. The section closes with considerations for the rollout of the full survey.

3.1 Respondent Profile and Descriptive Statistics

The pilot study was attempted by sixty-five respondents and completed by forty-seven, an acceptance rate of 72%. Of the eighteen respondents who did not complete the questionnaire, fifteen were rejected because they answered 'no' to the qualifying question: Does your company sell some of its products in international markets? The high acceptance rate suggests the absence of confusion and ambiguity among the major themes found in the independent, moderating, and dependent variables, as well as the contextual control questions. The high acceptance rate also suggests an approval of survey appearance, its length, readability, and sequencing.

All the respondents (forty-seven) sold some of their products internationally; forty respondents (84%) sold twenty-five per cent or more of their products internationally (this is consistent with the cut-off used by Knight and Cavusgil (2004)). The high percentage of respondents (84%) selling twenty-five per cent or more of the products internationally lends confidence to the international focus of the study. Thirty-two respondents (67%) employed 500 or fewer employees (consistent with the cut-off by Harms and Schiele, 2012). Forty-one respondents (87%) had annual sales of less than CDN\$50 million (consistent with the cut-off by Chandler et al., 2013). Other contextual controls of interest were twenty-six respondents (56%) had an ownership in their company; and thirty-one were male (67%) and sixteen were female (33%), while the average age of respondents was in the 45-60 category in years.

Table 6 reports the mean, standard deviation of the independent variables and the dependent variable, entrepreneurial internationalisation.

Table 6: Descriptive Statistics for the Main Variables

Variable	Mean	Standard Deviation
Entrepreneurial Internationalisation	3.66	0.690
Innovation and Technology	3.99	0.653
Entrepreneurial Knowledge and Orientation	3.55	0.764
International Networks	3.71	0.625
Effectuation	3.84	0.512
Affordable loss	3.98	0.679
Experimentation	3.55	0.756
Flexibility	3.97	0.548
Pre-commitment	3.85	0.579

Given that each of the above scales were on a range of 1 to 5 with 1 signifying strong disagreement and 5 signifying strong agreement, it can be inferred from the above table that the respondents represented SMEs with relatively high levels of innovation & technology, high participation levels in international networks and high levels of entrepreneurial knowledge and orientation. The average value of 3.66 for the dependent variable (entrepreneurial internationalisation) indicates that the respondents perceive themselves to have relatively high levels of speed in international entry, speed, and scope. The mean scores for the moderating variable (effectuation) are mostly higher than the mean scores for the dependent variable signifying high levels of this variable amongst the respondents (see Appendix D).

3.2 Reliability of Scales

Computations and analyses were conducted on the eight variables for the internal reliability of scales. Reliable and valid scales for the variables were created using the procedure described in section 2.4.4. Data Collection Considerations, and summarized in Appendix E, F and G.

Correlations between variables are observed to test for multicollinearity (Field, 2013). The model is measured for construct reliability (Bryman & Bell, 2015). Significance tests are conducted on the cause-and-effect relationship.

Tables 7 reports the Cronbach alpha score for the scales found in the independent, moderating, and dependent variables (see Appendix E, F and G for reports on the reliability and factorial validity results of the independent, moderating, and dependent variables). Part of the examination of items in the scales is the test for Cronbach's alpha if the item is deleted. It is

found that the Cronbach's alpha scores do not rise if any items are deleted in the eight scales (see Appendix E, F and G). Cronbach alpha scores are above 0.70, signifying internal reliability of the scales (Hair, et al., 2006) for the independent variables (Zhou, 2007; Dimitratos, et al., 2012), moderating variable (Chandler, et al., 2011), and the dependent variable (Li, et al., 2012; Zhang, et al., 2014; Prashantham, et al., 2019). The scales are summated and used in the subsequent regression. In short, reliability of the scales is found based on the Cronbach alpha values. (See Appendix E, F and G for the meaning of statistical tests used in this paper.)

Table 7: Variable Scales – Cronbach Alpha Scores

Variable Scale	Cronbach's Alpha
Independent variables:	
Innovation + Technology	0.819
Entrepreneurial Knowledge + Orientation	0.880
International Networks	0.770
Moderating variable:	
Effectuation – Affordable Loss	0.731
Effectuation - Experimentation	0.681
Effectuation – Flexibility	0.712
Effectuation – Pre-commitment	0.818
Dependent variable:	
Entrepreneurial Internationalisation	0.886

3.3 Inter-Correlation Analysis

Prior to conducting regression analysis to test the research hypotheses, it was considered appropriate to test the inter-correlations between the main variables as high levels of correlation between the independent variables can be associated with multicollinearity issues in regression models. This inter-correlation analysis is shown below in Table 8:

Table 8: Inter-Correlations among the Main Variables

	Entrepreneurial Internationalisation	Innovation + Technology	Know + Orient	Int Net	Affordable Loss	Experiment	Flexibility	Pre-commitment
Entrepreneurial Internationalisation	1.000							
Innovation + Technology	0.728***	1.000						
Knowledge + Orientation	0.806***	0.603***	1.000					
International Networks	0.715***	0.594***	0.780***	1.000				
Effectuation	0.619***	0.806***	0.673***	0.676***				
Affordable Loss	0.205	0.461***	0.179	0.187	1.000			
Experimentation	0.630***	0.679***	0.703***	0.707***	0.306**	1.000		
Flexibility	0.465***	0.674***	0.484***	0.562***	0.408***	0.629***	1.000	
Pre-commitment	0.685***	0.782***	0.792***	0.714***	0.334^	0.739***	0.657***	1.000

*Significant at 0.05; **Significant at 0.01; *** Significant at 0.001

Firstly, it is noted that the relatively high correlations between the independent variables and the dependent variable in the first column (0.728, 0.806 and 0.715) are consistent with expectations (as captured in H1, H2 and H3). The correlations between the independent variables (0.603, 0.594 and 0.780) are all below the cut-off of 0.90 (Field, 2013) suggesting that multicollinearity is unlikely to be an issue.

Note that an inter-correlation analysis was also conducted between the contextual variables, and this is shown in Appendix L – this showed that the correlations between these variables are all very low – again consistent with the view of no multicollinearity in a regression model.

3.4 Regression Analysis

Firstly, this analysis began with an assessment of the underlying assumptions and diagnostic tests for regression analysis. The importance of diagnostic tests lies in that regression is somewhat robust to violations of data assumptions (Hair, et al., 2006). The data assumptions we work with are: variables are metric allowing for the use of multiple regression; the variables are normally distributed; there is minimal multicollinearity among independent variables, that is the independent variables are not so closely related that they are the same variable; there is constant variance of error terms, or homoscedasticity; error terms are independent of one another (respondents have not conferred with one another) (Field, 2013). Once these assumptions were viewed to be satisfied, the analysis proceeded to test for the research hypotheses.

In the first regression model, hypotheses H1, H2 and H3 are tested. The regression equation prior to completing the analysis is:

$$y = b_0 + b_1(\text{Innovation} + \text{Technology}) + b_2(\text{Entrepreneurial Knowledge} + \text{Orientation}) + b_3(\text{International Networks}) + e.$$

Table 9 below shows the results of the first multiple linear regression analysis with entrepreneurial internationalisation as the dependent variable and provides support for two hypotheses, H1 and H2.

Table 9: Multiple Regression Results

Variable	<i>B</i>	β	SE β	<i>p</i>
Intercept	0.205	X	X	X
Innovation and Technology	0.520	0.360	0.105	<0.001**
Entrepreneurial Knowledge and Orientation	0.403	0.504	0.115	<0.001**
International Networks	0.120	0.109	0.140	0.198

The support for H1 and H2 (see Table 9) is not surprising given the literature indicates the same findings (Zhou, 2007; Dimitratos, et al., 2012). The absence of support for H3 is, however, surprising; nonetheless, there is a positive slope, and the direction of the relationship is as expected.

The slope coefficients confirm that there is a positive relationship between the predictor variables and the outcome (Field, 2013). The Standardized Beta (*B*) tells us to what degree

each predictor affects the outcome if the effects of all other predictors are held constant. For example, if Entrepreneurial Knowledge + Orientation rises by 1 standard deviation, the dependent variable (Entrepreneurial Internationalisation) rises by 0.52 standard deviations keeping everything else constant.

An ANOVA analysis of this regression model revealed an F statistic is 42.07 and the *p* value is <0.001. According to the results of the ANOVA table (Appendix K), the research model explains the variation in entrepreneurial internationalisation very well. Looking at the Sum of Squares the residual is much less (5.57) than the regression sum of squares estimate (16.34). Consequently, the model explains the variation in the dependent variable.

3.5 Regression with Effectuation as a Moderator

The Hayes Process macro tool within SPSS was used for moderation analysis and a first step performed was to run a hierarchical model to see if the addition of effectuation made a difference to the ability to predict the dependent variable (entrepreneurial internationalisation). This analysis is shown in Table 10 below and it shows that the r^2 rose from 0.746 to 0.771 when effectuation was added to the model – suggesting that the inclusion of effectuation is improving the ability to predict the dependent variable. Both models are all significant at $p < 0.001$ and the *p* value for the F change is significant in model 2.

Table 10: Hierarchical Models with and without Effectuation

Model	R Square	Adjusted R Square	R Square Change	F	<i>p</i>	F Change	<i>p</i> for F Change
1	0.746	.728	.746	42.074	< 0.001**	42.074	0.000
2	0.771	.749	.007	35.288	< 0.001**	4.540	0.020*

Model 1 Predictors: (Constant); International Networks; Entrepreneurial Knowledge + Orientation; Innovation + Technology

Model 2 Predictors: (Constant); International Networks; Entrepreneurial Knowledge + Orientation; Innovation + Technology; Effectuation

Dependent Variable: Entrepreneurial Internationalisation

*Significant at 0.05

**Significant at 0.001

The next step in the regression analysis was to test for the moderating effect of effectuation in the relationship between the independent variables and the dependent variable. This is shown

for the three hypotheses (H4, H5 and H6) below. Note that the approach used in this analysis was to add an interaction term (the product of the independent variable multiplied by the moderating variable), and a significant interaction term would be interpreted as confirming the presence of moderation.

3.5.1 Moderation Analysis for H4

For this hypothesis, innovation and technology was used as the independent variable and the results are shown below in Table 11:

Table 11: Regression Analysis for H4

Variable	Slope Coefficient	SE	<i>p</i>
Constant	3.701	0.072	<0.001**
Innovation and Technology	0.641	0.149	<0.001**
Effectuation	0.147	0.224	0.257
X*W	-0.146	0.171	0.199

n = 47
a: Y is Entrepreneurial Internationalisation, X is Innovation + Technology, W is Effectuation
Model Summary: $R^2 = 0.539$, $p < 0.001$, $F = 28.890$
X*W: R^2 change = 0.005, $p = 0.199$
**Significant at 0.001

Note that the addition of the interaction term between entrepreneurship (innovation + technology) and effectuation to the regression model did not explain a significant proportion of the variance in entrepreneurial internationalisation, $\Delta R^2 = 0.005$, $\Delta F(1, 43) = 0.727$, $p = 0.199$. This insignificant result may be attributable to the relatively low sample size, but the slope coefficients are all as expected in this model.

3.5.2 Moderation Analysis for H5

For this hypothesis, entrepreneurial knowledge and orientation was used as the independent variable and the results are shown below in Table 12:

Table 12: Regression Analysis for H5

Variable	Coefficient	SE	<i>p</i>
Constant	3.604	0.063	<0.001***
Entrepreneurial Knowledge + Orientation	0.654	0.099	<0.001***
Effectuation	0.228	0.182	0.109
X*W	0.226	0.153	0.074
n = 47 a: Y is Entrepreneurial Internationalisation, X is Entrepreneurial Knowledge + Orientation, W is Effectuation Model Summary: $R^2 = 0.681$, $p < 0.001$, $F = 32.905$ X*W: R^2 change = 0.021, $p = 0.074$ ***Significant at 0.001			

Note that the addition of the interaction term between entrepreneurial knowledge & orientation and effectuation to the regression model did not explain a significant proportion of the variance in entrepreneurial internationalisation, $\Delta R^2 = 0.021$, $\Delta F(1, 43) = 2.178$, $p = 0.074$. This is an insignificant result at the 5% level, but it is significant at the 10% level; in addition, it is noted that the slope coefficients are as expected in this model.

3.5.3 Moderation Analysis for H6

For this hypothesis, entrepreneurial knowledge and orientation was used as the independent variable and the results are shown below in Table 13:

Table 13: Regression Analysis for H6

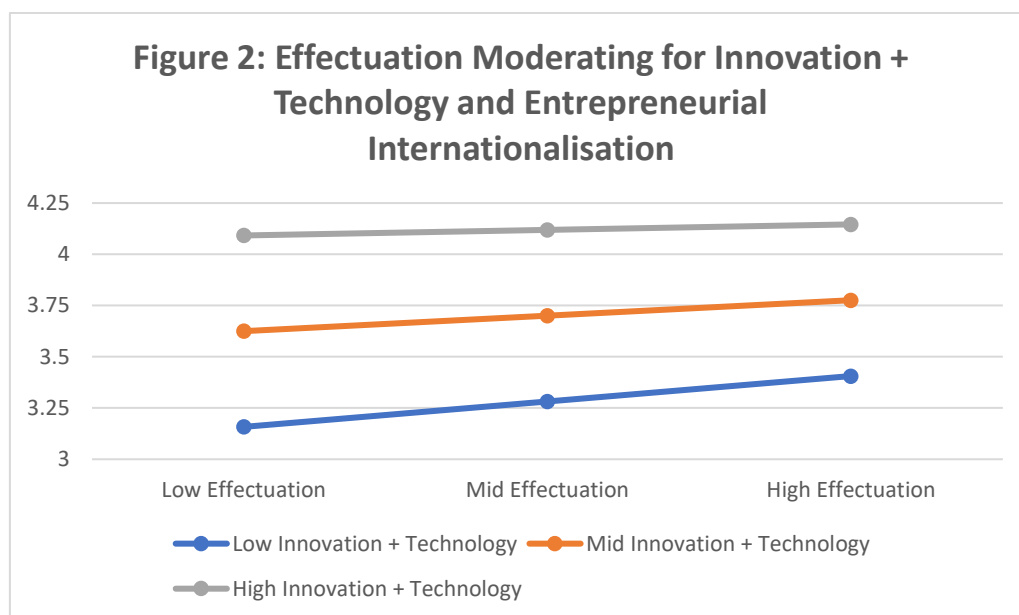
Variable	Coefficient	SE	<i>p</i>
Constant	3.615	0.085	< 0.001***
International Networks	0.597	0.178	0.001***
Effectuation	0.381	0.263	0.072
X*W	0.221	0.191	0.127
n = 47 a: Y is Entrepreneurial Internationalisation, X is International Networks, W is Effectuation Model Summary: $R^2 = 0.558$, $p < 0.001$, $F = 26.118$ X*W: R^2 change = 0.013, $p = 0.127$ ***Significant at 0.001			

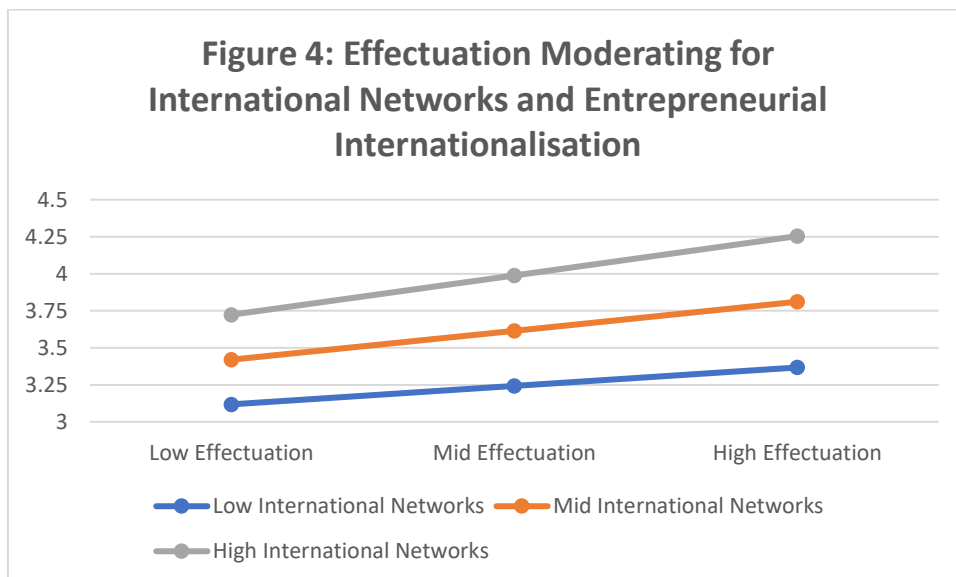
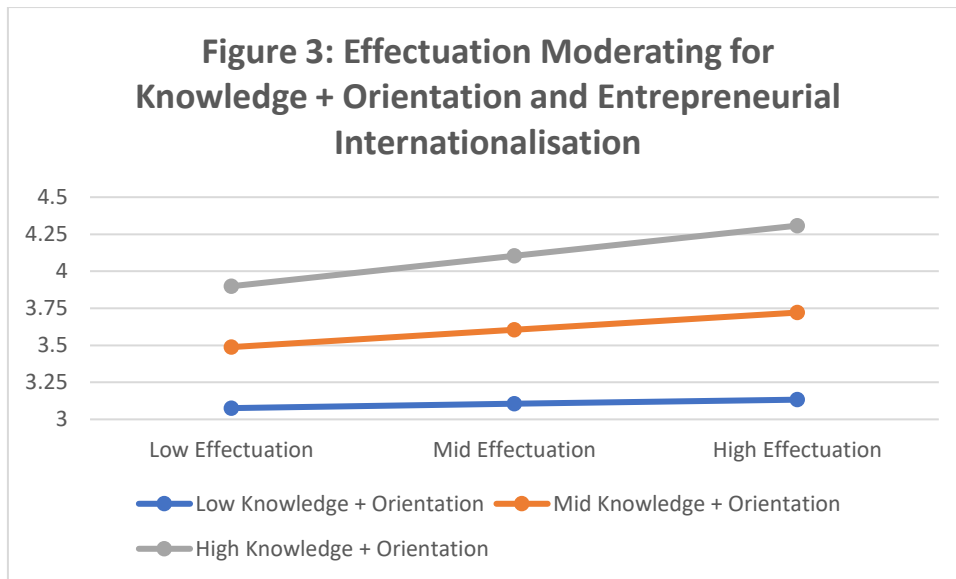
Note that the addition of the interaction term between entrepreneurial knowledge & orientation and effectuation to the regression model did not explain a significant proportion of the variance

in entrepreneurial internationalisation, $\Delta R^2 = 0.013$, $\Delta F(1, 43) = 1.341$, $p = 0.127$. This is an insignificant result at the 5% and 10% levels which may be attributable to the low sample size; it is also noted that the slope coefficients are as expected in this model.

3.5.4 Additional Moderation Analysis

While the above regression models do not provide strong support for hypotheses 4, 5 and 6, it was decided to carry out additional moderation analysis of the relationships between the respective independent variables, the dependent variable, and the moderating variable. Using Hayes PROCESS for SPSS Version 3.4 (2018) a matrix was run. This involved looking at the relationship between each independent variable and the dependent variable for low, mid, and high levels of the moderator and this showed that the relationships are highest at high levels of effectuation (as per H4, H5 and H6) as shown below in figures, 2, 3 and 4).





In summary, these diagrams do show that as effectuation levels increase, so does the relationship between the independent variables and entrepreneurial internationalisation. The relationship between these independent variables and entrepreneurial internationalisation is lowest when effectuation is low and highest when effectuation is highest – this provides support for the proposed hypotheses H4, H5 and H6.

Having completed the regression and moderation analysis, the discussion moves to the relevance of findings to the hypotheses.

3.6 Summary and Discussion of Findings

This part of the paper reviews and discusses the relevance of the pilot study findings. Firstly, the findings in relation to the research hypotheses are summarised below:

Table 14: Hypothesis Testing Summary H1 to H6

Hypothesis	Pilot Study Finding
H1: Innovation + Technology has a positive significant impact on Entrepreneurial Internationalisation	H1 Accepted ($p = 0.001^{***}$)
H2: Entrepreneurial Knowledge + Orientation has a positive significant impact on Entrepreneurial Internationalisation	H2 Accepted ($p < 0.001^{***}$)
H3: International Networks has a positive significant impact on Entrepreneurial Internationalisation.	H3 Rejected ($p = 0.198$)
H4: Effectuation has a positive moderating impact on the relationship between Innovation and Technology, and Entrepreneurial Internationalisation	H4 Rejected (Interaction term p-value = 0.199 – but support for H4 in Figure 2)
H5: Effectuation has a positive moderating impact on the relationship between Entrepreneurial Knowledge and Orientation, and Entrepreneurial Internationalisation.	H5 Accepted at 10% level (Interaction term p-value = 0.074 – and support for H5 in Figure 3)
H6: Effectuation has a positive moderating impact on the relationship between International Networks, and Entrepreneurial Internationalisation.	H6 Rejected (Interaction term p-value = 0.127 – but support for H6 in Figure 6)

The theories forming the foundation of this study are derived from the entrepreneurship and internationalisation literature. Enterprises that undergo rapid internationalisation are said to be participating in entrepreneurial internationalisation (Li, et al., 2012; Zhang, et al., 2014; Prashantham, et al., 2019). In the first three hypotheses of the study, it is tested that three independent variables drive entrepreneurial internationalisation. Two independent variables, Innovation + Technology, and Entrepreneurial Knowledge + Orientation, are seen to have a positive significant impact on entrepreneurial internationalisation in the pilot study results. This finding confirms the theory. Innovation + Technology is well-supported in the literature. Dimitratos et al. (2012) wrote that international entrepreneurship was the product of a firm’s innovativeness; Covin and Miller (2014) found that innovativeness contributed to international entrepreneurship; and Knight and Cavusgil (2004) found that innovation drives capabilities for

early internationalisation. The pilot study finding in support of Entrepreneurial Knowledge + Orientation is also well-documented in the literature. Entrepreneurial knowledge was seen as the driving force behind internationalisation as early as the Uppsala model (Johanson & Vahlne, 1977). Knight and Cavusgil (2004) found superior internationalisation performance was an outcome of entrepreneurial orientation. Zhou (2007) found that entrepreneurial knowledge led to early and rapid internationalisation.

The second part of this study measures the impact of effectuation on the relationship between entrepreneurship (independent variables) and entrepreneurial internationalisation (dependent variable). The pilot study findings confirm that effectuation has a positive moderating influence on the relationship between entrepreneurship and entrepreneurial internationalisation in the case of all three variables of entrepreneurship. Under low levels of effectuation, the impact of entrepreneurship on entrepreneurial internationalisation was found to be lower; under high levels of effectuation, the impact of entrepreneurship on entrepreneurial internationalisation was found to be higher.

Given that high levels of affordable loss are reduced risks and uncertainties, the findings offer support for Knight and Cavusgil (2004) regarding affordable loss moderating the relationship between entrepreneurial knowledge + orientation and entrepreneurial internationalisation: “whereas, unbridled risk seeking may engender inferior performance, having an entrepreneurial orientation in diverse foreign environments tends to support the realization of key strategic initiatives that augment international success” (p. 129). The orientation of the firm to undertake internationalisation is also influenced by the management of risks (Dimitratos & Plakoyiannaki, 2003).

Among the interesting implications of this finding is that when enterprises are conducting themselves through effectuation, that is high levels of experimentation, improvisation and adjusting to uncertain markets, there is a strengthening in their entrepreneurial knowledge + orientation (Chandler, et al., 2011; Knight & Cavusgil, 2004), innovation + technology (Deligianni, et al., 2017; Chetty & Campbell-Hunt, 2004), and, international networks (Jones & Coviello, 2005; Zhang, et al., 2009), resulting in rapid internationalisation. It may be said that with high levels of effectuation, the enterprise is proactively engaged with their environment, which leads to more rapid internationalisation.

There is not now statistical significance for H4 and H6 which are linked to the moderating effect of effectuation on the relationship between entrepreneurship variables and

entrepreneurial internationalisation. The author is encouraged that the signs of the coefficients are in the expected direction and is confident that statistical significance will follow for the larger sample in paper four. If this does not materialise, other possible effects of effectuation on the relationship between the independent variables and the dependent variable such as mediation analysis will be considered as a contingency plan.

3.7 Considerations for Full Survey

Given that this was a pilot study, it is important that lessons be gained from its administration and analysis for the full survey which will be covered in Paper 4 of this study. Firstly, it is encouraging to note that the scales used for the main variables (independent variables, dependent variable, and moderator) are confirmed valid and reliable in the pilot study. This is encouraging particularly for the dependent variable (Entrepreneurial Internationalisation) as this scale was created from three sources (Li, et al., 2012; Zhang, et al., 2014; Prashantham, et al., 2019).

The pilot-study sample was derived from the Survey Monkey Audience sampling frame, which limits surveys to fifty questions. This limitation is likely to become a burden when rolling out the full survey for paper 4; consequently, a new sampling frame is to be adopted. In this regard, Table 15 shows a list of nineteen Canadian manufacturing associations which could be targeted for the full survey and a multi-point contact approach with the associations is planned to achieve the desired 300+ responses.

Table 15: Sampling Frame for Full Study

Association Name	Manufacturing Sector	Number of Corporate Members
Canadian Vehicle Manufacturers Association	Automotive	3
Japan Automobile Manufacturers Association of Canada	Automotive	11
Canadian Hardware & Housewares Manufacturers Association	Hardware	150
Canadian Plastics Industry Association	Chemical	2,600
Food & Consumer Products of Canada	Food	134
Canadian Manufacturers & Exporters	All manufacturing	2,500
Canadian Tooling & Machining Association	Building	180
Tire and Rubber Association of Canada	Rubber	28
Information Technology Association of Canada	Information Technology	168
Mining Suppliers Trade Association Canada	Primary Metals	310
Canadian Corrugated & Containerboard Association	Logistics	38
Spirits Canada/Association of Canadian Distillers	Food	12
Canadian Steel Producers Association	Primary Metals	10
Adhesives and Sealants Manufacturing Association of Canada	Chemical	20
Architectural Woodwork Manufacturers Association of Canada	Building	200
Global Automakers of Canada (Association of International Automobile Manufacturers of Canada)	Automotive	15
Canadian Generic Pharmaceutical Association	Biopharmaceuticals and Pharmaceuticals	13
Canadian Marine Manufacturers Association	Shipbuilding and industrial marine	40
Canadian Steel Door and Frame Manufacturers Association	Building	15

The hierarchical model with effectuation (Table 10) is significant; however, the interaction term (product of the independent variable multiplied by the moderating variable) is not

statistically significant, and consequently, moderation is not confirmed in the pilot study. In the full survey roll out, effectuation may be found to be a mediating variable. In mediation, effectuation is an intermediate variable in the relationship between entrepreneurship (X) and entrepreneurial internationalisation (Y). Such a model will be considered. A mediation finding would not be a complete surprise because of the underlying cognitive process associated with effectuation (Sarasvathy, 2001).

4.0 Summary

Paper 3 proposed the design implementation using a large sample self-administered web-based survey questionnaire. A balance was achieved using a funneling approach, the movement from general to specific questions, and resulting in a high participation rate among respondents in the pre-test and pilot studies. The design model was supported by the measurement instruments, which were taken from existing literature. The sample was explained. The study turned to quasi-random sampling conducted through SurveyMonkey Audience.

The initial findings of the pilot study commenced with respondent analysis and was followed by descriptive statistics. Tests of statistical significance were presented along with measurements of reliability and validity of the relevant indicators, which showed that the scales were confirmed reliable and valid. Regression analysis indicated that two of the first three hypotheses were accepted; moderation analysis indicated some support for these hypotheses – it was found that the moderator has an enhancing effect; that increasing the level of effectuation (moderator) increased the effect of entrepreneurship (independent variable) on entrepreneurial internationalisation (dependent variable).

The personal learning derived from the pilot study is the importance of being flexible with the sampling frame, and when required, a pre-test can make sense in a pilot study. Hence, adjustments are planned to the sampling frame of the full survey roll out for paper 4. The rigor of clarifying the variables and hypotheses in paper 2, and creating a simplified model, rendered a more focused pilot study.

5.0 References

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6.0 Appendices

Appendix A: Pilot-study Survey Questionnaire

You are invited to complete a research survey questionnaire on Canadian business internationalisation. The purpose of this research is to investigate how an enterprise internationalizes its business. In consideration of your time for completing the survey, we will send you a table of aggregate results of the findings.

One concept investigated in the research study is called effectuation, which consists of four components: affordable loss, experimentation, flexibility, and pre-commitment. (A full definition of effectuation is found at the end of the landing page.)

Information Guide

Researcher's name: Mark Stoiko

Project title: Entrepreneurial Internationalisation Research Study

What is the purpose of this research?

The research problem driving this research study is the role of effectuation in the internationalisation process. The research question is, how does effectuation impact on the relationship between entrepreneurship and entrepreneurial internationalisation? The importance of this research lies in advancing the scholarship of internationalisation and effectuation. The contribution to practice is explaining how and when to internationalize.

Why am I being asked to participate?

You are asked to complete a web-based survey questionnaire on the internationalisation of your business enterprise. Your participation will be anonymous to everyone except the researcher. Participation will require approximately 30 minutes of your time.

Do I have to participate?

Participation is voluntary. Anyone who agrees to participate in this research may change his/her mind at any time. Participants may refuse to answer any questions and/or withdraw from the study. To withdraw, participants can simply close the survey window. Responses will only be included in the final dataset if a participant clicks on the "Submit" button at the end of the survey.

What would participation in the study mean for me?

There are no direct benefits to participants in this research. There are no foreseeable risks or discomforts associated with participation in this research. The study fulfils the requirements of the Doctorate of Business Administration, and the results will direct the Principal Investigator towards the fulfilment of the research study.

What are the benefits of participating?

There are no direct benefits to participants in this research. The findings from this research may be presented at national and/or international conferences and/or published in peer-reviewed scholarly journals. Participants wishing to know more about the research findings may contact the Principal Investigator to receive a written summary of the results.

What are the risks associated with participating?

There are no foreseeable risks or discomforts associated with participation in this research. There are no direct benefits to participants in this research. The study fulfils the requirements of the Doctorate of Business Administration, and the results will direct the Principal Investigator towards the fulfilment of the research study.

Can I withdraw at any point?

Anyone who agrees to participate in this research may change his/her mind at any time. Participants may refuse to answer any questions and/or withdraw from the study. To withdraw, participants can simply close the survey window. Responses will only be included in the final dataset if a participant clicks on the "Submit" button at the end of the survey.

How will data gathered be managed and used in the study?

Data is collected, protected, stored, and disposed of according to the TCPS 2 (2014) — the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans. Electronic Security Guidelines include desktop security, server security and password security. The web-based survey is conducted using SurveyMonkey Enterprise edition, which is governed by encryption, SSO, SSAE-16 SOC II compliant data centers, HIPAA and GDPR compliance.

Can I verify aspects of the work and view a summary of the findings?

Participants wishing to know more about the research findings may contact the Principal Investigator to receive a written summary of the results.

Informed Consent

I have carefully read the Information Guide for this project. I understand that if I have additional questions about the project, I can contact Mark Stoiko (mark.stoiko@humber.ca; 416-675-6622 x 3358) at any time during the project. I understand that this project has been approved by WIT Business School Ethics Committee, Waterford Institute of Technology, Waterford, Ireland. If I have any questions about my rights as a research participant, I can contact Dr. Tom Egan, DBA Programme Supervisor, WIT Business School, e: tegan@wit.ie. I also understand that I may decline or withdraw from participation at any time.

I have read and understood the information guide provided and by clicking on the Consent button:

I am voluntarily participating in this study.

I understand that I can withdraw from the study at any point.

I understand that my own and my organisation's details will be anonymised.

Publication Agreement

Title of Research Project:

The Impact of Effectuation on the Relationship between Entrepreneurship and Entrepreneurial Internationalisation.

Any publications which arise from this research will have the following designated authors:

Lead author:	Mark Stoiko
Additional authors:	
2 nd author	Tom Egan
3 rd author	Aidan Duane

_____ Signature [Lead author]	_____ Date
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_____ Signature [2 nd author]	_____ Date	_____ Signature [3 rd author]	_____ Date
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Overview of the Study

The purpose of this study is to investigate how a Canadian enterprise internationalizes its business. One concept investigated is called effectuation, which consists of four components: affordable loss, experimentation, flexibility, and pre-commitment. In experimentation, the entrepreneur applies mental models to explain complex actions. In affordable loss entrepreneurs make decisions that would not put the venture at stake. Flexibility is exploiting contingencies that arise as the new venture unfolds. Pre-commitments are agreements made with customers, suppliers, and networks to provide low-cost resources. In sum, it may be said effectuation is the management of uncertainty.

The following items describe thoughts and actions you may have taken in your enterprise. Please indicate the degree to which you agree or disagree with the following: (where 1=Strongly Disagree; 2=Disagree; 3= Neither Agree nor Disagree; 4=Agree; 5=Strongly Agree).

Affordable Loss					
<i>1. The first series of questions relate to the Affordable Loss component of effectuation.</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1.1 We were careful not to commit more resources than we could afford to lose					
1.2 We were careful not to risk more money than we were willing to lose					
1.3 We were careful not to risk so much money that the venture would be in real trouble financially if things didn't work out					
Experimentation					
<i>2. The next series of questions relate to the Experimentation component of effectuation.</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
2.1 We experimented with different products and/or business Models					
2.2 The product/service that we now provide is substantially different than we first imagined					
2.3 We tried a number of different approaches until we found a business model that worked					
Flexibility					
<i>3. The next series of questions relate to the Flexibility component of effectuation.</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
3.1 We allowed the business to evolve as opportunities emerged					
3.2 We adapted what we were doing to the resources we had					
3.3 We avoided courses of action that restricted our flexibility and adaptability					
3.4 We were flexible and took advantage of opportunities as they arose					
Pre-commitment					

4. The next series of questions relate to the Pre-commitment component of effectuation.	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
4.1 We used pre-commitments from customers and suppliers as often as possible					
4.2 We used a substantial number of agreements with customers, suppliers, and other organizations to reduce the amount of uncertainty					
4.3 Network contacts provided low-cost resources					
4.4 By working closely with people/organizations external to our organization we have been able to greatly expand our capabilities					
4.5 We have focused on developing alliances with other people and organizations					
4.6 Our partnerships with outside organizations and people play a key role in our ability to provide our product/service					
4.7 We focus on risk reduction by approaching potential partners and customers					
Innovation + Technology					
5. The next series of questions relate to Innovation and Technology :	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
5.1 Our top management always encourages new product ideas for international markets					
5.2 Our top management is very receptive to innovative ways of exploiting international market opportunities					
5.3 Our top management believes the opportunity of international markets is greater than that of the domestic market					
5.4 Our top management continuously searches for new export markets					
5.5 Our top management is willing to consider new suppliers/clients abroad					
Entrepreneurial Knowledge + Orientation					
6. The next series of questions relate to Entrepreneurial Knowledge and Orientation. Thinking of the largest foreign market in which you sell your products or services :	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
6.1 In this foreign country we favor high-risk projects (with chances of very high return)					
6.2 In general, we believe that owing to the nature of the environment in this foreign country it is best to achieve the firm's objectives in its marketplace via bold and wide-ranging acts					
6.3 In dealing with its competitors in the marketplace of this foreign country, my firm typically initiates actions to which competitors then respond					

6.4 In dealing with its competitors in the marketplace of this foreign country, my firm is very often the first firm to introduce new products/services, administrative techniques, and operating technologies					
6.5 In dealing with its competitors in the marketplace of this foreign country, my firm typically adopts a very competitive 'beat-the-competitors' posture					
6.6 In the past five years my firm has marketed very many new lines of products or services in this foreign Country					
6.7 In the past five years in this foreign country changes in product or service lines have usually been quite dramatic					
International Networks					
<i>7. The next series of questions relate to International Networks:</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
7.1 We have technology-based links with customers in international markets					
7.2 We have technology-based links with suppliers in international markets					
7.3 We have entrepreneurial collaborations with external partners					
7.4 We cooperate with non-competitors (partners, distributors, suppliers, clients, firms of other sectors, government) in joint manufacturing agreements					
7.5 We cooperate with non-competitors in joint research					
7.6 We cooperate with non-competitors in joint advertising and marketing					
Entrepreneurial Internationalisation					
<i>8. The next series of questions relate to international market entry, international scope, and international commitment:</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
8.1 From enterprise start up management quickly identified and enacted our first foreign market entry					
8.2 From enterprise start up management quickly grew foreign market revenue as a percentage of total revenue					
8.3 From enterprise start up management quickly entered multiple foreign markets					
8.4 From enterprise start up management established foreign operations within three years of the founding					
8.5 Our firm is much better than competitors in relation to sales growth in international market					

8.6 Our firm is much better than competitors in relation to revenue growth					
8.7 Our firm is much better than competitors in relation to net income growth					
8.8 Our firm is much better than competitors in relation to overall firm performance					

9. Our international sales represent what percentage of our total sales? (Please select the most correct response)

- a. Less than 25% c. 50 to 74%
b. 25 to 49% d. 75 to 100%

10. In what year was your company founded? _____

11. How many full-time employees do you employ? _____

12. What is your percentage of ownership in the company? (Please select the most correct response)

- a. No ownership c. 5% ≥ 25% e. 50% ≥ 75%
b. 0% ≥ 5% d. 25% ≥ 50% f. More than 75%

13. What were your company's annual sales (nearest \$100,000)? _____ FY 18 _____ FY 17
_____ FY 16

Thank you for completing the questionnaire. If you have questions about the project, contact Mark Stoiko (mark.stoiko@humber.ca; 416-675-6622 x 3358) at any time during the project.

Appendix B: Pre-test: Contextual Control Descriptive Statistics and Intercorrelations

Variable	Mean	SD	Member founding team	Gender	Family owned	Age	Percentage ownership	International sales percentage	Largest international
Member founding team	1.58	0.499							
Gender	1.68	0.471	.012						
Family owned	1.70	0.463	-.216	.107					
Age	3.08	1.242	.069	.158	-.023				
Percentage ownership ^a	2.96	1.818	-.723***	-.110	.132	-.190			
International sales percentage ^a	2.06	0.843	-.314*	-.122	-.267	-.187	.410**		
Largest international customer	1.90	0.863	-.419	-.013	.152	-.266	.580	.699	

SD: Standard Deviation

N=47

a. Variable selected for final pilot study

*Correlation is significant at 0.05 level; **Correlation is significant at 0.01 level; ***Correlation is significant at 0.001 level.

Note: Member of the founding team coding: 1 = Yes, 2 = No; Gender coding: 1 = Female, 2 = Male; Family owned firm coding: 1 = Yes, 2 = No; Age coding: 1 = Less than 25 years old, 2 = 25 – 34 years old, 3 = 35 – 44 years old, 4 = 45 – 54 years old, 5 = 55 – 64 years old, 6 = More than 64 years old; Percentage ownership coding: 1 = No ownership, 2 = 0% ≥ 5%, 3 = 5% ≥ 25%, 4 = 25% ≥ 50%, 5 = 50% ≥ 75%, 6 = More than 75%; International sales percentage coding: 1 = Less than 25%, 2 = 25 – 49%, 3 = 50 – 74%, 4 = 75 – 100%; Relative performance coding: 1 = Well below, 2 = Below, 3 = Neither above nor below, 4 = Above, 5 = Well above.

The five-point Relative performance scale is taken from Zhang et al. (2014).

Appendix C: Letter of Ethical Clearance

Institiúid Teicneolaíochta Phort Láirge

Waterford Institute of Technology

Port Láirge, Éire.
T: +353-51-302000
info@wit.ie

Waterford, Ireland.
T: +353-51-302000
www.wit.ie



August 9th, 2019

Dear Mark,

I acknowledge receipt of your application for ethical approval and thank you for taking the time to submit your proposal to the School Ethics Committee.

The Committee has reviewed your application and we are satisfied to approve your research study. There is one minor observation that we would make in respect of your submission namely, that you indicate in section 1 that you prepared a publication agreement in consultation with your supervisors. In the current application you do include a publication agreement, yet this is not noted (ticked 'yes') by you in the earlier section of the application.

May we commend you and your supervisory team for preparing a very thorough application to us for review.

We wish you well with your future research endeavours,

Kindest regards,

Denis 

Professor Denis Harrington, Head of Graduate Business and Chair of WIT School Ethics Committee

Appendix D: Descriptive Statistics – Independent, Moderating and Dependent Variables

Variable	Mean	SD
Innovation + Technology	3.992	0.653
Knowledge + Orientation	3.553	0.764
International Networks	3.716	0.625
Affordable Loss	3.979	0.679
Experimentation	3.553	0.756
Flexibility	3.968	0.548
Pre-commitment	3.851	0.579
Entrepreneurial Internationalisation	3.662	0.690

SD: Standard Deviation

N=47

Variable coding: 1 = Strongly disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree, 5 = Strongly Agree.

The five-point scale for the independent variables is taken from Dimitratos et al. (2012).

The five point scale for the mediating variable is taken from Chandler et al. (2011).

Appendix E: Independent Variables – Reliability and Factoral Validity Results

Variable and Items	Cronbach's Alpha*	Cronbach's Alpha if item deleted	Factor Loadings**
Innovation + Technology	0.819	0.748	0.859
Our top management always encourages new product ideas for international markets			
Our top management is very receptive to innovative ways of exploiting international market opportunities		0.797	0.734
Our top management believes the opportunity of international markets is greater than that of the domestic market		0.808	0.680
Our top management continuously searches for new export markets		0.761	0.826
Our top management is willing to consider new suppliers/clients abroad		0.797	0.713
Entrepreneurial Knowledge + Orientation	0.880	0.868	0.731
In this foreign country we favor high-risk projects (with chances of very high return)			
In general, we believe that owing to the nature of the environment in this foreign country it is best to achieve the firm's objectives in its marketplace via bold and wide-ranging acts		0.868	0.719
In dealing with its competitors in the marketplace of this foreign country, my firm typically initiates actions to which competitors then respond		0.859	0.807
In dealing with its competitors in the marketplace of this foreign country, my firm is very often the first firm to introduce new products/services, administrative techniques, and operating technologies		0.871	0.714
In dealing with its competitors in the marketplace of this foreign country, my firm typically adopts a very competitive 'beat-the-competitors' posture		0.869	0.740
In the past five years my firm has marketed very many new lines of products or services in this foreign country		0.858	0.802
In the past five years in this foreign country changes in product or service lines have usually been quite dramatic		0.848	0.837
International Networks	0.770	0.751	0.848
We have technology-based links with customers in international markets			
We have technology-based links with suppliers in international markets		0.702	0.681
We have entrepreneurial collaborations with external partners		0.762	0.782
We cooperate with non-competitors (partners, distributors, suppliers, clients, firms of other sectors, government) in joint manufacturing agreements		0.758	0.755
We cooperate with non-competitors in joint research		0.717	0.829
We cooperate with non-competitors in joint advertising and marketing		0.710	0.819

*Cronbach's alpha is acceptable; all scores are above 0.70 (Hair, et al., 2006).

**Factor loadings are above 0.50; unidimensionality determined (Bryman & Bell, 2015).

Regarding nomological validity, the literature supports the model and based on the analysis in Appendix E, the summated scales found therein will provide reliable and valid data (Hair, et al., 2006)

Appendix F: Moderating Variables – Reliability Results

Variable and Items	Cronbach's Alpha*	Cronbach's Alpha if item deleted
Effectuation – Affordable Loss	0.731	0.689
1.1 We were careful not to commit more resources than we could afford to lose		
1.2 We were careful not to risk more money than we were willing to lose		0.707
1.3 We were careful not to risk so much money that the venture would be in real trouble financially if things didn't work out		0.526
Effectuation - Experimentation	0.681	0.579
2.1 We experimented with different products and/or business models		
2.2 The product/service that we now provide is substantially different than we first imagined		0.651
2.3 We tried a number of different approaches until we found a business model that worked		0.542
Effectuation – Flexibility	0.712	0.658
3.1 We allowed the business to evolve as opportunities emerged		
3.2 We adapted what we were doing to the resources we had		0.633
3.3 We avoided courses of action that restricted our flexibility and adaptability		0.684
3.4 We were flexible and took advantage of opportunities as they arose		0.628
Effectuation – Pre-commitment	0.818	0.782
4.1 We used pre-commitments from customers and suppliers as often as possible		
4.2 We used a substantial number of agreements with customers, suppliers, and other organizations to reduce the amount of uncertainty		0.795
4.3 Network contacts provided low-cost resources		0.817
4.4 By working closely with people/organizations external to our organization we have been able to greatly expand our capabilities		0.789
4.5 We have focused on developing alliances with other people and organizations		0.762
4.6 Our partnerships with outside organizations and people play a key role in our ability to provide our product/service		0.797
4.7 We focus on risk reduction by approaching potential partners and customers		0.807

*Cronbach's alpha is acceptable; all scores are above 0.70 (Hair, et al., 2006).

Regarding nomological validity, the literature supports the model and based on the analysis in Appendix F, the summated scales found therein will provide reliable and valid data (Hair, et al., 2006)

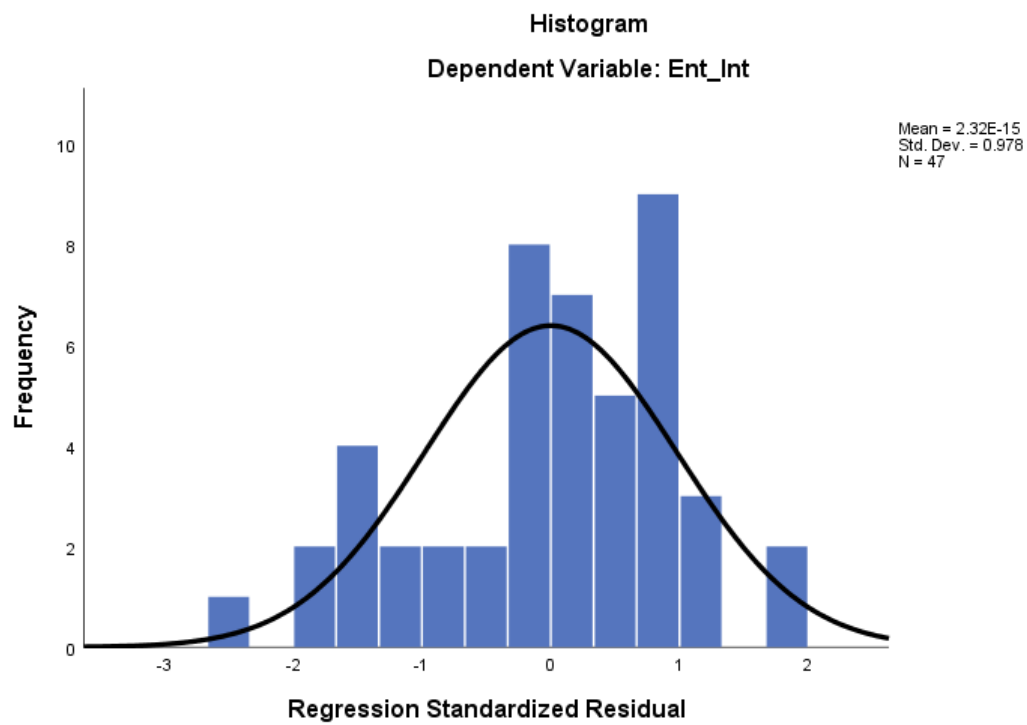
Appendix G: Dependent Variable – Reliability Results

Variable and Items	Cronbach's Alpha*	Cronbach's Alpha if item deleted
Entrepreneurial Internationalisation	0.886	0.857
8.1 From enterprise start up management quickly identified and enacted our first foreign market entry		
8.2 From enterprise start up management quickly grew foreign market revenue as a percentage of total revenue		0.868
8.3 From enterprise start up management quickly entered multiple foreign markets		0.867
8.4 From enterprise start up management established foreign operations within three years of the founding		0.879
8.5 Our firm is much better than competitors in relation to sales growth in international market		0.868
8.6 Our firm is much better than competitors in relation to revenue growth		0.881
8.7 Our firm is much better than competitors in relation to net income growth		0.871
8.8 Our firm is much better than competitors in relation to overall firm performance		0.880

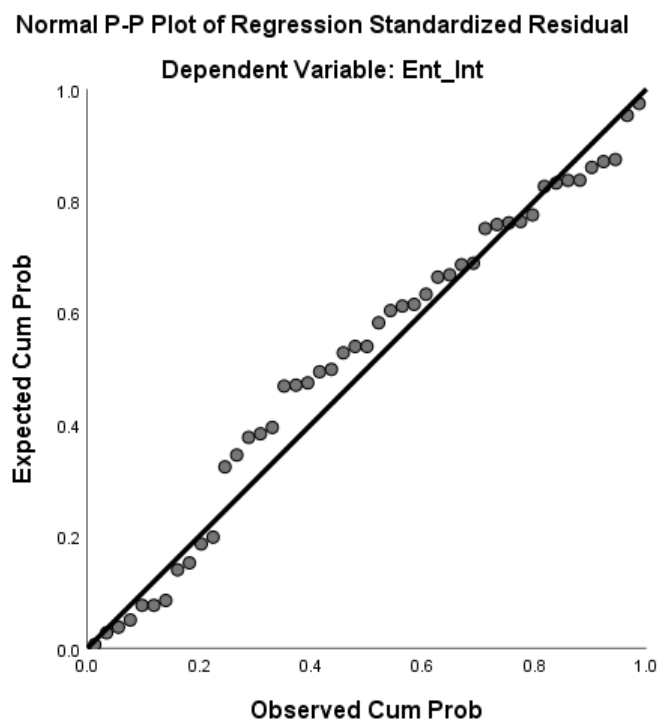
*Cronbach's alpha is acceptable; all scores are above 0.70 (Hair, et al., 2006).

Regarding nomological validity, the literature supports the model and based on the analysis in Appendix G, the summated scale found therein will provide reliable and valid data (Hair, et al., 2006)

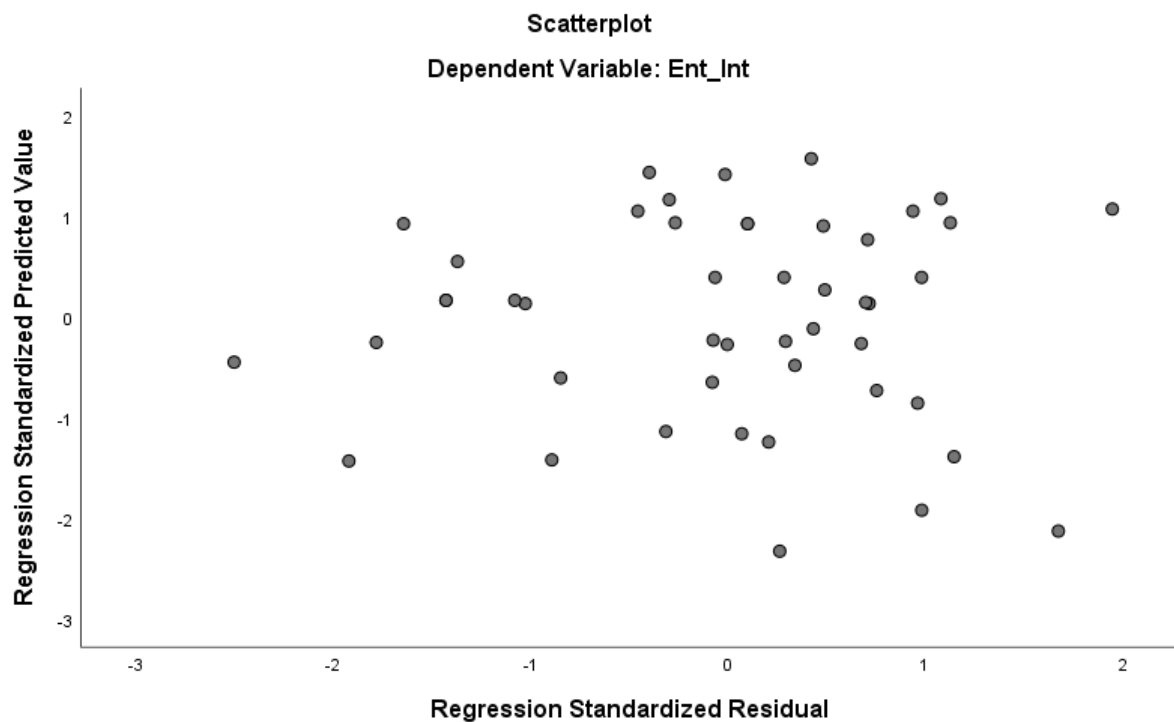
Appendix H: Histogram



Appendix I: Normal P-P Plot



Appendix J: Scatterplot



Appendix K: ANOVA

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	16.338	3	5.446	42.074	.000 ^b
	Residual	5.566	43	.129		
	Total	21.904	46			

a. Dependent Variable: Entrepreneurial Internationalisation

b. Predictors: (Constant), International Networks; Innovation + Technology; Entrepreneurial Knowledge + Orientation

Appendix L: Intercorrelations between the Contextual Variables

Variable	International Sales %	% Ownership	Age	Gender
International Sales %				
% Ownership	-0.016			
Age	-0.230	0.036		
Gender	-0.073	0.253*	0.114	

a. Controlled for dependent variable, Entrepreneurial Internationalisation

SD: Standard Deviation

n=47

*Correlation is significant at 0.05 level.

Note: International sales percentage coding: 1 = Less than 25%, 2 = 25 – 49%, 3 = 50 – 74%, 4 = 75 – 100%; Percentage ownership coding: 1 = No ownership, 2 = 0% ≥ 5%, 3 = 5% ≥ 25%, 4 = 25% ≥ 50%, 5 = 50% ≥ 75%, 6 = More than 75%; Age coding: 1 = Less than 25 years old, 2 = 25 – 34 years old, 3 = 35 – 44 years old, 4 = 45 – 54 years old, 5 = 55 – 64 years old, 6 = More than 64 years old; Gender coding: 1 = Female, 2 = Male; Entrepreneurial Internationalisation coding: 1 = Strongly disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree, 5 = Strongly Agree.

Preface to Paper 4

The process of distributing the web-based survey questionnaire to the sampling frame commenced in May 2020. Four potential sampling frames were considered, and a decision was made in late 2020 to use Amazon MTurk a paid sampling approach – to generate respondents. This did yield significant findings but the use of this sampling approach was flatly rejected by the Paper 4 examiners.

The researcher decided in 2021 to use LinkedIn social media network (SMN) as an unpaid sampling source to try and achieve the required number of respondents. This was time consuming but did lead to respondents being generated in late 2021 and this paper was then submitted and approved by the examiners in late 2021.

A discussion on the sample size drawn from LinkedIn social media network follows. It is acknowledged that it is difficult to reach founders of SMEs for the purposes of a survey questionnaire (Chandler, et al., 2011). This is the reason that paid panels of respondents from SurveyMonkey Audience and Amazon Mechanical Turk (MTurk) were considered as a sample frame (Smith, et al., 2015). Examiners of Paper 4 rejected paid panels on the grounds that respondents may be influenced by the monetary incentive.

It left the researcher with having to create a custom sample frame, and so LinkedIn social media network was selected as a platform for targeting a hard-to-reach population (Dusek et al., 2015). A sample frame of 554 founders and senior executives of SMEs was created. There were 192 survey completions resulting in a completion rate of 34.7%, comparing favourably with the literature. There were 114 valid surveys after meeting the contextual criteria, resulting in a valid-survey rate of 20.6%, which also compares favourably with previous studies. In Chandler et al. (2011) the valid-survey rate was 17.8% (p. 379) and Dimitratos et al. (2017) yielded a valid-survey rate of 27% (p. 712).

The sample size of 114 is justified on the grounds of the five variables found in the conceptual framework, a sample-to-variable ratio of 23:1, favourably meeting the recommended ratio (Hair et al., 2006). Hair et al. (2006) recommend a sample-to-variable ratio of 20:1, several researchers have suggested that 5:1 is adequate (Bryant & Yarnold, 1995; Everitt, 1975; Gorsuch, 1974; Gorsuch, 1983). In Chandler et al. (2011) the sample-to-variable ratio was 7:1 for one study, and 9:1 for the second study.

Analysis on the sample size of 114 meets the requirements for internal reliability, convergent validity, factorial validity, and nomological validity. Scales and measures in the study have shown internal reliability. Internal reliability is overall consistency, producing similar results under consistent conditions (Hair, et al., 2006). Scales and measures in the study have shown convergent validity. Convergent validity is the desirable relatedness of items in a scale (Hair, et al., 2006). Scales and measures in the study have shown factorial validity. Factorial validity means the items in the scale are independent and contribute significantly to a single factor scale (Hair, et al., 2006). Factor Analysis testing (EFA) was conducted using SPSS v28. The testing found that for the five variables of the conceptual framework, the items in the scale are independent and contribute significantly to a single factor scale. The factor loadings for the items in the five variables were above 0.50, which is the cut off for unidimensionality (Bryman & Bell, 2015). The Exploratory Factor Analysis (EFA) test is used in SPSS in place of similar tests, Kaiser-Meyer-Olkin (KMO) test and the Bartlett test. Nomological validity means the summated scales provide reliable and valid data (Hair, et al., 2006). In sum, a targeted sampling approach was used to access a hard-to-reach population (Watters & Biernacki, 1989) and this yielded a valid set of voluntary responses with data that was reliable and valid. A short note on testing the four components of effectuation is found in the next paragraph.

While not part of the conceptual framework or the hypotheses, an analysis was conducted of each of the components of effectuation, testing them for mediation. The four components are affordable loss, experimentation, flexibility, and pre-commitments. The reason for the analysis is that the acceptance of hypotheses H4, H5, and H6 for mediation begs the question for the components of effectuation. It also completes the narrative of how effectuation impacts on the relationship between entrepreneurship and entrepreneurial internationalisation. Having stated the foregoing a caution must be offered. Two of the four components did not meet the cut off Cronbach's Alpha score of 0.70 (Hair, et al., 2006) – the Experimentation score was 0.68 and the Flexibility score was 0.53. Therefore, it is recommended that further study and analysis should be conducted of experimentation and flexibility. A discussion on moderation and mediation analysis follows.

In Papers 3 and 4 it is posited in the conceptual framework that effectuation has a moderating impact on the relationship between entrepreneurship and entrepreneurial internationalisation (Deligianni, et al., 2017). Moderation was found in the conceptual frameworks of some of the literature that informed this research study (Zhang et al., 2014; Deligianni et al., 2017); however, it was found in Papers 3 and 4 that under high levels of effectuation the impact of

entrepreneurship on entrepreneurial internationalisation was not higher. Therefore, moderation was rejected. In short, effectuation is not shown to have a significant moderating impact on the relationship between innovation + technology (independent variable) and entrepreneurial internationalisation (dependent variable) H4; nor is effectuation a moderator of the relationship between entrepreneurial knowledge + orientation and the dependent variable, thus not providing significance for H5; nor does effectuation show statistical significance for moderation in H6. None of the three hypotheses of moderation were supported. Examiners expressed a need for a stronger contingency for the roll-out survey, and to that end, recommended mediation as a strong possibility. Paper 3 was revised to show that a mediation model is a contingency for the study.

In mediation, variations in entrepreneurship (independent variable) drive variations in effectuation (mediating variable), which drive variations in entrepreneurial internationalisation (dependent variable). For example, it may be posited that the level of innovation + technology (independent variable: entrepreneurship) drive the level of effectuation (mediating variable), which then drives early and rapid internationalisation (dependent variable: entrepreneurial internationalisation). A mediation finding is supported in the literature given the cognitive process associated with effectuation (Sarasvathy, 2001). There appears a probability that effectuation can have a contrasting effect on internationalisation including internationalisation speed of entry, speed of commitment, and speed of scope. Contrasting effects are likely to manifest as a mediating role for effectuation (Sarasvathy, 2001). On balance more of the literature points to mediating effects and not moderating effects.

The impact of mediation may also be explained as follows. When operating under high levels of effectuation an entrepreneur is exhibiting adaptability, improvisation, and flexibility. These characteristics are more conducive to rapid and early internationalisation (entrepreneurial internationalisation). Hence, the argument is made for a cause-and-effect relationship between effectuation and entrepreneurial internationalisation, and a mediating relationship in the model. A note on environmental questions closes the Preface to Paper 4.

A series of environmental questions appear in the survey instrument. They are taken from Chandler et al. (2011) and comprise five external environmental variables. The variables are suppliers, competitors, customers, financial and capital markets, and government regulatory agencies. It was decided not to report the results from the questions as they were beyond the scope of the conceptual framework, the research question, and the hypotheses.

Participant Name: Mark Stoiko 20077315

Supervisors: Tom Egan and Aidan Duane

Date: 01 / 06 / 2022

RESEARCH PAPER SERIES

Paper 4

Findings and Discussion

**“The Impact of Effectuation on the Relationship between
Entrepreneurship and Entrepreneurial Internationalisation”**

ABSTRACT

This research study assesses the impact of effectuation on the relationship between entrepreneurship and entrepreneurial internationalisation. In paper 1 the conceptual framework of the study was presented while paper 2 outlined the research methodology, which was a quantitative survey approach with validated scales for the key constructs. Paper 3 extended the design implementation and administration through a pilot study. Paper 4 presents the findings and discussion for the roll-out survey questionnaire. Findings begin with descriptive statistics and reliability of scales, and proceed to inter-correlation analysis and regression analysis. The findings provide significant support for effectuation mediating the relationship between entrepreneurship and entrepreneurial internationalisation. The findings have implications for the entrepreneurship literature, as well as the early and rapid internationalisation of enterprises.

Keywords: entrepreneurship, effectuation, internationalisation.

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1.0 Introduction

This research study proposes to assess the impact of effectuation on the relationship between entrepreneurship and entrepreneurial internationalisation. In Paper 1, the Conceptual Framework of the study was presented. Paper 2 outlined the research methodology which was a quantitative survey approach with validated scales for the key constructs. Paper 3 expanded the design implementation by providing details of the survey questionnaire, and the pilot survey administration through SurveyMonkey.

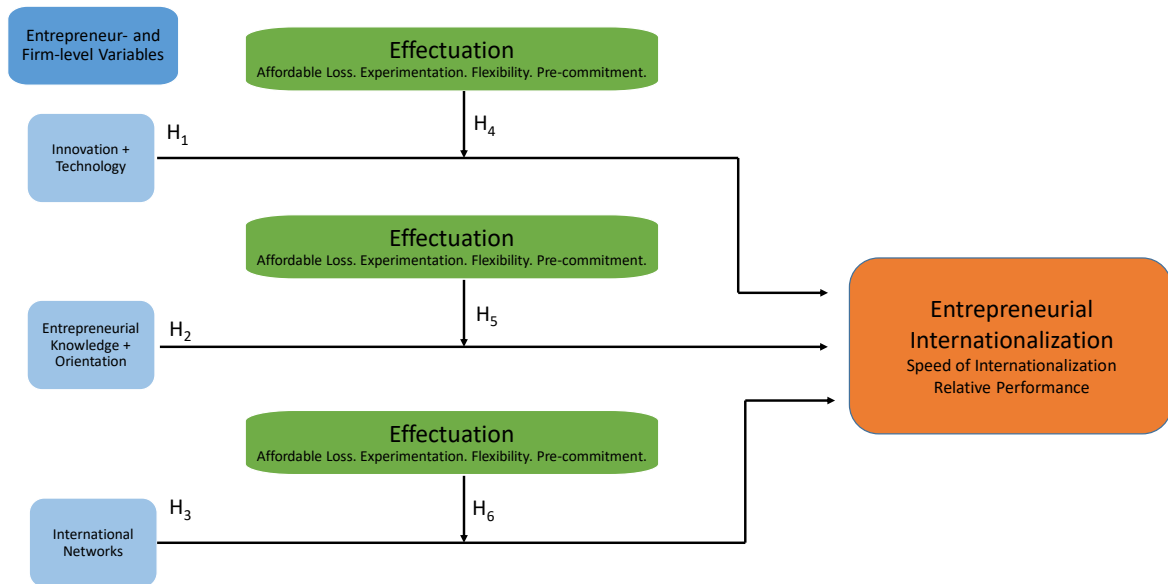
Paper 4 presents the findings and discussion for the roll-out survey questionnaire. After a brief review of the earlier papers, it visits the population and the sampling frame. Data is collected using a self-administered web-based survey questionnaire completed by a targeted sample from LinkedIn (Watters & Biernacki, 1989). Findings begin with descriptive statistics and reliability of scales, and proceed to inter-correlation analysis, regression analysis, regression with effectuation as a moderator, and mediation models. A section on discussion and a section on conclusions complete Paper 4.

1.1 Review of Conceptual Framework and Research Design

The Conceptual Framework (Figure 1) is based on two models, the Schweizer et al. (2010) model, renamed the Effectuation Uppsala Model (UE Model), and the Sarasvathy (2008) model. It is these models that provide the foundation for the relationship between entrepreneurship and internationalisation, and how the relationship is impacted by effectuation. The independent variables of entrepreneurship are innovation and technology, entrepreneurial knowledge and orientation, and international networks (Knight & Cavusgil, 2004; Zhou, 2007; Schweizer et al., 2010; Dimitratos et al., 2012; Covin & Miller, 2014; Efrat et al., 2017). The dependent variable, entrepreneurial internationalisation is defined by better relative performance (Zhang, et al., 2014), and a greater speed of international entry, greater speed of international commitment, and greater speed of international scope (Prashantham, et al., 2019). Effectuation is characterized along four variables: experimentation, affordable loss, flexibility, and pre-commitment (Chandler et al., 2011; Harms & Schiele, 2012; Deligianni et al., 2017, Kalinic et al. 2014). It is posited in the conceptual framework that effectuation impacts on the relationship between entrepreneurship and entrepreneurial internationalisation (Deligianni, et al., 2017). The earlier papers in this paper series proposed a moderating impact for effectuation whereby under high levels of effectuation the impact of entrepreneurship on entrepreneurial

internationalisation is proposed to be higher and vice versa. However, statistical support was not found for moderation in the pilot study, and it may be that effectuation mediates the relationship between entrepreneurship and entrepreneurial internationalisation – this would imply that entrepreneurship variables drive the effectuation variable which in turn drives the level of entrepreneurial internationalisation.

Figure 1: Conceptual Framework



A quantitative design was outlined in paper two to achieve the research question of ‘how does effectuation impact on the relationship between entrepreneurship and entrepreneurial internationalisation’. This led to the generation of six hypotheses: three of which test the relationship between the independent variables of entrepreneurship and entrepreneurial internationalisation, and three of which relate to the impact of effectuation on the relationship between entrepreneurship and entrepreneurial internationalisation as follows:

- H1: Innovation and Technology has a positive significant impact on Entrepreneurial Internationalisation.
- H2: Entrepreneurial Knowledge and Orientation has a positive significant impact on Entrepreneurial Internationalisation.

- H3: International Networks has a positive significant impact on Entrepreneurial Internationalisation.
- H4: Effectuation has a positive impact on the relationship between Innovation and Technology, and Entrepreneurial Internationalisation.
- H5: Effectuation has a positive impact on the relationship between Entrepreneurial Knowledge and Orientation, and Entrepreneurial Internationalisation.
- H6: Effectuation has a positive impact on the relationship between International Networks and Entrepreneurial Internationalisation.

1.2 Pilot Study Review

In the pilot study, which was reported in paper three, two of three independent variables that make up entrepreneurship (Innovation + Technology, and Entrepreneurial Knowledge + Orientation) were found to have a positive significant impact on entrepreneurial internationalisation. This finding supports the view that enterprises undergoing rapid internationalisation are said to be participating in entrepreneurial internationalisation (Li, et al., 2012; Zhang, et al., 2014; Prashantham, et al., 2019). These findings were encouraging as a scale for the dependent variable (entrepreneurial internationalisation) was created due to the lack of an available validated scale - a scale comparing the enterprise with competitors was created when three items were adapted from Prashantham et al. (2019) while a fourth item was adapted from Li et al. (2012): “Early internationalisation reflects the degree to which the STEs had established foreign operations within three years or less of their founding” (p. 548). It is encouraging that the scale for the dependent variable as well as the independent variables were found to be reliable in the pilot study. However, the pilot study results were inconclusive on whether effectuation moderates the relationship between entrepreneurship (independent variables) and entrepreneurial internationalisation (dependent variable), which meant that mediation analysis was considered in the full study.

2.0 Population, Sample Frame and Data Collection

This section begins by revisiting the research population. The section then discusses the necessary adjustments to the sampling frame and the data collection technique.

2.1 Target Population

In the spirit of conducting domestic research the target population started as SMEs in Canada, specifically small and medium-sized manufacturers that are exporting at least twenty-five per cent of their production; founded in the past thirty years; privately owned; and employ less than 500 employees. This was in line with earlier studies in this field which considered firms that were less than thirty years old; had internationalized within three years of founding; and exported at least twenty-five per cent of production (Knight & Cavusgil, 2004; Harms & Schiele, 2012; Dimitratos et al., 2013; Efrat et al., 2017).

With a survey approach in mind to access this target audience, permission was sought and received from WIT ethics committee on August 9, 2019 for the survey-based approach – see Appendix Q.

2.2 Sample Frame

Choosing a sample has as its goal a representation of the population (Bryman & Bell, 2015). A sampling frame of qualified respondents that could deliver up to 200 responses was sought. In the sampling process, five sampling frames were considered: major list and databases; SurveyMonkey Audience panel; manufacturing associations; Amazon Mechanical Turk (MTurk); LinkedIn. Table 1 summarizes the process of sampling in the study and shows that issues were found in generating a suitable number of responses.

Table 1: Sampling Process

Characteristic	Major List and Databases	SurveyMonkey Audience	Manufacturing Associations	Amazon MTurk	LinkedIn
Country of origin	Canada	Canada	Canada	US	US
Company size	500 employees or less	500 employees or less	500 employees or less	500 employees or less	500 employees or less
Industry sector	Manufacturing	Manufacturing	Manufacturing	Manufacturing	Manufacturing
Use of qualifying question	Yes	Yes	Yes	Yes	Yes
Professional position	Manager	Director/Manager.	Manager	Manager	Manager
# of respondents for rollout survey	Not available. Lists and databases cannot collect email addresses due to Canadian privacy legislation.	Not available. SurveyMonkey Audience restricts the number of questions to fifty, not leaving enough room for the necessary contextual control questions.	N=0 (rejected). Although nine manufacturing associations sent the questionnaire to four hundred and sixteen corporate members, there were zero completions.	N=177 (rejected). A paid response panel, MTurk was deemed unsuitable.	N=114 (accepted).
Evaluation	Not selected	Not selected	Not selected	Not selected	Selected

Brief details of the work undertaken with each potential sampling frame are now included:

Major List and Databases

Five major list and database providers were sourced to access the population of Canadian SMEs namely Scott's Directories Canada; Dun & Bradstreet Canada; Statistics Canada; Simply Analytics; and OEC Observatory of Economic Complexity. None of the five sources collected email addresses due to Canadian privacy legislation (The Privacy Act; and, Personal Information Protection and Electronic Documents Act, known as PIPEDA), which made this sampling frame unfeasible.

SurveyMonkey Audience panel

While probability sampling is the preferred approach, due to the unavailability of opt-in email lists in Canada, by reason of privacy laws, the study turned to quasi-random sampling approaches. One such approach was offered from SurveyMonkey's Audience for Scholars. SurveyMonkey offers panels of participants from whom academics collect data. Researchers may collect data according to company size, industry sector and professional position. SurveyMonkey Audience was the sampling frame used in the pilot study. As stated in Paper 3, SurveyMonkey Audience restricts the number of questions to fifty, only leaving room for five contextual control questions. The literature shows support for testing many more contextual control variables that may explain the relationship between entrepreneurship and entrepreneurial internationalisation when impacted by effectuation (Chandler, et al., 2011; Deligianni, et al., 2017). The limitation of fifty questions became a burden for Paper 4, and so another sampling frame was required.

Manufacturing Associations

Twenty manufacturing associations supplemented by three government agencies were targeted to provide the sampling frame. The plan consisted of multi-point contacts with the associations soliciting their cooperation to send the web-based survey link to their members. Contact alternated between emails and phone calls to the association, three of each, for a total of six contacts. (See Appendix D for multi-point contact record.) The twenty associations were made up of more than 6,000 corporate members. Of the twenty associations, nine associations agreed to participate by sending an email invitation to its members to complete the survey. The nine

associations represented four hundred and sixteen corporate members. Five of the nine participating associations also published an invitation to complete the survey questionnaire in their e-newsletter. This combined participation delivered zero survey completions. It was reasonable to conclude that Canadian manufacturers do not have close relationships with their associations and that this avenue of research was futile. It was further reasonable to conclude that manufacturers were impeded from completing the survey questionnaire because of the exigencies of COVID-19. Anecdotally, the manufacturing associations reported challenges in communicating with their members.

Amazon Mechanical Turk (MTurk)

After not generating sufficient responses from the first three sampling frames, the researcher, with guidance from his supervisors, considered generating the sampling frame from another possibility – the use of Amazon MTurk. A crowdsourcing web service, Amazon MTurk is used by organizations around the world for research purposes (Hsu, et al., 2017). It offers a payment to respondents to incentivise them to complete a survey and for some researchers, it “is uniquely valuable as it enabled us to identify, access and survey a unique group” (Hsu, et al., 2017, p. 930). Indeed, it is recognized for its ability to access underrepresented populations, including entrepreneurs, who are otherwise difficult to find (Hsu, et al., 2017; Smith, et al., 2015). The use of online panels such as Amazon’s MTurk is a source of debate amongst academics in recent years as despite its widespread use, several academics still do not view the data quality of this source to be acceptable (Acquinis et al, 2020). However, there is a strong and growing literature which suggests that data collected from such survey panels is acceptable and reliable data – for example, Mortensen and Hughes (2018) find that data obtained via MTurk surveys and experiments are at least as reliable as those obtained via traditional methods, while Porter et al (2019) showed that paid panels have a growing legitimacy and that management scholars are best served by asking when and how such panels can be used rather than being unwilling to consider their use.

For this study, it was found that MTurk did not possess a significantly large enough pool of eligible respondents in Canada. This led to a decision to shift the sampling frame to the United States. Once launched in the United States, the surveys were completed in sixteen days in September 2020. The response sample was one hundred and seventy-seven (177) which was very acceptable; however, to avoid any perception that such respondents would be motivated to ‘manufacture’ answers the data was deemed inadmissible.

LinkedIn

SMNs provide an innovative and relevant way to collect data all the while maintaining appropriate research standards and rigor (Dusek, et al., 2015). LinkedIn is one SMN, a digital network to build an online profile, produce and search for content, and connect with others. Increasingly, LinkedIn is useful for researchers to recruit candidates, leverage referrals, and gather survey data (Dusek, et al., 2015). LinkedIn, owned by Microsoft, is particularly relevant for the researcher's purpose because it is primarily dedicated to professional networking and is well established with more than 700 million members in more than 200 countries. It can be used as a sampling frame (Mirabeau, et al., 2013; Callegaro, et al., 2014; Smith, et al., 2016; Sugimoto, et al., 2017; Kees, et al., 2017) where it offers researchers the opportunity to create an online research profile, join groups, search, and disseminate content, and build connections (Mirabeau, et al., 2013). It is a long process, which requires more upfront work (Hays, et al., 2015); however, researchers conducting multiple studies and completing several projects over longer periods of time can find that an initial investment pays dividends down the road (Roberts, 2014).

The initial LinkedIn profile of the primary researcher in August 2020 consisted of more than six hundred first-degree connections who qualified as potential respondents. An invitation to complete the survey questionnaire was sent to a selection of them in September/October 2020 using LinkedIn messaging, as many of the other contacts were ineligible. There were eighty attempts at the survey questionnaire and seventeen completions which was disappointing. The large difference between the number of attempts and the number of completions can be attributed to the qualifying filter, which was that at least 25% of sales were international. As the LinkedIn contacts of the primary researcher were not with enterprises that had internationalised, it became clear that a sample network would have to be created on LinkedIn. It was also deemed that enough individuals from SMEs fitting the respondent profile were not likely to be found in Canada, based on the experience with SurveyMonkey Canada and Amazon MTurk Canada.

Starting the process of creating a sample network on LinkedIn involved firstly using a search enabled filter by country (US), industry (manufacturing), and "people" was used to produce a list of 7.6 million individuals, almost all of whom were 3rd degree contacts. Degrees of contact in LinkedIn represents the network distance between the researcher and the profile of the person searched. People connected in the 1st degree have agreed to be connections of one another and share all their profile information with one another. The researcher had no 1st degree contacts

in the list of 7.6 million. Connections of the 2nd degree are people that have at least one person in common in their 1st degree connections, while 3rd degree connections are made of people that are connected to someone that in turn is connected to someone in their 1st degree group of connections. The researcher was left working with 2nd and 3rd degree contacts.

To access people in the 2nd and 3rd degree, the researcher created an updated LinkedIn profile with the goal that individuals viewing the profile felt they learned something personal about the researcher. The profile included the fact that the researcher was a doctoral student conducting academic research to earn his doctoral degree, and his educational and professional background. To limit accepted requests to persons in the target population, a custom invitation was created, an invitation to join the researcher's "research network". "<NAME>, I would like to add you to my research network". The first twenty that accepted the invitation became the first 1st degree contacts in the research network. In turn, these twenty gave the researcher access to their contacts (2nd degree contacts), numbering hundreds of prospects to recruit. As the process continued over many weeks, this eventually grew to a list of more than 100,000 2nd degree contacts, and 554 1st degree contacts. There are limits to network growth imposed by LinkedIn; it limits the number of invitations to join your account to 100 per week, although this can be supplemented by the ability to send invitations to those who are premium members, as is the researcher (about 10% of LinkedIn members are premium users).

Once an individual accepted the invitation to become a first degree contact the researcher personalized a thank-you message to establish a closer, less formal relationship.

"<NAME>, I hope you are well. Thank you for accepting my connect invitation. I am on LinkedIn for research and career purposes. You work for an interesting company. I hope we can help each other. Thanks for joining my research network. Blessings, Mark"

At least twenty hours per week were devoted to building and maintaining the network over four months. Developing the network by issuing invitations to join via LinkedIn and building relationships prior to inviting the subjects to participate in the study required a significant time and effort commitment. Table 2 summarizes the distribution of recruitment and response rates.

Table 2: Distribution of recruitment and responses

Item	Total	Subject Line of LinkedIn Mail
Number of invitations to join research network	1,040	“Invitation to join LinkedIn research network”
Number of responses received	554	
Response rate for responses received	53%	
Number of invitations to complete survey	554	“Will you please help with an education project?”
Number of 1 st follow-up emails	522	“Would you please help me to complete my doctoral studies?”
Number of 2 nd follow-up emails	491	“Would you please help me to reach more responses?”
Number of 3 rd follow-up emails	412	“Your participation is important. Would you please help me?”
Number of 4 th follow-up emails	376	“Just a few more responses to complete the research study!”
Number of completed surveys	192	
Response rate for completed surveys	35%	
Number of valid surveys	114	
Response rate for valid surveys (after filtering)	21%	

To close this section, a targeted sampling approach was used to access a hard-to-reach population (Watters & Biernacki, 1989) and this did yield a valid set of voluntary responses. The timeline for respondent recruitment and data collection commenced July 2, 2021, and the researcher stopped collecting valid survey responses on November 12, 2021. Appendix B shows a table of valid responses by date, a table of Invitation communications with members of the research network, and snapshots of the research network on LinkedIn. Appendix C summarizes the timeline for recruitment and data collection.

2.3 Data Collection and Analysis

There are many categories of questions included in the survey such as demographic questions, attitudinal questions, behaviour, and knowledge questions. In addition to assessing the main constructs, the survey also contained questions for valuable contextual controls including the firm’s age, size, financial resources, number of founders, internationalisation percentage, level

of dependence, industry, and environmental uncertainty (Deligianni et al., 2017) (see Appendix H). These are important because they may help explain entrepreneurial internationalisation. Survey respondents were required to answer all questions, reach the end of the survey, and click the “Done” button. Unfinished survey respondents were those who started the survey but abandoned or left the survey before completing it; such respondents were not included in the results (see Appendix A: Survey Questionnaire).

One hundred and fourteen (114) respondents completed the survey questionnaire. In addition, there were seventy-eight attempts which are not included because they did not answer all the questions or did not meet the qualifying contextual controls. The final survey had eighty-nine (89) questions and the average completion time for respondents was 12 minutes and 48 seconds.

In the data analysis stage, data is moved from SurveyMonkey and transferred to SPSS v28. In Variable view of the SPSS file, it is ensured that each variable has the appropriate ‘measure.’ In the Data view of the SPSS file, it was checked that data has been inputted correctly by running frequencies; values are checked against the response set. Two negatively worded questions were added to the survey questionnaire as a validation technique to check if respondents were giving consistent answers; the answers were reverse-coded.

3.0 Paper Four Findings

Section 3.0 begins with respondent analysis, which is followed by descriptive statistics for the main variables of interest. Tests of significance are presented along with measurement of validity and reliability of the relevant indicators. Relevance of the findings to the hypotheses are reported. The initial findings are related to the research objective and research hypotheses. The section closes with a summary of the findings.

3.1 Descriptive Statistics

All the respondents (one hundred and fourteen) sold at least twenty-five per cent of their products internationally (this is consistent with the standard used by Knight and Cavusgil, 2004). The high percentage of respondents selling twenty-five per cent or more of their products internationally lends confidence to the international focus of the study. All the respondents (100%) employed 500 or fewer employees (consistent with the standard used by Harms and Schiele, 2012). All the respondents (100%) had annual sales of less the US\$50 million (consistent with the standard set by Chandler et al., 2013); sixty-three per cent (63%) were male, and thirty-seven per cent (37%) were female. The modal age of respondents was in

the 35-44 age category. All the respondents (100%) worked for enterprises that were thirty years or less since their founding (consistent with a standard set by Knight and Cavusgil, 2004). Seventy-seven per cent (77%) had an ownership in the company, and sixty-six per cent (66%) were members of the founding team. Forty-nine per cent (49%) had completed an undergraduate degree, and forty-one per cent (41%) had completed a graduate degree. For fifty-one per cent (51%) of respondents, the largest international customer represented less than half of total sales; for forty-one per cent (41%) of respondents, the largest international customer represented fifty per cent (50%) or more of total sales (for eight per cent of respondents, the largest international customer represented 75% to 100% of total sales).

Table 3 reports the mean, standard deviation of the independent variables, effectuation (and its components) and the dependent variable, entrepreneurial internationalisation.

Table 3: Descriptive Statistics for the Main Constructs

Construct	Mean	Standard Deviation
Entrepreneurial Internationalisation	3.71	0.67
Innovation and Technology	3.87	0.72
Entrepreneurial Knowledge and Orientation	3.59	0.71
International Networks	3.84	0.67
Effectuation	3.96	0.43
Affordable loss	4.01	0.72
Experimentation	3.72	0.81
Flexibility	4.05	0.53
Pre-commitment	3.99	0.50

Given that each of the above scales were on a range of 1 to 5 with 1 signifying strong disagreement and 5 signifying strong agreement, it can be inferred from the above table that the respondents represented SMEs with relatively high levels of innovation & technology, high participation levels in international networks and high levels of entrepreneurial knowledge and orientation. The average value of 3.71 for the dependent variable (entrepreneurial internationalisation) indicates that the respondents perceive themselves to have relatively high levels of speed in international entry, speed in international commitment, and speed in international scope. The mean scores for effectuation are mostly higher than the means for the independent variable signifying high levels of this construct amongst the respondents.

Table 4 reports the mean and standard deviation for some of the contextual variables which were gathered.

Table 4: Descriptive Statistics for the Contextual Variables

Variable	Mean	Standard Deviation
Member founding team*	1.39	0.489
Gender	1.71	0.454
Family-owned firm	1.43	0.496
Age range	3.25	1.224
Percentage ownership in company	3.21	1.654
Education level*	4.36	0.791
International sales percentage	2.21	0.865
Largest international customer	2.10	0.971
n=114		
*Impacted on the variability of the dependent variable, entrepreneurial internationalisation		

While some of these variables have already been discussed in section 3.1, the focus at this stage was in assessing which of these variables could be considered as covariates in the upcoming regression models. To this end, linkages were explored between these variables and the dependent variable (entrepreneurial internationalisation) using inter-correlation (see Appendix N) and statistical tests such as two-sample tests (see Appendix O) and ANOVA tests (see Appendix P). Two contextual variables were found to be impacting on the variability of the dependent variable: member founding team and education level. Hence, these two variables will be used in the subsequent regression analysis. For the other contextual variables, there were no significant variations across their values; therefore, they will be omitted in the subsequent regression analysis.

3.2 Reliability and Validity

Computations and analyses were conducted on the constructs in the conceptual framework. Reliable and valid scales for the variables were created using the procedure described in section 2.3. Data Collection, and summarized in Appendix E, F and G. Correlations between variables are observed to test for multicollinearity (Field, 2013). The model was also measured for convergent reliability (Bryman & Bell, 2015).

Table 5 reports the Cronbach alpha scores found for the main constructs (see Appendix E, F and G for reports on the reliability and factorial validity results). Part of the examination of items in the scales is the test for Cronbach's alpha if the item is deleted. It is found that the Cronbach's alpha scores do not rise if any items are deleted in the eight scales for the conceptual framework (see Appendix E, F and G). Cronbach alpha scores are above 0.70 except

for the components of effectuation, Experimentation 0.68, and Flexibility 0.53. It is found that the Cronbach's alpha scores do not rise if Experimentation and Flexibility are deleted from Effectuation (see Appendix F). The internal reliability of the scales for the three independent variables is significant (Zhou, 2007; Dimitratos, et al., 2012), as well as for effectuation (Chandler, et al., 2012), and the dependent variable (Li, et al., 2012; Zhang, et al., 2014; Prashantham, et al., 2019). In short, reliability of the scales for the conceptual framework is found on the Cronbach alpha values. (See Appendix E, F and G for the meaning of statistical tests used in this paper.)

Table 5: Variable Scales of Conceptual Framework – Cronbach Alpha Scores

Variable Scale	Cronbach's Alpha
Innovation + Technology	0.79
Entrepreneurial Knowledge + Orientation	0.83
International Networks	0.79
:	
Effectuation	0.80
Affordable Loss	0.70
Experimentation	0.68
Flexibility	0.53
Pre-commitment	0.71
Entrepreneurial Internationalisation	0.90

It is important to adopt best practices to ensure validity. While it is impossible to completely control the characteristics of survey respondents, LinkedIn offers respondent qualifiers. The study used country of origin, respondents who work for a manufacturer, and respondents who work in management. Only qualified respondents were permitted to access the survey questionnaire. Furthermore, contextual control questions qualified respondents according to the commonly used standards in the literature: (a) small and medium-sized manufacturers that are exporting at least 25% of their production, (b) founded in the past thirty years; (c) privately owned; and, (d) less than 500 employees (Knight & Cavusgil, 2004; Harms & Schiele, 2012; Dimitratos et al., 2013; Efrat et al., 2017). Additionally, all of the respondents had sales of less than US\$50 million (Chandler, et al., 2011). Moreover, survey respondents were required to answer all questions, reach the end of the survey and click the "Done" button.

3.3 Factoral Analysis

Items that are related make up a factor, and factor analysis refers to the technique to analyse it. Factor analysis also acts as a tool that brings order to related items (Bryman & Bell, 2015). The most used factor analysis is explanatory factor analysis, in which relationships between items are examined for fit onto one component. Referring to Table 5 above, it was found that one component was loaded onto each scale in the independent variable (innovation + technology; knowledge + orientation; and international networks). For the moderating/mediating variable, effectuation, one component loaded onto the scale.

For the dependent variable, Entrepreneurial Internationalisation (eight items), it was found that one component loaded in the factor analysis. The Cronbach's alpha score was 0.90, in the very good category (Field, 2013). Factor loadings were above 0.50; unidimensionality was determined (Bryman & Bell, 2015)). Following the reliability test and exploratory factor analysis, the scales in the conceptual model were summated and compared, ensuring that discriminant validity was achieved.

3.4 Inter-Correlation Analysis

Prior to conducting regression analysis to test the research hypotheses, it was considered appropriate to test the inter-correlations between the main variables (Bryman & Bell, 2015) as high levels of correlation between the independent variables can be associated with multicollinearity issues in regression models. This inter-correlation analysis is shown below in Table 6

.

Table 6: Inter-Correlations among the Main Constructs

	Entrepreneurial Internationalisation	Innovation + Technology	Knowledge + Orientation	International Networks	Effectuation	Affordable Loss	Experiment	Flexibility	Pre-commitment
Entrepreneurial Internationalisation	1.000								
Innovation + Technology	0.788***	1.000							
Knowledge + Orientation	0.844***	0.622***	1.000						
International Networks	0.740***	0.602***	0.615***	1.000					
Effectuation	0.599***	0.542***	0.506***	0.650***	1.000				
Affordable Loss	0.106*	0.111*	0.045	0.286***	0.558***	1.000			
Experimentation	0.628***	0.494***	0.649***	0.489***	0.638***	0.025	1.000		
Flexibility	0.442***	0.464***	0.323***	0.504***	0.794***	0.336***	0.321***	1.000	
Pre-commitment	0.500***	0.461***	0.400***	0.564***	0.806***	0.256***^	0.371***	0.645***	1.000

*Significant at 0.05; **Significant at 0.01; *** Significant at 0.001

Firstly, it is noted in Table 6 that the relatively high correlations between the independent variables and the dependent variable in the first column (0.788, 0.844 and 0.740) are consistent with expectations and favourable to the conceptual model (as captured in H1, H2 and H3). The correlations between the independent variables (0.622, 0.602 and 0.615) are all below the cut-off of 0.90 (Field, 2013) suggesting that multicollinearity is unlikely to be an issue. Overall, effectuation and three of its four sub-variables have a strong correlation with the dependent and independent variables; the fourth sub-variable, affordable loss, has a weak relationship with the dependent variable, as well as with two of the three sub-variables of the independent variable. Affordable loss means not risking resources, money, and the enterprise overall; therefore, it can be seen how there may not be a strong relationship with speed to market (entrepreneurial internationalisation), innovation + technology, and entrepreneurial knowledge + orientation. Note, it is found that the Cronbach's alpha score does not rise if affordable loss is deleted from effectuation (see Appendix F).

An inter-correlation analysis was also conducted between the contextual variables (Bryman & Bell, 2015), and this is shown in Table 7.

Table 7: Inter-Correlations among Contextual Variables

	Entrepreneurial Internationalisation	Member founding team	Education level
Entrepreneurial Internationalisation	1.000		
Member founding team	-0.330**	1.000	
Education level	0.213**	-0.114*	1.000

*Significant at 0.05; **Significant at 0.01; *** Significant at 0.001

This correlation analysis shows that being a founding member shows a significant negative correlation with education; it shows a significant negative correlation with entrepreneurial internationalisation (dependent variable). Education level has a significant correlation with entrepreneurial internationalisation (dependent variable).

3.5 Regression Analysis

Regression analysis began with an assessment of the underlying assumptions and diagnostic tests. The importance of diagnostic tests lies in that regression is somewhat robust to violations of data assumptions (Hair, et al., 2006). The data assumptions are that variables are metric allowing for the use of multiple regression; the variables are normally distributed; there is minimal multicollinearity among independent variables; there is constant variance of error terms, or homoscedasticity; and error terms are independent of one another (Field, 2013). Once these assumptions were viewed to be satisfied, the analysis proceeded to test for the research hypotheses.

In the first regression model, hypotheses H1, H2 and H3 are tested. The regression equation prior to completing the analysis is:

$$y(\text{entrepreneurial internationalisation}) = b_0 + b_1(\text{Innovation} + \text{Technology}) + b_2(\text{Entrepreneurial Knowledge} + \text{Orientation}) + b_3(\text{International Networks}) + e.$$

The variables in the regression equation are treated as scale variables. It is commonly acceptable to treat them as scale variables to complete powerful methods of analysis such as correlation and regression, including ordinary least squares (OLS) regression (Bryman & Bell, 2015).

An initial regression was run using only the contextual variables as the independent variables (member founding team and education level). This is shown in Table 8 and shows that these variables were found to be significant, member founding team ($B = -0.329$, $p = 0.004$), and education level ($B = 0.147$, $p = 0.021$). An ANOVA analysis of this regression model revealed an F statistic is 7.334 and the p value is <0.001 . However, the r^2 for this model was 0.117 suggesting that this model does not explain much of the variation in the dependent variable.

Table 8: Multiple Regression using Contextual Variables

Variable	<i>B</i>	β	SE β	<i>p</i>
Intercept	3.411	X	0.342	X
Member founding team	-0.329	-0.263	0.112	0.004***
Education level	0.147	0.208	0.063	0.021***

Dependent Variable: Entrepreneurial Internationalisation

Table 9 below shows the results of further multiple linear regression analysis with entrepreneurial internationalisation as the dependent variable and the main independent variables added to the contextual variables.

Table 9: Multiple Regression Results with Independent and Contextual Variables

Variable	<i>B</i>	β	SE β	<i>p</i>
Intercept	-0.222	X	X	X
Innovation and Technology	0.418	0.429	0.021	<0.001***
Entrepreneurial Knowledge and Orientation	0.350	0.361	0.050	<0.001***
International Networks	0.380	0.400	0.043	<0.001***
Member founding team (covariate)	-0.034	-0.024	0.057	0.689
Education level (covariate)	0.060	0.071	0.043	0.443

The significant positive slope coefficients for the main independent variables provides support for H1, H2 and H3, and confirms findings in the literature (Knight & Cavusgil, 2004; Zhou, 2007; Dimitratos, et al., 2012). The Standardized Beta (*B*) tells us to what degree each predictor affects the outcome if the effects of all other predictors are held constant. For example, if Innovation and Technology rises by 1 standard deviation, the dependent variable (Entrepreneurial Internationalisation) rises by 0.43 standard deviations keeping everything else constant.

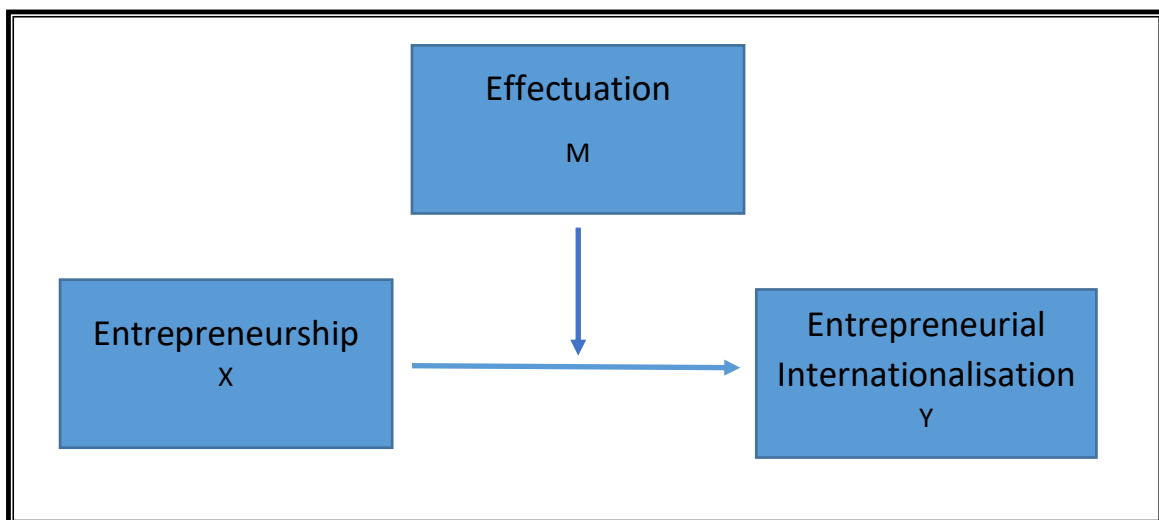
An ANOVA analysis of this regression model revealed an F statistic is 291.368 and the p value is <0.001. According to the results of the ANOVA table (Appendix L), the research model explains the variation in entrepreneurial internationalisation very well. The Model Fit Analysis (Grace-Martin, 2022) shows the r^2 for the model is 0.922 (adjusted r^2 0.919; mean square 0.183) compared to the r^2 of 0.117 (adjusted r^2 0.105; mean square 0.015) in Table 8, suggesting this model explains a much higher variation in the dependent variable. Looking at the Sum of Squares the residual is much less (3.005) than the regression sum of squares estimate (26.785). Consequently, the model explains the variation in the dependent variable.

3.5.1 Effectuation as a Moderator

The pilot study findings were inconclusive on whether effectuation playing a moderating or a mediating role on the relationship between the independent variables and the dependent variable. Addressing this matter will shed light on not just whether X affects Y but also how and when the relationship holds or is strong versus weak (Hayes, 2013). A brief background to these two approaches is provided before each is analysed using the Hayes Process Macro in SPSS.

Firstly, and as per previous paper series submissions, it is proposed that effectuation (M) moderates the relationship between the independent entrepreneurship variables (X) and entrepreneurial internationalisation (Y). The effect of X on Y is moderated by W if its size, sign, or strength depends on or can be predicted by W (Hayes, 2013). In this case, moderation would imply that under high levels of effectuation the impact of entrepreneurship on entrepreneurial internationalisation will be higher, and under low levels of effectuation the impact of entrepreneurship on entrepreneurial internationalisation will be lower (see Figure 2).

Figure 2: Effectuation as a Moderator between Entrepreneurship and Entrepreneurial Internationalisation



The Hayes Process macro tool within SPSS was used to run a hierarchical model to see if the addition of effectuation made a difference to the ability to predict the dependent variable (entrepreneurial internationalisation) (Hayes, 2013). This analysis is shown in Table 10 below and it shows that the r^2 rose from 0.821 to 0.828 when effectuation was added to the model – suggesting that the inclusion of effectuation is improving the ability to predict the dependent

variable. Both models are significant at $p < 0.001$; the p value for the F change in model 2 is significant at 0.002.

Table 10: Hierarchical Models with and without Effectuation

Model	R Square	Adjusted R Square	R Square Change	F	p	F Change	p for F Change
1	0.821	0.819	0.819	402.114	< 0.001***	402.114	< 0.001***
2	0.828	0.825	0.007	216.980	< 0.001***	2.630	0.002***

1. Predictors: (Constant), Innovation +Technology, Knowledge + Orientation, International Networks, Member of Founding Team, Education Level

2. Predictors: (Constant), Innovation +Technology, Knowledge + Orientation, International Networks, Member of Founding Team, Education Level, Affordable Loss, Experimentation, Flexibility, Pre-commitment

Dependent Variable: Entrepreneurial Internationalisation

The next step in the regression analysis (Hayes, 2013) was to test for the moderating effect of effectuation in the relationship between the independent variables and the dependent variable. This is shown for the three hypotheses (H4, H5 and H6) below. Note that the approach used in this analysis was to add an interaction term (the product of the independent variable multiplied by the moderating variable), and a significant interaction term would be interpreted as confirming the presence of moderation.

3.5.1.1 Moderation Analysis for H4

For this hypothesis, innovation and technology was used as the independent variable and the control variables are member of the founding team and education level. The results are shown below in Table 11:

Table 11: Regression Analysis for H4

Variable	Slope Coefficient	SE	<i>p</i>
Constant	3.650	0.158	< 0.001***
Innovation and Technology	0.530	0.043	< 0.001***
Effectuation	0.413	0.069	< 0.001***
X*W	0.047	0.074	0.528

n=114
a: Y is Entrepreneurial Internationalisation, X is Innovation + Technology, W is Effectuation, Covariates are member founding team and education level
Model Summary: $R^2 = 0.820$, $p < 0.001$, $F = 108$
X*W: R^2 change = 0.001, $p = 0.528$
*** Significant at 0.001
Number of bootstrap samples = 1,000

Note that the addition of the interaction term between entrepreneurship (innovation + technology) and effectuation to the regression model did not explain a significant proportion of the variance in entrepreneurial internationalisation, $\Delta R^2 = 0.001$, $\Delta F(5,108) = 0.401$, $p = 0.528$. In short, effectuation is not shown to have a significant moderating impact on the relationship between innovation + technology (independent variable) and entrepreneurial internationalisation (dependent variable).

3.5.1.2 Moderation Analysis for H5

For this hypothesis, entrepreneurial knowledge and orientation was used as the independent variable. The results are shown below in Table 12:

Table 12: Regression Analysis for H5

Variable	Coefficient	SE	<i>p</i>
Constant	3.441	0.169	<0.001***
Entrepreneurial Knowledge + Orientation	0.587	0.049	<0.001***
Effectuation	0.482	0.071	<0.001***
X*W	-0.350	0.087	0.270

n=114
a: Y is Entrepreneurial Internationalisation, X is Entrepreneurial Knowledge + Orientation, W is Effectuation, Co-variates are member founding team and education level
Model Summary: $R^2 = 0.891$, $p < 0.001$, $F = 108$
X*W: R^2 change = 0.031, $p = 0.270$
***Significant at 0.001

The addition of the interaction term between entrepreneurial knowledge & orientation and effectuation to the regression model did not explain a significant proportion of the variance in entrepreneurial internationalisation, $\Delta R^2 = 0.031$ $\Delta F(1,108) = 16.291$, $p = 0.270$. In short, this output does not provide for effectuation as a moderator of the relationship between entrepreneurial knowledge + orientation and the dependent variable, thus not providing significance for H5.

3.5.1.3 Moderation Analysis for H6

For this hypothesis, international networks was used as the independent variable and the results are shown below in Table 13:

Table 13: Regression Analysis for H6

Variable	Coefficient	SE	<i>p</i>
Constant	3.492	0.190	< 0.001***
International Networks	0.550	0.056	< 0.001***
Effectuation	0.263	0.092	0.005**
X*W	0.106	0.087	0.228

n=114
a: Y is Entrepreneurial Internationalisation, X is International Networks, W is Effectuation, Co-variates are member founding team and education level
Model Summary: $R^2 = 0.739$, $p < 0.001$, $F = 108$
X*W: R^2 change = 0.004, $p = 0.228$
*** Significant at 0.001 * Significant at 0.05

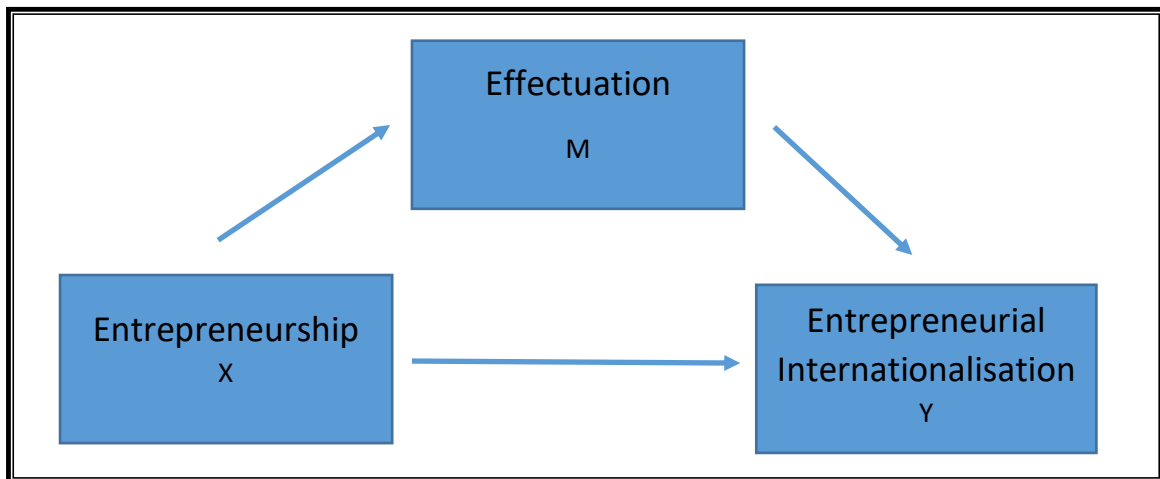
Note that the addition of the interaction term between international networks and effectuation to the regression model did not explain a significant proportion of the variance in entrepreneurial internationalisation, $\Delta R^2 = 0.004$, $\Delta F(1,108) = 1.472$, $p = 0.228$. It is noted that the slope coefficients are as expected in this model but in short, statistical significance for moderation for H6 is not found.

3.5.2 Effectuation as a Mediator

With a lack of significance for moderation analysis, the author then considered the role of mediation analysis as this had been outlined in previous papers as an alternative impact of effectuation on the relationship between the independent variables and the dependent variable.

In mediation, variations in entrepreneurship (independent variable) drive variations in effectuation (mediating variable), which drive variations in entrepreneurial internationalisation (dependent variable) (see Figure 3). For example, it may be posited that the level of innovation + technology (independent variable: entrepreneurship) drive the level of experimentation (mediating variable: effectuation), which then drives early and rapid internationalisation (dependent variable: entrepreneurial internationalisation). A mediation finding would be supported in the literature given the cognitive process associated with effectuation (Sarasvathy, 2001).

Figure 3: Effectuation as a Mediator between Entrepreneurship and Entrepreneurial Internationalisation



Using Hayes PROCESS for SPSS Version 4.0 (2021), the mediation analysis begins with a series of regression models following the four-stage approach from Baron and Kenny (1986).

3.5.2.1 Mediation Analysis on H4

Tables 14, 15 and 16 present the mediation analysis of the independent entrepreneurship variables, which are Innovation + Technology, Entrepreneurial Knowledge + Orientation, and International Networks. In row 1 of Table 14, Innovation + Technology (independent variable) is a significant predictor of Effectuation (mediator). Row 2 shows Effectuation (mediator), controlling for Innovation + Technology, is a significant predictor of Entrepreneurial

Internationalisation (dependent variable). Row 3 shows Innovation + Technology (independent variable), controlling for Effectuation, is a significant predictor of Entrepreneurial Internationalisation (dependent variable). Row 4 shows Innovation + Technology (independent variable) is a significant predictor of Entrepreneurial Internationalisation (dependent variable). Table 14 is summarized: it was found that Effectuation fully mediated the relationship between Innovation + Technology and Entrepreneurial Internationalisation.

Table 14: Mediation: Innovation + Technology and Entrepreneurial Internationalisation

Mediation: Innovation + Technology	B	p
Innovation + Technology predicts Effectuation	0.269	< 0.001
Effectuation Innovation + Technology predicts Entrepreneurial Internationalisation	0.543	< 0.001
Innovation + Technology Effectuation predicts Entrepreneurial Internationalisation	0.400	< 0.001
Innovation + Technology predicts Entrepreneurial Internationalisation	0.650	< 0.001
n=114 a: Y is Entrepreneurial Internationalisation, X is Innovation + Technology, M is Effectuation, Covariates are member founding team and education level Innovation +Technology predicts Effectuation: b=0.269, t(109)=5.604, p < 0.001 Effectuation Innovation + Technology predicts Entrepreneurial Internationalisation: b=0.543, t(109)=14.689 p < 0.001 Innovation + Technology Effectuation predicts Entrepreneurial Internationalisation: b=0.400, t(109)=6.0799, p < 0.001 Innovation +Technology predicts Entrepreneurial Internationalisation: b=0.650, t(109)=14.467 p < 0.001		

3.5.2.2 Mediation Analysis on H5

In row 1 of Table 15, Knowledge + Orientation (independent variable) is a significant predictor of Effectuation (mediator). Row 2 shows Effectuation (mediator), controlling for Knowledge + Orientation, is a significant predictor of Entrepreneurial Internationalisation (dependent variable). Row 3 shows Knowledge + Orientation (independent variable), controlling for Effectuation, is a significant predictor of Entrepreneurial Internationalisation (dependent variable). Row 4 shows Knowledge + Orientation (independent variable) is a significant predictor of Entrepreneurial Internationalisation (dependent variable). Table 15 is summarized: it was found that Effectuation fully mediated the relationship between Knowledge + Orientation and Entrepreneurial Internationalisation.

Table 15: Mediation: Entrepreneurial Knowledge + Orientation and Entrepreneurial Internationalisation

Mediation: Entrepreneurial Knowledge + Orientation	B	p
Entrepreneurial Knowledge + Orientation predicts Effectuation	0.322	< 0.001
Effectuation Entrepreneurial Knowledge + Orientation predicts Entrepreneurial Internationalisation	0.604	< 0.001
Entrepreneurial Knowledge + Orientation Effectuation predicts Entrepreneurial Internationalisation	0.449	< 0.001
Entrepreneurial Knowledge + Orientation predicts Entrepreneurial Internationalisation	0.749	< 0.001
n=114 a: Y is Entrepreneurial Internationalisation, X is Knowledge + Orientation, M is Effectuation, Covariates are member founding team and education level Entrepreneurial Knowledge + Orientation predicts Effectuation: $b=0.322$, $t(110)=5.461$, $p < 0.001$ Effectuation Entrepreneurial Knowledge + Orientation predicts Entrepreneurial Internationalisation: $b=0.604$, $t(110)=11.554$, $p < 0.001$ Entrepreneurial Knowledge + Orientation Effectuation predicts Entrepreneurial Internationalisation: $b=0.449$, $t(110)=5.985$, $p < 0.001$ Entrepreneurial Knowledge + Orientation predicts Entrepreneurial Internationalisation: $b=0.749$, $t(110)=11.554$, $p < 0.001$		

3.5.2.3 Mediation Analysis on H6

In row 1 of Table 16, International Networks (independent variable) is a significant predictor of Effectuation (mediator). Row 2 shows Effectuation (mediator), controlling for International Networks, is a significant predictor of Entrepreneurial Internationalisation (dependent variable). Row 3 shows International Networks (independent variable), controlling for Effectuation, is a significant predictor of Entrepreneurial Internationalisation (dependent variable). Row 4 shows International Networks (independent variable) is a significant predictor of Entrepreneurial Internationalisation (dependent variable). Table 16 is summarized: it was found that Effectuation fully mediated the relationship between International Networks and Entrepreneurial Internationalisation.

Table 16: Mediation: International Networks and Entrepreneurial Internationalisation

Mediation: International Networks	B	p
International Networks predicts Effectuation	0.381	< 0.001
Effectuation International Networks predicts Entrepreneurial Internationalisation	0.568	< 0.001
International Networks Effectuation predicts Entrepreneurial Internationalisation	0.248	< 0.001
International Networks predicts Entrepreneurial Internationalisation	0.662	< 0.001

n=114
a: Y is Entrepreneurial Internationalisation, X is Knowledge + Orientation, M is Effectuation, Covariates are member founding team and education level
International Networks predicts Effectuation: b=0.381, t(110)=8.618, p < 0.001
Effectuation | International Networks predicts Entrepreneurial Internationalisation: b=0.568, t(110)=10.411, p < 0.001
International Networks | Effectuation predicts Entrepreneurial Internationalisation: b=0.248, t(110)=2.272, p < 0.001
International Networks predicts Entrepreneurial Internationalisation: b=0.662, t(110)=10.411, p < 0.001

An overall summary of the mediation results, using overall Effectuation, for Entrepreneurship with Entrepreneurial Internationalisation, and including the bootstrapped confidence intervals can be found in Table 17.

Table 17: Mediation summary: Effectuation as a Mediator for Entrepreneurship and Entrepreneurial Internationalisation

Variable	Confidence Interval	Effect	BootSE	Boot LLCI	BootUCLI
Innovation and Technology	95%	0.108	0.033	0.057	0.181
Knowledge and Orientation	95%	0.145	0.049	0.069	0.259
International Networks	95%	0.094	0.051	0.011	0.207

Number of bootstrap samples = 1,000
a: Y is Entrepreneurial Internationalisation, X is Innovation + Technology; Knowledge + Orientation; International Networks, M is Effectuation, Covariates are member founding team and education level

Additional mediation results using the components of effectuation (Affordable Loss, Experimentation, Flexibility and Pre-commitment) for Innovation + Technology with Entrepreneurial Internationalisation and including the bootstrapped confidence intervals can be found in Table 18. Experimentation and Pre-commitment are found to significantly mediate in the relationship between the independent and dependent variables.

Table 18: Mediation summary: Affordable Loss, Experimentation, Flexibility and Pre-commitment as a Mediator for Innovation + Technology and Entrepreneurial Internationalisation

Variable	Confidence Interval	Effect	BootSE	Boot LLCI	BootUCLI
Total	95%	0.165	0.038	0.098	0.245
Affordable Loss	95%	0.001	0.006	-0.013	0.014
Experimentation	95%	0.102	0.025	0.038	0.157
Flexibility	95%	0.002	0.022	-0.037	0.051
Pre-commitment	95%	0.061	0.031	0.006	0.126

Number of bootstrap samples = 1,000
a: Y is Entrepreneurial Internationalisation, X is Innovation + Technology, M is Affordable Loss; Experimentation; Flexibility; Pre-commitment, Co-variates are member founding team and education level

In addition, mediation results using the components of effectuation (Affordable Loss, Experimentation, Flexibility and Pre-commitment) for Knowledge + Orientation with Entrepreneurial Internationalisation and including the bootstrapped confidence intervals can be found in Table 19. Experimentation and Flexibility are found to significantly mediate in the relationship between the knowledge + orientation and entrepreneurial internationalisation.

Table 19: Mediation summary: Affordable Loss, Experimentation, Flexibility and Pre-commitment as a Mediator for Knowledge + Orientation and Entrepreneurial Internationalisation

Variable	Confidence Interval	Effect	BootSE	Boot LLCI	BootUCLI
Total	95%	0.148	0.043	0.070	0.242
Affordable Loss	95%	0.000	0.004	-0.006	0.010
Experimentation	95%	0.060	0.033	0.002	0.132
Flexibility	95%	0.042	0.019	0.004	0.080
Pre-commitment	95%	0.046	0.029	-0.010	0.111

Number of bootstrap samples = 1,000
a: Y is Entrepreneurial Internationalisation, X is Knowledge + Orientation, M is Affordable Loss; Experimentation; Flexibility; Pre-commitment, Co-variates are member founding team and education level

Finally, mediation results using the components of effectuation for International Networks with Entrepreneurial Internationalisation and including the bootstrapped confidence intervals can be

found in Table 20. Experimentation is found to significantly mediate in the relationship between the independent and dependent variables.

Table 20: Mediation summary: Affordable Loss, Experimentation, Flexibility and Pre-commitment as a Mediator for International Networks and Entrepreneurial Internationalisation

Variable	Confidence Interval	Effect	BootSE	Boot LLCI	BootUCLI
Total	95%	0.171	0.057	0.074	0.295
Affordable Loss	95%	-0.022	0.016	-0.054	-0.010
Experimentation	95%	0.118	0.033	0.060	0.194
Flexibility	95%	0.029	0.028	-0.032	0.076
Pre-commitment	95%	0.046	0.040	-0.020	0.145

Number of bootstrap samples = 1,000
a: Y is Entrepreneurial Internationalisation, X is International Networks, M is Affordable Loss; Experimentation; Flexibility; Pre-commitment, Co-variates are member founding team and education level

In this final section the discussion is concerned with an important element of mediation. Mediation is said to occur when the strength of the relationship between X and Y is diminished in the presence of M (Hayes, 2013). In this conceptual model mediation occurs when the strength of the relationship between entrepreneurship and entrepreneurial internationalisation is diminished in the presence of effectuation.

Table 21 presents the mediation analysis confirming the meaningful reduction in the effect of the relationship between entrepreneurship and entrepreneurial internationalisation when controlling for effectuation. Row 2 shows Innovation + Technology (independent variable), controlling for Effectuation, remains a significant predictor of Entrepreneurial Internationalisation (dependent variable), but has a smaller effect than Row 1. Row 4 shows Knowledge + Orientation (independent variable), controlling for Effectuation, remains a significant predictor of Entrepreneurial Internationalisation (dependent variable), but has a smaller effect than Row 3. Row 6 shows International Networks (independent variable), controlling for Effectuation, remains a significant predictor of Entrepreneurial Internationalisation (dependent variable), but has a smaller effect than Row 5.

Table 21: Mediation: Confirm the Meaningful Reduction in the Effect of the Relationship between Entrepreneurship and Entrepreneurial Internationalisation in Presence of Effectuation (X | M→Y)

Mediation: Innovation + Technology	B	p
Innovation + Technology predicts Entrepreneurial Internationalisation	0.706	< 0.001
Innovation + Technology Effectuation predicts Entrepreneurial Internationalisation	0.382	< 0.001
Entrepreneurial Knowledge + Orientation predicts Entrepreneurial Internationalisation	0.802	< 0.001
Entrepreneurial Knowledge + Orientation Effectuation predicts Entrepreneurial Internationalisation	0.361	< 0.001
International Networks predicts Entrepreneurial Internationalisation	0.700	< 0.001
International Networks Effectuation predicts Entrepreneurial Internationalisation	0.290	0.009
n=114 a: Y is Entrepreneurial Internationalisation, X is Innovation + Technology, Knowledge + Orientation, International Networks, M is Effectuation, Covariates are member founding team and education level Innovation +Technology predicts Entrepreneurial Internationalisation: b=0.706, t(235)=10.093 p < 0.001 Innovation + Technology Effectuation predicts Entrepreneurial Internationalisation: b=0.382, t(235)=5.297, p < 0.001 Entrepreneurial Knowledge + Orientation predicts Entrepreneurial Internationalisation: b=0.802, t(235)=12.795, p < 0.001 Entrepreneurial Knowledge + Orientation Effectuation predicts Entrepreneurial Internationalisation: b=0.361, t(235)=5.237, p < 0.001 International Networks predicts Entrepreneurial Internationalisation: b=0.700, t(235)=7.344, p < 0.001 International Networks Effectuation predicts Entrepreneurial Internationalisation: b=0.290, t(235)=2.626, p = 0.009		

4.0 Summary of Findings

To summarize the findings of the data analysis, the dimensions of entrepreneurship drive entrepreneurial internationalisation (H1, H2 and H3) (see Table 22). The conceptual model also posits three hypotheses of moderation/mediation. The analysis confirmed H4, effectuation has a positive mediating impact on the relationship between entrepreneurship and entrepreneurial internationalisation. Mediation analysis also confirms in H5 and H6: effectuation mediates in the relationship between entrepreneurship (independent variable) and, entrepreneurial internationalisation (dependent variable). Mediation is confirmed at the 95% confidence level. It is found that the dimensions of entrepreneurship drive changes in effectuation, which in turn,

drives changes in entrepreneurial internationalisation. The impact of mediation may be explained as follows. When operating under high levels of effectuation an entrepreneur is exhibiting adaptability, improvisation, and flexibility. These characteristics are more conducive to rapid and early internationalisation (entrepreneurial internationalisation). Hence, the argument is made for a cause-and-effect relationship between effectuation and entrepreneurial internationalisation, and a mediating relationship in the model.

Table 22: Hypothesis Testing Summary H1 to H6

Hypothesis	Study Finding
H1: Innovation + Technology has a positive significant impact on Entrepreneurial Internationalisation	H1 Accepted ($p < 0.001^{***}$)
H2: Entrepreneurial Knowledge + Orientation has a positive significant impact on Entrepreneurial Internationalisation	H2 Accepted ($p < 0.001^{***}$)
H3: International Networks has a positive significant impact on Entrepreneurial Internationalisation.	H3 Accepted ($p < 0.001^{***}$)
H4: Effectuation has a positive moderating/mediating impact on the relationship between Innovation and Technology, and Entrepreneurial Internationalisation	H4 Accepted for mediation (See tables 14 and 18 for mediation)
H5: Effectuation has a positive moderating/mediating impact on the relationship between Entrepreneurial Knowledge and Orientation, and Entrepreneurial Internationalisation.	H5 Accepted for mediation (See tables 15 and 19 for mediation)
H6: Effectuation has a positive moderating/mediating impact on the relationship between International Networks, and Entrepreneurial Internationalisation.	H6 Accepted for mediation (See tables 16 and 20 for mediation)

In summary, mediation is confirmed for H4, H5 and H6. In the mediation model, the independent variables of entrepreneurship drive the variability of effectuation, which in turn drives entrepreneurial internationalisation.

5.0 Limitations

All studies are subject to limitations, and this also applies to this research study which used a survey to access respondents from the sampling frame. Recognised limitations of such an approach include post hoc rationalization (Chandler, et al., 2011), and narrow-industry sampling (Deligianni, et al., 2017). As outlined in Section 2.2, several sampling frames were considered for this study before it was decided to use LinkedIn, a social media network, which

generated a sample of 114 respondents. The approach used in LinkedIn is acknowledged as a limitation of this study. Privacy and confidentiality (making sure that respondents provide permission to collect responses), and demographics (LinkedIn users may not be representative of manufacturing SMEs who internationalise) are identified as limitations in Mirabeau et al., 2013.

In this research study respondents were required to read the Information Guide and consent to participate in the study. Demographic information was collected and used to compare the sample demographic statistics to those reported in the extant literature (Knight & Cavusgil, 2004; Harms & Schiele, 2012; Dimitratos et al., 2013; Efrat et al., 2017). Two negatively worded questions were added to the survey questionnaire as a validation technique to check if respondents were giving consistent answers; the answers were reverse-coded. In short, it is felt that the use of LinkedIn has led to data, which is valid, reliable, and trustworthy. Future research may consider replicating this study using other industry sectors and using other countries to support the external validity of the model.

6.0 Conclusion

The paper series began with a conceptual framework in paper 1. It was followed by a quantitative survey approach as the research method in paper 2. Paper 3 extended the design implementation and administration through a pilot study. In Paper 4 significant findings support mediation in the relationship between entrepreneurship and entrepreneurial internationalisation. In the next phase, the study will discuss the conclusions and recommendations from theoretical and business-practise perspectives.

7.0 References

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8.0 Appendices

Appendix A: Full roll-out Survey Questionnaire

You are invited to complete a research survey questionnaire on Canadian business internationalisation. The purpose of this research is to investigate how an enterprise internationalizes its business. In consideration of your time for completing the survey, we will send you a table of aggregate results of the findings.

One concept investigated in the research study is called effectuation, which consists of four components: affordable loss, experimentation, flexibility, and pre-commitment. (A full definition of effectuation is found at the end of the landing page.)

Information Guide

Researcher's name: Mark Stoiko

Project title: Entrepreneurial Internationalisation Research Study

What is the purpose of this research?

The research problem driving this research study is the role of effectuation in the internationalisation process. The research question is, how does effectuation impact on the relationship between entrepreneurship and entrepreneurial internationalisation? The importance of this research lies in advancing the scholarship of internationalisation and effectuation. The contribution to practice is explaining how and when to internationalize.

Why am I being asked to participate?

You are asked to complete a web-based survey questionnaire on the internationalisation of your business enterprise. Your participation will be anonymous to everyone except the researcher. Participation will require approximately 30 minutes of your time.

Do I have to participate?

Participation is voluntary. Anyone who agrees to participate in this research may change his/her mind at any time. Participants may refuse to answer any questions and/or withdraw from the study. To withdraw, participants can simply close the survey window. Responses will only be included in the final dataset if a participant clicks on the "Submit" button at the end of the survey.

What would participation in the study mean for me?

There are no direct benefits to participants in this research. There are no foreseeable risks or discomforts associated with participation in this research. The study fulfils the requirements of the Doctorate of Business Administration, and the results will direct the Principal Investigator towards the fulfilment of the research study.

What are the benefits of participating?

There are no direct benefits to participants in this research. The findings from this research may be presented at national and/or international conferences and/or published in peer-reviewed scholarly journals. Participants wishing to know more about the research findings may contact the Principal Investigator to receive a written summary of the results.

What are the risks associated with participating?

There are no foreseeable risks or discomforts associated with participation in this research. There are no direct benefits to participants in this research. The study fulfils the requirements of the Doctorate of Business Administration, and the results will direct the Principal Investigator towards the fulfilment of the research study.

Can I withdraw at any point?

Anyone who agrees to participate in this research may change his/her mind at any time. Participants may refuse to answer any questions and/or withdraw from the study. To withdraw, participants can simply close the survey window. Responses will only be included in the final dataset if a participant clicks on the "Submit" button at the end of the survey.

How will data gathered be managed and used in the study?

Data is collected, protected, stored, and disposed of according to the TCPS 2 (2014) — the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans. Electronic Security Guidelines include desktop security, server security and password security. The web-based survey is conducted using SurveyMonkey Enterprise edition, which is governed by encryption, SSO, SSAE-16 SOC II compliant data centres, HIPAA and GDPR compliance.

Can I verify aspects of the work and view a summary of the findings?

Participants wishing to know more about the research findings may contact the Principal Investigator to receive a written summary of the results.

Informed Consent

I have carefully read the Information Guide for this project. I understand that if I have additional questions about the project, I can contact Mark Stoiko (mark.stoiko@humber.ca; 416-675-6622 x 3358) at any time during the project. I understand that this project has been approved by WIT Business School Ethics Committee, Waterford Institute of Technology, Waterford, Ireland. If I have any questions about my rights as a research participant, I can contact Dr. Tom Egan, DBA Programme Supervisor, WIT Business School, e: tegan@wit.ie. I also understand that I may decline or withdraw from participation at any time.

I have read and understood the information guide provided and by clicking on the Consent button:

I am voluntarily participating in this study.

I understand that I can withdraw from the study at any point.

I understand that my own and my organisation's details will be anonymised.

Publication Agreement

Title of Research Project:

The Impact of Effectuation on the Relationship between Entrepreneurship and Entrepreneurial Internationalisation.

Any publications which arise from this research will have the following designated authors:

Lead author:	Mark Stoiko
Additional authors:	
2 nd author	Tom Egan
3 rd author	Aidan Duane

_____ Signature [Lead author]	_____ Date
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_____ Signature [2 nd author]	_____ Date	_____ Signature [3 rd author]	_____ Date
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Overview of the Study

The purpose of this study is to investigate how a North American enterprise internationalizes its business. One concept investigated is called effectuation, which consists of four components: affordable loss,

experimentation, flexibility, and pre-commitment. In experimentation, the entrepreneur applies mental models to explain complex actions. In affordable loss entrepreneurs make decisions that would not put the venture at stake. Flexibility is exploiting contingencies that arise as the new venture unfolds. Pre-commitments are agreements made with customers, suppliers, and networks to provide low-cost resources. In sum, it may be said effectuation is the management of uncertainty.

The following items describe thoughts and actions you may have taken in your enterprise. Please indicate the degree to which you agree or disagree with the following: (where 1=Strongly Disagree; 2=Disagree; 3= Neither Agree nor Disagree; 4=Agree; 5=Strongly Agree).

Affordable Loss					
<i>1. The first series of questions relate to the Affordable Loss component of effectuation.</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1.1 We were careful not to commit more resources than we could afford to lose					
1.2 We were careful not to risk more money than we were willing to lose					
1.3 We were careful not to risk so much money that the venture would be in real trouble financially if things didn't work out					
Experimentation					
<i>2. The next series of questions relate to the Experimentation component of effectuation.</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
2.1 We experimented with different products and/or business Models					
2.2 The product/service that we now provide is substantially different than we first imagined					
2.3 We tried a number of different approaches until we found a business model that worked					
Flexibility					
<i>3. The next series of questions relate to the Flexibility component of effectuation.</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
3.1 We allowed the business to evolve as opportunities emerged					
3.2 We adapted what we were doing to the resources we had					

3.3 We avoided courses of action that restricted our flexibility and adaptability					
3.4 We were flexible and took advantage of opportunities as they arose					
Pre-commitment					
<i>4. The next series of questions relate to the Pre-commitment component of effectuation.</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
4.1 We used pre-commitments from customers and suppliers as often as possible					
4.2 We used a substantial number of agreements with customers, suppliers, and other organizations to reduce the amount of uncertainty					
4.3 Network contacts provided low-cost resources					
4.4 By working closely with people/organizations external to our organization we have been able to greatly expand our capabilities					
4.5 We have focused on developing alliances with other people and organizations					
4.6 Our partnerships with outside organizations and people play a key role in our ability to provide our product/service					
4.7 We focus on risk reduction by approaching potential partners and customers					
Innovation + Technology					
<i>5. The next series of questions relate to Innovation and Technology:</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
5.1 Our top management always encourages new product ideas for international markets					
5.2 Our top management is very receptive to innovative ways of exploiting international market opportunities					
5.3 Our top management believes the opportunity of international markets is greater than that of the domestic market					
5.4 Our top management continuously searches for new export markets					
5.5 Our top management is willing to consider new suppliers/clients abroad					
Entrepreneurial Knowledge + Orientation					
<i>6. The next series of questions relate to Entrepreneurial Knowledge and Orientation. Thinking of the largest foreign market in which you sell your products or services:</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree

6.1 In this foreign country we favor high-risk projects (with chances of very high return)					
6.2 In general, we believe that owing to the nature of the environment in this foreign country it is best to achieve the firm's objectives in its marketplace via bold and wide-ranging acts					
6.3 In dealing with its competitors in the marketplace of this foreign country, my firm typically initiates actions to which competitors then respond					
6.4 In dealing with its competitors in the marketplace of this foreign country, my firm is very often the first firm to introduce new products/services, administrative techniques, and operating technologies					
6.5 In dealing with its competitors in the marketplace of this foreign country, my firm typically adopts a very competitive 'beat-the-competitors' posture					
6.6 In the past five years my firm has marketed very many new lines of products or services in this foreign Country					
6.7 In the past five years in this foreign country changes in product or service lines have usually been quite dramatic					
International Networks					
<i>7. The next series of questions relate to International Networks:</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
7.1 We have technology-based links with customers in international markets					
7.2 We have technology-based links with suppliers in international markets					
7.3 We have entrepreneurial collaborations with external partners					
7.4 We cooperate with non-competitors (partners, distributors, suppliers, clients, firms of other sectors, government) in joint manufacturing agreements					
7.5 We cooperate with non-competitors in joint research					
7.6 We cooperate with non-competitors in joint advertising and marketing					
Entrepreneurial Internationalisation					
<i>8. The next series of questions relate to international market entry, international scope, and international commitment:</i>	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
8.1 From enterprise start up management quickly identified and enacted our first foreign market entry					
8.2 From enterprise start up management quickly grew foreign market revenue as a percentage of total revenue					

8.3 From enterprise start up management quickly entered multiple foreign markets					
8.4 From enterprise start up management established foreign operations within three years of the founding					
8.5 Our firm is much better than competitors in relation to sales growth in international market					
8.6 Our firm is much better than competitors in relation to revenue growth					
8.7 Our firm is much better than competitors in relation to net income growth					
8.8 Our firm is much better than competitors in relation to overall firm performance					

With respect to your current organization, how predictable were the behaviors of various external environmental sectors: (Where 1=highly unpredictable and 7=highly predictable)

External Environment: Suppliers of your raw materials and components								
9. The next series of questions relate to how predictable was the behaviour of suppliers of your raw materials and components:	Highly Unpredictable	Unpredictable	Unpredictable Somewhat	Neither Predictable nor Unpredictable	Predictable Somewhat	Predictable	Highly Predictable	
9.1 Their price changes are								
9.2 Quality changes								
9.3 Design changes								
External Environment: Competitors' actions								
10. The next series of questions relate to how predictable was the behaviour of competitors' actions	Highly Unpredictable	Unpredictable	Unpredictable Somewhat	Neither Predictable nor Unpredictable	Predictable Somewhat	Predictable	Highly Predictable	
10.1 Their price changes are								
10.2 Product quality changes								
10.3 Product design changes								
10.4 Introduction of new products								
External Environment: Customers								

11. The next series of questions relate to <i>how predictable was the behaviour of customers</i>	Highly Unpredictable	Unpredictable	Unpredictable Somewhat	Neither Predictable nor Unpredictable	Predictable Somewhat	Predictable	Highly Predictable
11.1 Their demand for existing products is							
11.2 Their demand for new products is							
11.3 Their poor communication is							
External Environment: Financial and capital markets							
12. The next series of questions relate to <i>how predictable was the behaviour of financial and capital markets</i>	Highly Unpredictable	Unpredictable	Unpredictable Somewhat	Neither Predictable nor Unpredictable	Predictable Somewhat	Predictable	Highly Predictable
12.1 Interest rate changes in debt							
12.2 Changes in financial instruments available for short-term debt							
12.3 Changes in financial instruments available for debt							
12.4 Availability in credit for debt							
External Environment: Government regulatory agencies							
13. The next series of questions relate to <i>how predictable was the behaviour of government regulatory agencies</i>	Highly Unpredictable	Unpredictable	Unpredictable Somewhat	Neither Predictable nor Unpredictable	Predictable Somewhat	Predictable	Highly Predictable
13.1 Changes in laws or agency policies on pricing are							
13.2 Changes in laws or policies on product standards or quality							
13.3 Changes in laws or policies regarding financial practices							
13.4 Changes in labour (personnel) laws or policies							
13.5 Changes in laws or policies affecting marketing and distribution methods							

The next series of questions relate to **Company and Founder Information**.

15. In what year was your company founded? _____

16. At startup, how many individuals had both ownership and involvement in managerial decision making?

17. Were you a member of the founding team? _____ Yes _____ No
18. How many full-time employees do you employ? _____
19. What is your gender? _____ Male _____ Female
20. Is this a family-owned firm? _____ Yes _____ No
21. What is your age range? (Please select the most correct response)
- | | | |
|---------------------------|--------------------|---------------------------|
| a. Less than 25 years old | c. 35-44 years old | e. 55-64 years old |
| b. 25-34 years old | d. 45-54 years old | f. More than 64 years old |
22. What is your percentage of ownership in the company? (Please select the most correct response)
- | | | |
|-----------------|--------------|------------------|
| a. No ownership | c. 5% ≥ 25% | e. 50% ≥ 75% |
| b. 0% ≥ 5% | d. 25% ≥ 50% | f. More than 75% |
23. What is the highest educational level you have achieved? (Please select the most correct response)
- | | | |
|---------------------------------|--|------------------------|
| a. Did not complete high school | c. Some technical, college or university | e. Master's Degree |
| b. High school or equivalent | d. Bachelor's Degree | f. Ph.D. or equivalent |
24. What were your company's annual sales (nearest \$100,000)? _____ FY 18
25. Our international sales represent what percentage of our total sales? (Please select the most correct response)
- | | |
|------------------|---------------|
| a. Less than 25% | c. 50 to 74% |
| b. 25 to 49% | d. 75 to 100% |
26. Our largest international customer represents what percentage of our total sales? (Please select the most correct response)
- | | |
|------------------|---------------|
| a. Less than 25% | c. 50 to 74% |
| b. 25 to 49% | d. 75 to 100% |

If you would like us to send you a copy of the executive summary, please enter your email address:

Thank you for completing the questionnaire. If you have questions about the project, contact Mark Stoiko (mark.stoiko@humber.ca; 416-675-6622 x 3358) at any time during the project.

Appendix B: LinkedIn responses

Date (2021)	LinkedIn (n)	Date (2021)	LinkedIn (n)
September 6	2	October 12	1
September 7	1	October 14	1
September 8	2	October 18	2
September 9	2	October 19	1
September 10	1	October 22	1
September 11	1	October 23	3
September 13	1	October 24	2
September 14	2	October 25	1
September 15	3	October 26	3
September 17	1	October 27	2
September 20	4	October 28	1
September 21	3	October 29	2
September 22	1	October 30	2
September 23	1	November 1	1
September 24	3	November 2	4
September 25	3	November 3	9
September 26	3	November 4	2
September 29	2	November 5	3
October 2	1	November 6	3
October 3	1	November 7	2
October 4	1	November 8	3
October 5	3	November 9	9
October 6	1	November 10	8
October 7	4	November 11	3
October 11	3	November 12	2
Total			114

LinkedIn Research Network

	n
Members of the Study research network	554
Completed the questionnaire	192
Answered all questions and met all contextual criteria	114

Invitations

Request to join LinkedIn research network

<NAME> I'd like to add you to my research network on LinkedIn.
-Mark

Thank you for joining LinkedIn research network

<NAME> I hope you are well. Thank you for accepting my connect invitation. I am on LinkedIn for research and career purposes. You work for an interesting company. I hope we can help each other. Thanks for joining my network. Blessings, Mark

“Tell me more about your research network”

<NAME> Thank you for your reply. Among my interests are researching manufacturing: the impact on the relationship between entrepreneurship and internationalisation. I am also on LinkedIn for career purposes. You work for an interesting company. I hope we can help each other. Thanks for considering my research network.
Blessings, Mark

“Completed the survey”

<NAME> Thank you for completing the survey, I will share the results on LinkedIn.
Blessings, Mark

Invitation to complete the survey

Will you please help with an education project?

<NAME> As you know I'm a Professor in the Faculty of Business at Humber College as well as a doctoral candidate at WIT Business School in Waterford, Ireland. I'm conducting research on manufacturers to investigate how and when to internationalize a business. I need survey responses for my dissertation.

Participation is simple and easy. The web-based survey contains questions that should take 10 to 12 minutes to complete. Since it is anonymous, I will not be able to send you a personal thank you. Please know that I am very grateful for your expert opinion. When you start the survey an information guide will give you an explanation of the study. I will share results with you on LinkedIn. Please click on this link to get started:

1st follow-up email to complete the survey

Would you please help me to complete my doctoral studies?

<NAME> I hope you and yours are keeping well. Following my first appeal, I received sixty-eight responses and I require more for my doctoral study on manufacturers. It is important to receive your participation. Would you please help me?

Participation is simple and easy. The web-based survey contains questions that should take 10 to 12 minutes to complete. Please know that I am very grateful for your expert opinion. I will share results with you on LinkedIn.

Please click on this link to get started:

Thank you for helping me complete my doctoral studies.

Blessings

Mark Stoiko

Samples of Mail Invitations

 **Dominic Ismert** Jul 22
InMail • Request to join
LinkedIn research network


 **Eileen Cunningham** Jul 22
InMail • Request to join
LinkedIn research network

 **Andy Hamilton** Jul 22
InMail • Request to join
LinkedIn research network

 **Doug Parker** Jul 22
InMail • Request to join
LinkedIn research network

 **Harry Arnon** Jul 22
InMail • Request to join
LinkedIn research network


 **Wayne Phillips** Jul 22
InMail • Request to join
LinkedIn research network


 **Rajesh Bashyam** Jul 22
InMail • Request to join
LinkedIn research network

 **David B. Sanchez** Jul 22
InMail • Request to join
LinkedIn research network

 **Erik Fields** Jul 22
InMail • Request to join
LinkedIn research network

 **Kenneth Mark Griffie** Jul 22
InMail • Request to join
LinkedIn research network

 **Ingo Rasch, MBA, LSSGB** Sep 26
You: Ingo, Thank you for completing the survey, I will...


 **Richard Hiura** Sep 26
You: Richard, Thank you for completing the survey, I will...


 **Rob Willy** Sep 25
You: Rob, Thank you for completing the survey, I will...

 **David Kaplan** Sep 25
You: David, Thank you for letting me know. Blessings,...

 **Juan Milian** Sep 25
You: Juan, Thank you for completing the survey, I will...

 **Manuel Mencía Galeano** Sep 25
You: Thank you, Manuel.

 **Thomas Maiberger** Sep 25
You: Thomas, Thank you for completing the survey, I will...

 **Ricardo Chavez-Ramire...** Sep 24
You: Ricardo, Thank you for completing the survey, I will...

 **Lux Chakrapani** Sep 24
You: Lux, Thank you for completing the survey, I will...

Samples of Members of Research Network (n=554)



Michael Brady, LSSBB

Plant Manager at Simonds International
Connected 2 months ago



Todd Puckett

Vice President, Manufacturing at axogen
Connected 2 months ago



Silvia Gutierrez

President and CEO at TIC AEROSPACE, INC.
Connected 2 months ago



Jessica Towery

Custom Manufacturing
Connected 2 months ago



Chris Wooten

Manufacturing Operations
Connected 2 months ago



John Ewing

Lean Manufacturing & Strategic Supply Leader
Connected 2 months ago



Anurag Vaghule

Manufacturing Specialist at AMMD, LLC
Connected 2 months ago



Michael Hawkins

Vice President of Manufacturing at Metal Flow Corporation
Connected 2 months ago



Sean Laws

Plant Manufacturing Manager at Fiberon Decking
Connected 2 months ago



John Grancaric

CEO; Manufacturing • Distribution • Logistics
Connected 3 months ago



Neshan Markarian

Vice President Manufacturing Operations
Connected 3 months ago



John Ploense

Additive Manufacturing Technology & Innovation (AMTI ManTech) Technical Manager / Project Manager
Connected 3 months ago



Roxanne Abdi

President/CEO at Precise Aerospace Manufacturing
Connected 3 months ago



Ammon Hepworth

CEO and Co-Founder at Jurybox Technologies, LLC
Connected 3 months ago



Tarun Amla

President and Chief Operating Officer at Thintronics®
Connected 3 months ago



Darren Bond

Manufacturing Manager at Marvin Engineering Co.
Connected 3 months ago

Appendix C: Timeline for Data Collection

Date	Item (n=114)
July 2 2021	Began recruiting LinkedIn members to join “join my research network” on LinkedIn
July 25 2021	Twenty-six joined my research network
August 9 2021	One hundred joined my research network
August 16 2021	Two hundred joined my research network
August 30 2021	Three hundred joined my research network
September 6 2021	Ninety-four invitations sent to complete the survey
September 6 2021	Four hundred joined my research network
September 7 2021	Ninety-four invitations sent to complete the survey
September 8 2021	Ninety-four invitations sent to complete the survey
September 9 2021	Sixty-one invitations sent to complete the survey
September 14 2021	Sixty-nine invitations sent to complete the survey
September 20 2021	Five hundred and fifty-four joined my research network
September 20 2021	Seventy-three invitations sent to complete the survey
September 20 2021	Seventy-six follow-up emails sent to complete the survey
September 21 2021	Seventy-four follow-up emails sent to complete the survey
September 23 2021	Seventy-two follow-up emails sent to complete the survey
September 25 2021	One hundred and thirty follow-up emails sent to complete the survey
September 27 2021	Twenty-eight follow-up emails sent to complete the survey
October 4 2021	Seventy-one follow-up emails sent to complete the survey
October 7 2021	One hundred and forty-one 2 nd follow-up emails sent to complete the survey
October 14 2021	One hundred and seventy-seven 2 nd follow-up emails sent to complete the survey
October 18 2021	Eighty 2 nd follow-up emails sent to complete the survey
October 25 2021	One hundred and fifty-five 3 rd follow-up emails sent to complete the survey
October 30 2021	One hundred and forty-three 3 rd follow-up emails sent to complete the survey
October 31 2021	Ninety-four 4 th follow-up emails sent to complete the survey
November 1 2021	One hundred and nine 4 th follow-up emails sent to complete the survey
November 5 2021	One hundred and fifteen 5 th follow-up emails sent to complete the survey
November 6 2021	Seventy 5 th follow-up emails sent to complete the survey

Appendix D: Manufacturing Association multi-point contact record (abridged)

Association Name. Sector. # Corporate members.	Contact Name, Phone and Email	Notes	Virtual Conference or AGM	Phone call 1	Email sent	Phone call 2	Next contact	Next contact	Next contact
Canadian Vehicle Manufacturers Association Automotive 3 corporate members Supporter	<u>Barbara Browne</u> <u>Executive Assistant and Office Manager</u> bbrowne@cvma.ca 416-995-3918 170 Attwell Dr Suite 400, Etobicoke, ON M9W 5Z5 (416) 364-9333	Barbara Browne replied to my email of 6-9: <i>To follow up on my earlier email, senior staff in our office have forwarded your request to our member companies for their response. They should contact you directly.</i> 6-22-20 Called and spoke to Barbara. She confirmed having forwarded my request and was hopeful for participation.	None. Checked 7-20: none.	6-8-20: Spoke to her.	6-9-20	6-22-20 Called			
Japan Automobile Manufacturers Association of Canada Automotive 11 corporate members Supporter	yhirakawa@jama.ca Yumi Hirakawa <u>x201 JAMA</u> Suite 840, 151 Bloor St W, Toronto, ON M5S 1S4 Phone: (416) 968-0150 David Worts, Executive Director jama@jama.ca	6-23-20 David Worts replied: I did forward your previous email to our members in Canada that are manufacturing, and we are awaiting their response and if interested, any appropriate contact person. But I wonder if our members fit into your survey, as plants in Canada were primarily established to take advantage of the preferential access to the US market from the beginning. Happy to discuss if that would help clarify. 6-24-20 I replied: Your point is well taken regarding the preferential access for manufacturers in Canada. Yet, the experience from the management of JAMA companies offers a valuable perspective.	None. Checked 7-20: none.	6-8-20: left message w Yumi.	6-9-20	6-22-20 Called	6-22-20 Second email sent to Yumi.		

		Thank you for forwarding information to your members. I could not ask for more from you.							
Canadian Hardware & Housewares Manufacturers Association Hardware 150 corporate members	<u>Pam Winter x121 Events Coordinator</u> pwinter@chma.ca 1335 Morningside Ave Scarborough, ON M1B 5M4 Phone: (416) 282-0022 Sam Moncada, President	Sam Moncada replied to my email of 6-9: <i>Unfortunately, we will not be in a position to participate at this time.</i>	None. Checked 7-20: none. Offer virtual fireside chats: one from Schulich Business School. In addition, a virtual golf day.	6-8-20: left message	6-9-20	6-22-20 Call	6-22-20 Sent an email to think about reconsidering. Participation is growing; you can still become involved.		
Canadian Plastics Industry Association Chemical 2,600 corporate members	Carol Hochu President x229 Joe Hruska jhruska@plastics.ca ; chochu@plastics.ca 5955 Airport Rd #125, Mississauga, ON L4V 1R9 Phone: (905) 678-7748	Send a form enquiry to obtain a name to: https://www.plastics.ca/AboutCPIA/ContactUs	None. Checked 7-20: none. Place an ad in the Classified section of plastics.ca to solicit group membership on LinkedIn or to complete the survey.	6-8-20: left message w Carol Hawshoo	6-9-20 form submitted.		6-22-20 Filled out form and submitted.		
Food & Consumer Products of Canada Food	<u>Siobhan Juniku</u> 416-510-1562 siobhanj@fcpc.ca 2700 Matheson Blvd E suite 602e, Mississauga, ON L4W 4V9	Conducts surveys. Member companies make up 300,000 employees Replied to my email of 6-9: <i>Thank you so much for reaching out. You contacted the right person! If you don't mind, please send me the details of your survey, including the link, and I would be happy to include it in</i>	None. Checked 7-20: none. Associate Program members	6-8-20: left message w Siobhan	6-9-20		6-15-20 See notes column		

<p>134 corporate members</p> <p>Supporter</p>	<p>Phone: (416) 510-8024</p>	<p><i>our biweekly newsletter that distributes to our membership every other Thursday.</i></p> <p>6-15-20 Sent Siobhan an article for the association newsletter as well as a link to complete the survey.</p>	<p>provide a wide range of business-to-business products, services, and consulting to FCPC members.</p>						
<p>Canadian Manufacturers & Exporters CME</p> <p>All manufacturing</p> <p>2,500 corporate members</p>	<p>Yvonne Lee Executive Assistant 647-556-5815 yvonne.lee@cme-mec.ca 67 Yonge St Suite 1400, Toronto, ON M5E 1J8 Phone: (905) 672-3466</p>	<p>Home page contains a pop-up window for a survey</p> <p>6-24-20 Yvonne writes: I am told we generally do not share surveys from third parties with our members unless we have a promotion agreement in place. I am sorry to advise that currently we don't have an agreement with Humber College. I am further told given we have been having a lot of communications recently with our members responding to impacts of the COVID-19 pandemic and economy recovery when provinces across the country begin to re-open in different phases, we are not in a position to consider sharing your survey with our members now. Thank you for reaching out.</p>	<p>None.</p> <p>Checked 7-20: Upcoming events: 25TH ANNUAL MANUFACTURERS SCHOLARSHIP AWARDS & RECOGNITION VIRTUAL CELEBRATION on September 16. In addition, DARE TO COMPETE CONFERENCE on September 29 in Winnipeg (exhibitor and sponsorship opportunities). In addition, GALA AWARDS DINNER on October 1 in Winnipeg (same venue).</p>	<p>6-8-20: left message</p>	<p>6-9-20</p>	<p>6-22-20 Called</p>	<p>6-22-20 Sent second email</p> <p>6-29-20 Think of who to contact at Humber for a connection</p>		

<p>Canadian Tooling & Machining Association Building 180 corporate members</p>	<p><u>JULIE MCFARLANE OFFICE MANAGER Canadian Tooling & Machining Association</u> <u>P: 519-653-7265</u> info@ctma.com Robert Cattle, Executive Director rcattle@ctma.com 140 McGovern Dr Unit #3, Cambridge, ON N3H 4R7 Phone: (519) 653-7265 Mobile: 416 301 6224</p>	<p>6-9-20. Sent Robert an introductory email.</p>	<p>None. Checked 7-20: Upcoming events: 22nd Annual CTMA Shotgun Golf Tournament September 9th, 2020</p>	<p>6-8-20: Julie said to direct the email to Robert Cattle (this should be a second email).</p>	<p>6-9-20</p>	<p>6-22-20 Called</p>	<p>6-22-20 Sent Robert second email.</p>	<p>7-27-20 Called Rob on mobile #.</p>	<p>7-27-20 Email sent</p>
<p>Tire and Rubber Association of Canada Rubber 28 corporate members Supporter</p>	<p><u>Helen</u> info@traCanada.ca A19–260 Holiday Inn Drive, Cambridge, ON N3C 4E8 Phone: (519) 249-0366</p>	<p>Michal Majernik replied to my email of 6-9: <i>Only few members manufacture in Canada, and we deal generally with the executives who would likely not be interested. However, if you can turn your email into a short story/announcement, I can publish it with our TRAC News, share on our LinkedIn page (over 1,000 followers) and be a part of a Friday newsletter for our members and subscribers (few hundred). I know you may get some slag replies this way, but you'll get more exposure. Let me know whether that works. Then again: No Problem. You have until Wednesday (this is when I set up the Friday Newsletter).</i> Michal 6-15-20 Sent Michal an article for the association newsletter as well as a link to complete the survey.</p>	<p>None. Checked 7-20: none.</p>	<p>6-8-20: left message w Helen</p>	<p>6-9-20</p>		<p>6-15-20 See notes column</p>		

		6-15-20 Michal replied: <i>Thanks, Mark. I can work with this. I'll add it to our Friday newsletter. Hopefully you'll get some traction.</i>							
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Appendix E: Independent Variables – Reliability and Factoral Validity Results

Variable and Items	Cronbach's Alpha*	Cronbach's Alpha if item deleted	Factor Loadings**
Innovation + Technology	0.79	0.72	0.81
Our top management always encourages new product ideas for international markets			
Our top management is very receptive to innovative ways of exploiting international market opportunities		0.73	0.78
Our top management believes the opportunity of international markets is greater than that of the domestic market		0.76	0.70
Our top management continuously searches for new export markets		0.74	0.76
Our top management is willing to consider new suppliers/clients abroad		0.78	0.64
Entrepreneurial Knowledge + Orientation	0.83	0.80	0.77
In this foreign country we favor high-risk projects (with chances of very high return)			
In general, we believe that owing to the nature of the environment in this foreign country it is best to achieve the firm's objectives in its marketplace via bold and wide-ranging acts		0.80	0.76
In dealing with its competitors in the marketplace of this foreign country, my firm typically initiates actions to which competitors then respond		0.82	0.74
In dealing with its competitors in the marketplace of this foreign country, my firm is very often the first firm to introduce new products/services, administrative techniques, and operating technologies		0.81	0.59
In dealing with its competitors in the marketplace of this foreign country, my firm typically adopts a very competitive 'beat-the-competitors' posture		0.81	0.70
In the past five years my firm has marketed very many new lines of products or services in this foreign country		0.80	0.66
In the past five years in this foreign country changes in product or service lines have usually been quite dramatic		0.80	0.72
International Networks	0.79	0.77	0.68
We have technology-based links with customers in international markets			
We have technology-based links with suppliers in international markets		0.76	0.68
We have entrepreneurial collaborations with external partners		0.76	0.70
We cooperate with non-competitors (partners, distributors, suppliers, clients, firms of other sectors, government) in joint manufacturing agreements		0.75	0.72
We cooperate with non-competitors in joint research		0.75	0.73
We cooperate with non-competitors in joint advertising and marketing		0.76	0.69

*Cronbach's alpha is acceptable; all scores are above 0.70 (Hair, et al., 2006).

**Factor loadings are above 0.50; unidimensionality determined (Bryman & Bell, 2015).

Regarding nomological validity, the literature supports the model and based on the analysis in Appendix D, the summated scales found therein will provide reliable and valid data (Hair, et al., 2006)

Appendix F: Moderating Variables – Reliability Results

Variable and Items	Cronbach's Alpha*	Cronbach's Alpha if item deleted	Factor Loadings**
Effectuation	0.80	0.70	0.50
Affordable Loss			
Experimentation		0.74	0.58
Flexibility		0.60	0.86
Pre-commitment		0.62	0.85
Effectuation – Affordable Loss	0.70	0.48	0.86
1.1 We were careful not to commit more resources than we could afford to lose			
1.2 We were careful not to risk more money than we were willing to lose		0.71	0.72
1.3 We were careful not to risk so much money that the venture would be in real trouble financially if things didn't work out		0.62	0.79
Effectuation - Experimentation	0.68	0.60	0.77
2.1 We experimented with different products and/or business models			
2.2 The product/service that we now provide is substantially different than we first imagined		0.63	0.75
2.3 We tried a number of different approaches until we found a business model that worked		0.51	0.82
Effectuation – Flexibility	0.53	0.44	0.67
3.1 We allowed the business to evolve as opportunities emerged			
3.2 We adapted what we were doing to the resources we had		0.47	0.62
3.3 We avoided courses of action that restricted our flexibility and adaptability		0.49	0.58
3.4 We were flexible and took advantage of opportunities as they arose		0.42	0.70
Effectuation – Pre-commitment	0.71	0.69	0.59
4.1 We used pre-commitments from customers and suppliers as often as possible			
4.2 We used a substantial number of agreements with customers, suppliers, and other organizations to reduce the amount of uncertainty		0.70	0.67
4.3 Network contacts provided low-cost resources		0.69	0.52
4.4 By working closely with people/organizations external to our organization we have been able to greatly expand our capabilities		0.66	0.63
4.5 We have focused on developing alliances with other people and organizations		0.66	0.61
4.6 Our partnerships with outside organizations and people play a key role in our ability to provide our product/service		0.67	0.55
4.7 We focus on risk reduction by approaching potential partners and customers		0.66	0.63

*Cronbach's alpha is acceptable for the main variable is above 0.70 (Hair, et al., 2006).

**Factor loadings are above 0.50; unidimensionality determined (Bryman & Bell, 2015)

Regarding nomological validity, the literature supports the model and based on the analysis in Appendix E, the summated scales found therein will provide reliable and valid data (Hair, et al., 2006)

Appendix G: Dependent Variable – Reliability Results

Variable and Items	Cronbach's Alpha*	Cronbach's Alpha if item deleted	Factor Loadings**
Entrepreneurial Internationalisation	0.87	0.86	0.70
8.1 From enterprise start up management quickly identified and enacted our first foreign market entry			
8.2 From enterprise start up management quickly grew foreign market revenue as a percentage of total revenue		0.85	0.78
8.3 From enterprise start up management quickly entered multiple foreign markets		0.86	0.70
8.4 From enterprise start up management established foreign operations within three years of the founding		0.87	0.60
8.5 Our firm is much better than competitors in relation to sales growth in international market		0.85	0.78
8.6 Our firm is much better than competitors in relation to revenue growth		0.85	0.76
8.7 Our firm is much better than competitors in relation to net income growth		0.86	0.73
8.8 Our firm is much better than competitors in relation to overall firm performance		0.85	0.78

*Cronbach's alpha is acceptable; all scores are above 0.70 (Hair, et al., 2006).

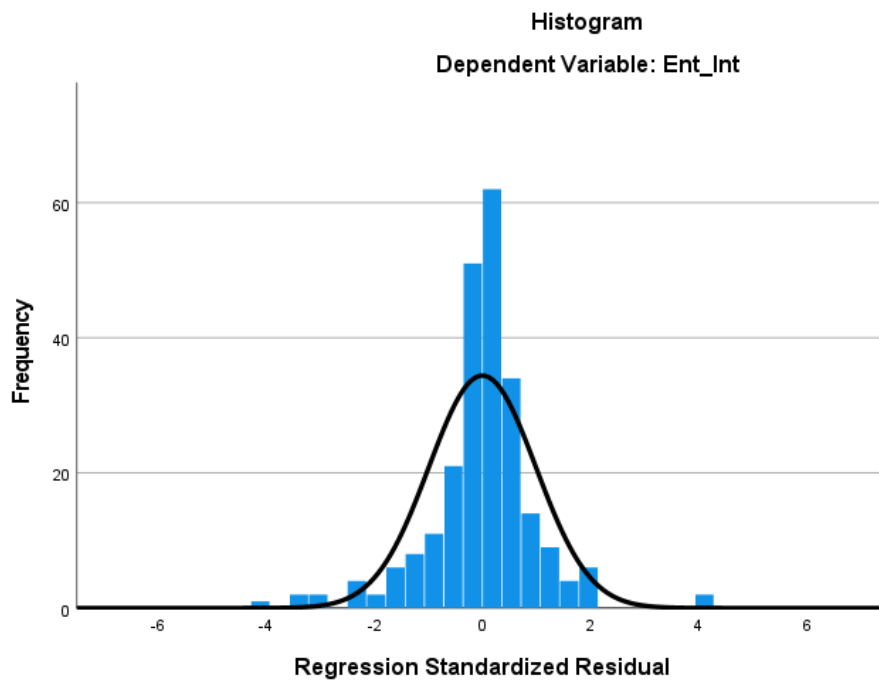
**Factor loadings are above 0.50; unidimensionality determined (Bryman & Bell, 2015)

Regarding nomological validity, the literature supports the model and based on the analysis in Appendix F, the summated scale found therein will provide reliable and valid data (Hair, et al., 2006)

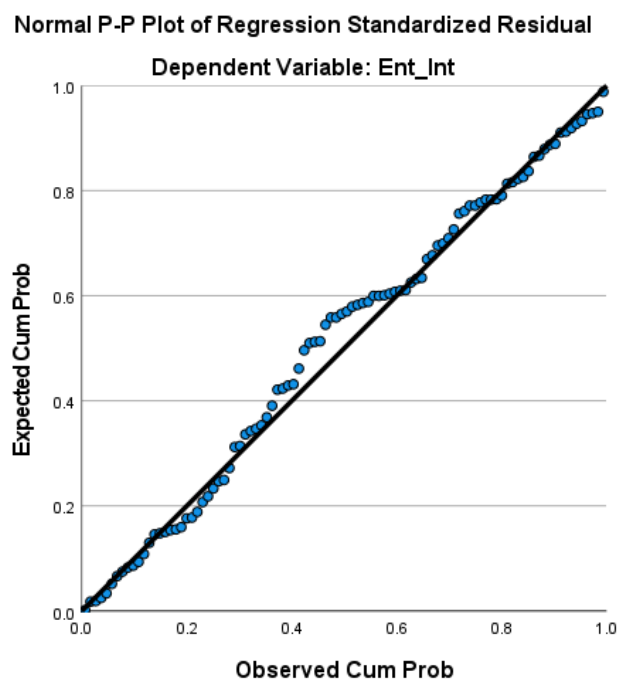
Appendix H: Environmental Uncertainty Variables – Reliability Results

Variable and Items	Cronbach's Alpha*	Cronbach's Alpha if item deleted	Factor Loadings**
External Environment – Suppliers	0.73	0.67	0.79
9.1 Their price changes are			
9.2 Quality changes		0.57	0.84
9.3 Design changes		0.69	0.78
External Environment – Competitors	0.83	0.80	0.78
10.1 Their price changes are			
10.2 Product quality changes		0.78	0.81
10.3 Product design changes		0.75	0.85
10.4 Introduction of new products		0.79	0.81
External Environment – Customers	0.66	0.49	0.83
11.1 Their demand for existing products is			
11.2 Their demand for new products is		0.47	0.84
11.3 Their poor communication is		0.72	0.65
External Environment – Financial & Capital Markets	0.85	0.82	0.82
12.1 Interest rate changes in debt			
12.2 Changes in financial instruments available for short-term debt		0.82	0.84
12.3 Changes in financial instruments available for debt		0.80	0.85
12.4 Availability in credit for debt we have been able to greatly expand our capabilities		0.81	0.84
External Environment – Government Regulatory Agencies	0.91	0.89	0.84
13.1 Changes in laws or agency policies on pricing are			
13.2 Changes in laws or policies on product standards or quality		0.88	0.87
13.3 Changes in laws or policies regarding financial practices		0.88	0.86
13.4 Changes in labour (personnel) laws or policies		0.89	0.85
13.5 Changes in laws or policies affecting marketing and distribution methods		0.89	0.85

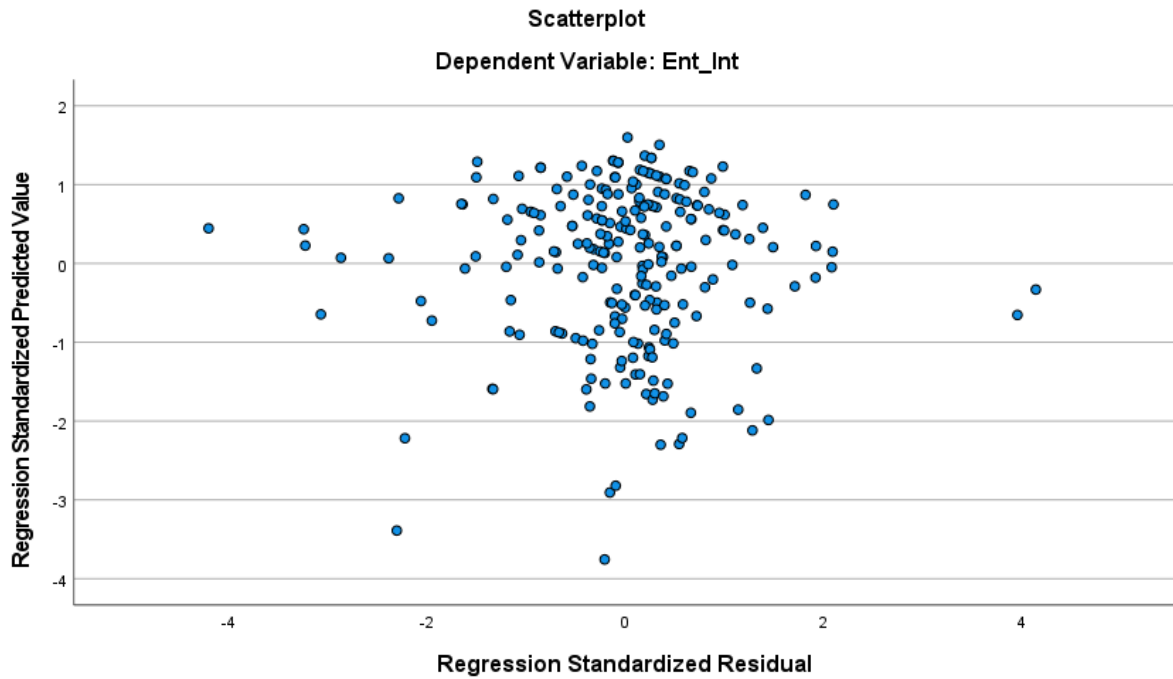
Appendix I: Histogram



Appendix J: Normal P-P Plot



Appendix K: Scatterplot



Appendix L: ANOVA

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	91.085	3	30.362	407.311	<.001 ^b
	Residual	17.517	235	.075		
	Total	108.603	238			
2	Regression	91.923	5	18.385	256.809	<.001 ^c
	Residual	16.680	233	.072		
	Total	108.603	238			

a. Dependent Variable : Entrepreneurial Internationalisation

b. Predictors: (Constant), International networks, Innovation &_Technology, Knowledge &_Orientation

c. Predictors: (Constant), International networks, Innovation &_Technology, Knowledge &_Orientation, Educational level, Member of the founding team

Appendix M: Contextual Variables and Coding Notes

Variable	Mean	Standard Deviation
Member founding team*	1.39	0.489
Gender	1.71	0.454
Family-owned firm	1.43	0.496
Age range	3.25	1.220
Percentage ownership in company	3.21	1.650
Education level*	4.36	0.791
International sales percentage	2.21	0.865
Largest international customer	2.10	0.971

N=114
 Note: Member of the founding team coding: 1 = Yes, 2 = No; Gender coding: 1 = Female, 2 = Male; Family owned firm coding: 1 = Yes, 2 = No; Age coding: 1 = Less than 25 years old, 2 = 25 – 34 years old, 3 = 35 – 44 years old, 4 = 45 – 54 years old, 5 = 55 – 64 years old, 6 = More than 64 years old; Percentage ownership coding: 1 = No ownership, 2 = 0% ≥ 5%, 3 = 5% ≥ 25%, 4 = 25% ≥ 50%, 5 = 50% ≥ 75%, 6 = More than 75%; Education level coding: 1 = Did not complete high school, 2 = High school or equivalent, 3 = Some technical, college or university, 4 = Bachelor’s degree, 5 = Master’s degree, 6 = Ph.D. or equivalent; International sales percentage coding: 1 = Less than 25%, 2 = 25 – 49%, 3 = 50 – 74%, 4 = 75 – 100%; Largest international customer coding: 1 = Less than 25%, 2 = 25 – 49%, 3 = 50 – 74%, 4 = 75 – 100%.

*Impacted on the variability of the dependent variable, entrepreneurial internationalisation

Appendix N: Inter-Correlation among Contextual Variables

	Entrepreneurial Internationalisation	Member founding team	Gender	Family-owned firm	Age range	Percentage ownership in company	Education level	International sales percentage	Largest international customer
Entrepreneurial Internationalisation	1.000								
Member founding team	-0.312**	1.000							
Gender	-0.230	0.316**	1.000						
Family-owned firm	-0.039	0.040	0.196**	1.000					
Age range	0.162	0.285	0.280**	-0.086	1.000				
Percentage ownership in company	0.163	-0.668***	-0.362***	-0.176**	-0.281*	1.000			
Education level	0.407**	-0.116*	-0.116*	0.080	0.178**	0.082**	1.000		
International sales percentage	0.315**	-0.093	0.091	-0.185**	0.088	0.135**	0.096	1.000	
Largest international customer	0.360**	-0.298**	0.129*	-0.133**	-0.392*	0.293**	0.113**	0.454***	1.000

*Significant at 0.05; **Significant at 0.01; *** Significant at 0.001

The inter-correlation suggests that covariates “member of founding team” and “education level” are impacting on the dependent variable, entrepreneurial internationalisation. The covariates are supported by the literature (Chandler, et al., 2011)

Appendix O: Two-way Test among Contextual Variables

Pair	Mean	SD	t	p
Entrepreneurial Internationalisation + Member founding team	2.905	0.790	37.960	<0.001
Entrepreneurial Internationalisation + Gender	2.215	0.830	36.520	<0.001
Entrepreneurial Internationalisation + Family-owned firm	2.487	0.864	38.270	<0.001
Entrepreneurial Internationalisation + Age	0.888	1.199	9.847	<0.001
Entrepreneurial Internationalisation + Percentage ownership in firm	0.176	1.505	1.555	0.131
Entrepreneurial Internationalisation + Education level	-0.544	0.720	-6.049	<0.001
Entrepreneurial Internationalisation + International sales as percentage of total	1.492	0.812	24.443	<0.001
Entrepreneurial Internationalisation + Largest international customer as percentage of total	1.487	0.853	23.184	<0.001

The two-way test suggests that covariates “member of founding team” and “education level” are impacting on the dependent variable, entrepreneurial internationalisation. The covariates are supported by the literature (Chandler, et al., 2011)

Appendix P: ANOVA with Covariates

		ANOVA ^a				
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	59.887	3	19.962	174.872	.000 ^b
	Residual	19.749	173	.114		
	Total	79.636	176			
2	Regression	60.915	5	12.183	111.283	.000 ^c
	Residual	18.721	171	.109		
	Total	79.636	176			

a. Dependent Variable: Entrepreneurial Internationalisation

b. Predictors: (Constant), International networks; Knowledge & orientation; Innovation & technology

c. Predictors: (Constant), International networks; Knowledge & orientation; Innovation & technology, Education level, Member founding team

The ANOVA test suggests that covariates “member of founding team” and “education level” are impacting on the dependent variable, entrepreneurial internationalisation. The covariates are supported by the literature (Chandler, et al., 2011)

Appendix Q: Letters of Ethical Clearance

Institiúid Teicneolaíochta Phort Láirge

Waterford Institute of Technology

Port Láirge, Éire.
T: +353-51-302000
info@wit.ie

Waterford, Ireland.
T: +353-51-302000
www.wit.ie



August 9th, 2019

Dear Mark,

I acknowledge receipt of your application for ethical approval and thank you for taking the time to submit your proposal to the School Ethics Committee.

The Committee has reviewed your application and we are satisfied to approve your research study. There is one minor observation that we would make in respect of your submission namely, that you indicate in section 1 that you prepared a publication agreement in consultation with your supervisors. In the current application you do include a publication agreement, yet this is not noted (ticked 'yes') by you in the earlier section of the application.

May we commend you and your supervisory team for preparing a very thorough application to us for review.

We wish you well with your future research endeavours,

Kindest regards,

Denis 

Professor Denis Harrington, Head of Graduate Business and Chair of WIT School Ethics Committee



20th April, 2021

Dear Mark,

Thank you for taking the time to submit a very detailed response to us in follow up to our recent review of your retrospective application for ethical approval for your study – *'The Impact of Effectuation on the Relationship between Entrepreneurship and Entrepreneurial Internationalisation'*. Specifically, the Committee sought clarifications as to how the relevant respondents can be identified within the database given the targeted population noted in your application. It is not clear to us the way respondents were screened for participation, so they met criteria (a) to (d) for your study. Additionally, we were of the view that some acknowledgement would need to be given in your proposal on the challenges and potential weaknesses with this form of recruitment and clarification on how your methodological approach seeks to address these difficulties. Finally, the Committee requested that from an ethical perspective, there would need to be commentary on the unequal power dynamics at play between workers (participants) and you as requester (researcher). This should be fully acknowledged in your submission.

The Committee considered your responses to the feedback outlined and overall, we are satisfied that in the main you have addressed our concerns as previously communicated. We are therefore recommending retrospective approval for your study. We would however make the following important observations:

- We had sought clarification on the A-D criteria governing your sample selection. In your response, we have received clarification on criteria A, B and D, however we remain unclear as to how this criterion (privately owned) was met by Q24 ('What were your company's annual sales (nearest \$100,000)? This should be discussed further in consultation with your supervisors.
- While not specifically the remit of the School Ethics Committee, your research question appears to concern manager's level of entrepreneurial effectuation in manufacturing plants and in this case, in the US. It would be helpful if this research question was elaborated more fully in your work as this would appear to be the main focus of your research. This should also be discussed further in consultation with your supervisors.

Finally, as a Committee, we are noting a requirement for some commentary on the range of acceptable research methods in the DBA handbook to assist students with choice making when considering their methodological approaches. This is not a matter for the student but instead should

be examined in due course by the DBA programme management team in consultation with DBA faculty and supervisors.

With kindest regards,

Professor Denis Harrington
Chair – School of Business Ethics Committee

Section 3: Discussion, Conclusion and Recommendation

1.0 Introduction

Section 3 begins with an introduction, which summarizes the cumulative paper series (CPS). The introduction is followed by a discussion of key findings, the contribution to practice, and the contribution to theory. Recommendations are made for researchers, then limitations, and section 3 closes with concluding remarks.

This research study assesses the impact of effectuation on the relationship between entrepreneurship and entrepreneurial internationalisation. Paper 1 of the Cumulative Paper Series (CPS) presents a conceptual model for the study. The conceptual model introduces effectuation theory, entrepreneurship, and internationalisation. Led by the seminal work on effectuation by Sarasvathy (2001), effectuation is the entrepreneur's ability to experiment, adjust and improvise in a market of uncertainty, and is now a fully-fledged theory of entrepreneurship (Galkina & Lundgren-Henriksson, 2017). Effectuation explains how entrepreneurs internationalise their enterprises, by explaining how they exploit a context, rather than how they work to reduce risk. In the conceptual model entrepreneurship is characterized by three variables in the literature:

- i. innovation and technology (Andersson & Wictor, 2003; Sharma & Blomstermo, 2003; Guo, 2019),
- ii. entrepreneurial knowledge and orientation (Sharma & Blomstermo, 2003; Chetty & Campbell-Hunt, 2004; Knight & Cavusgil, 2004; Guo, 2018), and
- iii. international networks (Coviello, 2006; Jie, et al., 2021).

Internationalisation theory has grown since the seminal work of Johanson and Vahlne (1977), known as the Uppsala internationalisation model. The Uppsala model, and the subsequent work on internationalisation focuses on risk aversion.

In Paper 1, the conceptual model introduces effectuation theory from entrepreneurship studies to the discipline of internationalisation. To understand internationalisation the role of effectuation must be explained. Employing effectuation, entrepreneurial firms focus on networks at the founder level and show how uncertainty can be exploited to enter foreign markets successfully (Galkina & Chetty, 2015). To understand the firm's entrepreneurial internationalisation behavior, we must understand how to transfer effectuation to a venture's involvement in international markets (Deligianni, et al., 2017). In the conceptual model, entrepreneurship and effectuation are driving internationalisation.

In Paper 2 of the CPS, the conceptual model is revised, wherein effectuation is hypothesized as impacting on the relationship between entrepreneurship and entrepreneurial internationalisation. Research objectives and research hypotheses are presented. In keeping with the philosophical perspectives of the primary researcher, the adopted philosophical approach of the research study is positivist characterized by objectivism and functionalism. Seeking a cause-and-effect relationship, the research study adopts a quantitative approach using a web-based survey self-administered to a large set of SMEs. The method and design include a sampling strategy, ethical considerations, and the role of the pilot study. The paper concludes with the plan for data analysis.

Paper 3 of the CPS expands the design implementation by providing details of the survey questionnaire, and the pilot survey administration through SurveyMonkey. The design model is supported by measurement instruments, which are constructed from existing literature. The pre-test and pilot study sample are explained. The study turned to quasi-random sampling conducted through SurveyMonkey Audience. The initial findings of the pilot study are presented along with measurements of reliability and validity of the relevant indicators, which show that the scales are confirmed reliable and valid. Regression analysis indicated that two of the six hypotheses were accepted. None of the three hypotheses of moderation were supported. Examiners expressed a need for a stronger contingency for the roll-out survey, and to that end, recommended mediation as a strong possibility. Paper 3 was revised to show that a mediation model is a contingency for the study.

Paper 4 of the CPS presents the findings and discussion for the self-administered web-based survey questionnaire. After a brief review of Papers 1, 2, and 3 from the CPS, the paper discusses population and the sampling frame. Data is collected using a self-administered web-based survey questionnaire completed by respondents in a research network created on LinkedIn for the purpose of this study. Findings begin with descriptive statistics and reliability of scales, and proceed to inter-correlation analysis, regression analysis, and regression with effectuation as a mediator. To summarize the findings of the data analysis, the dimensions of entrepreneurship drive entrepreneurial internationalisation (support for H1, H2 and H3) (see Figure 1). The conceptual model also posits three hypotheses of mediation. The analysis confirmed H4, effectuation has a positive mediating impact on the relationship between entrepreneurship and entrepreneurial internationalisation. Mediation analysis also confirms in H5 and H6: effectuation mediates in the relationship between entrepreneurship and entrepreneurial internationalisation. Mediation is confirmed at the 95% confidence level. It is

found that the dimensions of entrepreneurship drive changes in effectuation, which in turn, drives changes in entrepreneurial internationalisation. Limitations are acknowledged and discussed to close out Paper 4.

Section 3 reports on the discussion of key findings, which emerge from the Conceptual Framework of the study. The Conceptual Framework (Figure 1) is based on two models, the Schweizer et al. (2010) model, renamed the Effectuation Uppsala Model (UE Model), and the Sarasvathy (2008) model. It is these models that provide the foundation for the relationship between entrepreneurship and internationalisation, and how the relationship is impacted by effectuation.

Figure 1: Conceptual Framework: Effectuation as a Mediator between Entrepreneurship and Entrepreneurial Internationalisation

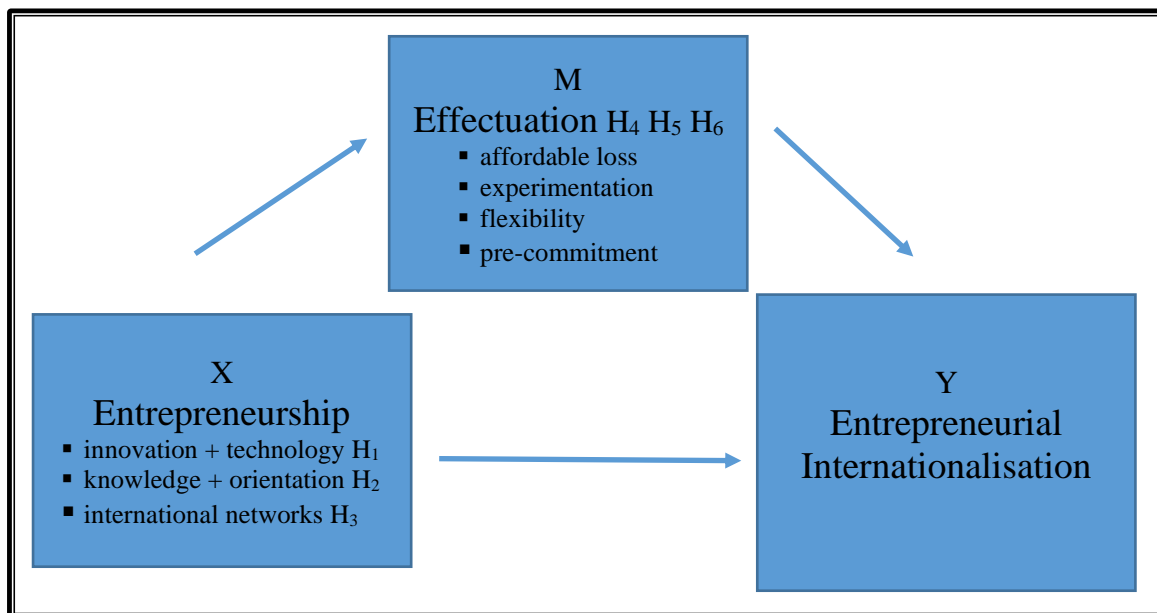


Table 1 below shows the results achieved for the six chosen hypotheses: three of which test the relationship between the independent variables of entrepreneurship and entrepreneurial internationalisation, and three of which relate to the impact of effectuation on the relationship between entrepreneurship and entrepreneurial internationalisation as follows:

Table 1: Summary of Hypotheses H1 to H6

Hypothesis	Study Finding
H1: Innovation + Technology has a positive significant impact on Entrepreneurial Internationalisation	H1 Accepted (p = 0.001***) See table 9 of Paper Four
H2: Entrepreneurial Knowledge + Orientation has a positive significant impact on Entrepreneurial Internationalisation	H2 Accepted (p < 0.001***) See table 9 of Paper Four
H3: International Networks has a positive significant impact on Entrepreneurial Internationalisation.	H3 Accepted (p < 0.001***) See table 9 of Paper Four
H4: Effectuation has a positive mediating impact on the relationship between Innovation and Technology, and Entrepreneurial Internationalisation	H4 Accepted for mediation (See tables 14 and 18 of Paper Four for mediation)
H5: Effectuation has a positive mediating impact on the relationship between Entrepreneurial Knowledge and Orientation, and Entrepreneurial Internationalisation.	H5 Accepted for mediation (See tables 15 and 19 of Paper Four for mediation)
H6: Effectuation has a positive mediating impact on the relationship between International Networks, and Entrepreneurial Internationalisation.	H6 Accepted for mediation (See tables 16 and 20 of Paper Four for mediation)

In mediation (hypotheses H4, H5, and H6), variations in entrepreneurship (independent variable) drive variations in effectuation (mediating variable), which drive variations in entrepreneurial internationalisation (dependent variable) (see Figure 1). For example, it may be posited that the level of innovation + technology (independent variable: entrepreneurship) drive the level of effectuation (mediating variable), which then drives early and rapid internationalisation (dependent variable: entrepreneurial internationalisation). A mediation finding is supported in the literature given the cognitive process associated with effectuation (Sarasvathy, 2001).

The key findings show significant support for effectuation mediating the relationship between entrepreneurship and entrepreneurial internationalisation. These findings are further discussed below.

2.0 Discussion of Key Findings

This section discusses the findings and reflects on the extant literature. The discussion takes the reader through the model and hypotheses H1 to H6. It includes a discussion on the impact of entrepreneurship on entrepreneurial internationalisation; the impact of entrepreneurship on

effectuation; and the impact of effectuation (and its components) on the relationship between entrepreneurship and entrepreneurial internationalisation (see Figure 2).

H1: Innovation and Technology has a positive significant impact on Entrepreneurial Internationalisation.

First, the impact of entrepreneurship on entrepreneurial internationalisation is considered. The multiple regression results with independent and contextual variables provide support for H1 (see Table 1). It is empirical support that innovation significantly contributes to entrepreneurial internationalisation. Even more, this study's investigation of US SMEs contributes to the innovation literature by linking innovation to rapid internationalisation. The support for H1 further reinforces the view that enterprises undergoing rapid internationalisation are said to be participating in entrepreneurial internationalisation (see Table 1). H1 confirms the findings in the literature. Knight and Cavusgil (2004) found that innovation is clearly linked to early internationalisation as innovation develops the knowledge that drives capabilities for early internationalisation. The basis of the first hypothesis, centered on Innovation and Technology, is drawn from Covin and Miller (2014) who write that innovation contributes to international entrepreneurship, entrepreneurial orientation, and international entrepreneurial orientation. Similarly, the findings in this study provide empirical backing for Dimitratos et al. (2012), who wrote international entrepreneurship is the aggregate of the firm's innovation, risk attitude and proactiveness in international markets.

H2: Entrepreneurial Knowledge and Orientation has a positive significant impact on Entrepreneurial Internationalisation

The multiple regression results with independent and contextual variables provide support for H2 (see Table 1). Seen from the standpoint of US SMEs and their use of entrepreneurial knowledge, the finding is that market knowledge and orientation leads to early and rapid internationalisation. The study confirms with the findings of Zhou (2007), which found that entrepreneurial knowledge is associated with a proactive approach to early internationalisation. Support for H2 is consistent with the research as early as the Uppsala model (Johanson & Vahlne, 1977), wherein knowledge was seen as the driving force behind the internationalisation process (Brennan & Garvey, 2009). This finding also largely corroborates Knight and Cavusgil (2004), who found entrepreneurial knowledge and orientation contributed to superior performance in internationalisation. The previous research of Dimitratos et al. (2012) confirms

the positive relationship between entrepreneurial orientation and internationalisation which is distinguished by entrepreneurial risk-seeking.

H3: International Networks has a positive significant impact on Entrepreneurial Internationalisation

The multiple regression results with independent and contextual variables provide support for H3 (see Table 1). This finding among US SMEs is a foundational contribution to international networking as a dimension of international entrepreneurship. It can be said that networking affects opportunity development in international entrepreneurial firms. Previous research confirms the positive relationship between international networks and entrepreneurial internationalisation. For example, in a case of four software development firms in New Zealand it was found that internationalisation was rapid because of the investment in international networks (Coviello & Munro, 1997). By participating in established international networks at an early stage, this study's findings show that US SMEs accelerated their internationalisation. This finding is consistent with Freeman et al. (2006), who focused their study on how SMEs use international networks to bring unique innovations and technology to international markets early and rapidly. The finding also corroborates Rutihinda (2008), in a study of SMEs in Canada's Eastern Townships who found international networks effected successful international operations. Other literature is also consistent with the study findings: Zhang et al. (2009) argue international networking is a constitutive component of the international entrepreneurship model; and Dimitratos et al. (2014) confirmed international networking as a dimension of international entrepreneurship.

The descriptive statistics show that there is a relatively high correlation between the independent variables and the dependent variable, 0.844 (entrepreneurial knowledge + orientation), 0.788 (innovation + technology) and 0.740 (international networks). This finding is consistent with expectations and favourable to the conceptual model.

H4: Effectuation has a positive impact on the relationship between Innovation and Technology, and Entrepreneurial Internationalisation

The next three hypotheses relate to the impact of effectuation on the relationship between the independent variables and the dependent variable (Entrepreneurial Internationalisation).

The analysis confirms H4, effectuation has a positive mediating impact on the relationship between entrepreneurship and entrepreneurial internationalisation. It is found that the

dimensions of entrepreneurship in US SMEs drive changes in effectuation, which in turn, drives changes in entrepreneurial internationalisation. The empirical findings of H4 are supported in the literature. Alternatives based on affordable loss reduce the risk of failure (Deligianni, et al., 2017); and affordable loss consists of minimizing risks in overspending. Consequently, it is argued that high levels of affordable loss are reduced risks and uncertainties. This finding among US SMEs is consistent with the research in Chetty and Campbell-Hunt (2004), arguing firms that internationalise rapidly believe that foreign markets are less risky and less costly. In another study discussing how some SMEs internationalise more rapidly, Crick and Spence (2005) found the firms operated in innovative and high-tech markets. Chetty and Campbell-Hunt (2004), who observed that early internationalisation was achieved by world-leading innovation, wrote that innovation drives rapid internationalisation among born-global firms. Thus, these findings support Freeman et al. (2006), which found in a case firm that risk was reduced by investing in innovation, driving rapid internationalisation. In sum, the findings from the US SMEs provide empirical backing that affordable loss is characterized by reducing risk and uncertainty and pursuing strategies of innovation that drive rapid internationalisation. In mediation, it may also be said, high levels of risk minimization (affordable loss) have a positive impact on the relationship between entrepreneurship and entrepreneurial internationalisation. For example, the level of innovation + technology (independent variable: entrepreneurship) within US SMEs drives the level of experimentation (mediating variable: effectuation), which then drives early and rapid internationalisation (dependent variable: entrepreneurial internationalisation). The mediation finding is supported in the literature given the cognitive process associated with effectuation (Sarasvathy, 2001).

There is still more literature support for the finding among US SMEs of the impact of effectuation on entrepreneurial internationalisation. Cai et al. (2017) found that uncertainty arises in internationalisation; effectuation takes the place of market research, competitive analysis, and market planning in decisions about internationalisation (Deligianni, et al., 2017; Galkina & Chetty, 2015; Kalinic, et al., 2014). Indeed, uncertainty is seen to be positively correlated with effectual logic (Brettel, et al., 2012), so much so, that effectuation is seen to be a theory of decision-making and action under uncertainty. Moreover, effectuation also strengthens new venture performance (Deligianni, et al., 2017) because entrepreneurs perceive uncertainty as providing opportunities and not as a barrier that constrains their internationalisation process.

Then again, these findings among US SMEs corroborate Deligianni et al. (2017) which write, experimentation can drive successful diversification in new ventures. Experimentation allows for the justification of choices that complement the early identification of opportunity. Confirming their hypothesis that experimentation has a positive impact on product diversification and performance in new ventures, Deligianni, et al., (2017) conclude entrepreneurs experiment and remain flexible to adjust to unexpected situations while securing pre-commitments with self-selected stakeholders. Engaging in experimentation provides access to information and knowledge, thereby allowing entrepreneurs to determine the best markets for their given means.

These findings also support another component of effectuation, namely, flexibility. Flexibility is exploiting unexpected contingencies (as opposed to pre-existing knowledge) that arise as the new venture unfolds (Sarasvathy, 2001); flexibility encourages the pursuit of alternative courses of action (Deligianni, et al., 2017). Sarasvathy et al. (2014) borrow from Brettel et al. (2012) who found support for flexibility as a contributing factor in highly innovative R&D settings (p. 74). For US SMEs in the study, flexibility has a mediating impact on the relationship between innovation and technology, and entrepreneurial internationalisation (Dew, et al., 2009; Deligianni, et al., 2017). The impact is based on learning theory from Mosakowski, (1997): learning theory suggests that performance increases when organizations faced with uncertainty learn what action to take. The firms minimize commitment to plans and instead move rapidly to leverage changing circumstances (Deligianni, et al., 2017).

H5: Effectuation has a positive impact on the relationship between Entrepreneurial Knowledge and Orientation, and Entrepreneurial Internationalisation

The findings for H5 are summarized: it was found that Effectuation fully mediated the relationship between Knowledge + Orientation and Entrepreneurial Internationalisation. Stated another way, effectuation mediates in the relationship between entrepreneurship (independent variable) and, entrepreneurial internationalisation (dependent variable). It is found that the dimensions of entrepreneurship drive changes in effectuation, which in turn, drives changes in entrepreneurial internationalisation. Among US SMEs in this study, there is a mediating impact from affordable loss on the relationship between entrepreneurial knowledge and orientation, and entrepreneurial internationalisation. Thus, given that high levels of affordable loss are reduced risks and uncertainties, the findings among US SMEs provide empirical backing that affordable loss impacts the relationship between entrepreneurial orientation and

entrepreneurial internationalisation. Seeking unbridled risk may engender inferior performance but having an entrepreneurial orientation in diverse foreign environments tends to support the realization of key strategic initiatives that augment international success. H5 confirms the findings from previous studies. Embracing affordable loss enables enterprises to internationalise more rapidly without risking the entire operation (Deligianni, et al., 2017). Further, the approach using affordable loss tightens the learning cycle, increasing the possibility of international diversification. Previous research confirms the positive relationship between entrepreneurial orientation and effectuation that was found in this study for US SMEs: the orientation of the firm to undertake internationalisation is influenced by the management of risks (Dimitratos & Plakoyiannaki, 2003).

The finding in H5 is also consistent with other research in Deligianni et al. (2017): experimentation (effectuation) supports the entrepreneurial process of gathering information, which nurtures aspirations and directs outcomes in the market. Further, experimentation (effectuation) leads to unintended discoveries for the entrepreneur in US SMEs; it is learning-by-doing and contributes positively to outcomes under conditions of uncertainty (Deligianni, et al., 2017). Where returns are uncertain, experimentation impacts the relationship between entrepreneurial knowledge and orientation, and entrepreneurial internationalisation: by engaging in experimentation, entrepreneurs gain access to information and knowledge, thereby allowing them to determine the best markets for their given means (Deligianni, et al., 2017).

This finding also largely corroborates another component of effectuation, flexibility. Flexibility positively impacts the relationship between entrepreneurial knowledge and entrepreneurial internationalisation when entrepreneurs leverage changing circumstances (Deligianni, et al., 2017). For US SMEs, flexibility promotes improvisation in a market of uncertainty. Paradoxically, it is also argued that the pursuit of alternative choices creates a balance of stability under conditions of uncertainty. Changes that occur in knowledge drive opportunity-related decisions. Support for the impact of flexibility is further found in Chandler et al. (2011) who argue that unexpected contingencies (flexibility) contribute new knowledge and are thereby leveraged into opportunities. Flexibility is seen to promote the use of improvisation, enabling creative and non-routine responses to situations (Deligianni, et al., 2017); the subsequent experiential knowledge improves chances for success. The benefits are crucial for new ventures that diversify because it allows them to shape opportunities in new product markets as information emerges. The arguments on flexibility are extended to the relationship between entrepreneurial knowledge and orientation, and entrepreneurial internationalisation.

The empirical findings for H5 are also supported through pre-commitment, another component of effectuation. For US SMEs in the study, pre-commitment generates positive market signals enabling the firm to leverage its knowledge into more rapid internationalisation. Pre-commitment can contribute to entrepreneurial internationalisation as it enhances entrepreneurial knowledge, thereby reducing the high level of uncertainty (Deligianni, et al., 2017). Sarasvathy et al. (2014) call the effectual approach a means-based one, characterized by what the entrepreneur knows (entrepreneurial knowledge) and who the entrepreneur knows (international networks). It follows that US SMEs using pre-commitments encourage the use of what an entrepreneur knows, which leads to what the entrepreneur can do, rather than what the entrepreneur should do. Thus, H5 also supports Knight and Cavusgil (2004), who found entrepreneurial orientation contributed to an innovative and proactive approach to internationalisation.

H6: Effectuation has a positive impact on the relationship between International Networks and Entrepreneurial Internationalisation.

For H6 it was found that effectuation fully mediated the relationship between international networks and entrepreneurial internationalisation. Stated another way, effectuation mediates in the relationship between entrepreneurship (independent variable) and, entrepreneurial internationalisation (dependent variable). Among US SMEs, the dimensions of entrepreneurship drive changes in effectuation, which in turn, drives changes in entrepreneurial internationalisation. US SMEs reduce risks through international networks, which leads to rapid internationalisation. Previous research confirms the impact of effectuation on international networks and internationalisation. Zhang et al. (2009) argues that international networking refers to the firms' ability to obtain resources through alliance creation and social embeddedness, which enhances entrepreneurial internationalisation.

The findings among US SMEs also corroborate Freeman et al. (2006): management can use different entry modes to mitigate risk. For example, during an economic downturn, managers, using a risk-reducing strategy, move from outward (exporting) to inward (importing as an exclusive dealer in a strategic alliance) business activities, allowing them to remain 'connected' and, later, to re-establish the relationship as an outward one (JV with NPD). Still again, Freeman et al. (2006) is consistent with this finding among US SMEs: risk minimization through adaptation, use of multiple strategies (exporting, importing, strategic alliances, and JVs), and persistence, especially in the early stages of their growth, enabled three SMEs to

maintain an international presence and to grow, despite considerable risks of nonpayment, cancellation, switching, and economic downturn. From the global perspective, there is the strong impression that the perceived constraints, rather than being a barrier to internationalisation, prompt management to seek rapid involvement in multiple markets to gain access to multiple resources and to share the risks.

The findings also support previous studies on experimentation, a component of effectuation. Experimentation is characterized as fluidity and responsiveness to the market (Deligianni, et al., 2017), a priori, to act through international networks without the need to test all conditions. Even more, the effectual process encourages the use of experimentation for international stakeholder self-selection (Sarasvathy, et al., 2014), thereby bypassing the need to legitimize the enterprise. It may be said that for the US SMEs in the study, the risk for the venture is shared by the entrepreneur and the network.

Another component of effectuation is flexibility, which allows new ventures to reduce the costs of failed experiments when entering new markets. The findings provide empirical backing for Jones and Coviello (2005): it allows them to shape opportunities that may appear through international networks, which leads to entrepreneurial internationalisation.

The findings also support pre-commitments, a component of effectuation. Pre-commitments allow new ventures to spread responsibility to other stakeholders. When pre-commitment levels are high in effectual international networks, risk and benefits are shared. Customers, suppliers, even competitors positively impact on internationalisation through the sharing of information knowledge and resources (Deligianni, et al., 2017). Thus, this finding largely supports Freeman et al. (2006): under conditions of pre-commitment, they researched how risks were reduced through international networks leading to rapid internationalisation, finding rapid and substantial internationalisation within two years of establishment.

Summary of Mediation Effects

In this section the discussion is concerned with an important element of mediation. Mediation is said to occur when the strength of the relationship between X and Y is diminished in the presence of M. In this conceptual model mediation occurs when the strength of the relationship between entrepreneurship and entrepreneurial internationalisation is diminished in the presence of effectuation. Table 21 in Paper 4 presents the mediation analysis confirming the meaningful reduction in the effect of the relationship between entrepreneurship and entrepreneurial internationalisation when controlling for effectuation. For US SMEs, entrepreneurial

internationalisation is intensified when entrepreneurship (innovation and technology, entrepreneurial knowledge and orientation, and international networks) work hand in hand with effectual logic.

To summarize the discussion on H4, H5 and H6, in the mediation analysis of US SMEs, the components of entrepreneurship are significant predictors of effectuation (see Tables 14, 15, 16 of Paper 4); the components of effectuation are significant predictors of entrepreneurial internationalisation (see Table 17 of Paper 4); effectuation has a positive mediating impact on the relationship between entrepreneurship and entrepreneurial internationalisation (see Table 17 of Paper 4); the components of effectuation have a positive mediating impact on the relationship between entrepreneurship and entrepreneurial internationalisation (see Tables 18, 19, 20 of Paper 4); when controlling for effectuation, entrepreneurship has a meaningfully reduced effect on entrepreneurial internationalisation (see Table 21 in Paper 4). On closing this section on the model and hypotheses, attention is drawn to the table summarizing H1 to H6 and support literature (see Table 2).

Table 2: Hypothesis Testing Summary H1 to H6 and Support Literature

Hypothesis	Study Finding	Support Literature
H1: Innovation + Technology has a positive significant impact on Entrepreneurial Internationalisation	H1 Accepted (p = 0.001***)	Knight & Cavusgil (2004); Zhou (2007); Dimitratos et al. (2012); Covin & Miller (2014); Li et al. (2012); Zhang et al. (2014); Prashantham et al. (2019)
H2: Entrepreneurial Knowledge + Orientation has a positive significant impact on Entrepreneurial Internationalisation	H2 Accepted (p < 0.001***)	Knight & Cavusgil (2004); Zhou (2007); Dimitratos et al. (2012); Johanson & Vahlne (1977); Brennan & Garvey (2009)
H3: International Networks has a positive significant impact on Entrepreneurial Internationalisation.	H3 Accepted (p < 0.001***)	Knight & Cavusgil (2004); Zhou (2007); Dimitratos et al. (2012); Coviello & Munro (1997); Freeman et al. (2006); Rutihinda (2008); Zhang et al. (2009)
H4: Effectuation has a positive mediating impact on the relationship between Innovation and Technology, and Entrepreneurial Internationalisation	H4 Accepted for mediation (See tables 14 and 18 of Paper Four for mediation)	Deligianni et al. (2017); Chetty & Campbell-Hunt, (2004); Freeman, et al. (2006); Sarasvathy (2001); Sarasvathy et al. (2014); Brettel et al. (2012); Dew et al. (2009)
H5: Effectuation has a positive mediating impact on the relationship between Entrepreneurial Knowledge and Orientation, and Entrepreneurial Internationalisation.	H5 Accepted for mediation (See tables 15 and 19 of Paper Four for mediation)	Deligianni et al. (2017); Dimitratos & Plakoyiannaki (2003); Knight & Cavusgil (2004); Chandler et al. (2011); Cai et al. (2017); Galkina & Chetty (2015); Kalinic et al. (2014); Brettel et al. (2012); Chetty et al. (2015)
H6: Effectuation has a positive mediating impact on the relationship between International Networks, and Entrepreneurial Internationalisation.	H6 Accepted for mediation (See tables 16 and 20 of Paper Four for mediation)	Freeman et al. (2006); Zhang et al. (2009); Deligianni et al. (2017); Sarasvathy et al. (2014); Cai et al. (2017); Galkina & Chetty (2015); Kalinic et al. (2014); Brettel et al. (2012); Chetty et al. (2015)

In the next section, contributions to practice and theory are considered, beginning with the contribution to practice.

3.0 Contribution to Practice

This section of the paper begins with the major contribution to practice, complemented by validation contributions. The major contribution to practice is the mediating role of effectuation: effectuation heightens the effects of entrepreneurship to substantially accelerate internationalisation. The contributions to practice are discussed in the following pages, and subsequently summarized in Table 3.

The research study shows that effectuation mediates the relationship between entrepreneurship and entrepreneurial internationalisation in US SMEs. This means that entrepreneurs seeking to increase levels of entrepreneurial internationalisation in the future should focus on two ways

to do this: (a) directly influence the entrepreneurship variables, and (b) use the mediating link through effectuation. Further, the research drills into whether each component of effectuation mediates on the above relationship – allowing entrepreneurs to see which components of effectuation offer the greatest potential to impact on levels of entrepreneurial internationalisation. For example, affordable loss reduces risks and uncertainties; experimentation gains you access to knowledge, which speeds up internationalisation; flexibility leverages circumstances for early internationalisation; and pre-commitments promote improvisation for faster internationalisation.

The research study further validates that entrepreneurs who use effectuation exercise a means-driven approach, thereby, eliminating the strict use of a business plan during the process of internationalisation (Sarasvathy, 2001). For example, flexibility and experimentation permit the effectuator to uncover opportunities that realize internationalisation. Effectuators do not cast aside the goals-driven approach for the exclusivity of a means-driven approach but learn to use them in combination (Sarasvathy et al., 2008). For example, using goal-driven for market selection and means-driven for market entry. In place of planning the outcome, the effectuator learns to use affordable loss when dealing with uncertainty (Schweizer et al., 2010); for example, if the enterprise chooses a distributor who fails to sell their products, they allow for the loss that they can afford to make.

Equally important, the research study validates that entrepreneurs who use effectuation do not focus on the predictable (traditional entrepreneurship theory), but on the controllable (effectual approach); not on goal setting (traditional entrepreneurship theory) but on means-driving (effectual approach) (Sarasvathy et al., 2014). The distinction implies that prediction may not be possible, and when not, effectuation navigates the entrepreneur through the available means by using affordable loss, experimentation, flexibility, and pre-commitment (Sarasvathy & Ventakaraman, 2011). Moreover, the research study findings are significant in that internationalisation becomes manageable through effectuation, which goes beyond the unpredictability of business planning, and makes effective use of the means at hand (Sarasvathy, 2001).

From the beginning of the cumulative paper series the author has been motivated to answer, when should an enterprise internationalise? This question is answered by the contributions from this research study that support the extant literature. The major contribution is effectuation has an enhancing effect on the relationship between entrepreneurship and internationalisation.

What this means is enterprises must imbue their corporate culture with effectuation. While this research study is not focused on corporate culture, it is reasonable to project that effectuation must be enculturated in the SME. Effectuation is a process methodology characterized by affordable loss, experimentation, flexibility, and pre-commitment. These characteristics must become principal components of the enterprise's corporate culture, and when doing so, the result will be greater speed of first international market entry, faster growth in the percentage of international revenue, more rapid entry into multiple international markets, and finally, improved relative performance.

The components of effectuation each play a part in this major contribution to practice. Affordable loss reduces risks and uncertainties. Experimentation gains you access to knowledge, which speeds up internationalisation. Flexibility leverages circumstances for early internationalisation. Flexibility also promotes improvisation for faster internationalisation. Firms must immerse their corporate culture in effectuation; adapt operational processes and international customer experience with effectuation; and digitally transform the approach to internationalisation using effectuation. For example, effectuators see uncertainty in the market as an opportunity to use the principles of affordable loss, experimentation, flexibility, and pre-commitment. This contribution fills a gap of how effectuation mediates between variables of entrepreneurship and internationalisation (Karami et al., 2020).

In sum, the major contribution answers the gap to understand the firm's entrepreneurial internationalisation behavior through the role played by effectuation (Deligianni et al., 2017); how do entrepreneurs act under conditions of uncertainty (Arend et al., 2015); how do entrepreneurs create a more favorable environment for opportunities (Galkina & Lundgren-Henriksson, 2017); and how do we transfer effectuation to a venture's involvement in international markets (Deligianni et al., 2017). It also answers the gap of how effectuation mediates between the variables of entrepreneurship and internationalisation (Karami et al., 2020).

Turning to the other contributions, it is gratifying to note the answer to the gap and opening question posed in this section: when an enterprise should internationalise (Sarasvathy et al., 2014; Knight & Liesch, 2016). When an enterprise possesses innovation + technology, entrepreneurial knowledge + orientation, and international networking, then the time is right to internationalise. In this study innovation + technology contributes to entrepreneurial internationalisation, meaning it is the product of a firm's innovativeness; innovativeness

contributes to international entrepreneurship; innovation drives capabilities for early internationalisation. Relatedly, entrepreneurial knowledge + orientation is a driver of entrepreneurial internationalisation making it a driving force behind internationalisation. The time to internationalise is also under the presence of international networks which is a factor that contributes to entrepreneurial internationalisation. Enterprises should internationalise their operation at an initial stage because early internationalisation improves performance. Firm smallness and lack of experience may not hinder early internationalisation.

This answers the gap and the call for research from Chandler et al. (2011), Arend et al. (2015), Chetty et al. (2015), Laine and Galkina (2017), Galkina and Lundgren-Henriksson (2017), and, Deligianni et al. (2017). More specifically, Arend et al. (2015) call for research of what expert entrepreneurs do and how they act under conditions of uncertainty to explain why the decisions and actions are effective. Equally, Deligianni et al. 2017 write that the first issue concerns transferring effectuation to the venture's involvement in international markets.

Another contribution to practice is the application of effectuation to drive entrepreneurial internationalisation. Effectual logic has a positive impact on entrepreneurial internationalisation (see Table 2). International networks have a positive impact on the components of effectuation. International networks interact with pre-commitments (mediating variable); it interacts with affordable loss (mediating variable) for the benefit of rapid internationalisation. It interacts with experimentation (mediating variable) to enter foreign markets; moreover, when international networks interacts with experimentation under high levels of uncertainty there is a greater propensity for better performance. International networks interacts with flexibility when a firm awaits the opportunity to partner for internationalisation.

Innovation + technology is also seen to interact with effectuation and to drive entrepreneurial internationalisation. It contributes to speed of international entry, speed of commitment, speed of scope, and relative performance. Entrepreneurs must pay attention to initiating and managing internationalisation. They should blend traditional entrepreneurial drivers with effectuation. For example, flexibility and openness to experimentation allows for the identification and creation of opportunities to internationalise. By focusing on opportunities, enterprises overcome risk and uncertainty in internationalisation. They must proceed with internationalisation, prepared to retreat, but advancing rapidly. This fills the empirical gap of internationalisation performance of SMEs (Zhou, 2007).

Because habitual entrepreneurs are more likely to use effectuation (Chandler et al., 2011), another contribution is the impact of diversification on performance. For example, entering diverse product markets based on experimentation while maintaining flexibility and taking advantage of pre-commitments is a process of gaining economies of scale and control. Repeatedly, another contribution is the interaction between international networks and effectuation. Experimentation strengthens network relations. International networks mitigate against uncertainty, even more in the company of effectuation. Effectuation logic shows that since networks are unmanageable, they should be left alone to allow numerous opportunities to appear for the firm. A contribution for entrepreneurs is that they should encourage the organic development of networks rather than constrain networks through structured planning. It also means that firm smallness and lack of experience does not hinder early internationalisation. With effectuation a firm has a proxy or the means to internationalise their operations at an initial stage because early internationalisation improves performance.

To summarize the section on contribution to practice (see Table 3), firms must seek to conduct themselves through effectuation, with high levels of experimentation, improvisation and adjusting to uncertain markets. This contribution fills the empirical gap of internationalisation performance of SMEs (Zhou, 2007). When using effectual logic in the presence of entrepreneurial knowledge + orientation, innovation + technology, and international networks, entrepreneurs experience internationalisation. It may be said that with high levels of effectuation, the enterprise is proactively engaged with their environment, which leads to more entrepreneurial internationalisation.

Table 3: Major and Validation Contributions to Practice

Major Contribution	What does it mean?
Effectuation heightens the effects of entrepreneurship to substantially accelerate internationalisation	<ol style="list-style-type: none"> 1. As an entrepreneur you want to use effectual logic to speed up internationalisation. 2. An affordable loss approach reduces risks and uncertainties. 3. Experimentation gains you access to knowledge to speed up internationalisation. 4. Flexibility leverages circumstances for early internationalisation. 5. Flexibility promotes improvisation for faster internationalisation 6. Effectuation is an ally to uncertainty. 7. Adapt your operational processes and international customer experience with effectuation 8. Immerse your corporate culture in effectuation 9. Digitally transform your approach to internationalisation using effectuation
Validation Contributions	What does it mean?
Innovation + technology, entrepreneurial knowledge + orientation and international networking drive internationalisation	<ol style="list-style-type: none"> 1. When your enterprise has an abundance of innovation + technology, entrepreneurial knowledge + orientation, and international networking, it's time to internationalise. 2. Innovation + technology is particularly effective for internationalisation.
Effectual logic strengthens your firm's ability to internationalise	<ol style="list-style-type: none"> 1. International networks interact with an affordable loss approach for the benefit of rapid internationalisation. 2. International networks and experimentation expand the scope of internationalisation 3. International networks and pre-commitments interact to accelerate international commitment. 4. International networks interact with flexibility for greater international performance compared to your competition
Innovation + technology is particularly effective at internationalisation	<ol style="list-style-type: none"> 1. Innovation + technology are the single greatest drivers of internationalisation 2. Strengthen the innovation + technology component of corporate culture to deliver greater speed of international market entry. 3. When innovation + technology interacts with experimentation, the enterprise experiences greater international performance. 4. Shift your firm's focus to internationalisation away from domestic by using affordable loss without risking your future

<p>International networking is particularly suited for experimentation, flexibility, and pre-commitment to deliver accelerated internationalisation</p>	<ol style="list-style-type: none"> 1. International networking presents opportunities for pre-commitments from customers and suppliers. Pre-commitment accelerate international market entry. 2. Experimentation is a way of exploiting international networks for greater international scope 3. Experimentation, flexibility, and pre-commitment act as a proxy to manage the uncertainty of internationalisation.
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4.0 Contribution to Theory

The research study makes two contributions to theory. The first major contribution to theory is effectuation mediates in the relationship between entrepreneurship and entrepreneurial internationalisation. What this means is entrepreneurs who are effectuators do not focus on the predictable (traditional entrepreneurship theory), but on the controllable (effectual approach); not on goal setting (traditional entrepreneurship theory) but on means-driving (effectual approach). The distinction implies that prediction may not be possible, and when not, effectuation navigates the entrepreneur through the available means by using affordable loss, experimentation, flexibility, and pre-commitment. The findings of this author's study contribute to theory by identifying and measuring the components of effectuation and their mediating impact on the relationship between entrepreneurship and entrepreneurial internationalisation. Through the tools of affordable loss, experimentation, flexibility and pre-commitment, effectuation cuts through the uncertainty of internationalisation. Internationalisation becomes manageable through effectuation, which goes beyond the unpredictability of business planning, and makes effective use of the means at hand. In its mediating role effectuation is a proxy to manage uncertainty, using its means-driven approach.

The first major contribution advances the theory of Sarasvathy (2001) and Schweizer et al. (2010) by identifying and quantifying effectuation as a mediator in the relationship between entrepreneurship and internationalisation. This research study shows how internationalisation emerges from entrepreneurship rather than being predetermined (Sarasvathy, 2001; Chandler et al. 2011; Sarasvathy et al. 2014).

The second major contribution to theory is the mediating effects of the components of effectuation in the relationship between the variables of entrepreneurship and entrepreneurial internationalisation. Additional mediation results found experimentation and pre-commitment

to significantly mediate in the relationship between innovation + technology with entrepreneurial internationalisation. Experimentation and flexibility are found to significantly mediate in the relationship between the knowledge + orientation and entrepreneurial internationalisation. Experimentation is found to significantly mediate in the relationship between the international networks and entrepreneurial internationalisation.

The second major contribution advances the theory of Deligianni et al. (2017) who found effectuation had a moderating impact on the relationship between product diversification and performance. Employing effectuation heuristics (Sarasvathy, 2001; Wiltbank et al. 2006; Dew et al. 2009), entrepreneurs use affordable loss, experimentation, flexibility, and pre-commitment to accelerate internationalisation.

Finally, there is a contribution to theory in the validation of entrepreneurial internationalisation as a variable, characterized by speed of international entry, international commitment, international scope, and relative performance. This extends the writing of Zhang et al. (2009) who measured relative performance, and Prashantham et al. (2019) who developed its conceptual framework from a qualitative study. The study also offers a validated scale for the measurement of entrepreneurial internationalisation. Next, the discussion moves to recommendations for researchers and recommendations for practitioners.

5.0 Recommendations for Researchers

Recommendations for researchers are discussed and then summarized in Table 4.

A starting point for future research is to replicate the study in other markets. This study drew from a sample of US SMEs. Replication in other developed markets would serve research well. For example, it is argued that US entrepreneurs are uniquely characterized by cultural differences, and so comparisons with entrepreneurs in other nations is recommended (Karami et al., 2020): “Scholars can consider cultural differences such as individualism-collectivism and high-context versus low-context cultures to address the cross-cultural difference as well” (p. 806). Similarly, there is support to replicate the study in developing markets. In developing economies such as China (Cai et al., 2017), effectuation takes the place of market research, competitive analysis, and market planning in decisions about internationalisation (Deligianni, et al., 2017; Galkina & Chetty, 2015; Kalinic, et al., 2014).

Future research should also study the influence of uncertainty on the independent variable, entrepreneurship. What are the various ways that effectuation, characterized by a process

ontology, mitigates uncertainty? How do the effects of uncertainty impact on the dependent variable, entrepreneurial internationalisation? It is also argued for more research into the impact of uncertainty in developing economies. Cai et al. (2017) state that uncertainty operates at higher levels in developing economies. Engel et al., (2014) argue that internationalisation is inherently uncertain. In addition, Zhang et al. (2014) support the same.

Begged in the findings of this study is research into uncertainty in the micro- and macro-level environments (Chandler, et al., 2011). Chandler et al. (2011) posited that uncertainty can be commonly created through government policy, capital markets, interest rates, suppliers, customers, and competition. These deserve a further testing particularly as they impact internationalisation. Cai et al. (2017) argued for more research into the impact of uncertainty in developing economies, stating that uncertainty operates at higher levels, therein.

Research that attempts to enumerate the uncertainties associated with internationalisation would be useful. How does effectual logic manage uncertainty rather than predict it (Sarasvathy, 2001)? For example, Read et al. (2015) identified affordable loss as a tool associated with mitigating risk; Harms and Schiele (2012) found that uncertainty is shared through pre-commitment. The heuristics of effectuation can turn an uncertain environment into opportunity (Chetty, et al., 2015). Still again, there is the uncertainty that comes with the market imposition of diversification (Deligianni, et al., 2017). Zhang et al. (2014) uncovered the moderating effects of different types of organisational flexibility in the SME internationalisation–performance relationship, including industry structure, industry type, ownership type and R&D intensity.

To research cultural differences in the application of effectual logic: Deligianni et al. (2017) anticipate cultural differences in the application of effectual logic by citing examples of cultures that avoid risk and uncertainty. Harms and Schiele (2012) called for more research to parse between types of uncertainty, for example, uncertainty from psychic distance (Johanson & Vahlne, 1977), compared to a foundational uncertainty (environmental) (Chandler, et al., 2011). Galkina and Chetty (2015) identify still another component of uncertainty, networks. Research into creating new relations in a network, strengthening existing ones and learning about partners would also explain the impact of uncertainty on internationalisation (Johanson & Vahlne, 2009). Li et al. (2012) argue that technology enterprises face a higher degree of uncertainty due to frequent disruptions, market demand and competitors.

A further probing of the components of effectuation (affordable loss, experimentation, flexibility, and pre-commitment) and their impact on entrepreneurial internationalisation is also justified. For example, there is the process of affordable loss interacting with pre-commitment. It may better explain how entrepreneurs, who work in what appears to be a limited environment, turn affordable loss into valuable resources. Still another avenue of research is serial entrepreneurs who internationalise. An investigation of the cognitive process would prove useful, as well as the antecedents of habitual action such as life experience, work experience, personal characteristics, and education (Read, et al., 2015). A shift from enterprise- and network – level analysis toward the individual entrepreneur would shine a new light on internationalisation (Galkina & Chetty, 2015). Karami et al. (2020) argue that Simon's theory of bounded rationality, the dependency on other people's suggestions, recommendations, persuasion, and information, present the opportunity for more meaningful research into pre-commitments.

Closely related to the means-driven approach of effectuation, Karami et al. (2020) identified experiential learning. How does experiential learning interact with effectuation? What is the interaction between experiential learning and the individual characteristics of the entrepreneur? Zhou (2007) found that guanxi networks create an experiential learning advantage for its members; and therefore, find it relatively easy to achieve the performance consequences of early internationalisation. Akin to experiential learning is experiential strategy. Experiential strategy is used under conditions with a high degree of innovation and is characterized by an iterative process (Brettel, et al., 2012). It accelerates product development. Research connecting experiential strategy with effectuation could prove fruitful, leading to more applications of effectuation under conditions of uncertainty (see Table 4).

Table 4: Recommendations for Researchers

Item	Recommendation
Replicate the study	To replicate the study in other markets beyond the sample of US SMEs
Developing markets	To replicate the study in developing markets such as China
Influence of uncertainty	Study the influence of uncertainty on the independent variable, entrepreneurship, and the dependent variable, entrepreneurial internationalisation
Uncertainty in the micro- and macro-environment	Uncertainty can be commonly created through government policy, capital markets, interest rates, suppliers, customers, and competition (Chandler, et al., 2011)
Uncertainty associated with internationalisation	How does effectual logic manage uncertainty rather than predict it (Sarasvathy, 2001)?
Cultural differences	To research cultural differences in the application of effectual logic by studying cultures that avoid risk and uncertainty
Components of effectuation	A probing of the components of effectuation (affordable loss, experimentation, flexibility, and pre-commitment) and their impact on entrepreneurial internationalisation is justified.

6.0 Limitations

All studies are subject to limitations, and this also applies to this research study which used a survey to access respondents from the sampling frame. Recognised limitations of such an approach include post hoc rationalization (Chandler, et al., 2011), and narrow-industry sampling (Deligianni, et al., 2017). It is also acknowledged that only one executive member of the management team is surveyed from each enterprise, as it may be argued that decision-making is a group effort. As outlined in Section 2.2, several sampling frames were considered for this study before it was decided to use LinkedIn, a social media network, which generated a sample of 114 respondents. A discussion on the limitation of sample size drawn from LinkedIn social media network follows. It is acknowledged that it is difficult to reach founders of SMEs for the purposes of a survey questionnaire (Chandler, et al., 2011). There were 114 valid surveys after meeting the contextual criteria, resulting in a valid-survey rate of 20.6%, which also compares favourably with previous studies (Chandler, et al., 2011; Dimitratos, et al., 2012). The sample size of 114 is justified on the grounds of the five variables found in the

conceptual framework, a sample-to-variable ratio of 23:1, favourably meeting the recommended ratio (Hair et al., 2006). Analysis on the sample size of 114 meets the requirements for internal reliability, convergent validity, factorial validity, and nomological validity.

The approach used in LinkedIn is acknowledged as a limitation of this study. Privacy and confidentiality (making sure that respondents provide permission to collect responses), and demographics (LinkedIn users may not be representative of manufacturing SMEs who internationalise) are identified as limitations in Mirabeau et al., 2013.

In this research study respondents were required to read the Information Guide and consent to participate in the study. Demographic information was collected and used to compare the sample demographic statistics to those reported in the extant literature (Knight & Cavusgil, 2004; Harms & Schiele, 2012; Dimitratos et al., 2013; Efrat et al., 2017). In short, it is felt that the use of LinkedIn has led to data, which is valid, reliable, and trustworthy. Future research may consider replicating this study using other industry sectors and using other countries to support the external validity of the model.

Several other limitations are indirectly addressed in the Recommendations for Researchers section 5.0. For example, there is a call for more in-depth analysis of the components of effectuation (affordable loss, experimentation, flexibility, and pre-commitments) and their impact on internationalisation, as well as more research on relative international performance. Yet, another limitation is inherently found in the cross-sectional nature of the study. It may be argued that longitudinal data would further explain the impact of effectuation on internationalisation, for example, as an enterprise grows its international sales as a percentage of total sales beyond fifty per cent and more (Brettel et al., 2012). Longitudinal studies can also help to better explain the impact of international networks (Chetty et al., 2015).

The average age of the enterprises represented in the study is twelve years. What about enterprises that are more than thirty years old, or enterprises that have failed: what is the impact of effectuation on their internationalisation experience? (Deligianni et al., 2017). This would be required to validate entrepreneurial internationalisation for older enterprises. Another limitation is the US-enterprise sample. Studies in other countries are required to validate the findings. Given the SME characteristics of the sample, the study does not represent large enterprises. Degrees of size and their impact on internationalisation would also prove helpful (Li et al., 2012).

7.0 Concluding Remarks

The study comes to its conclusion. Section 3 reported on the discussion of key findings in the study. It also reported on the contributions to practice and theory, as well as recommendations for practitioners and researchers. From the beginning the study author has been motivated by practice and theory; by practice, having been an international entrepreneur for fifteen years, and by theory, teaching entrepreneurship for ten years. It is very gratifying to see practice and theory interplay. The practice of entrepreneurship interacts with effectual logic to accelerate internationalisation. This model has its foundation in vibrant theory. The study is bridled by the limitations discussed herein.

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Section 4: Reflective Log

1.0 Introduction

In a learning reflection we are asked to be present, aware, and attentive to people and our daily situation (Carroll, 2006). Over a six-year journey, remaining reflective is a formidable challenge. How can we be present to DBA studies each day? It would drive you mad. How can we be aware daily? To the extent that the DBA never leaves you, always causing anxiety, then you are always aware. But how desirable is this awareness? Our minds, hearts and feelings aren't cut out for such attentiveness.

To what purpose, then, do we reflect? We reflect for the purpose of imagining the nature of our improved practice over the six-year journey. To that end I submit this report on my reflective log.

2.0 The Journey

The reflection on my DBA studies is divided into three parts, Themes, Reflection on Practice, and memorable Anecdotes.

2.1 Themes

There are three themes in the DBA journey. They are beauty, goodness, and truth. You will know the themes as the three transcendentals derived from Aristotle (Aristotle, 1933). They are found throughout life, and especially in the DBA journey.

2.2 Beauty

Beauty finds its domain in the soul and is ascribed to have three categories of objectivity: claritas (radiance), integritas (wholeness) and consonantia (harmony) (Aquinas, 2005). When present, it awakens in us an innate desire for beauty. Thomas Aquinas wrote the innate desire for beauty is unconditioned (Aquinas, 2005). Beauty has an in-your-face quality that stops you, that arrests your mind and will.

Consonantia (harmony) is found in the conceptual model and echoed by the findings. Claritas (radiance) is experienced through theory. Effectuation theory radiates by evoking how an entrepreneur practices the craft of a start-up. Integritas (wholeness) is experienced by the wholeness of the research project: conceptual model, methodology, design implementation and findings.

The will wishes to behold beauty, and even more, to participate in it, which leads to goodness. In the end, the beauty of the DBA journey brings the joy of a garden restored.

2.3 Goodness

Goodness is the province of the will. It is characterized by service and contributing for the sake of the other (Aquinas, 2005). Goodness cannot be a drama about the self but must be a surrender to the whole.

The good was a form in Plato's Republic (Plato and Bloom, 1968). He saw the good as the move from appearance to reality, metaphorically illustrated by the move from inside the cave to outside the cave. In the DBA journey goodness is the desire to contribute to the theory of business and to its practice. Allegorically, Plato would have us move from appearance in the cave to reality outside the cave. Education informs the move from appearance to reality.

The good seeks a just outcome in the sense that everything is rendered its proper due. In the third century, Origen of Alexandria wrote that you must practice the good to understand it (Origen, 1966). So it is in the DBA journey. We investigate the practice of business, so that we can improve its practice and deliver a just outcome.

2.4 Truth

Truth is the purview of the mind. It, too, is objective in nature. In the DBA journey it is most closely associated with theory. Truth is acknowledged because it stands athwart your will.

The argument for truth is that everything must have an explanation (Aquinas, 2005). Known as the principle of sufficient reason, if the cosmos is explainable, then it may also be said to be intelligible (Ratzinger, 1968). In the DBA journey, business and its practice can be dissected, investigated, and explained. There is rigor in theory, methodology, design implementation and findings. The student must be open to the truth, but not so open as to invent his or her own truth. The rigor of the DBA ensures the pursuit of objective truth. Truth, or theory, is put into practice in the DBA journey. The purpose of practice is so that business may be rendered effortlessly, which in the end is the true meaning of freedom.

Next, this reflection explores paradigms, including ontology and human nature. The ontological application for this study is accepting a universal reality, one in which order in internationalisation can be observed, measured, and tested. The application for this study is also to seek causal relationships derived from a methodological stance of testing and expanding theory. In this study, objective paradigms are embraced and applied. Another dimension is human nature and the environment. It involves whether the researcher perceives man as the controller or as the controlled (Burrell & Morgan, 1979). Being a research study of causal relationships, it is suitable to apply objective paradigms of testing and explaining relationships. From the philosophical dimensions, positivism (as opposed to interpretivism, critical realism and pragmatism) is the philosophical position best suited for this study because of the application of objectivity, validity, and generalisability. In a positivist approach, theory and structure precede the research. The deductive method follows a logical and rational process. The research problem is observed through the lens of theory and experience. Effectuation and entrepreneurial internationalisation are operationalized by drawing variables from the literature (Bryman & Bell, 2015). The application of the positivist approach in this research study is to validate an opportunity-based instrument using the variables of effectuation (Dimitratos et al., 2012, p. 717). Moreover, there are two extensions of positivism, which are objectivism and

functionalism. The world of internationalisation can be measured and tested. Further, the relationship can be tested for reliability and validity. Inferences can be drawn from the data to explain behaviour in entrepreneurial internationalisation (Burrell & Morgan, 1979).

The implications of the aforesaid on methodological assumptions is that quantitative research methods such as surveys, explanatory, and analytical models—which require objective measurement and analysis—is the acceptable method to generate valid knowledge (Hammersley, 2006; Hammersley, 2014). Plato would be very comfortable with this research (repeating the search): modelling, formulating hypotheses, testing, and statistics.

3.0 Reflection on Practice

This subsection concerns a reflection on practice taken from five items: teaching entrepreneurship, practicing entrepreneurship, writing for a journal, presenting at a conference, and conducting research. For each item reflections are drawn for the current practice, the new learning and imagining the new practice (Reynolds, 1998). The current practice is characterized by what works and doesn't work. New learning features awareness of feelings and judgements made. Imagining the new practice involves being conscious of values, ideas and assumptions that inform sense-making, observations, and experience (see Table 1).

Table 1: Reflection on Practice

Item	Current Practice	New Learning	Imagining New Practice
Teaching entrepreneurship	March 13, 2020, was the final day of delivering in-class teaching at Humber. 3/30/20	At a coaching session this week, I discussed what role does the DBA play in my teaching and learning at Humber? 10/24/16 The week of March 16 was set aside for faculty to move all delivery to online using Bb and especially, Collaborate Ultra. 3/30/20	It is a very useful question to keep the DBA in perspective, helping me to understand the contribution of the DBA experience, serving students, faculty, and college administration. My coach is Lisa Buchanan. 10/24/16 Starting March 23, the final classes, assignments, and exams were delivered online. 3/30/20

<p>Practicing international entrepreneurship</p>	<p>The encoding of overcoming fear and geographic distance 9/30/16</p> <p>The causation approach suggests that the entrepreneur begins with the end state in view 10/16/16</p> <p>Early understanding of internationalisation was derived from studying the MNE 11/2/16</p> <p>Traditional internationalisation focuses on the externalities of international markets, focusing on risk aversion. 11/21/16</p> <p>Traditional internationalisation theory is largely descriptive and bereft of application. 12/10/16</p>	<p>Employing effectuation, entrepreneurial firms focus on networks at the founder level and show how uncertainty can be exploited. 1/10/17</p> <p>Entrepreneurial effectuation uses non-predictive logic: an entrepreneur employs existing means to select possible effects. 1/20/17</p> <p>Effectuation frames the future as resulting from co-creation by networks of partnerships consisting of investors, partners, and customers who are stitched together, 2/2/17</p>	<p>When an enterprise possesses innovation + technology, entrepreneurial knowledge + orientation, and international networking, then the time is right to internationalise. 12/1/20</p> <p>The four components of effectuation (affordable loss, experimentation, flexibility, and pre-commitment) drive entrepreneurial internationalisation. 12/14/20</p> <p>Effectuators see uncertainty in the market as an opportunity to use the principles of affordable loss, experimentation, flexibility, and pre-commitment. 12/22/20</p>
<p>Writing for a journal</p>	<p>The document looks like it emerged from your thinking, rather than with a reader in mind. 3/12/18</p> <p>The document does not show the reader the way. 3/12/18</p> <p>Sections are written without an introduction nor conclusion. 3/12/18</p>	<p>I could see how the tables were assembled, and how they were useful. Susan Whelan recommended the use of a table to categorize the dominant theories. 3/20/17</p> <p>Scholarly Writing Boot Camp, May 3 to May 5, 2017, Millcroft Inn, Alton, Ontario, Canada.</p> <p>What gratification for having</p>	<p>Sometimes it seems that my thinking is crystallized when I write, though more conventionally, I see myself speaking my thoughts. This is a welcome discovery and development. It is an extension of having faith in the process. 4/3/17</p> <p>Break it up into small, digestible, intuitive, perfectly formed sections. Try to aim for section breaks on almost every page. 3/12/18</p>

		<p>completed Assignment 2. I remind myself every day.5/5/17</p> <p>I have entered a program to write, publish and present a case. Under the auspices of University of Guelph-Humber and Humber College's Centre for Teaching and Learning, I plan to write a case about one of the courses I teach. 10/9/17</p> <p>You need much more structure. It needs editing to add in structure. 3/12/18</p> <p>You need navigation. Similar to the structure comment, your document needs to show the reader the way. 3/12/18</p> <p>So, it needs lots of what I call plumbing text - pipes that link the bits. 3/12/18</p> <p>Write how a section fits the whole and its internal structure. 3/12/18</p> <p>I must summarize key points that contribute to the whole argument. 3/12/18</p>	<p>Every now and then I restate the purpose of the whole project and why this section is necessary. 3/12/18</p> <p>I spend a few pages introducing a theory – I explain why do we need to know this? 3/12/18</p> <p>I provide a reader a rationale, a logic as to why things need to be dealt with. 3/12/18</p> <p>I offer a summary, before going into long exposition. 3/12/18</p> <p>The conceptual frame appears early in the document. The reader sees it coming through a buildup. It is tightly linked to what has gone prior. 3/12/18</p> <p>I have come to terms with understanding 50 per cent of the time spent on the paper is editing; about 30 per cent is the planning; and twenty per cent is writing the first draft. 3/25/19</p>
Presenting at a conference		I was selected to present my first	I presented the TIF research project,

		<p>scholarly paper: WACRA conference, Rotterdam, June 30 to July 5, 2018.</p> <p>The other news comes from Aidan Duane, who is encouraging me to submit a proposal to deliver a paper at the Irish Academy of Management (IAM) conference dated August 2019.</p>	<p>Breadth v Depth, at a Humber College Showcase 2018 workshop. It went well. I was very happy with it. A big relief to have it completed. 6/8/18</p> <p>This was the week of the WACRA conference, Rotterdam, The Netherlands, sponsored by Eileen De Courcy and John Walsh. I presented my case, Breadth v Depth, at the conference colloquium. I received very good feedback and will use feedback to draft the next version of the case and the case teaching notes. 7/5/18</p>
<p>Conducting research</p>	<p>Being overwhelmed: I have the following projects on the go: DBA paper 1 revisions; DBA workshop 5 assignments; Revisions to Case (Breadth v Depth) and Case Teaching Notes; TIF research project proposal; Explorations (Theology) course assignments; Write a Brief Report for JIPE journal. 7/9/18</p> <p>The assignment for Workshop 5, Qualitative Methodology: a qualitative study of my reflective log. 7/30/18</p> <p>In 1976-77 I was an expert in SPSS while working on my Master's degree. It was</p>	<p>I completed the PowerPoint presentation on conducting research (for Workshop 3). The presentation consists of the following components: Relevant reading links; Literature Review; Research problem. Research Question; Pass the research question through three filters; Anticipated contribution to professional practice; Anticipated contribution to theory; and Summary. 10/15/18</p> <p>The Qualitative assignment was a</p>	<p>The qualitative interviews were an exhilarating experience. The information gleaned from the subjects supported much of my thinking. Even more, I learned from the interviews and the subsequent analysis that there is knowledge to be gleaned by studying effectuation and entrepreneurial internationalisation. 11/12/18</p> <p>There are many ways to explore the linkages between the topics to create a rich understanding of the same, and ultimately, to contribute to theory. 11/12/18</p> <p>The Post-Workshop assignment in</p>

	<p>the days of manual computer punch cards. 10/15/18</p>	<p>manual process of qualitative data collection, analysis, and interpretation. By doing the assignment manually I appreciated all the steps that are required. 10/15/18</p> <p>The Advanced Statistics workshop and assignment was an introduction to using SPSS for reliability and validity testing, as well a scale summation. 10/15/18</p> <p>Workshop 5: the workshops were intensive, Sean Byrne for Qualitative Research, and Mary Holden for Advanced Statistics. We dived into NVivo and SPSS, very practical learning. 10/15/18</p>	<p>Advanced Statistics took me 40 hours to complete over two weeks. I took a step-by-step approach, using notes from Mary Holden’s videos, workshop notes, and the assignment instructions. It took shape slowly. While I feel I understand the assignment and regression results, I’m not sure how well I communicated in the assignment. 11/19/18</p>
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4.0 Anecdotes

Anecdotes are delivered by topic. They represent meaningful steps through the DBA journey, and are drawn from my Reflective Log, September 2016 to November 2021.

4.1 Eschatology in academic writing

This week I reflect on the peculiar characteristic of some papers, taking the reader on a great leap in thinking or reasoning. Let me illustrate, in Casey (2002) ‘New age religion and identity at work’, in Dent and Whitehead (2002) ‘Managing professional identities: Knowledge, performativity and the ‘new’ professional’. Routledge, London, pp. 201-216. “Questions of self, identity and social institutions have long engaged the attention of thinkers and scholars.

Such interest, evident from classical times to the Enlightenment, became most especially developed in nineteenth and twentieth-century modernity. Yet in recent decades a considerable new interest among social scientists and cultural critics in questions of self and identity has arisen.” (p. 202.) Thousands of years are compacted into two sentences culminating in the feeling that we have arrived. Intellectual curiosity and wisdom have been acquired. 9/12/2016

I’m reminded this week of a common conclusion that several authors take in the papers: the idea that today’s environment is unique; it is a special time in the history of humankind.

Dominguez, M. CC Luís Galán-González, J.L, Barroso, C. (2015) Patterns of strategic change, *Journal of Organizational Change Management*, 28 (3): 411-431. 9/26/16

4.2 Literature Review

Literature review of theory. 1. Key points to consider: what does the research say? What is missing in the research? What gaps do I intend to fill? 2. The process is to find the research, peer reviewed journal articles; analyse the research: main points, theories, and key issues in the article; and arrange the research, cluster it together chronologically or thematically. 10/31/16

The literature review for my research topic: I have identified three dominant theories and twenty secondary theories. The secondary theories are extensions of the dominant theories or support them. I have defined theory, mind-set, concepts, and constructs, still to define model. I believe I understand how the latter support theory. I also have a feeling for some key dynamics in theory making. 1/31/17

The treasure was a discovery of a special issue of *Entrepreneurship Theory and Practice*, 2014. It was an issue on International Entrepreneurship, exploring concepts, phenomena, and theories with high potential to advance the field. 7/10/17

Hunt identifies seven articles of the 80s and 90s that framed the philosophy debates. On a self-serving note, four out of the seven are authored by Hunt. In one school of thought it was argued that the historical relativist approach had more to offer marketing study and practice than the logical empirical approach. I took this to mean an abandonment of truth in marketing. Furthermore, I believe it can be implied that there is no objective truth in science. Even more, the authors commend us to the abandonment of science, or the acknowledgement we no longer understand what science is. Anderson, who charges Siegel with nervousness over relativism, suffers nervousness himself, over objective truth. Hunt’s book, *Modern Marketing Theory* (Hunt, 1991a) reached doctoral students, but no one in marketing paid attention. Alas! To

summarize Hunt, and give his due for what I like about him, who could trust research that acknowledges that it has abandoned the pursuit of theories that truly represent reality? (p. 364).

7/24/17

4.3 Arriving at the research topic

Particular attention had to be given to the Research Topic rationale. The feedback was very encouraging. Yet, I realized I still had work to do. My rationale was not cogent. The literature review was descriptive, not clustered by themes or chronologically. I agonized at first, but then, trusting the process, I reviewed the literature I had already read. I found more clarity. The literature pointed me to 3 or 4 more journal articles, which I found so valuable that I either referenced them or cited them. The second draft proved to be very rewarding. 11/14/16

The workshop was high-level. It confirmed the importance of the attention I have been giving to the PDP, that is, the research topic, and the research topic rationale.

Feedback on my ten-minute presentation (from Pat Lynch, Sean Byrne, and Bill O’Gorman): define my concepts, including traditional and entrepreneurial internationalisation. Shorten my research question: why does a firm follow an entrepreneurial internationalisation process rather than a traditional one? What’s the dependent variable? Internationalisation (Traditional or Entrepreneurial). Pat says input to moderator to output. Or is the dependent variable success, a performance measure? Don’t fret over the audience, instead over what I want to study, which is entrepreneurial internationalisation. What is the independent variable? One or some the six constructs. What are the moderators, and which are best measurable? Scales? Personality, values, effectuation. What is the unit of analysis? The international enterprise. 10/16/17

I had the first skype meeting with my supervisor, Dr. Ray Griffin. I think he is going to stretch me. Wants me to think about the philosophical orientation, not to abandon Interpretivism too soon. 1/22/18

4.4 Arriving at the Conceptual Framework

Ray Griffin and I had our third skype meeting. 1. Identify a doctoral colloquium. Use the colloquium as a sounding board for the quantitative methods I plan to use, the survey, and the conceptual model. Consider AIB or McGill International Entrepreneurship (MIE). 2. JIBS standards. Unpack the JIBS standards including the sample sizes for a pilot. 3. Write a one-page specification sheet of the quantitative research design that I plan. The purpose of is to

show it to quantitative experts for their perspective e.g., Mary Holden. (Eight recent JIBS articles that use quantitative methods have all relied on secondary data sets. This must be telling me something.) 4. Existing data sets. (SME Research and Design [Statistics Canada], and, GEM, do not record the variables I want, not even close proxies. I will keep looking.) 2/5/18

Detailed feedback from the examiners gave me direction on how to rewrite the paper. I worked on the new version for two weeks. Very happy to have completed what I did, I submitted it to the three supervisors on May 18. What a relief. Yet, I question what I have written. I feel I am no longer writing my own paper, but it is now a paper directed by other parties. I don't know how long this feeling will remain. Will it become my own paper, again? 5/14/18

I approached four subjects for interviews, and when one dropped out, I was pleased that I still had three subjects to interview, giving me more fullness of material. Interviews lasted between fifteen and twenty-three minutes. I was pleased that subjects could meaningfully answer the eleven questions. 11/12/18

Each interview required about two hours to transcribe. The initial nodes, four topics and eleven questions, quickly grow to forty-seven nodes. These nodes collapsed into four grandparent nodes, which were the four topics: effectuation, entrepreneurial internationalisation, drivers of internationalisation, and international experience. There were seven parent nodes, and thirty-six child nodes. Total nodes were forty-seven. 11/12/18

The elation of conducting interviews and commencing the analysis with node-creation was replaced by the desire to find patterns, themes, and propositions. Nodes were related, memos were written, linked, and annotated. Queries were run and reports produced. Then, visualizations were explored. Visualizations represented the next epiphany, which was the fecundity of the topics. 11/12/18

The topics produced great depth of meaning within themselves, and their inter-relationships. For example, coding shows a support of a symmetrical relationship between effectuation and entrepreneurial internationalisation; drivers of internationalisation increase entrepreneurial internationalisation; and international experience is closely associated with entrepreneurial internationalisation. 11/12/18

Visualizations of the inter-relationships would not have been possible without NVivo. NVivo enables an acceleration of node hierarchies. It facilitates memoing, linking and annotating. Queries and reporting are plentiful. Most of all, visualization of patterns is greatly enhanced.

Patterns lead to themes and proposition. In sum, NVivo has proven to be an invaluable tool. This Qualitative Post Workshop assignment took me 60 hours to complete. 11/12/18

The Post-Workshop assignment in Advanced Statistics took me 40 hours to complete over two weeks. I took a step-by-step approach, using notes from Mary Holden's videos, workshop notes, and the assignment instructions. It took shape slowly. While I feel I understand the assignment and regression results, I'm not sure how well I communicated in the assignment. 11/19/18

The conceptual model has been changed into a model testing the relationship between the independent variables and the dependent variable, moderated by the four variables of effectuation. This means I have chosen a model with moderating variables (not mediating variables). As directed by the examiners the model clarification has required me to rewrite and support the hypothesized positive moderating impact of variables, drawing from literature. 4/29/19

Given that I have the liberty to propose items for the EI variable, I find myself quite excited by the prospect. The essence of Prashantham et al. (2019) remaining in the model has had a positive effect on me. I am adapting the propositions in their theoretical paper to put forward a 3-item scale. 5/6/19

Received comments from external examiners on Paper 2, which require me to make significant revisions. 1. Focus and Structure: (Clarity of outline of the research problem. Rationale and Justification. Logical structure of paper with clear introduction, and substantial conclusion. Writing, argument, critique at appropriate level) 7/8/19

The paper is improved. There is a small issue with flow in relation to the hypotheses. A more substantive issue is the justification for the hypotheses and the measurement of the key variables in the study. 7/8/19

While a lot of work has gone into the revised version of the paper, there is still a lot of work to do to have the paper ready for submission as part of the DBA. The project is very worthy and innovative but there is a lack of detail in paper 2 to support the outcomes of papers 3 and 4. Paper 1 and to a larger extent this paper should provide the literature basis for each hypothesis. More thought needs to be put into the moderating hypotheses and there is a significant issue around the measurement of the dependent variable. These comments are offered so that the

paper improves to the level required to operationalise the study. Three major issues are noted and some smaller minor ones also. 7/8/19

4.5 Arriving at the methodology

January to March 2019, were rigorous months of writing and editing Paper 2. Tom Egan and Aidan Duane had four skype meetings with me. The meetings were all very helpful, providing me direction on how to build the paper, starting with the Conceptual Model. I went through 24 versions. 3/25/19

One of the items that helped the pacing was taking a week off, reading week in February, for Anne and me to travel to Holguin, Cuba. It was a great rest and took me away from working on Paper 2. The time away served me very well. 3/25/19

On April 4 I presented Paper 2 to Examiners Joe Coughlan and Ethel Claffey. I was passed. It made me feel great relief and even joy. In camera Joe and Ethel offered many helpful suggestions to clarify the method, conveniences to pursue and items to eliminate. Tom Egan attended the presentation, made detailed notes of their questions and their comments in camera. Tom's comprehensive notes are very helpful. Tom and Aidan sent me congratulatory emails. Sean Byrne commented how well practised my presentation was. It was a very gratifying day. Glory to God. 4/8/19

A major issue with this document is from pages 8 to 12. The main hypotheses (H1 to H3) while supported from the literature need more literature support. The moderating hypotheses for the most part are unsupported. There is a lot of literature cited but most of it is just defining the concepts. Moderation assumes that the concepts are already defined.

To be very clear, moderation is when the level of variable C (e.g., flexibility) affects the strength of the relationship between variable A (e.g., Innovation & Technology – I&T) and variable B (e.g., Entrepreneurial Internationalisation - EI). What does this mean when you hypothesise positive moderating effects? It means that in circumstances where C is high (so when firms are more flexible), the impact of variable A (I&T) on variable B (EI) will be higher. When C is low (when firms are less flexible), the impact of A (I&T) on B (EI) is lower or may be non-existent. This depends on your measurement of A, B and C to some extent, but the above is the basis of moderation. A pre-condition for moderation is that the basic relationship, that between A and B is there already. As a result, it is very important that these core hypotheses are well supported since if they fail, you have no results at all. 7/8/19

Entrepreneurial Internationalisation. This is perhaps the most important of all the issues you are measuring. It is the core one that needs attention and absolutely must be right as without this working, the whole model fails. Not using an established scale here is very dangerous and could put your whole DBA at risk. This is not good practice at all. I have no issue with you including the items you generated in conjunction with another established scale. I cannot stress highly enough the level of risk here. This is potentially a fatal flaw. I would find a scale for this issue and then add the new three items, but the main measure should be 4 to 5 items. Your dependent variable has to be strong, or nothing will work. 7/8/19

The revisions are taking a very long time. I'm working on Paper 2 changes, and I hope to have the next draft soon. The changes are formidable. The external examiners require me to find support for fifteen hypotheses. Hypothesis 1a alone took me 16 hours to research and rewrite. So far, I have completed five. I expect that for the remaining, my progress will come faster. I trust this work is producing a better paper. 7/30/19

Finding a new item for EI variable took me 19 hours this week, Sunday, Monday, and Tuesday. It was one of the most formidable tasks in this journey. Trust in the process. In total this week alone, 30 hours. Completed the next version of Paper 2, and the Response to the Examiners. 8/19/19

The anxiety I feel about life is overwhelming. I'm in a state comparable to Elijah in I Kings: Lord, take my life for I am ready to go. I feel exhausted by life. Other times I feel like Psalm 42, as a deer longs for flowing streams, so my soul longs for you. Oh, so painful. 8/19/19

The EE commentary came back positive, white smoke. "The paper is much improved and there is more clarity around issues relating to the hypotheses and the method. This clarity is now evident throughout the paper and the structure has much improved." Then, "The paper meets the Level 10 Learning Indicators". 1/17/20

4.6 Arriving at the design implementation and pilot study

A Skype meeting with Tom and Aidan on January 21 launched me into the Design Implementation phase of paper 3 as well as the plans for a pilot study. 2/4/20

On Feb 3 I sent the draft of the pilot survey to Tom and Aidan. I had created it from the literature, the Effectuation variables and contextual variables were drawn from Chandler et al. 2/4/20

I met with Siobhan Williams to program the pilot study on SurveyMonkey. With a limit of 50 questions, I had to create two questionnaires, one with the conceptual model, and the other with the contextual variable question. Results arrived by February 10 and looked promising. I wrote to SurveyMonkey about combining the two data sets, to which they replied in the negative. I also collected a list of Canadian manufacturing associations and drafted an email to send to them with the questionnaire link embedded. On February 14 I sent Tom and Aidan my first draft of paper 3, absent of pilot study results. 2/4/20

Met with Siobhan Williams on March 3 to program the third questionnaire on SurveyMonkey, which added 5 contextual control questions to survey A. It was called survey C and became the pilot study survey. To Tom and Aidan, I sent updated versions of paper on March 10, 15, 18, 20 and 27. Facing a March 30 deadline for paper 3, Tom worked the final weekend making some very valuable changes and additions to my analysis of the pilot study, including the tables. Aidan was also very helpful in repairing my tables. On March 30 I made some final changes to paper 3 and submitted to Moodle. 3/30/20

On May 14, Paper 3 is approved. I hope all is well with you. Just a quick note to confirm that following receipt of the feedback from Ethel (internal examiner for Mark Stoiko who is copied to this email), I have confirmed with her that she does not wish to see a future copy of Mark's paper three and she is happy for him to proceed to paper four - the feedback I received from her when I asked was as follows: "Yes, I am happy for him to proceed to paper 4 and I don't need to see the paper again. I made a few recommendations for him to take into account. I just thought it might help." 5/14/20

4.7 Arriving at findings and discussion

On to Paper 4. The plan for the sampling frame is multi-point contact as follows: 1. Call the association for participation in the survey 2. Send an email solicitation 3. Second phone call. 6/1/20

Over the past month, I have worked to build relationships with Canadian manufacturing associations, and secure participation in the survey; however, the response rates are nil. Nine associations are supporting me, but the survey completion number is 0. While I have not given up on the associations, I must consider alternative sampling frames. I have researched three categories of sampling frames. The first two are build-your-own; the third category consists of panels of paid respondents. 7/20/20

1. LinkedIn and LinkedIn Learning. Humber College is a subscriber to LinkedIn Learning, wherein I have researched how LinkedIn can be used to build a convenience sample. 2.

Facebook (FB). The social media site consists of ready-made groups of particular interests and qualities.3. Panels of paid respondents: o Amazon Mechanical Turk (MTurk) is a crowdsourcing marketplace that offers many services-for-hire including survey participation. O Lightspeed (now Kantar). Kantar offers permission-based research-ready respondents. Kantar is owned by WPP. O Qualtrics. Qualtrics is a world leader in measuring employee experiences through key metrics powered by predictive intelligence. It offers an online sample, a group of people recruited to respond to a survey.

Categories 1 and 2, building my own research panel, will be a long process and more upfront work. In the meantime, I'm building a base of research on the advantages and disadvantages of these categories of sampling frames. Considerable research has been published in scholarly journals. 7/20/20

Next steps: 1. Check for virtual conferences 2. Send Lucas Good (Qualtrics) a request for a quote 3. Follow up associations in the Association Contact Record 4. Add CFEA.com to the list 5. Initiate LinkedIn group 6. Continue research on panels of respondents 7. Sample MTurk and maybe Qualtrics 8. Identify and target influencers in the subject area 9. Blend the sources of respondents. 7/20/20

Following the absence of success with manufacturing associations, this past month I turned to social media as a sampling frame, particularly, LinkedIn. I sent an invitation to more than six hundred of the one thousand 1st degree connections I have on LinkedIn. There were seventy attempts at the survey questionnaire, and seventeen completions (fifty-five were kicked out for answering 'no' to the qualifying question). 8/24/20

The next idea is a return to a paid panel of respondents. I researched Qualtrics (owned by SAP) and Amazon Mechanical Turk (MTurk). 8/24/20

No sooner did I think Qualtrics was the best solution, did I receive their quote: they want CDN\$60 per respondent (I can't believe it). So, now I'm turning to Amazon Mechanical Turk (MTurk) for a panel of respondents. MTurk accepts SurveyMonkey (good news). 8/24/20

The project was launched on August 25 at 11:12 am. After three days, there are no replies. So, given that the worst-case scenario is no responses to the survey questionnaire, we must consider

shifting from Canada to the US for the respondent pool. On September 3 I launched the survey questionnaire in US. After 24 hours I had 23 responses. 8/31/20

On September 19 we reached 217 responses. 9/17/20

On November 1 we submitted paper 4. 11/1/20

Examiners have concerns with paper 4. 12/14/20

Submitted revised paper 4 along with response to examiners. 1/14/21

More concerns from examiners. 3/1/21

With support from my supervisors, submitted an appeal to WIT Appeal Board. 5/27/2021

Appeal denied by Appeal Board. 7/1/2021

Commenced creating a new sample frame, a research network on LinkedIn. 7/2/2021

Submitted revised paper 4 along with response to examiners. 11/20/2021

5.0 Trust in the process

I agonized at first, but then, trusting the process, I reviewed the literature I had already read. I found more clarity. 11/07/16

Sometimes it seems that my thinking is crystallized by writing it, though more conventionally, I see myself speaking my thoughts. This is a welcome discovery and development. It is an extension of having faith in the process. 4/10/17

I trust this work is producing a better paper. 7/30/19

In total this week alone, 30 hours. Trust in the process. 8/19/19

5.1 Scholarship of teaching and learning (SOTL)

Having a day and a half remaining in the boot camp, I researched and wrote a 2,000-word research proposal for the Humber College Teaching Innovation Fund. The research proposal title is, Breadth v Depth, which is the more meaningful learning experience? I will link this research to my DBA studies. 5/1/17

5.2 Theology and the DBA

I'm thinking of entering the Master of Theology program at University of Saint Michael's College, Sheptytsky Institute. I must discern how it would complement the DBA studies. 5/8/17

The first component can be described as dying and going to heaven. It is the best reading I have encountered. 6/26/17

The anxiety I feel about life is overwhelming. I'm in a state like Elijah in I Kings: Lord, take my life for I am ready to go. I feel exhausted by life. Other times I feel like Psalm 42, as a deer longs for flowing streams, so my soul longs for you. Oh, so painful.

Met with Pascal Bastien and Taras Pidzamecky on March 3 for breakfast at Bread and Roses Bakery Café. Pascal informed us of the eventual shift of the containment strategy for coronavirus to the management strategy. 3/30/20

On March 6 to 8 I attended the Fr Ron Rolheiser retreat at the Queen of Apostles retreat centre. Filled with the Holy Spirit it was an exploration of the third phase of life, giving your death away. 3/30/20

Through the winter term I volunteered one afternoon per month mentoring at CfE. March 13 was the final day of delivering in-class teaching at Humber. The week of March 16 was set aside for faculty to move all delivery to online using Bb and especially, Collaborate Ultra. Starting March 23, the final classes, assignments, and exams were delivered online. Starting March 15, I began to spend Sunday to Thursday at the cottage, driving home Thursday evening, serving at StD on Sunday, and then returning to the cottage Sunday afternoon. On the weekend I would do the laundry, ironing, vacuum the house and pay the bills. 3/30/20

5.3 Tables

It was recommended quite early in the development of my research topic that I categorize the literature review by use of tables. Well, I wasn't ready for it. Mostly, I felt that if I created a table, it would be sorrowfully incomplete. This week, I saw good examples of tables created by my cohort. I could see how the tables were assembled, and how they were useful. After my presentation to the panel, Susan Whelan recommended the use of a table to categorize the dominant theories in my research topic. She was right. I am now ready to create tables. 3/20/17

6.0 Conclusion

At the core of the reflection log is learning as development. Learning occurs through families, through the moral teaching in the community, through the commercial corporation, and through educational institutions. This reflection log demonstrates that the DBA journey goes well beyond an instrumental form of business practice and the educational form of theory. The DBA journey participates in the transcendentals of life: beauty, goodness, and truth. The development of this author's learning is summarized in the current practices, the experience of new learning, and imagining the new practice.