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Engaging Stakeholders towards Opportunity Creation through Effectuation

Jonathan Van Mumford

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ABSTRACT

This study builds upon the theory of entrepreneurial effectuation; a theory that explains how new firms come to be through the means oriented, iterative, and experimental actions of entrepreneurs and their engagement with diverse stakeholders. Despite this theory being strongly stakeholder dependent in nature, I argue that the role stakeholders play in opportunity creation processes through effectuation remains underdeveloped and ill-defined. In an effort to address this issue, I ask the question: *How are stakeholder commitments engaged towards the process of opportunity creation through effectuation?*

In order to answer this research question, I take a position within the pragmatist tradition which emphasises the human propensity towards habit and creativity in action. I employ a collection of methodological tools including a systematic literature review and a qualitative meta-analysis of the extant effectuation literature to reframe effectuation theory to a perspective with the stakeholder, rather than entrepreneur, at its focus. From my analysis I then produce a typology that describes a set of four ideal types of rationale that stakeholder may utilise in their decisions to make commitments of time and resources towards the effectual development of opportunities. Using these ideal types as inputs, I reconceptualise the model of the way in which the process of effectual opportunity or market creation unfolds. Finally, I summarise the theoretical ideas generated through my research as a number of propositional statements that can be used to guide future empirical enquiry.

My research suggests that stakeholders may differ in rationale along dimensions of instrumental versus subjective rationality, and in their emphasis on teleological versus non-teleological or autotelic rationality. These differences in rationale for making commitments will subsequently influence their post-commitment behaviour, and their interactions with other stakeholders engaged in the focal effectual process. Stakeholders may be driven primarily by the theoretically established causal or effectual logics, but may also be guided by more subjectively rational logics of faith and self-belief. These logics will inevitably influence the way in which opportunity creation processes, and the creation of new markets and firms, unfold.

Key words: Opportunity creation; Effectuation; Stakeholders; Rationality; Effectual process

TIIVISTELMÄ

Tämä tutkimus rakentuu effektuaalisen yrittäjyyden teorialle, joka selittää miten uudet yritykset syntyvät yrittäjien keinolähtöisestä, iteratiivisesta ja kokeellisesta toiminnasta sekä yhteistyöstä erilaisten sidosryhmien kanssa. Vaikka teoria on vahvasti riippuvainen sidosryhmistä, väitän että sidosryhmien rooli mahdollisuuksien effektuaalisissa luomisprosesseissa on yhä kehittymätön ja huonosti määritelty. Käsitelläkseni tätä haastetta, kysyn: miten sidosryhmien sitoutuminen effektuaaliseen mahdollisuudenluontiprosessiin tapahtuu?

Vastatakseni tähän tutkimuskysymykseen asettaudun osaksi pragmatistista traditiota, joka korostaa ihmisen taipumusta tapoihin ja toiminnan luovuuteen. Käytän valittuja metodologisia työkaluja, mukaan lukien systemaattista kirjallisuusanalyysiä ja laadullista meta-analyysiä effektuaatiokirjallisuudesta, uudelleenasemoidakseni sidosryhmien näkökulman, ei niinkään yrittäjää, effektuaatioteorian keskiöön. Analyysiini perustuen tuotan typologian, joka kuvailee neljä ideaalityyppistä ajatusmallia, joita sidosryhmien edustajat voivat käyttää päättäessään sitoa aikaa ja resursseja mahdollisuuksien effektuaaliseen kehittämiseen. Käyttämällä näitä ajatusmallien ideaalityyppejä, käsitteellistän uudelleen effektuaalisen mahdollisuuden tai markkinan luomisen prosessimallin. Lopuksi kokoan tutkimukseni synnyttämät teoreettiset ideat ehdotuksellisiksi väittämiksi, jotka voivat opastaa tulevaa empiiristä tutkimusta.

Tutkimukseni esittää, että sidosryhmien ajatusmallit voivat erota toisistaan ulottuvuudessa, jonka ääripäissä ovat instrumentaalinen ja subjektiivinen rationaalisuus, sekä painottamalla joko teleologista tai ei-teleologista, autoteelista rationaalisuutta. Nämä sitoutumista ohjaavien ajatusmallien erot vaikuttavat edelleen sitoutumisen jälkeiseen käytökseen, sekä vuorovaikutukseen samaan effektuaatioprosessiin sitoutuneiden välillä. Sitoutumista voi ajaa ensisijaisesti teoreettisesti perusteltu kausaalinen tai effektuaalinen logiikka, mutta sitä voivat ohjata myös subjektiivisemmat logiikan muodot, usko ja luottamus itseen. Nämä logiikat väistämättä vaikuttavat siihen, miten mahdollisuuksien luomisprosessit sekä uusien markkinoiden ja firmojen synty kehkeytyvät.

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TABLE OF CONTENTS

List of figures

List of tables

1 INTRODUCTION

What, if anything, separates human beings from other members of the animal kingdom? Theologians since time immemorial would assert that it is some form of divinity bestowed upon us by a higher power. However, the knowledge we have accumulated since Charles Darwin first published ‘On the Origin of Species’ suggests that we are no more that another branch of evolution extending back to a single common ancestor. It is therefore a fact that even mosquitos are our cousins and, at some distant point in the past, the nth-times-great-grandparents of a sardine or a blue whale got together over a coffee and started a chain of procreation that eventually resulted in you, me, and the neighbour’s cat. We then might ask ourselves, as Hamlet did: “What is a man, if his chief good and market of his time be but to sleep and feed? a beast, no more”. Of course, human beings as a whole do a lot more than merely eat and sleep, so what, then, is it in our actions that provides our distinctiveness as a species?

One might argue that human distinctiveness as a species comes from our use of tools, or speech, or clothing, but these, too, have been observed in the behaviours of other non-human animals. Despite this, no other animal on earth, alive or extinct, displays the sheer diversity of activity that we do. We build huge elaborate structures and machines, we organise ourselves into complex social hierarchies and distributions of skills and labour, and we produce detailed theories and philosophies to describe nature and society. It is this, our ability to take something that someone else (or something else) has created and modify it, build upon it, connect it with the creations of others – to create something new that is greater than the sum of its parts – which makes us distinct. In other words, it is our ability to innovate.

Innovation is a perennial topic of organisational science and international business and within this field innovation is principally understood to be carried out through entrepreneurship. Entrepreneurship is seldom, if ever, a single person enterprise, yet the vast bulk of entrepreneurship research, following in the footsteps of eminent scholars such Schumpeter, invariably fixates upon a single, seemingly mystical individual known as *the entrepreneur*. Little attention is given to the diverse yet faceless swathes of enablers and collaborators that bear the entrepreneur along upon their shoulders towards success, or failure. It is therefore my intention with the following study to contribute a small part to our understanding of how these actors, the committed stakeholders to entrepreneurship, play a role in the "gale of creative destruction" (Schumpeter, 1942, p. 84)

1.1 Entrepreneurship and Opportunity

Entrepreneurship as a field of research has, since Schumpeter's (1934) early extolling of the virtues of the entrepreneur up until near the end of the 20th century, been dominated by a fixation on the entrepreneur as a unique species of beast who is qualitatively different from the common man. This led to numerous studies aimed at classifying the entrepreneur; attempting to profile the personality characteristics that separate entrepreneurs from the rest of society (e.g. Begley & Boyd, 1987; Brockhaus & Horwitz, 1986; Chen, Greene, & Crick, 1998). This 'trait approach' to entrepreneurship ultimately proved to be unsatisfactory, and gradually began to lose favour after Gartner (1988) declared that '*"Who Is an Entrepreneur?" Is the Wrong Question*'. Gartner called for a behavioural perspective of entrepreneurship, i.e. one that focusses not on who an entrepreneur is, but what an entrepreneur does. Shane and Venkataraman went further, critiquing research that defines the field "*solely* in terms of who the entrepreneur is and what he or she does" (Shane & Venkataraman, 2000, p. 218), claiming instead that:

> In contrast to previous research, we define the field of entrepreneurship as the scholarly examination of how, by whom, and with what effects opportunities to create future goods and services are discovered, evaluated, and exploited [...] Consequently, the field involves the study of sources of opportunities; the processes of discovery, evaluation, and exploitation of opportunities; and the set of individuals who discover, evaluate, and exploit them. (Shane & Venkataraman, 2000, p. 218)

And thus was cemented the opportunity perspective of entrepreneurship that persists to this day (c.f. Foss & Klein, 2017).

Out of this opportunities perspective, several different views have emerged, including the dominant and competing views of opportunity discovery versus opportunity creation (Alvarez & Barney, 2007). Discovery views, following in the footsteps of Israel Kirzner (1973, 1979, 1997), include opportunity identification (Ardichvili, Cardozo, & Ray, 2003), and opportunity recognition (Baron, 2006; Baron & Ensley, 2006), while opportunity creation views, suggested to be the intellectual legacy of Schumpeter (1934), include bricolage (Baker & Nelson, 2005; Stinchfield, Nelson, & Wood, 2013), and effectuation (Sarasvathy, 2001). While all of these views have shifted focus away from the entrepreneur as an individual, and on to the multidimensional concept of opportunity made up of cognitive, affectual, environmental, social, and processual elements, they generally, still, rely on a single person perspective. As such, and for the sake of theoretical parsimony, these theories invariably assume a single type (or theoretical conception) of 'opportunity' is at play. If, however, we choose to view entrepreneurial processes from the perspectives of a diversity of stakeholders, it opens the possibility of more than one conception of 'opportunity' to be relevant in a single instance of entrepreneurship. That is to say, in a scenario where an entrepreneur embarks on a process which eventually leads to the creation of a new product or service serving an entirely new market, while the action being taken on the part of the entrepreneur may be rightfully described by a model of opportunity creation, given the involvement of other actors in the process, other models of opportunity may describe their actions differently and more accurately, although the end result is the same for all parties.

1.1.1 Entrepreneurial action in opportunity discovery and creation contexts

Alvarez and Barney (2007, p. 17) suggest that "the assumptions underlying discovery and creation theory are both internally consistent, though largely contradictory". Because any empirically observed case of opportunity formation can potentially be interpreted *ex ante* from either of the two perspectives, they argue that the assumptions of each view only have empirical implications if they are linked to specific entrepreneurial actions. Whether their actions are consistent with opportunity creation or opportunity discovery will depend on how the entrepreneur perceives the context in which he or she is operating and, if his or her hypothesis about the environment is incorrect, the wrong action will be chosen (they will apply the wrong theory), and these actions will therefore prove to be ineffective. Alvarez and Barney summarise seven such entrepreneurial actions, which are generally held to be important, in the two different contexts of creation and discovery - Table 1, below.

Table 1 Effective entrepreneurial actions in discovery and creation contexts (Alvarez & Barney, 2007, p. 17)

	Discovery Context	Creation Context
Leadership	Based on expertise and (perhaps) experience	Based on charisma
Decision Making	Risk-based data collection tools; Risk-based decision making tools; Importance of opportunity costs	Iterative, inductive, incremental decision making; Use of biases and heuristics; importance of affordable loss
Human Resource Practices	Recruitment: Specific human capital recruited broadly	Recruitment: General and flexible human capital recruited from preexisting social networks
Strategy	Relatively complete and unchanging	Emergent and changing
Finance	External capital sources: Banks and venture capital firms	'Bootstrapping' and 'friends, families, and fools'
Marketing	Changes in marketing mix may be how new opportunities manifest themselves	Marketing mix may fundamentally change as a result of new opportunities that emerge
Sustaining Competitive Advantages	Speed, secrecy, and erecting barriers to entry may sustain advantages	Tacit learning in path dependent process may sustain advantages

The fundamental difference between the two views, which make these very different approaches to action sensible to the individual who is doing the perceiving of the context, relates to how they perceive the existence of the opportunity. The 'discoverer' hypothesises that the environment presents an objectively and independently existing opportunity which can conceivably be exploited under certain conditions of risk (if the discoverer does not exploit the opportunity, eventually someone else will). The 'creator' does not hypothesise that the opportunity has an independent existence, but it is merely an artefact that only comes into being as a direct result of the creator's interventions in the environment under conditions of uncertainty (Alvarez & Barney, 2007; Sarasvathy, Dew, Velamuri, & Venkataraman, 2010)

The discovery view characterises an opportunity as an objective *fact*; that it is something that exists independently of the perceiver. In the traditional, Kirznerian sense (Kirzner, 1973, 1979, 1997), opportunity discovery is simply a matter of identifying new resource combinations that can be matched to more effectively serve existing market needs. Ardichvili et al.'s theory of opportunity identification and development, on the other hand, incorporates an element of creation into the process which "involves redirecting or recombining resources in order to create and deliver value superior to that currently available" (Ardichvili et al., 2003, p. 111). An entrepreneur who sees the context as one of opportunity discovery relies on prior knowledge (Shane, 2000), and pattern recognition ability developed through experience (Baron & Ensley, 2006) to be alert to possible opportunities 'out there' in the environment. Essentially, an individual with the particular personality characteristics that make them 'entrepreneurially alert' processes informational cues from various sources, such as their various forms of prior knowledge (Shane, 2000) and their social or professional networks (Ardichvili et al., 2003; Arenius & Clercq, 2005; Ozgen & Baron, 2007), to identify the existence of a potential unexploited market.

Once an opportunity is recognised as such, the entrepreneur devises a strategy or plan by which to develop and exploit it. This strategy is relatively complete *ex ante¸* a linear plan to get from point A to point B. A simple example might be of an individual who (from various cues in the environment) perceives that there is an unexploited or underexploited market explicitly for portable outdoor saunas. He or she will devise a detailed strategy for how to assemble or recombine the resources necessary to bring portable outdoor saunas to the market in the most efficient and effective way possible with the least amount of risk relative to the greatest amount of anticipated return.

So, what do theories of opportunity discovery tell us about those, other than the entrepreneur, who are directly involved in the process? In this perspective, other stakeholders or human resources are treated just the same as non-human resources. Individuals possessing the specific skills required by the entrepreneur as means to contribute to the achievement of predetermined ends are passively selected (Alvarez & Barney, 2007). Financial resources are secured from external parties, such as banks and venture capitalist firms, through transactions backed by contract. Collaborators and partnerships are selected based upon how well they fit into the entrepreneur's grand strategy. In other words, the role of others in opportunity creation contexts is generally transactional. For the most part, other individuals within the entrepreneur's networks merely serve to provide the entrepreneur with streams of information, or act as a sounding board by which the entrepreneur evaluates resources and opportunities (De Koning & Muzyka, 1999). Ultimately, it is the entrepreneur who decides what the opportunity is, and how it should be realised. Therefore, perhaps the opportunity creation view might offer a more fruitful avenue for which to begin theorising about the involvement of others in innovation processes.

The creation view characterises an opportunity as an artefact that does not have an independent existence from the actions of the one who creates it. Entrepreneurial opportunities, in the case of effectuation, and resource environments from which opportunities emerge, in the case of bricolage, are considered to be *socially constructed* (Fisher, 2012). The ultimate outcome or form of the opportunity is not predictable *ex ante* and it involves an iterative and changing strategy that transforms an extant environment or reality from one state to another. Actors other than the entrepreneur also play a more active role in opportunity creation processes than discovery process, particularly when it comes to goal setting and the determination of entrepreneurial actions. As I noted above, the two main entrepreneurial opportunity creation theories currently in vogue are entrepreneurial bricolage (Baker & Nelson, 2005) and effectuation (Sarasvathy, 2001). While I am mostly interested in effectuation, for reasons I will examine presently, I will now provide a brief summary of bricolage. I provide a more detailed summary of effectuation in the following section, and effectuation theory as a whole is elaborated in detail throughout this study.

Bricolage begins with an entrepreneur acting in a 'penurious environment': "An environment is penurious from a firm's perspective if it presents new challenges, whether opportunities or problems, without providing new resources" (Baker & Nelson, 2005, p. 353). Faced with such an environment, an entrepreneur has three options: avoid new challenges, seek new resources, or engage in *bricolage*, i.e. "making do by applying combinations of resources at hand to new problems and opportunities" (Baker & Nelson, 2005, p. 353). This can be done in a number of environmental domains open to the entrepreneur, including: physical, labour, or skill inputs; customers/markets; or institutional and regulatory environments. In each case, the entrepreneur, constrained by the penurious environment, will find novel ways to leverage one or more of the aforementioned environmental domains in ways that might otherwise have been ignored. This can be done, for example, by imbuing existing physical inputs at hand with 'new use value', involving customers, suppliers, and other individuals within the entrepreneurs social circle in projects, or by providing products or services to customers who may otherwise be ignored (due to low value). The entrepreneur tests out these different combinations through direct enactment, and by efficiently routinizing new valuable actions, their firms are able to grow.

Although there are a number of similarities between bricolage and effectuation – such as their focus on means, iterative experimental actions, contexts of resource scarcity – there a number of reasons why I believe that effectuation theory is a better place to start an investigation of the role of other stakeholders in innovative opportunity creation processes. Firstly, bricolage is primarily concerned with the survival and growth of established firms, while effectuation is more concerned with the pre-firm and new venture creation. Secondly, bricolage's assumption of a penurious environment is sustained, and the theory's explanatory power is therefore limited in to a certain subset of venture types – those within penurious environments (Fisher, 2012). Effectuation has much broader boundary conditions, and is relevant for any form of entrepreneurial action under uncertainty. Finally, while leveraging interactions with other actors is one potential solution for a bricoleur, for the effectuator, it is the *only* solution. It is, therefore, the emergent theory of effectuation, with its emphasis on an expanding network of stakeholder commitments providing the necessary additional means and goals to the process of new market creation, which provides the best starting point from which to develop theory with a multi-person or intersubjective perspective of opportunity. It is at this point that I should explain what 'effectuation theory' entails.

1.1.2 Effectuation theory

Effectuation is a relatively new theory of entrepreneurial action. Introduced by Saras Sarasvathy in 'Causation and Effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency' (Sarasvathy, 2001), it differs from earlier entrepreneurship theory principally due to its emphasis on non-teleological action. In short, effectuation deemphasised the importance of teleological strategies involving planning, and search and selection. Instead, the general argument made by Sarasvathy was that entrepreneurs are often faced with a problem space where teleological action is simply not possible. They are constrained by a lack of resources and face a preponderance of uncertainties that prevent any attempts at careful planning. Instead, she argued, entrepreneurs (particularly those who have, through experience, developed entrepreneurial expertise) will act iteratively, creatively, and experimentally. She refined a set of logics that are associated with such action, which are: a focus on what can be done with means in hand rather than clear end goals; taking creative or experimental actions towards a number of different possibilities, but with a focus on ensuring that the downside potential of failure is ultimately affordable rather than focussing on the upside potential of anticipated returns; seeing unexpected contingencies as something that can be used for one’s own advantage rather than being something that should be avoided; focusing on what can be controlled about the environment rather than what can be predicted about it, and, finally; accumulating resources and goals through partnerships with other actors, including potential customers, suppliers, or even competitors, rather than relying on competitive analysis.

Sarasvathy contrasts effectuation with ‘causation’ which she uses to describe the teleological models of entrepreneurial action which rely heavily on the utilisation of pre-existing knowledge, careful planning, and competitive analysis to achieve goals which are clearly formulated *ex ante* – models that Sarasvathy, Dew, Velamuri, and Venkataraman (2010) argue are better suited to the discovery views of opportunity. I will describe effectuation, and its contrasts with causation, in much greater detail in Chapter 3. For now, I will simply describe a common metaphorical example used by Sarasvathy et al. to explain the difference between causation and effectuation. The metaphor is of a person, or chef, cooking dinner.

An individual using causal reasoning will decide that they want to cook something specific for dinner, such as duck *a l'orange*, for example. This person may look up a recipe for duck *a l'orange* online, check to see if he or she has the ingredients necessary in the pantry and refrigerator, go to the market to buy any missing ingredients, and then follow the recipe step by step until the dinner is completed as planned. A person using effectual reasoning, on the other hand, will start off by opening the pantry and the refrigerator, and looking around the kitchen, to see what ingredients and utensils he or she has access to. He or she then imagines what possible meals can be created from these means at hand. While the causal actor begins with a clear goal (cook duck *a l'orange*) the effectual actor only begins with a vague aspiration (cook something for dinner) and a number of means with which to imagine different possibilities.

What this simple metaphor is missing, however, are the two key elements which are the implicit antecedents of effectuation; the reasons why effectuation is often necessary to begin with – resource scarcity and uncertainty. If we factor these elements into the metaphor, it becomes a bit more complicated. In such a case, we must imagine that the aspiring cook has the task of creating dinner for number of guests, who are known to be picky eaters but whose tastes are unknown. Also, when the cook surveys the kitchen, he or she finds nothing but a box of salt, one pot, and a spatula. He or she could go to the market, but pay day is not until next week. This means that the cook must enlist the help of others, to contribute ingredients and utensils, and ideas about what to cook. Who are these others? The guests? Housemates? Someone else? Why would they contribute ingredients, such as a cup of flour or a leg of lamb, and what would they expect in return? The extant effectuation theory suggests that these other stakeholders will share the same effectual reasoning as the cook. They will each contribute some ingredients towards the dinner in return for a plate at the table and some say over what will be served. Does the cook, however, have to rely on the hope that the people who have ingredients to contribute share his or her reasoning, that they even know how to cook themselves, or that they are willing to contribute to a dinner which they may ultimately find unpalatable? These are the metaphorical questions that I hope to answer with this study. The actual research questions I will arrive at shortly, but first I will discuss the purpose of this study.

1.2 Theoretical Gap and Research Questions

There is a clear gap in opportunity creation literature with regard to how the interactions that occur between entrepreneurs and stakeholders facilitate the process of opportunity creation. Some scholars (e.g. Sarasvathy & Venkataraman, 2011; Venkataraman, Sarasvathy, Dew, & Forster, 2012) acknowledge the current lack of research with the intersubjective as a key unit of analysis of entrepreneur-stakeholder relationships and negotiations involved in entrepreneurial opportunity creation, and have called for research in this area. I will discuss the origins of this pragmatist theory of intersubjectivity in the philosophical background to this study in the following chapter, however, Venkataraman et al. (2012, p. 25) provide a succinct summary of the meaning of the term ‘intersubjective’ based upon Donald Davidsons (2001) thesis of knowledge as an “irreducible tripod consisting of the objective, subjective, and intersubjective”:

> Note that in this thesis the vast and disembodied “social” is replaced with the more local and bounded concept of “intersubjective.” This serves to refocus social constructionist perspectives in a novel way while at the same time offering a more nuanced and scientifically coherent notion of constructivism. Davidson is concerned not with the myth of the objective but with the more intriguing idea that the mind (or the subjective) itself is constructed out of lived experiences—hence, it is the notion of subjective that is largely a myth. Furthermore, these lived experiences include actual interactions with physical reality as well as with other people. It follows, then, that intersubjective does not equal interpersonal. When we use the term interpersonal, we assume two or more people with independent “subjective” viewpoints who exchange and come together through interpersonal interaction. Davidson’s notion of intersubjective refers to the fact that our subjective viewpoint already assumes vast areas of coherence with others because we share in and experience the same objective reality. Hence, intersubjective refers to the ex ante taken-for-granted shared core between the persons interacting, not to

their ex ante differences overcome through negotiation. (Venkataraman et al., 2012, p. 25)

They go on to declare that (most) opportunities are artefacts that are formed through actions and interactions among stakeholders who take materials and concepts *found* in their environments, and use them to create or *transform* new realities. Opportunities therefore have elements of both discovery and creation. While effectuation theory, in its current state, has initiated the dialogue on how the interactions between stakeholders and entrepreneurs transform environments and create opportunities, there is much theoretical work yet to be done. It is this gap that I am seeking to address in this study and, as such, intersubjectivity is a key component of my analysis.

Alvesson and Sandberg argue that mere 'gap spotting' is not sufficient to generate interesting and influential research as it does not "deliberately try to identify and challenge the assumptions underlying existing literature in the process of constructing research questions" (Alvesson & Sandberg, 2011, p. 252). They instead argue for *problematization* as a methodology for generating research questions that are more likely to lead to influential theories, through identifying and challenging the assumptions that underlie the existing literature. Problematization involves identifying a domain of literature, identifying and articulating the assumptions underlie this domain, evaluating them, and developing and evaluating an alternative assumption ground (Alvesson & Sandberg, 2011, p. 256). As I have already identified the domain of literature I am investigating above, I will now address the assumptions of this domain and propose some alternative assumptions to arrive at my overarching research question.

One important assumption that underlies the body of conceptual literature that surrounds effectuation as opportunity creation relates to the conceptual divide between the two perspectives of opportunity described above, i.e. creation versus discovery or causation versus effectuation. Most of the conceptual literature treats these concepts as clearly separated and incompatible. Opportunity creation and opportunity discovery are treated as completely different scenarios with different sets of considerations and rationales from which to approach them. However, Sarasvathy (2001) herself explains that the divide between these two concepts is merely for conceptual clarity, and that they are both important forms of reasoning that would likely be empirically observable to be running concurrently. Empirical research on effectuation, indeed, often does show a mixing of the logics in practice (see, for example, Berends, Jelinek, Reymen, & Stultiëns, 2014; Dutta, Gwebu, & Wang, 2015; Nummela, Saarenketo, Jokela, & Loane, 2014; Reymen et al., 2015). Despite this, there is no concrete theoretical development, to my knowledge, that explains how this might unfold conceptually. By investigating the ways in which different stakeholders – who hold different logics or rationales from one another – interact with one another in opportunity creation processes, I believe this may shed some light on the potential combining of causal and effectual reasoning.

A second, and more concrete, assumption from effectuation theory which I address in this study is the idea that stakeholders 'self-select' into effectuation processes (Sarasvathy & Dew, 2005b). The idea here that is often put forth by Sarasvathy et al. is that we do not need to enquire about the potentially unlimited number of reasons why stakeholders decide to make (or not make) commitments towards effectual processes of new market creation, because *all* that is important is that they did so. Related to this is the assumption that those who do make commitments to the effectual processes utilise the same effectual reasoning as the entrepreneur, an assertion that has generated some debate (c.f. Karri & Goel, 2008). In this study I directly challenge this assumption by examining scenarios in which stakeholders may make their commitments based on rationales that are not the same as effectuation. This moves effectuation theory away from the more deterministic view that 'those who are willing to commit will commit', to offer some propositions as to how an effectual entrepreneur can take fate into his or her own hands, and incorporate decision-making regarding different types of stakeholders into his or her strategic toolkit.

1.2.1 Research questions

Given the above discussion, the overarching research question I composed to guide my research is as follows:

RQ 1: How are stakeholder commitments engaged towards the process of opportunity creation through effectuation?

I use the word 'engaged' here, rather than 'used' or 'employed' to emphasise the assumption that the stakeholders are not merely passive inputs into the opportunity creation process (as per the discovery view) but are actively involved in the way in which it unfolds. While my use of the word 'engaged' may seem to make my use of 'commitments' seem redundant (i.e. I could just ask how stakeholders are engaged toward the process of opportunity creation through effectuation), I have specifically included commitments into the question as they are, in fact, the primary focus of my study. The reasons for this focus on commitments, as I will explain in more depth in Chapter 3 (specifically section 3.5.1), is that this study is primarily concerned with those stakeholders who are bound more closely to the process than through mere arms-length transactions. My focus is on stakeholders who actively share in the risks and rewards of creating a new opportunity, or new market, with the entrepreneur; for example, through shared equity relationships. Also, while the assumption is that a particular entrepreneur is the one who initiates an opportunity creation process, this question does not assume that the process will be entirely controlled or controllable by the entrepreneur, nor does it assume that all commitments are necessarily made between the entrepreneur and another party. By excluding the entrepreneur from this main research question, I refocus attention away from the usual emphasis on the entrepreneur's reasoning and action, onto those of the stakeholders. Finally, I make explicit in the question that my focus is on processes of opportunity creation *through effectuation*. This sets some certain boundary conditions around my study, where I am examining the environmental (or otherwise) context in which effectuation is said to be most applicable. I.e. contexts characterised by uncertainty and ambiguity in which it is impossible *ex ante* to predict what the likely outcome will be (see Chapter 3).

As this is quite a complex question, I believe it is best answered by further breaking it down into three separate sub-questions. They are as follows:

SQ1: Why would stakeholders make commitments to effectual processes?

SQ2: How are commitments secured by an effectual entrepreneur?

SQ3: How do different stakeholder commitments impact the way in which the opportunity creation process unfolds?

The first sub-question is aimed at classifying stakeholders and their behaviour. It implicitly suggests some additional descriptive questions (sub-sub-questions) such as 'who are potential stakeholders?' 'What do potential stakeholders think?' 'In what way would potential stakeholders act?' This sub-question forms the main basis for my analysis in Chapter 4 in which I develop a typology of potential stakeholder commitments (see subchapters 1.4 and 2.3, below). The second sub-question then brings the focus back onto the entrepreneur (or other key decision maker already embedded in the effectual process) to identify how, given the categorisation developed by answering *SQ1*, they might be able to proactively secure the different types of commitments described. This question challenges the assumption within extant effectuation theory that stakeholders simply self-select into the process. While it may be so that self-selection is ultimately the mechanism by which commitments are formed, I attempt to analyse what actions might be taken by the entrepreneur (or other decision maker) that will make commitment more likely. The answer to *SQ2* I tackle mainly in subchapter 5.3. The final sub-question, *SQ3*, is designed to generate theoretical propositions about the process implications of the commitments described by answering *SQ1*. In my attempt to answer this question, I seek to analyse how different types of commitment being secured may alter the path of the process of opportunity creation, and how it may also affect subsequent interactions with other potential stakeholders. This final piece of the theoretical puzzle I mainly address in subchapters 5.1, 5.2, and 5.4 .

In sum, the purpose of this study is to develop theory that explains how stakeholder commitments contribute to the unfolding of opportunity creation processes. To do this, the study is divided up into three interlinked parts. The first part aims to define and describe a categorisation that encompasses all potential stakeholder commitment types; the second part aims to analyse how entrepreneurs or other actors already engaged in opportunity creation processes might be able to proactively secure commitments of different types; and the third part aims to fit this accumulation of stakeholder commitments into a predictive model of how opportunity creation processes might unfold. Now I would like to briefly explain *why* I believe this should be done.

1.3 Value of the Study

I envision this study to be of value to theory, both for the ongoing development of effectuation theory specifically, as well as for entrepreneurship theory more generally. I can also imagine a number of possibilities for this study to act as a potential launch pad for new enquiry within international entrepreneurship as well. However, I am in agreement with scholars such as Corley & Gioia (2011) who argue that, in organisational and management science, scientific utility is too often emphasised over practical utility in theory building. For this reason, my aim is for this study to have a greater scope, and provide real value in practice and not just theory. In this subchapter, I will now briefly describe the three areas of contribution I would like to make.

1.3.1 Intended contribution to theory

Effectuation is not a mature theory. According to Edmondson and McManus:

> *Mature* theory presents well-developed constructs and models that have been studied over time with increasing precision by a variety of scholars, resulting in a body of work consisting of points of broad agreement that represent cumulative knowledge gained. *Nascent* theory, in contrast, proposes tentative answers to novel questions of how and why, often merely suggesting new connections among phenomena. *Intermediate* theory, positioned between mature and nascent, presents provisional explanations of phenomena, often introducing a new construct and proposing relationships between it and established constructs. (Edmondson & McManus, 2007, p. 1158)

Perry, Chandler, and Markova (2012) reviewed the extant effectuation literature and found that it had only just begun to make the ascent from nascence towards becoming an intermediate theory. More recent evaluations (e.g. Arend, Sarooghi, & Burkemper, 2015) have shown that effectuation has still not reached a level consisting of ‘increasing precision’ or ‘broad agreement’ among a variety of scholars. Therefore, effectuation remains ripe for theoretical development.

Perry et al. (2012) suggest that the trajectory of effectuation research should be towards developing it into an intermediate theory by asking less open conceptual questions, and increasingly explore the relationships of causation and effectuation with other established constructs. They are suggest that: “In addition to the relationships that have been proposed between effectuation and trust and effectuation and expertise, researchers should consider whether effectuation is conceptually related to other theories” (Perry et al., 2012, p. 848). Contributing to this area, in my development of a classification of stakeholder types, in Chapter 4, I draw on a number of constructs and concepts from other established theories such as different views of uncertainty (e.g. McMullen & Shepherd, 2006; Milliken, 1987), of rationality (e.g. Weber, 1978), different forms of motivation (e.g. Amabile, 1993, 1997; Ryan & Deci, 2000a), and non-rational forms of decision making (e.g. Baron, 2008; Griffin & Varey, 1996). See section 2.3.1 for a discussion on the way in which I use typology towards this end.

In a number of recent dialogues in the *Academy of Management Review*, several scholars have made a number of other suggestions on how effectuation theory should continue to be developed. Reuber, Fischer, and Coviello (2016) suggest bringing effectuation back to its roots in pragmatism, with an emphasis on examining the role of ‘habit’ in the theory, where it has been neglected in favour of effectuations focus on ‘creativity’. This study is heavily influenced by the principles of pragmatism (see subchapter 2.1 for this discussion). Furthermore, I examine habit in relation to stakeholder decision making, i.e. the routine behaviours of actors developed over time and through experience, and contextualised within social situations (see subchapters 5.1 and 5.2).

Gupta, Chiles, and McMullen (2016), on the other hand, call for a greater emphasis on process theory and research to be made in the investigation of effectuation. They argue that a process-theoretic approach to effectuation has been inhibited by an underlying emphasis on an equilibrium perspective. Instead, they argue that “effectuation scholars may want to rethink their affiliation with equilibrium, which relies on variance theory and methods, and embrace the many disequilibrating aspects of entrepreneurship, which are better suited to process theory and research” (2016, p. 542). As I have stated above, one of the main aims of this study is develop theoretical propositions about the process effects of stakeholder commitments. This forms an important part of Chapter 5, particularly subchapter 5.4. See also section 2.3.2 and 2.3.3 for the methodological considerations of this aim. I do not treat effectuation as an equilibrium theory with stable system states, but rather as a dynamic process in constant disequilibrium with an ever changing problem space being faced by decision makers within it.

Finally, the core effectuation scholars themselves, Read, Sarasvathy, Dew, and Wiltbank, make seven suggestions for the future research of effectuation. These are:

1. “Clarifying the concept of effectual control”;
2. “Specifying the unit of deliberate practice in developing entrepreneurial expertise”;
3. “Transitioning from effectual to causal approaches, and vice versa”;
4. “Understanding goal hierarchy and precommitment”;
5. “Endogenizing selection mechanisms”;
6. “Delineating means and resources”, and;
7. “Exploring equity and cocreation”. (Read, Sarasvathy, Dew, & Wiltbank, 2016, pp. 531–532).

Although this study touches on a number of these suggestions to a greater or lesser extent, (number three in particular forms an important part of the discussion in Chapter 5), the main intended contribution is in relation to suggestion number seven. On this point, Read et al., (2016, p. 532) note: “Although cocreative equity relationships may be important for the structure and performance of new ventures, they are currently a black box in entrepreneurship research”. The main, overarching goal of this study (as encapsulated in the primary research question) is to open up this black box and explore what could potentially be inside.

As I will discuss in the following chapter, this study is predominantly conceptual in nature. MacInnis (2011) advocates for the necessity of conceptual work and provides a typology of different types of conceptual contributions to guide research. In this typology, under the general conceptual goal of ‘envisioning’ are the specific conceptual goals of ‘identifying’ and ‘revising’, under ‘explicating’ are ‘delineating’ and ‘summarising’, under ‘relating’ are differentiating and integrating, and, finally, under ‘debating’ are ‘advocating’ and ‘refuting’. My goal with this study is not to enter into the theoretical debate concerning effectuation to either refute the theory or advocate for it (although I fall do into the latter category), and although I spend some time on explicating effectuation, with both a limited amount of delineating and summarisation (in Chapter 3), nor is it is towards these ends that I wish to make a contribution. The *primary* conceptual contribution to theory I intend to make with this study is towards envisioning (through revising effectuation to a new perspective – that of the stakeholder), and relating (though differentiation between stakeholders as different types of entities).

Given my conceptual goals as stated above, according to MacInnis (2011), my metaphorical role in this study as a researcher is both that of an artist who paints a revised perspective of a known phenomenon, and a naturalist who works to classify the newly identified entities within this newly created picture. It is my belief, however, that, in general, a researcher falls into the old cliché of a detective who is seeking to solve a mystery. My suspects in this case are the stakeholders to effectuation processes. Their ‘crime’, as it were, is the commitments they make. The old adage I have used in the title of my thesis suggests that to determine the guilt of a suspect, one must establish the suspect’s ‘means, motive, and opportunity’. Effectuation theory has well established how it is the stakeholders who possess the means in effectuation processes. It is now my task in this study to establish their motive, and how they perceive their opportunity.

1.3.2 Intended contribution to international entrepreneurship

Jones, Coviello, and Tang (2011) and Mainela, Puhakka, and Servais (2014) identify effectuation as a promising area of research for international entrepreneurship. Despite this, there are few current studies that specifically investigate effectuation within, or apply effectuation towards the context of international entrepreneurship. In fact, the systematic literature review I conducted for this study only turned up thirteen studies on effectuation in an international context in total, with six of these thirteen being published only in the last four years. Only one of these studies, Harms and Schiele (2012), was quantitative – a simple quantitative study examining the relationship between an entrepreneur’s international and entrepreneurial experience with their use of causal or effectual logic in entry mode decisions, which found that experienced entrepreneurs tended to use effectuation, and that those using causal logic tended to use export-type entry modes. The remaining studies are all qualitative case-based research (both single and multiple cases) that apply effectuation in the context of firm internationalisation, international new ventures (INVs), and ‘born global firms’. For example one of the earliest studies, Mainela and Puhakka (2009) examines the use of effectuation in a Polish INV in a turbulent market context and highlights the importance of relationship building with stakeholders in relation to a number of entrepreneurial behaviours; Nummela et al. (2014), a qualitative and longitudinal investigation of three case companies found that decision making in born global firms goes through alternating periods of causal and effectual logic; and Sarasvathy, and Forza, (2014), an empirical, qualitative investigation of five case companies found that entrepreneurs quickly transition to effectual logic from causal logic when internationalising due to a lack of knowledge and information. Effectual logic helps fill the lack of knowledge that prevents (preferred) causal planning. Entrepreneurs then simply act, and in doing so gather the new goals and means they need to operate internationally. The qualitative case-based research into effectuation in an international context all invariably observed the combining, alternation between, and simultaneous use of both effectual and causal logic by decision makers, depending a number of contextual factors (such as the role and type of stakeholders involved).

Although in the following chapters I am also guilty of not discuss international entrepreneurship in particular, I do believe that the findings and theoretical development of this study provide a potential contribution to furthering the investigation of effectuation in an international context. Jones et al., (2011) identify three main branches of international entrepreneurship: Type A are studies on entrepreneurial internationalisation; Type B are international comparisons of entrepreneurial behaviours by countries or cultures, and; Type C studies are comparisons of how entrepreneurial internationalisation differs across countries or cultures. By classifying different types of stakeholder commitments and their underlying logics and reasoning, I believe that this serves as a platform for novel Type B studies which investigate how these logics and reasoning may differ depending on country or culture. Furthermore, by investigating how different types of reasoning and logic affect the way in which entrepreneurial processes unfold, this could lead to Type A studies which investigate how geographical and psychic proximity may affect the commitment forming process. Finally, new Type C studies could investigate how the process modelled in this study may differ across countries and cultures. I discuss these prospects further, at the conclusion of this study in subchapter 6.1.

1.3.3 Intended contribution to practice

Corley and Gioia (2011) make the argument that research in organisation and management studies has been increasingly emphasising or displaying a bias towards scientific utility to the detriment of the generation of theory that has real practical utility, despite the fact that relevance to practice has long been suggested as being an important part of what constitutes theory and theoretical contribution. They state that: “Simply put, we believe that theoretical contributions in management and organization studies have not done an adequate job of anticipating the important conceptual, as well as practical, needs of society’s now most prominent members – business and social organizations” (Corley & Gioia, 2011, p. 20). To remedy this, they suggest that, in addition to scientific utility, theoretical contributions should emphasise practice – they should be problem driven and should have an explicit appreciation for applicability – and they should be ‘prescient’. By prescient they mean that theory should be directing attention towards future problem domains.

The aim of this study, as is befitting the principles of pragmatist philosophy in which it has been conducted (as I discuss in the following chapter), is to generate *useful* theory, for both science and practice. As discussed in subchapter 1.2, this study is, as Corley and Gioia recommend, problem driven. The problem being how to engage the vitally important stakeholder commitments towards opportunity creation processes. Applicability to practice is a theme throughout the study, and I intend that practitioners, should they read this work, will be able to use the analysis and findings herein useful for thinking about how they might be able to attract and secure stakeholder commitments, and what the likley outcomes of different types of commitment might be. I dedicate a large part of my concluding chapter to the discussion of the practical implications of this study for entreprneurs, managers, as well as policy makers (see subchapter 6.1). As for the matter of prescience, the phenomenon of opportunity creation through networks of entrepreneurs and their stakeholders is of great relevance in this regard. Today, innovation is speeding up; product life cycles are getting shorter, advances in technology are putting the capacity for innovation into the hands of more and more individuals, and uncertainties and upheavals within established industries are forcing firms to rethink their relationships with their stakeholders and the way they do business. In the future we are likely to see an increasing amount of innovation occurring across multiple national borders and between individuals and firms, rather than within single firms, as new phenomena such as crowd-sourcing become increasingly prevalent.

1.4 Structure of the Study

Before we dive headlong into the philosophical and methodological discussion of the following chapter, I would like to briefly outline the structure of the study as it is presented within these pages. By doing so, I will make the intended logical flow of my discussion clear and explicit. The structure of the study is illustrated in Figure 1, over the page.

Chapter one. In this chapter I have discussed the positioning of this study. I have established that the general subject of concern is multi-person explanations for innovation. Towards explaining this phenomenon, I have discussed how opportunity creation, specifically how it is theorised to occur in effectuation theory,

Chapter 1
Introduction

- Positioning
  - General subject of interest: Multi-person explanation of innovation
  - Specific domain of interest: Opportunity creation
  - Specific theory of interest: Effectuation
- Knowledge gap, problematisation & research questions

Chapter 2:
Methodology

- Philosophical background: Pragmatism
- Data and analysis
  - Systematic literature review
  - Qualitative meta-analysis
- Theory development
  - Typology
  - Process model
  - Propositions

Chapter 3

- Systematic literature review of all extant effectuation literature to identify and describe the relevant concepts and constructs for the study
- Additional refinement of the study's problematisation

Primary Research Question: How are stakeholder commitments engaged towards the process of opportunity creation through effectuation?

Chapter 4

- Reconceptualisation of the problem of 'commitment' to a stakeholder perspective
- Development of a typology of potential stakeholder commitments
- Development of propositions relating to the antecedents for each type of commitment

Research Sub-question 1: Why would stakeholders make commitments to effectual processes?

Chapter 5

- Explicating behavioural constructs relating to each stakeholder commitment type
- Developing propositions regarding how commitments may be secured

Research Sub-question 2: How are commitments secured by an effectual entrepreneur?

- Development of a process model for the accumulation of stakeholder commitments and opportunity creation
- Development of propositions regarding the effect on the process of different types of commitment

Research Sub-question 3: How do different stakeholder commitments impact the way in which the opportunity creation process unfolds?

Chapter 6
Conclusions - Practical Implications - Theoretical Implications

Figure 1 The structure of the study

provides the most appropriate basis for investigation. To guide this study I presented my primary research question and three sub-questions. Finally, I have discussed the potential value of this study for entrepreneurship theory, international entrepreneurship research, and for practice.

Chapter two. In this chapter I conduct an evaluation of the meta-theoretical assumptions of effectuation theory and outline some of the criticisms that have been weighed against it. I discuss the philosophical background to this research which, in following with the philosophical roots of effectuation, is based upon the pragmatist school of thought. I then describe my methods of data collection and analysis which include systematic literature review of all of the key works of extant effectuation theory, and a qualitative meta-analysis of these works. This chapter concludes with a detailed discussion of the theory building products of this study, including a typology of stakeholder commitments, a modelling of how stakeholder commitments affect the opportunity creation process, and two sets of formal theoretical propositions which summarise the key theoretical implications of both types of theorising.

Chapter three. This chapter presents the results of the systematic literature review of effectuation theory. I present a detailed breakdown of all the constituent concepts and constructs relating to the theory and describe how they relate to one another. I outline some of the debates and critiques that are present within the body of literature in relation to different aspects of effectuation. I then focus in on the role of stakeholder commitments in the effectuation process and discuss how this is a current area of weakness of the theory. Finally, I refine the problematisation I introduced in Chapter 1 that guides my analysis in the following two chapters.

Chapter four. In this chapter I take some time to reconceptualise, in detail, the problem of stakeholder commitments to the perspective of the stakeholders themselves. I identify a ‘commitment problem space’ that forms the context in which potential stakeholders will perceive and evaluate the potential commitment decision. From this, I develop a typology of four potential stakeholder commitment ideal types along two dimensions of teleological versus non-teleological action, and instrumental versus value rational action. This chapter aims to answer to answer the first of the research sub-questions.

Chapter five. Taking the ideal types developed in chapter five, in this chapter I further explicate them based upon the likely cognitive and behavioural constructs that will be attributed to each type. I then discuss how effectual entrepreneurs, or other actors within effectual networks, might be able to negotiate commitments of the aforementioned types. This is intended to answer the second research sub-question. I then develop a process model for the commitment forming process towards opportunity creation and discuss how the different types of commitment will affect the process (and subsequent commitments and commitment negotiations) in different ways. This is intended to answer the third and final research sub-question.

Chapter six. In this chapter I present a concluding discussion to summarise the theoretical development of the previous two chapters. I then conclude the study by discussing the theoretical implications and limitations of this study, and offer some suggestions for future research. Finally, I offer a number of practical implications of the study, for entrepreneurs, managers, and policy makers.

2 METHODOLOGY

The study I have conducted herein is heavily theory driven and mostly conceptual in nature. The rationale for this is twofold, based upon my personal belief that, firstly, the nature of my research purpose and questions precludes the utility of an empirical approach, and, secondly, the extant literature on effectuation provides sufficient and underutilised raw material for the explication and development of effectuation theory, particularly with regard to the role of stakeholders. My justification for these assertions shall become clear over the following paragraphs of this chapter.

The central research question of this study (How are stakeholder commitments engaged towards the process of opportunity creation through effectuation?) concerns entrepreneurial dynamics, the process by which entrepreneurship unfolds. It has been suggested that a traditional variance approach is limited in its suitability for research into the dynamic aspect of entrepreneurial processes:

> The variance approach works perfectly well for examining research questions about comparisons among entities or relationships among variables. However, in the study of change and development, its assumptions prove too restrictive. (Van de Ven & Engleman, 2004, p. 351)

Several entrepreneurship scholars have appealed for more suitable event driven or process approaches to be utilised instead (Aldrich, 2001; Davidsson & Wiklund, 2001; Low & MacMillan, 1988; Shane & Venkataraman, 2000). Such an approach generally involves the longitudinal study of events as they occur and the resultant outcomes of these events. However, longitudinal studies present a number of difficulties including, but not limited to, sheer labour intensity (Huber, 1990). While a longitudinal study can be conducted retrospectively, this results in the researcher being subjected to a great degree of recall bias on the part of the subjects being studied, particularly where the study of thought process in decision making is involved and where verbal reports cannot be concurrently compared with actual behaviour (Ericsson & Simon, 1980), or recalled details are not considered important by the respondent (Huber, 1985). Furthermore, as my research is concerned with the reasoning strategies and behaviour of stakeholders rather than of a single focal entrepreneur, to conduct a retrospective longitudinal study would require me to track down a number of various individuals who may have long since ceased being part of the central process under investigation.

A real time longitudinal study, on the other hand, should utilise data collected at multiple points over a period of many months, if not years, for meaningful insight to be gleaned (Van de Ven & Engleman, 2004). However, this kind of empirical investigation posed a number of difficulties in my case. If I were to choose to conduct my empirical observation in real-time, because it cannot be known whether an opportunity will be created *ex ante*, and that effectuation is essentially a theory about firms and markets in their nascence or before they even are founded or created, finding a case in progress becomes highly problematic task. There would be no guarantee that any opportunity process I began to follow would survive long enough to yield sufficient data on stakeholder commitments. Furthermore, due to time and labour constraints, I would be able to consider only a limited number of cases, thereby severely limiting the generalisability of my findings (Huber, 1990)[1].

Therefore, rather than case research, I instead settled upon conducting this study as a work of theory explication and development, combining systematic literature review (Petticrew & Roberts, 2008), qualitative meta-analysis (Schreiber, Crooks, & Stern, 1997), and conceptual methods (Cornelissen, 2016; Meredith, 1993). I favoured this approach due to the fact that the body of literature that has built up around effectuation since it was introduced in 2001 has already produced a large amount of theoretical discussion and empirical testing of the concepts and constructs that form the effectuation principles and process. It is therefore plausible that a theoretical explanation of how the commitments necessary for opportunity creation are formed within effectual networks can be derived from this extant theory. I use a systematic literature review to identify and synthesise the most relevant literature to date relating to effectuation in order to establish what we already know about the concept and the phenomenon of effectual new market creation. This also helps to establish clear boundaries around my research. To go beyond what-we-know, and further develop effectuation theory, I then use qualitative meta-analytical techniques to critically examine effectuations underlying constructs and assumptions; to reconceptualise effectuation to a stakeholder perspective. Finally, the outcomes of my analysis I present through conceptual methods.

The conceptual methods I have chosen for the study are conceptual modelling through typology (Doty & Glick, 1994), and the creation of a predictive framework, based upon the typology I have modelled, through conceptual deduction (Cornelissen, 2016; Meredith, 1993). A typology is an *a priori*, conceptually derived identification of ideal types in a strict methodological way in order for it to be modelled appropriately and tested empirically (Doty & Glick, 1994; Pinder &

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[1] While this could be remedied using a dual methodology, combining a single longitudinal case study with several retrospective cases (Leonard-Barton, 1990), such a study would have still been hindered by time constraints.

Moore, 1979; Pugh, Hickson, & Hinings, 1969; Rich, 1992). While ideal types can be modelled theoretically or empirically, there are a number of advantages to using conceptual methods. Using typology as a method allows me to describe and classify the diverse potential reasoning strategies that may be held by different types of stakeholder who make commitments and contribute to effectual processes of opportunity creation. Using these ideal types, I then deduce the probable decision-making criteria and behaviours that each ideal type denotes and present them as a series of propositions. Armed with these propositions, I can then build a predictive framework around how different stakeholders will impact upon the way in which the opportunity creation process unfolds which in turn I present as a second set of simple, generic propositions.

In subchapter 2.2 I will describe in explicit detail the way in which I collected and analysed the data for this study, and in subchapter 2.3 I will clearly outline the theoretical methods I utilised to present my analysis and theorising, or my ‘products of theorising’. However, first, I will outline my understanding of the various philosophical issues and discussion surrounding the theory and concepts that contribute to this study.

2.1 Philosophical Background of the Research

Before I embark on a detailed description of the methodological choices I have made in my research, I would first like to discuss the philosophical underpinnings of an intersubjective perspective to opportunity creation. There is currently a battle being waged across the pages of journals; one between those who argue that effectuation constitutes a self-contained theory, and those who, somewhat vehemently, disagree. The latter camp, represented by Arend, Sarooghi, and Burkemper (Arend et al., 2015; Arend, Sarooghi, & Burkemper, 2016), use their ‘3E framework’ (experience, explain, and establish), based in part upon, and aimed at augmenting the work of Robert Dubin for the critique of theory in the social sciences, to evaluate effectuation as theory, and find it lacking. They argue, instead, that effectuation should be considered:

> … not as a theory but, rather, as a collection of marketing choices that includes its construction as an umbrella of previously established concepts, its misrepresentation of what it contrasts with, and its “form” as the kind of message that people want to hear. (Arend et al., 2016)

On the other hand, in the former camp, the proponents of effectuation represented by Read, Sarasvathy, Dew, and Wiltbank rebuke Arend et al., arguing that:

> “…the 3E framework is, in fact, inapplicable to effectuation theory because it embodies positivist criteria inappropriate for effectuation’s pragmatist stance.” (Read et al., 2016)

While I count myself among the former camp, I acknowledge the arguments of the latter. I believe that the reason for this debate is rooted in the philosophical stance of the theorists in question, and the fact that effectuation literature, due to its pragmatist roots, can seem to be tenuously straddling positivism and interpretivism. In the following section, I use Burrell and Morgan's (1979) famous 'Sociological Paradigms and Organisational Analysis' as a framework to analyse the underlying meta-theoretical assumptions of the extant effectuation research, and to shed some light on the ongoing debate.

According to Burrell and Morgan (1979), there are four sociological paradigms into which all social theory falls, these are *functionalist sociology, interpretivist sociology*, *radical humanism*, and *radical structuralism*. These paradigms are located in relation to one another along two separate dimensions, the first concerning assumptions on the nature of society, the *order-change* dimension, and the second concerning assumptions on the nature of social science, the *subjective-objective* dimension. In the following paragraphs I take a critical eye to effectuation literature and attempt to identify where effectuation theory appears to fall within Burrell and Morgan's framework. While, as shall be seen, it is clearly a theory within the *sociology of regulation*, what is not clear is whether it tends to be a functionalist theory, interpretive theory, or both.

2.1.1 An evaluation of the meta-theoretical assumptions of effectuation

Burrell and Morgan (1979, p. 13) argue that all theories of society follow one or the other of two views, the 'order' or 'integrationist' view, or the 'conflict' or 'coercion' view of society. With its emphasis on cooperation, collaboration, and consensus between networks of stakeholders towards the integration of various means into the 'transformation' of new products, innovations, and markets (Dew, Read, Sarasvathy, & Wiltbank, 2011; Sarasvathy, 2001; Sarasvathy & Dew, 2005b), the nascent theory of effectuation clearly shows a tendency towards the former. Effectuation theorists are interested in explanations of how groups within society can unify and cooperate to create new organisational forms within the status quo of society rather than expressing dissatisfaction with the status quo. This indicates that effectuation falls under Burrell and Morgan's (1979, p. 17) definition of a 'sociology of regulation' where theorists are "primarily concerned to provide explanations of society in terms which emphasise its underlying unity and cohesiveness" rather than a 'sociology of radical change'. While it is clear that effectuation tends towards the order side of the order-change dimension of Burrell and Morgan's framework, what is not clear is where it stands in relation to their second dimension of subjective-objective.

Burrell and Morgan (1979, p. 1) argue that "all social scientists approach their subject via explicit or implicit assumptions about the nature of the social world and the way in which it may be investigated". All social science is located somewhere along the *subjective-objective* dimension, and where a particular theorist falls along this dimension depends on a further four separate sets of assumptions concerning ontology, epistemology, human nature, and methodology. Subjectivist approaches tend to be nominalist in ontology, anti-positivist in epistemology, voluntarist in their view of human nature, and ideographic in their approach to methodology. In contrast, the objectivist approaches tend to be ontologically realist, epistemologically positivist, take a determinist view of human nature, and utilise nomothetic methodologies. In the case of effectuation literature, these assumptions are invariably implicit, often hard to identify, and sometimes contradict one another, as will be seen in the following paragraphs. Recently there has been a shift in organisational science to find a 'third way' to resolve this clash between objectivist and subjectivist approaches, and pragmatism has been offered as a possible solution (Martela, 2015; Morgan, 2007). As effectuation is stated to be a pragmatist theory, I will draw the philosophy of science for organisational research based upon the Deweyan pragmatism described Martela to supplement the Burrell and Morgan framework.

1. *Effectuation and assumptions on ontology.* Effectuation is positioned as an alternative to the 'opportunity discovery' view within the domain of entrepreneurship that views opportunities (i.e. undiscovered markets) as having an independent, objective existence somewhere 'out there', where they can be found by particularly alert individuals (Kirzner, 1997; Sarasvathy et al., 2010). Instead, they discuss markets (as well as organisations) as being humanly created 'artefacts' that can be created, destroyed, or transformed from being one form to being something entirely different (Dew et al., 2011; Sarasvathy, 2001; Sarasvathy & Dew, 2005b). While this may first appear to indicate that they follow a more constructivist or nominalist view of ontology, which holds that there is no 'real' structure to the world, and that "the social world external to individual cognition is made up of nothing more than names concepts and labels which are used to structure reality" (Burrell & Morgan 1979, p. 4), this does not mesh well with the normative propositions made by effectuation, e.g. statements that successful (or 'expert') entrepreneurs are more likely to employ effectual processes and decision making (Sarasvathy, 2001). Many of aspects of effectuation suggest the existence of an independent, objective reality for which underlying regularities and cause-effect relationships can be identified – a position more congruous with ontological realism.

However, Martela (2015) argues that the ontological position of pragmatism is neither realist nor constructivist; instead, it involves *ontological experientialism*. This alternative to realist and constructivist ontology is not concerned with what is real and what is not, but instead concerns whether or not the theory produced can help people to navigate and act within the continued flow of human experience. As such, pragmatism holds that "even though no theory can claim the status of objectivity, in practical terms some theories are better maps for navigating the world than others" (Martela, 2015, p. 550).

2. *Effectuation and assumptions on epistemology*. In regard to epistemology, it may seem that effectuation tries hard to be positivist, particularly in the way it seeks to make generalisations and push a normative agenda (c.f. Williams, 2000). Furthermore, many of the possible avenues for subjectivist perspectives are downplayed, as is evident in the downplaying of the reasons for stakeholder commitment, explained away simply by stating that stakeholders self-select into effectual processes and questions of why are irrelevant. However, the nature of the effectuation constructs relating to rationale and uncertainty, and the nature of the effectuation process as it is described prove to be problematic for positivist, empirical research, as is explained by Arend et al. (2015, p. 640):

> Effectuation theory has no stable system states; its process is dynamic and occurs within uncertain and changing conditions. This calls into question the objectivity of any measured unit values, the persistence of any such measures, and the idea that any states could be proven distinct in what appears an ambiguous process.

The reason for this is that the concepts and constructs of effectuation have much to do with human consciousness rather than concrete structures in reality, i.e. matters of non-prediction, non-teleological rationales, perceptions of uncertainty, consensus and collaboration between diverse individuals. As such, one might be inclined to attribute to effectuation an anti-positive epistemology which contends that "one can only 'understand' by occupying the frame of reference of the participant in action" (Burrell & Morgan, 1979, p. 5).

Pragmatism offers an alternative solution: fallibilistic instrumentalism (Martela, 2015). Fallibilistic instrumentalism is fundamentally a fusion of Peirce's (1974a) notion of fallibism and Dewey's 'warranted assertibility' (Dewey, 1941). Fallibilism is the notion that "we cannot in any way reach perfect certitude nor exactitude. We never can be absolutely sure of anything (Peirce, 1974a, p. 60)", while warranted assertions are "outcomes of inquiry that are so settled that we are ready to act upon them, yet remain always open to be changed in the future" (Martela, 2015, p. 540) or "*hypotheses* which we see as so secure that we are willing to alter our behaviour according to their guidance to see whether this brings us to our desired experiential outcomes" (Martela, 2015, p. 544). Ultimately what this means is that pragmatist research (of this Deweyan variety) follows an epistemology whereby the theory it produces is judged on its practical use in moving a particular human action forwards over and above alternative theories, and may be re-evaluated, amended, or discarded through ongoing inquiry. When applied to effectuation, as I will expand upon further, below, fallibilistic instrumentalism allows for the use of any number of a variety of methods from which to develop the theory, as long as they produce the best explanation for the phenomenon in question (i.e. new market creation) that provides the instruments necessary to take some kind of practical action in relation to the phenomenon. Furthermore, effectuation theory is open to transformation through further inquiry where better explanations and instruments are creatively produced.

3. *Effectuation and assumptions on human nature.* Effectuation seems to have a rather volunteerist view of human nature where "man is completely autonomous and free willed" (Burrell & Morgan 1979, p. 6). They do not claim that effectual rationale is the only way for entrepreneurs to think; they illustrate clearly that individuals can tend towards more goal oriented or means oriented decision making, and that it is a choice that the individual makes. Interestingly, however, is their argument that so-called 'expert' entrepreneurs will invariably tend towards effectual logic. Volunteerism is also evident in their descriptions of stakeholders who they say self-select into effectual processes. This implicitly assumes that those stakeholders who share effectual logic with the focal entrepreneur will be the ones who make commitments of means. Pragmatism, in general, however, locates human action somewhere between volunteerism and determinism. While human actors possess certain autonomy to their actions, they are also embedded in a flow of experience. As stated by Martela (2015, p. 539): "as human beings we can never escape our embeddedness within the world of experiencing into which we are thrown as actors. Experiencing itself must here be understood as an active process of exploration within an embodied stream of experience in which the more cognitive dimensions are just one part". Human action is therefore constrained by both historicity and sociality – I will return to this discussion when I elaborate further on pragmatism, below.

4. *Effectuation and assumptions on methodology.* The extant empirical effectuation literature utilises both nomothetic as well as ideographic methodology. Nomothetic methodology is "epitomised in the approach and methods employed in the natural sciences, which focus upon the process of testing hypotheses in accordance with scientific rigour. For example, a significant amount of the empirical effectuation literature uses quantitative analysis to find statistically significant relationships between variables operationalised from effectuation constructs (see, for example, Brettel, Mauer, Engelen, & Küpper, 2012; Dew et al., 2011; Read, Song, & Smit, 2009). This is despite the fact (as noted in the quote from Arend et al. [2015 above]) that the concepts and constructs described by effectuation do not really lend themselves well to such methodology.

Effectuation, as a process, happens in the everyday flow of life of the entrepreneur and his or her stakeholders. I would argue that an ideographic methodology would much better suit the study of effectuation in the real world. Such a methodology would “emphasise the subjective accounts which one generates by ‘getting inside’ situations and involving oneself in the everyday flow of life – the detailed analysis of the insights generated by such encounters with one’s subject and the insights revealed in impressionistic accounts found in diaries, biographies and journalistic records” (Burrell & Morgan, 1979, p. 6). Indeed, as I discussed at the beginning of this chapter, it is such a longitudinal and processual rather than cross-sectional and variance approach that has been advocated as most appropriate for entrepreneurship in general (Van de Ven, 2005; Van de Ven & Engleman, 2004). Interestingly, despite this, there are far fewer empirical articles on effectuation that use more ideographic methodologies (See, for example, Nielsen & Lassen, 2012; Nummela et al., 2014; Schirmer, 2013). A pragmatist stance does not specify any particular methodology, or whether one methodology should be used over another. Instead, in line with its instrumentalist epistemology, pragmatism is open to using whichever methodology is most useful for the current task – which is why it is often advocated as an approach by proponents of mixed-method research (Goles, 2000; Tashakkori & Teddlie, 1998). This does not mean, however, that any methodology goes, and I would argue that strictly nomothetic methodologies hold only limited usefulness for the development and investigation of effectuation for the reasons I discussed above.

I believe, and hope I have made clear, that the current state of effectuation literature suffers from implicit, obfuscated, and often contradictory assumptions with regard to the nature of social science which leave it straddling the border between the functionalist and interpretive paradigms described by Burrell and Morgan (1979). Furthermore, I believe the emergent theory of effectuation exhibits the characteristics of what Burrell and Morgan (1979, p. 266) call ‘ontological oscillation’, where there is an ontological inconsistency between the theoretical work and empirical research. While effectuation theory points to nominalist explanations for how organisational and market ‘artefacts’ are produced through interaction between entrepreneur and stakeholders within effectual processes, empirical research on the subject tries to force objectivistic approaches and positivist epistemology in a way that does not mesh well with the theory.

The above analysis leads me to the conclusion that effectuation could benefit from more research that explicitly discusses and implements the principles of pragmatism, i.e. the ontological experientialism and epistemological fallibilistic instrumentalism described by Martela (2015), or similar ontological and epistemological approaches derived from the pragmatist philosophy. To this end, in the following section I will provide a brief overview of the fundamental principles of pragmatism and their origin. Following this, I will discuss the relationship between pragmatist philosophy and effectuation as it has been established in the literature, and I will discuss how pragmatism is congruent with this study.

2.1.2 A brief overview of pragmatism

As I have noted above, in Read et al. (2016) effectuation theorists explicitly declare that effectuation is a pragmatist theory. Despite this fact, few articles written about effectuation ever explicitly mention pragmatism, and none discuss *how* it is so in any great detail. Therefore, it seems reasonable to me at this point to (briefly) discuss exactly what pragmatism is, and how it relates to effectuation research.

Pragmatism (American pragmatism or classical pragmatism) originated in the works of influential American philosophers such as William James, C. S. Peirce, John Dewey, and George Herbert Mead, among others, around the turn of the 20th century (Goles, 2000; Gross, 2007, 2009; Morgan, 2007; Tashakkori & Teddlie, 1998). The pragmatic tradition has been advanced by contemporary philosophers such as Donald Davidson (Murphy, 1990), and applied by contemporary social theorists such as Hans Joas (Joas, 1993). Much has been written under the philosophical umbrella of pragmatism over the past century and a half by these authors and others; however, it is difficult within a limited amount of words to give a coherent summary of what this label denotes. This is because, even during the time of Peirce, James, and Dewey, there was disagreement among scholars about what pragmatism is, and several different versions could be found (and can be found still). As noted by Gross (2007, p. 188): “it is not wrong to say that classical American pragmatism was never a unified philosophical doctrine but a family of closely related philosophies.” Despite this, assisted by the contemporary interpretations of the classical pragmatists by Joas and Gross, I shall attempt to give a brief overview of the generally held ethos of pragmatism.

As the name suggests, pragmatism is concerned with what is ‘practical’. It was devised as a method to resolve metaphysical disputes (James, 1907, p. 45) or as a “method of reaching a clearness of thought of higher grade than the "distinctness" of the logicians” (Peirce, 1878) by evaluating ideas based upon their practical consequences. I.e., as James (1907, p. 45) states: “What difference would it practically make to any one if this notion rather than that notion were to be true?” This was Peirce’s pragmatic theory of meaning (Gross, 2007), or the ‘pragmatic maxim’ (Peirce, 1974b):

> Consider what effects, that might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these effects is the whole of our conception of the object (Peirce, 1878).

From this maxim, its associated methods and theory, Peirce, James, and Dewey developed their theories about what constitutes truth or knowledge in quite different directions: Peirce maintained that truth is what is what would ultimately be agreed upon by researchers investigating a problem through experimentation (Gross, 2007); James (in an attempt to reconcile material and spiritual disputes) argued that truth is whatever best serves an individual's needs while not clashing with "other, greater vital benefits" (James, 1907, p. 77); while Dewey, taking a position somewhere between those of Peirce and James, argued that "knowledge is warranted assertion" (Dewey, 1941, p. 173).

Pragmatists were impressed by Darwinism and critical of the Cartesian view that the mind and body are completely separate. Instead, they believed that humans are essentially problem solvers who use thought to overcome and adapt to problems they encounter in their environment (Gross, 2007). As such, according the pragmatists' model of human action, to overcome problems, humans alternate between habit and creativity (Joas, 1996). When a problem is encountered in their environment, an actor will first act based upon habituation, i.e. they will utilise rules of action that have been developed through experience of similar situations in the past. If habit proves insufficient to resolve the problem being faced, the actor will then turn to creativity; "generating novel hypotheses about how to resolve the problem and testing those hypotheses in experience by putting into practice the actions that comprise their meaning" (Gross, 2007, p. 189). It is this conception of creativity that is well reflected in effectuation theory (Reuber et al., 2016).

In addition to a postulating human action as being an oscillation between habit and creativity in response to problems encountered in a perpetual stream of experience of the real world, the pragmatists, particularly Mead in his concept of 'symbolic interaction', expounded the view that humans are inherently social, and this adds an important dimension of *intersubjectivy* to pragmatism (Gross, 2007; Joas, 1990). Symbolic interaction came about as a result of Mead's theorising on the origin of human speech and language, the development of which Joas (1985) carefully traces with reference to both Mead's published and unpublished works – a severely abridged account I provide in following. According to Mead, bodily and vocal gestures are the "external parts of emotional acts" (Mead [1904] cited by Joas, 1985, p. 97). These gestures gain their meaning (their internal representations) only through social interactions. Consciousness of meaning, in this case, is an actor's consciousness of the specific readiness for a response by another to the actor's initial act. Meanings themselves, however, exist independently of consciousness, as they are the relations between stimulation and response that "become habitual and should sink below the threshold of consciousness" (Mead [1910] cited by Joas, 1985, p. 103). Meaning only *arises* in situations where it is functional for an actor to give attention to his or her own actions (rather than simply responding out of habit to the environment) and: "*This kind of situation is given only in the case of interaction between or among individual actors*" (Joas, 1985, p. 104 emphasis in the original). Out of these meaningful interactions, a 'social object' emerges – an image of one's self as a participant in the interaction as perceived by the other, or the ‘me’– and numerous new ‘me’s’ are synthesised into a unitary self-image.

Intersubjectivity, as it relates to pragmatism (and as it is applied in this study) can be defined simply as the collectively understood meanings and interpretations assigned to actions and situations that arise through the interactions between two or more individuals. Gross succinctly summarises this Meadian understanding, as adopted by the Chicago School sociologists, as follows:

> […] humans, immersed in a world of language and culture, always interpret the behavior of others as comprising “significant symbols” indicative of their social intentions and formulate their responses on the basis of those interpretations. Communication – the grasping of another’s intentions through such an interpretive process – requires that we take the role of the other in our imaginations, trying to understand what particular symbols mean to her or him. Intersubjectivity therefore hinges on prior processes of socialization in which actors learn not only role-taking skills, including the capacity to take the role of the other with regard to themselves, but also the common meanings of symbols, so that when I engage in an action, you are familiar enough with it to have some idea as to what I’m up to. For this reason, intersubjectivity is easier to achieve when actors share a culture and harder when they do not (Gross, 2007, pp. 193–194).

Thus completing the general overview of pragmatist principles, I can summarise a pragmatist theory of action in brief. Pragmatists see human action as practical problem solving by an experimenting entity that is both habitual and creative. Human action is not separable from its situatedness in both a continuous stream of experience and chains of social interaction. Therefore, humans are “a life form whose world is always already schematized in a practical manner prior to all reflection”, and as such their actions, by nature, can only be only “diffusely teleological” (Joas, 1990, p. 178). In the following section I shall elaborate on the connections between these pragmatist principles and effectuation where they have been explicitly put forth in the literature and I shall discuss how they have been applied in this study.

2.1.3 Pragmatism in effectuation and the following study

Sarasvathy counts among the intellectual lineage of theory of effectuation the “pragmatic philosophers at the turn of the century”, and cites works by Peirce and James (Sarasvathy, 2001, p. 254). Her unpublished doctoral dissertation on which effectuation is based integrates theories the of Joas, James, and Dewey (Steyaert, 2007, p. 466). The influence of pragmatism is clear to see in the resulting theory. An effectual entrepreneur essentially engages in a series of experiments, testing various hypotheses, in order to address a problem – the problem being the creation of an enduring new firm. New market creation through effectuation is presented as a social process that is only diffusely teleological, with the entrepreneur being driven by broad, generalised aspirations based upon their experience and their perception of 'who they are', and clear goals only emerge gradually through interactions with others, i.e. the acquisition of stakeholders. Their analysis, in questioning the assumptions that conscious goal setting precedes a consideration of means, Sarasvathy and Dew (2005a, 2005b) explicitly state is consistent with the position on human action espoused by Joas who "locates human action firmly within the continual interaction of the human body (corporeality) with the real world (situation) and with other people (sociality)" (Sarasvathy & Dew, 2005b, p. 554).

Effectuation's theorists demonstrate their pragmatist influences in a second way; in their adoption of the notions of fallibilism and practical 'usefulness'. Sarasvathy, Dew, Read, and Wiltbank (2008) argue that as they have demonstrated that principles of effectuation have been shown to be useful to expert entrepreneurs empirically (they have passed the test of 'will it work') then effectuation has not only theoretical validity, but also what Worren, Moore, and Elliott (2002, p. 1228) call *pragmatic validity,* i.e.: "The pragmatic validity of knowledge can be judged by the extent to which goals or intended consequences can be achieved by producing certain actions or using particular instruments". Of course, this notion of pragmatic validity is inspired in part by Dewey, and can be considered an update upon the Deweyan warranted assertibility as described by Martela (2015) in my discussion above. Combining this emphasis on pragmatic validity with an implicit sensitivity to Peirce's (2012) notion of fallibilism, the effectuation theorists defend a position that their theory should be judged more on its practical usefulness rather than whether or not effectuation can be conclusively proven as being true. This position is made clear in the following argument made by Read et al. in response to the criticisms weighed against effectuation by Arend et al. (2015):

> Therefore, the issue of importance here can be stated in the form of a pragmatist critique of effectuation, as follows: What difference does it make if people act as though they believe in an effectual worldview? What difference might it make for entrepreneurship scholarship, pedagogy, and practice? The central difference between a positivist critique (Is effectuation true?) and a pragmatist one (Is effectuation useful?) boils down to the effort to uncover and delineate details of how, when, where, and to whom effectuation makes a difference […] (Read et al., 2016, p. 531)

It is this spirit of pragmatism which in which I have conducted the research presented in this study. My aim is to provide a useful framework by which to understand stakeholder commitments in the process of new market creation through effectuation that hold some practical usefulness for both theorists as well as practitioners. That is, the aim of this study is ultimately one of establishing a theoretical contribution that produces conceptual tools that fulfil the criteria of possessing pragmatic validity.

The approach I apply in this study is consistent with the pragmatist ontological experientialism and epistemological fallibilistic instrumentalism described by Martela (2015) and the 'pragmatist theory of social mechanisms' proposed by Gross (2009). According to Gross (2009, p. 367): "*Pragmatists would view social mechanisms as composed of chains or aggregations of actors confronting problem situations and mobilizing more or less habitual responses".* Gross draws upon Hedström and Swedberg's (Hedström, 2005; Hedström & Swedberg, 1998) work on social mechanisms and adapts to it the pragmatist principles to advance a pragmatist theory of social mechanisms. Such a theory seeks to understand social mechanisms, described as the structures or processes *S* by which some particular input *I* is observed to lead to some particular output *O*. In order to understand the mechanism *S*, Gross argues that:

> A pragmatist theory of mechanisms would hold that to understand *S*, we must examine the individual and collective actors $A_{1\text{–}n}$ involved in the *I–O* relationship. For each, our goal should be to understand why and how, when confronted with problem situation P_n and endowed with habits of cognition and action H_n, along with other resources, response R_n becomes the most likely. *S will then consist of all the relations* $A1_{\text{–}n}$ *–*$P_{1\text{–}n}$ *–* $H_{1\text{–}n}$ *–*$R_{1\text{–}n}$ *that, in aggregate or sequentially, bring about the I–O relationship* (Gross, 2007, p. 368 emphasis in original).

Gross hypothesises that most social mechanisms can be understood as these *A-P-H-R* chains or aggregations. Actors acting in response to problem situations based on habituation with the potential for creativity if any of the actors find novel solutions to problems – in which case the mechanism may be altered.

This pragmatist theory of social mechanisms precisely describes the approach I have taken in my research and will be explicated in the following chapters. The social mechanism *S* for the purposes of this study is process of new market creation through effectuation. The actors *A* I examine to understand this social mechanism are the various potential and actual stakeholders to the process; the problem situations are, under uncertainty, the commitment decisions they need to make, as well as the decisions regarding action subsequent to commitment; the habits of cognitions and action they are endowed with are the reasoning strategies and behavioural heuristics they have developed as habit through their situatedness their streams of experience and social interaction as well as the means they possess; and the response is simply the action they likely to take in light of the preceding factors (i.e. commitment or non-commitment, and action subsequent to commitment). It is this kind of habituated action and response that Reuber et al.(2016) note has been thus far overlooked in in the evolution of effectuation theory, and is a promising area in which to generate novel insights.

Gross further specifies his pragmatist theory of social mechanisms by preemptively addressing potential objections to it. These specifications I have summarised in Table 2, below.

Table 2 Specification of a pragmatist theory of social mechanisms (drawn from Gross, 2009, pp. 370–372)

Regarding Resources	“[T]he habits an actor is endowed with will affect the ways in which she understands the significance of and uses the nonhuman resources at her disposal, while the availability of resources—an objective feature of problem situations—may help instill in her distinctive habits”.
Regarding Habit	*Individual cognitive-affective habits*: The “habitual ways individual actors have of understanding and responding emotionally to situations in general, resulting from their psychosocial experience or their biological endowments or propensities”.
	Individual behavioural habits: “[T]he disposition to enact specific behavioral responses or routines when individual actors are faced with particular kinds of problem situations”.
	Collectively enacted habits: The “ways that groups of individual actors, including those who comprise collective actors of various kinds, have of working together to solve problems”.
Regarding Habit Sets	Habit sets are the “relatively coherent repertoires for thinking and acting vis-à-vis a set of problems”.
Regarding Formal mechanisms	The “mechanisms resulting from the formal structure of social relations are best seen as more or less obdurate features of the problem situations individual or collective actors confront—that is, features that enable or constrain lines of activity. How actors understand and respond to the situations they face will be no less important in the context of such confrontations”.

The key concerns listed in Table 2 are all addressed in my study. Regarding resources, in extant effectuation theory the lack of tangible resources and the intangible ‘means’ available to an entrepreneur already play an important role in determining the entrepreneur’s actions (Sarasvathy, 2001). When considering the potential actions of stakeholders, these can only be understood in relation to what resources are at his or her disposal. I examine the effects that resources have on stakeholders’ perceived decision-making problem spaces, and their responses to this. In addition to the effects of resources in shaping or constraining potential behaviour by stakeholders, formal mechanisms, such as a potential stakeholder’s position in an existing organisation, also serve to shape the problem space perceived by the stakeholder with regard to a commitment decision. ‘Habits’ of potential and actual stakeholders are the primary concern of this study, by which I mean the historically and socially embedded higher order reasoning strategies and associated decision-making logics and heuristics that may be held by stakeholders in considering whether or not to join an effectual network, and how they will behave following a commitment. I classify habit sets in relation to ideal types of commitment rationales, and I consider reasoning based both on instrumental rationality as well as value rationality that includes, in part, a cognitive-affective dimension. How I will do this, I discuss in the next two subchapters.

To round off this section I will summarise a general theoretical framing of this study. As I have argued above, extant effectuation theory currently overlooks, or is underdeveloped in relation to three important elements: stakeholder commitments, intersubjectivity, and habit. The framing I illustrate in Figure 2, below, shows how these elements will be approached in the following chapters.

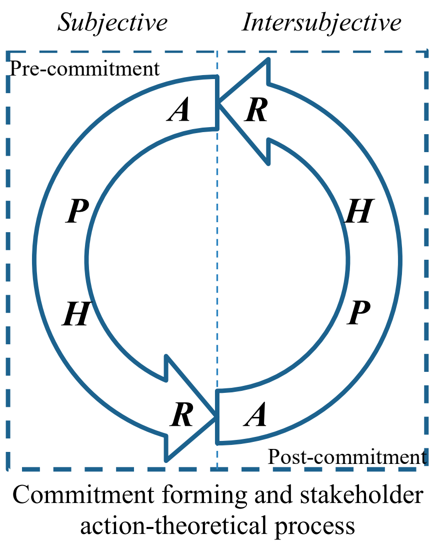

Figure 2 Theoretical framing of the study using a pragmatist theory of social mechanisms

I investigate and theorise upon the stakeholder commitment process and its implications for entrepreneurial processes of new market creation through effectuation as two interlinked actor-problem-habit-response (A-P-H-R) chains – one subjective and one intersubjective. The subjective chain begins with a potential stakeholder. They are faced with the problem of whether or not to make a commitment to an effectual network. The way they respond to this problem will be shaped by past experience and their social interactions. Following a positive commitment decision, the chain becomes intersubjective, and relates to the subsequent actions of stakeholders interacting in their committed relationship to the focal effectual process. In this case, they are both enabled and constrained by the actions of one another, and the resources that they have contributed. Finally, the resulting actions of the stakeholders will influence subsequent interactions with new potential stakeholders.

2.2 Data Collection and Analysis

Having discussed the philosophical background to this study, I can now move on to the more down to earth, practical matters concerning data collection and analysis, and the development and presentation of theory. The 'data' I collect and use in my analysis consists entirely of studies written on or in relation to effectuation and published in top tier academic journals. Despite this fact, this study is not merely a literature review, but it is an endeavour to conduct theory development through qualitative meta-analysis and conceptual methods. The methodological steps I have taken in this endeavour are summarised in Figure 3, below.

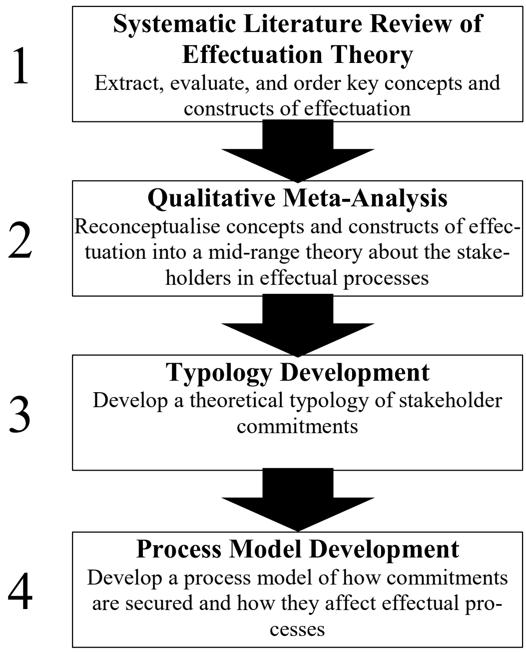

Figure 3 Methodological steps of the study.

My first step was to use systematically review all the relevant literature that has been written on or relating to the theory of effectuation since it was first introduced to the wider academic community in 2001. In my second step, through a qualitative meta-analysis I reconceptualised what I could from the existing body of literature on effectuation to deductively postulate potential stakeholder commitment ideal types. My third task was to broaden my focus to abductively examine other concepts and constructs from the wider entrepreneurship literature, and other literature on reasoning and decision-making under uncertainty, to more fully flesh out and describe the characteristics of the commitment ideal types outlined in my typology. Finally my fourth step was to recombine the typology I produced with the entrepreneurial opportunity creation process, to hypothesise how commitments are forged along the way, and how each commitment may influence the manner in which the process unfolds. Steps one and two I expand upon in the current subchapter, while steps three and four I discuss in subchapter 2.3.

2.2.1 Systematic literature review of effectuation theory

A systematic literature review is: “A review that strives to comprehensively identify, appraise, and synthesize all the relevant studies on a given topic” (Petticrew & Roberts, 2008). The analysis conducted in this study is primarily comprised of descriptions of the effectual constructs drawn from a systematic review of the most relevant effectuation literature written to date. The literature begins from Sarasvathy’s (2001) paper that introduced effectuation and the empirical research from which effectuation was induced.

The literature review I conducted in this study was systematised in a manner loosely adapted from by Jones, Coviello, & Tang’s (2011, pp. 648–649) systematic literature review of international entrepreneurship research, notwithstanding the fact that Jones et al.’s review was of the entire ontological domain of international entrepreneurship while this study is concentrated on the single thematic branch of entrepreneurship – effectuation. For this reason, the reviewing procedure I employed is somewhat simpler. This methodological procedure for search, selection and exclusion is described below:

1) Criteria for determining reliability of sources:
   a) Published works from the core effectuation theorists: Saras Sarasvathy, Nicholas Dew, Stuart Read, and Robert Wiltbank;
   b) Peer-reviewed journal articles only;
   c) Empirical AND theoretical (including reviews, commentaries, and editorials).
2) Exclusion criteria by theoretical relevance:
   a) Studies in which the primary focus is not effectuation;
   b) Articles not listed in the Chartered Association of Business Schools (https://charteredabs.org/) Academic Journal Guide (AJG) (except in the case of articles written by the core theorists mentioned above);
3) Search method and scope – Stage I:
   a) Search across academic articles using keyword search in respected databases including, but not limited to, ProQuest, EBSCO;
   b) Focus on citation and abstract, and title;
   c) Keywords: entrepreneur* AND effectua*.
4) Search method and scope – Stage II:

a) Search for key sources cited within the sources identified in Stage I;
b) Automatic notifications from Mendeley (https://www.mendeley.com/) reference management software.

I initially searched databases for articles which included the truncated keyword 'effectua*' (so as to include effectuation and effectual) and entrepreneur* (to include all terms beginning with entrepreneur) in their title or abstract. For example:

1. ProQuest Search
    a. (entrepreneur OR entrepreneurship) AND (ab(Effectuation OR Effectual) OR ti(Effectuation OR Effectual))
    b. (entrepreneur*) AND (ab(Effectua*) OR ti(Effectua*))
2. EBESCO Search
    a. TX (entrepreneur OR entrepreneurship) AND (AB (Effectuation OR Effectual) OR TI (Effectuation OR Effectual))
    b. TX (entrepreneur*) AND (AB (Effectua*) OR TI (Effectua*))

Of the articles procured through this initial search I was primarily interested in articles by those whom I call the 'core effectuation theorists' i.e. Saras Sarasvathy and those who have co-authored articles with her (Nicholas Dew, Stuart Read, and Robert Wiltbank). Next, to ensure the quality of the sources, I selected only peer reviewed articles. Of the articles not written by the core effectuation theorists, as a rough and ready means of ensuring that they are key articles in the ongoing development of effectuation theory, I selected only articles that are listed in the Chartered Association of Business Schools (CABS) Academic Journal Guide 2015 (the guide, and the methodology for its creation, can be found on the CABS website: https://charteredabs.org/). This approach ensured that the articles I included in my systematic literature review are those which are accepted by the academic community as being an accurate reflection of the extant effectuation theory. Finally, I set aside any articles which were only peripherally related to effectuation, only mentioned it in passing, or applied effectual concepts and constructs without any additional contribution to effectuation theory[2]. A second stage of searching involved identifying key works referenced within the articles already identified and also automated suggestions of related articles from the Mendeley reference management software I was using to organise the literature. The time period of my literature review spanned from 2001 (starting with Sarasvathy [2001]) until the end of 2016[3].

[2] For example Lusch & Nambisan (2015) who discuss effectual actors in service innovation but are primarily concerned with service dominant logic (S-D logic) and do not contribute anything new theoretically to effectuation, and Sarasvathy et al. (2008) who only mention effectuation in passing in their argument that entrepreneurial success is different from firm success and that serial entrepreneurship involves a 'contagion' process.

[3] I began the review process in 2012 while researching my (unpublished) master's dissertation. This study directly follows on from that research.

The final tally of articles I procured through the aforementioned procedure was 76. Of these, just under half (32) were conceptual articles (including conceptual articles, reviews, and commentaries), and the rest (44) were empirical. A breakdown of these articles is illustrated in Figure 4, below.

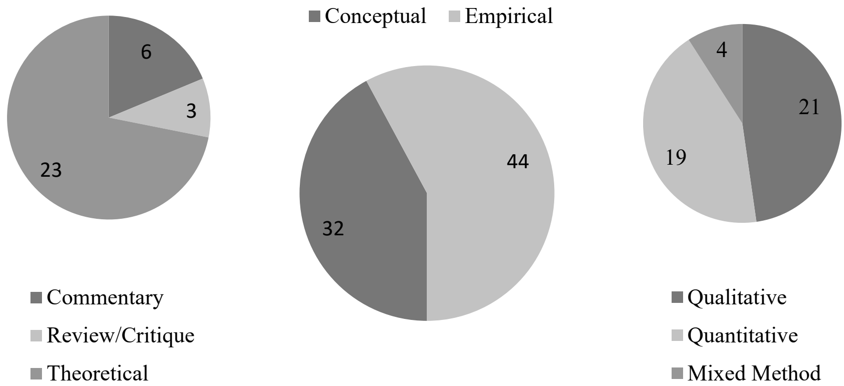

Figure 4 Composition of reviewed literature

Most of the direct theoretical development of effectuation was conducted across the 16 articles with first authorship by Sarasvathy, Dew, Read, or Wiltbank. Articles authored by other scholars included those applying their own concepts with effectuation in debates with the primary effectuation scholars (Chiles, Gupta, & Bluedorn, 2008; Goel & Karri, 2006; Karri & Goel, 2008); articles that applied and tested or observed effectuation principles in different contexts such as in corporate R&D (Blauth, Mauer, & Brettel, 2014; Brettel et al., 2012), SME and technological innovation (Berends et al., 2014; Coviello & Joseph, 2012; Dutta et al., 2015; Mthanti & Urban, 2014), family firms (Hayton, Chandler, & DeTienne, 2011), international entrepreneurship and born globals (Harms & Schiele, 2012; Nummela et al., 2014), among others; reviews and validation studies (Chandler, DeTienne, McKelvie, & Mumford, 2011; Perry et al., 2012); and critiques of effectuation(Arend et al., 2015; Baron, 2009). A full list of the articles, their subjects, and their relevant theoretical contributions, are provided in Annex A at the end of this work.

I use the systematic literature review as a way of 'knowing-what-we-know'. For the purpose of making a theoretical contribution, however, this is not enough. For a theoretical contribution to be made, this requires that I take the data gathered through the systematic review and use it to generate novel theoretical insights. To do this, I turn to a qualitative meta-analysis. A qualitative meta-analysis "is a way of knowing-what-we-know and further extending findings" (Schreiber et al., 1997, p. 12). The details of such an approach I shall elaborate upon in the following section.

2.2.2 Qualitative meta-analysis of the role of Stakeholders in Opportunity Creation

According to Schreiber, Crooks, and Stern, (1997, p. 314) a qualitative meta-analysis is the *"aggregating of a group of studies for the purposes of discovering the essential elements and translating the results into an end product that transforms the original results into a new conceptualization".* They explain that, unlike quantitative meta-analysis which is well established as a legitimate method of pooling research finding, qualitative meta-analysis (at the time of writing) is relatively poorly developed. It seems that this remains the case, as my own attempts to find literature on this methodological technique revealed no additional works of note written on the subject in the twenty years since. Most of the published research explicitly using qualitative meta-analysis as methodology has been works relating to medical science and healthcare. Schreiber et al. (1997), on which I base the following discussion, itself is a chapter from a book, 'Completing a Qualitative Project' (Morse, 1997), that, while generally is written for anyone undertaking qualitative research, is authored primarily by scholars of nursing. Despite this, I find that qualitative meta-analysis suits the purpose and research questions of my study well. I argue that this methodology holds great utility for international business research and organisational science and should be employed and developed further in this field.

Schreiber et al. (1997, pp. 315–317) propose three models by which meta-analytic techniques have been applied in scientific literature based upon the naturalistic paradigm. These are for theory building, theory explication, and description. In a theory building oriented meta-analysis, the analyst uses data from studies of related concepts or phenomena in order to inductively build midrange or formal theory. Theory explication through meta-analysis examines studies relating to the same concept to deductively develop midrange or formal theory. Descriptive qualitative meta-analysis, on the other hand, can use any qualitative study and, through thick description, synthesise this data to form a comprehensive interpretation or understanding of a phenomenon. Schreiber et al. note that these approaches are not necessarily exhaustive or mutually exclusive. While in the following chapters I oscillate between all three approaches at varying times, the main emphasis of my meta-analysis is on theory explication: I analyse studies all related by the same concept, effectuation, in order to deductively reconceptualise and develop theory on stakeholder involvement, commitments, and partnerships in effectual processes.

Schreiber et al. list a number of methodological issues and how they are approached by each of their proposed models of qualitative meta-analysis; their model of theory explication is reproduced in Table 3 below.

Table 3 A model of theory explication through qualitative meta-analysis (drawn from Schreiber et al., 1997, p. 317)

Issues	**Theory Explication**
What is the purpose of this meta-analysis? (or: What is my research question?)	• to develop mid-range or formal theory from a group of studies related by a single concept
What are the assumptions underlying the question?	• findings must be deconstructed
What is the usefulness of the potential end product?	• development of theory • generating research questions • identifying gaps in knowledge
What are the boundaries of the study?	• boundaries are predefined
What are the assumptions underlying the methodology of the meta-analysis	• deductive approach to theory building
What constitutes my data?	• studies of the same concept
How will I analyse my data?	• by deconstruction, reconstruction, and constant comparison
What sampling procedure do I use? How do I know what to include?	• must start with the most abstract concept and follow with related, less abstract concepts • studies related by a single concept
How do I ensure the scientific rigor of the meta-analysis?	• The methodology must have careful illumination.

My research aims to fulfil the specifications of theory explication through qualitative meta-analysis as shown in Table 3. The purpose of the study is to develop mid-range theory concerning the roll of stakeholders in new market creation through effectuation. To do so, I use the meta-analysis to deconstruct the findings and theorising from previous studies all relating to the same core concept of effectuation, and then reconstruct and reconceptualise them in a way that makes the stakeholders and their commitments, rather than the entrepreneur, the main focus. The boundaries of the study are predefined by the search and selection criteria of the literature review I discussed in the previous section. I follow an approach that begins from a high level of abstraction and moves to a lower level of abstraction as I progress (which will become evident over Chapters 4 and 5). Where I differ slightly from the model described above is that I do not limit myself to a deductive approach to theory building and, as I will discuss later in this chapter, I apply abductive logic and broaden the scope of my analysis to include literature to that which relates to concepts other than effectuation, such as literature on cognition and decision-making under uncertainty.

2.3 Products of Theorising

The overarching aim of my research is to make a theoretical contribution to the ongoing development of the theory of effectuation. As I argued at the beginning of this chapter, I believe there is scope for doing so conceptually with the existing conceptual materials that have thus far been produced by those researching effectuation in particular, and entrepreneurial phenomena in general. As such, this study is one of conceptual theory development rather than empirical inquiry. This involves the development and refinement of new and existing constructs, and generating novel theoretical propositions connecting them, as is illustrated in upper section in Figure 5, below.

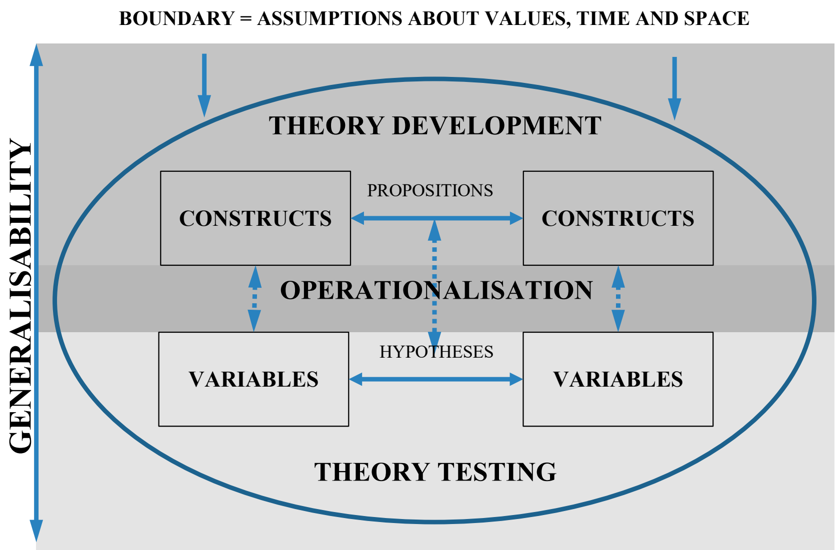

Figure 5 Components of a theory. Adapted from Bacharach (1989, 499)

Towards these ends of theoretical development, from out of the data collection and analysis I described in the subchapter above, I produced three distinct but interlinked outputs which I call my 'products of theorising'. These are a typology, a process model, and a set of propositions. The typology is the primary product of this study, and the ideal types specified by the typology serve as inputs to the additional theorising produced. Doty and Glick (1994) argue that when typologies are built properly, making explicit grand theoretical assertions, explicit assumptions about constructs, and ensuring ideal types are fully described using the same set of dimensions, then they can constitute complex theories that can be subjected to rigorous empirical testing. In this case typologies fulfil the criteria of being theoretical contributions asserted by theorists such as Bacharach (1989) and Whetten (1989).

Whetten describes the building blocks of theory development as being What, How and Why. What are the concepts, constructs and/or variables that should be considered in attempting to explain the phenomenon being investigated? How do these factors related to one another? And, why are they related? The *What* question is the description, and requires a balance between comprehensiveness and parsimony. This is the utility of typologies as they allow complex phenomena to be described thoroughly and parsimoniously. The *How* and *Why* questions are the explanation. *How* explains the form and direction causality and *Why* explains how the underlying nature of the constructs, identified by the *What* question, is related to the causality explained by the *How* question. In a typology the *Hows* and *Whys* are explained through descriptions of, and interrelationships between, the constructs that make up each ideal type, and descriptions of the interrelationship between each ideal type. In this study, I pursue theory building further than developing a mere classification scheme, by using the typology I create as an input to reconceptualise and extend the current model of the effectuation process.

Bacharach (1989, p. 497) argues that typologies are more useful for description than as contributions to theory, by simply answering the descriptive What question rather than the more theoretical How, Why and When. I seek to answer the *What*?, by identifying and describing the ideal types of stakeholder commitments to effectual networks in terms of the different reasoning strategies, decision logics, or behavioural heuristics they utilise in their decision to join these networks. Furthermore, I seek to answer the more theoretical *Why?* questions by exploring the relationship between the ideal types of commitment rationales and the uncertainties in the problem spaces faced by potential and actual stakeholders. From this I draw my first set of propositions. I then seek to answer the How question, by integrating the *What?* and *Why?* back into an explanatory process model for how the stakeholder commitments necessary for opportunity creation are formed or secured within effectual networks, and how they affect network outcomes. From this I draw my second and third set of theoretical propositions. This combination of a typology and process model into an explanatory and predictive framework cements this study's utility as a theoretical contribution (Bacharach, 1989; Whetten, 1989). The way in which my products of theorising seek to address the questions of what, how, and why, and the relationships between them with the aim of producing a theoretical contribution are summarised in Figure 6, below.

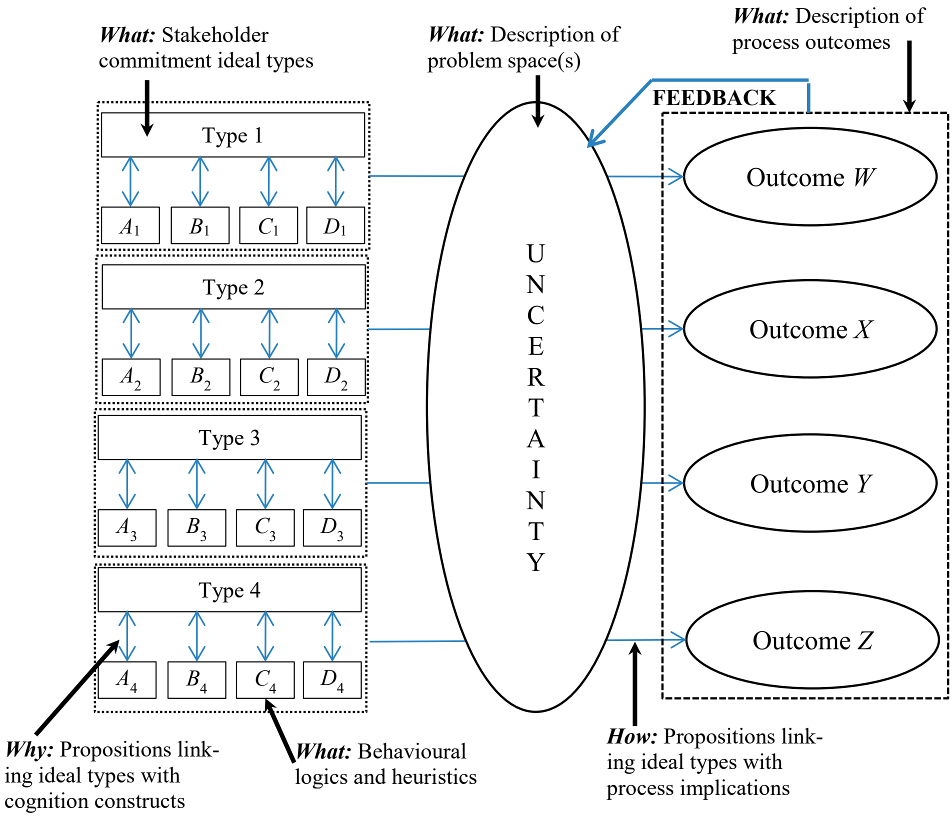

Figure 6 Intended theoretical contribution of this study

The ideal types I describe through my typology are generic representations of actors who may share sets of common habits – or behavioural logics and heuristics (sub-constructs to the multidimensional constructs representing the ideal types). The processes I describe are the relationships or connections between these ideal types and the various outcomes or responses they elicit in relation to a particular problem situation or perceived 'problem space', i.e. the decision on whether or not to make a commitment to an effectual process, and the decision on how to act following a new commitment (as it relates to both the new stakeholder, as well as established stakeholders who were already part of the process). For both the typology and the process model, I use formal theoretical propositions to explain the general theoretical implications that can be drawn.

2.3.1 Typology

It is important to distinguish typologies from taxonomies. Typologies are derived from *a priori* knowledge and form a complete set of ideal types (Doty & Glick, 1994). In organisational studies the types defined would generally be organisational types. Taxonomies, on the other hand, are identified through empirical observation and are classification schemes forming exhaustive sets in which to categorise phenomena. These categories are mutually exclusive based on discrete decision rules. While empirical testing using taxonomy will allocate observed subjects to one category or another, a similar study using typology will compare subjects observed to the ideal types specified in order to see similarity and whether or not this similarity corresponds to the expected outcome. Doty and Glick provide a concise definition of typology, as opposed to taxonomy and classification, as follows:

> [Typology] refers to conceptually derived interrelated sets of ideal types. Unlike classification systems, typologies do not provide decision rules for classifying organizations. Instead, typologies identify multiple ideal types, each of which represents a unique combination of the organizational attributes that are believed to determine the relevant outcome(s). (Doty & Glick, 1994, p. 232)

Rich (1992) provides an even more concise definition:

> …the word *typology* is used to describe the classification of data into types based on the theoretically derived, and more or less intuitively categorized, qualities of observed phenomena.

The conceptualisation of the typology I use in this study diverges slightly from Doty and Glick's definition. Doty and Glick's description of "ideal types" of organisations suggest that the types identified are posited to predict a positive outcome relating to some specified dependent variable, usually a desired organisational outcome. In this study my aim is to primarily identify ideal types of reasoning strategies or logics that may be used by stakeholders in their decision to commit (or not) to effectual processes, as well as in their post commitment behaviour. The purpose of this typology is not, therefore, to predict variance in some specified organisational outcome, but to predict process outcomes of effectual network formation. Therefore, the definition of typology used in this study, that I derive from both Doty & Glick (1994) and Rich (1992), is one of *an interrelated set of ideal types* (of stakeholder rationales) *based on the categorised, conceptually derived, qualities of observed phenomena* (behavioural logics and heuristics), *that are believed to determine the relevant outcomes* (stakeholder commitments and behaviour).

One other utility to using typologies (and taxonomies) towards theory building is their usefulness in the construction of mid-range theories. Mid-range theories involve the clustering of like (e.g. organisational) phenomena together in order to predict and explain the underlying interrelationships between the constructs that are unique to that particular grouping. This is as opposed to general theories which seek to make predictions about all aspects of a particular general phenomenon (e.g. all organisations) as a whole. There can be several levels and branches of mid-range theories, and syntheses of each lower level may lead to the generation of theories of higher generalisability until eventually a general theory is reached (Pinder & Moore, 1979). In typologies the configuration and interrelationships between constructs within each ideal type and, the outcome that results, are not expected to be uniform across ideal types (Doty & Glick, 1994; Pinder & Moore, 1979). For instance, the outcome predicted from one ideal type may differ from that of another depending on the exogenous context and how it relates to the internal causal processes of each.

Doty and Glick (1994) offer some guidelines to building typologies that fit the criteria of being theory. These are: the constructs, the relationships among the constructs, and falsifiability. The constructs in a typology come in two forms – the ideal types, that are complex, multidimensional constructs, and the sub-constructs that form the dimensions of the ideal types, or 'first-order' constructs. Hypothesising the relationships among the constructs is aimed at explaining the internal consistencies between the first-order constructs within the ideal types and explaining why these patterns result in a particular outcome. Finally, the typology constructed must be modelled in such a way that it can be tested, and that the predictions the typology makes can be falsified. Falsification occurs when measuring a deviation between real phenomena and the ideal type and using this deviation to predict the same outcome.

I began the construction of my typology by deducing potential ideal types through the careful deconstruction of the extant effectuation literature. I did not, however, rely entirely on deduction; I also used *abductive reasoning*. Abductive reasoning in the usual sense means moving backwards and forwards between induction and deduction; often meaning moving backwards and forwards between empirical observation and existing theory or between quantitative and qualitative data (Martela, 2015; Morgan, 2007). I use abduction in this study in the manner of pragmatist epistemology. According to Martela (2015, p. 549)

> "The abductive inference therefore means a continuous circular movement between one's own pre-understanding, the provisional data one has gathered and existing theories to reach an understanding of the phenomenon under scrutiny that best serves the practical interests one has chosen to advance."

What this means is that, during my investigation, where I found that existing theories outside of effectuation (based on my existing knowledge or knowledge I stumbled across as I progressed) helped expand the development of the stakeholder commitment ideal types, I would iteratively incorporate them into my analysis. This brought insights from diverse theory such as that concerning different types of rationality (e.g. Weber, 1978), the role of affect in entrepreneurship (e.g. Baron, 2008), and decision making under uncertainty (e.g. McMullen & Shepherd, 2006), among others.

Doty and Glick (1994) discuss three different methods for specifying ideal types; the first two are theoretical specification methods, while the third is empirical. The first theoretical method is called *theoretical specification* and is the most logically consistent with typology methodology. This type of specification requires "expert raters", or the original theorists, who are experts on the underlying theory of the typology, to make judgements of the ideal types based on their interpretation of the theory. These experts rate values for the first-order constructs that form the ideal types and each ideal type is given the mean value of all the constructs relating to it. This mean value corresponds to the ideal profile of that particular ideal type. The Second method described by Doty and Glick (1994), should only be used when two ideal types form the end points of a continuum. In this case the ideal types at either end represent the minimum and maximum scores of the constructs that form them. The other ideal types are then positioned on the continuum relative to these extreme values.

In this study, in specifying my ideal types, I use the extreme ends of two separate dimensions to create a standard 2×2 matrix. In this case, my dimensions are of rationality; teleological versus non-teleological on one axis, and instrumental versus value on the other. I will make my reasoning for these choices clear in Chapter 4. This produces four distinct ideal types that will represent four extreme and distinct forms of reasoning that may be held by stakeholders who make their commitments to effectual processes. Although I do not empirically specify this typology in this study, I posit that all stakeholder commitments made in empirically observed effectuation processes will fall somewhere within these extremes; involving some combination of the forms of reasoning I will describe in detail. Doty and Glick (1994, 246-247) provide five final guidelines that should be followed by typological theorists. These are as follows:

1. *Typological theorists should make explicit their grand theoretical assertion(s).*
2. *Typologies must define completely the set of ideal types.*
3. *Typologies must provide complete descriptions of each ideal type using the same set of dimensions.*
4. *Typological theories should explicitly state the assumptions about the theoretical importance of each construct used to describe the ideal types.*
5. *Typological theories must be tested with conceptual and analytical models that are consistent with the theory.*

I follow the first four of these guidelines in the construction of my typology in Chapter 4. I return to the fifth guideline in my final chapter when discussing my suggestions for future research and how the typology should be used or tested empirically. Cornelissen (2016) outlines a number of common problems identified by reviewers concerning theoretical works developing typologies. These include: typologies that offer only theoretical categorisation but with only limited explanatory scope and power; typologies that are merely summative of existing literature do little to move theory forwards, and; typologies where the causal mechanisms are not clear and are circular and tautological. While I have kept these problems in mind when constructing the typology presented within this study, I have also sought to overcome them by combining the typology with the two other forms of theorising, process modelling and propositions, I discuss below; something that the length constraints of an academic journal article would not normally allow.

2.3.2 Process modelling

Taking the ideal types I developed using the typology method I described above, I develop a process model to explain and explore the actor-problem-habit-response cycles I described in Section 2.1.3 and illustrated in Figure 2, above. To do this I use a 'narrative style' (Cornelissen, 2016; Langley, 1999). According to Langley, a narrative strategy for modelling processes "involves construction of a detailed story from the raw data" (Langley, 1999, p. 695). Of course, my study does not contain 'raw data' but merely a set of stakeholder commitment ideal types. Therefore, I produce, through recourse to a thought experiment, 'characters' based upon the ideal types I created and imagine a plausible narrative around them in the context of new market creation through effectuation. According to Gendler (Gendler, 2004, p. 1155), the performance of thought experiments includes three common and crucial features:

a. Thought-experimental reasoning involves reasoning about a particular set of circumstances (which may be specified in more or less detail), described at a greater level of specificity than that of the conclusion.
   (To perform a thought experiment is to reason about a scenario ...)
b. The reasoner's mode of access to the scenario is via imagination rather than via observation.
   (... which is imaginary ...)
c. Contemplation of the scenario takes place with a specific purpose: the confirmation or disconfirmation of some hypothesis or theory.
   (... with the aim of confirming or disconfirming some hypothesis or theory ...)

As she is writing about 'scientific thought experiments', a fourth feature of such experiments is that they pertain to the physical world. As my thought experiment is conceptual and relates to social phenomena rather than natural phenomena, the fourth feature is, therefore:

a. The hypothesis or theory in question concerns features of the [social] world.
   (... about the [social] world)(Gendler, 2004, p. 1155 - I have substituted for "physical", in the original, for "social")

Using a thought experiment has the effect of making the reader contemplate an imaginary scenario and, through this quasi-observational manipulation of the reader's mental image, can enable the formation of new beliefs as to the features of the social world. I.e. using a thought experiment allows me to "plot alternative scenarios as a way of actively comparing different sets of theoretical assumptions and mechanisms and their resulting outcomes" (Cornelissen, 2016, p. 5).

Cornelissen lists a number of common problems that reviewers find in relation to process theories in the narrative style. They can be:

1. "too descriptive or not sufficiently specific in an explanatory sense";
2. "highly stylized and rather generalized … with a lack of detail on the exact causal mechanism or mechanisms that are at play and the described processes almost naturally determine a set of outcomes over and beyond alternative explanations";
3. "too focussed on detailing and describing the different stages of a model rather than developing a set of well-argued explanations";
4. focused "too much on finding noun like outcomes or combining such words into compounds or sentences-based constructions" (Cornelissen, 2016, pp. 5–6).

Keeping these issues in mind, and the fact that the thought experiment I am using is conceptually based rather than empirically based, allows me to avoid the above problems. Specifically, I am able to isolate only the details I need to assist me in the explanation of the process I am proposing; while my process model may be rather stylised and generalised, my main focus is on the causal mechanism at play (i.e. the *A-P-H-R* chains of causality I described above in Section 2.1.3); my argumentation does not focus on descriptions of particular 'stages' but aims to elucidate the process of stakeholder involvement in opportunity creation as a whole, and; my explanation of process outcomes should be simple to understand, logical, and illuminating of the processual dynamics I am seeking to explain.

2.3.3 Propositions

Finally, and directly related to the previous two 'products of theorising' I have just described, are the two sets of *propositions* that summarise the theoretical contribution I make in this study. The first set of propositions relate to the most fundamental implications of my typology, while the second set of propositions summarise the fundamental process implications of the process model I describe. Each of my discussion chapters 4 and 5 ends with a summary of these propositions.

The propositional style is a very common way of presenting theoretical ideas which is used by many conceptual studies. Propositions are generally formal statements about the cause and effect relationships between newly introduced constructs (Cornelissen, 2016). Problems associated with this style (again, discussed by Cornelissen, 2016) are: they are too narrow in scope and summative of existing literature; they are modelled on hypothesis testing; they include multiple clauses, and; they lack detail on the causal agent. I believe that with my propositions I have avoided these problems. The first set includes detailed but parsimonious statements about the conditions of commitments being made to effectual processes given each of the four described commitment ideal types. I.e. they describe the initial, subjective A_s-P_s-H_s-R_s chain I discussed in section 2.1.3. The first set of propositions assumes a commitment has been made and can be summarised as: If the stakeholder A_s, perceives a commitment decision as problem space P_s, and they have the cognitive and behavioural tendencies of the extreme ideal type H_s, then they will make a commitment R_s. The second set of propositions follows in the same manner as the first, but this time considers responses for different perceived problem spaces and suggests potential generic actions that can be taken to elicit a particular response. The third set of propositions relate to the second, intersubjective A_i-P_i-H_i-R_i chain. In this case I take the response from the end of the first, subjective chain R_s, and propose the effects this will have on the intersubjective problem space P_i (the aggregate perception of the intersubjective problem space of 'what to do next?'), and how this will result in different responses R_i from the various other actors A_i connected to the effectuation process.

Thus concludes the philosophical and methodological overview of this study. Now, in the following chapter, I address the problem of 'knowing-what-we-know', by presenting my analysis of a systematic literature review to determine the state of the art of effectuation theory.

3 THE STATE OF THE ART OF EFFECTUATION THEORY

In this chapter I trace the developments of effectuation theory over the past seventeen years. I take the time to carefully delineate what 'effectuation theory' actually describes, breaking it down into its constituent concepts and constructs, and then reassembling them into a framework through which to better understand the role that stakeholders play in the theory as a whole. I discuss a number of assumptions present in current effectuation theory and identify its current limits, in particular in regard to the role of stakeholders.

3.1 Opportunity Creation through Effectuation

Taken as a whole, the theory of effectuation, in its current state, is primarily a theory of entrepreneurial opportunity creation, as opposed to other theories that describe entrepreneurial recognition and discovery (Alvarez & Barney, 2007; Sarasvathy et al., 2010). Opportunity within entrepreneurship literature has been viewed from two main ontological perspectives: the first is the view that opportunities exist somewhere out there and are waiting to be discovered, while the second view is that opportunities are something that can be created as the product of an individual's intellect (Alvarez & Barney, 2007). Proponents of the first view assume that the market is never in equilibrium and market opportunities exist as objective phenomena, waiting to be discovered by particularly alert individuals who identify where there are gaps between supply and demand, e.g. Kirzner's Discovery Theory of entrepreneurship (Kirzner, 1973). On the other hand, the second view's origins can be traced back the ideas of Schumpeter (1934), who proposed that opportunities are created by entrepreneurial individuals or firms who then must educate consumers to be interested in the purchase of the resultant new products or services.

Sarasvathy, Dew, Velamuri and Venkataraman (2003) presented a simple typology of entrepreneurial opportunity which consisted of opportunity recognition, opportunity discovery, and opportunity creation. The first two types of opportunity, as per Kirzner's (1973) view, are based on the assumption that opportunities pre-exist 'somewhere out there'. Opportunity recognition is assumes that markets are allocative and that to recognise an opportunity it is simply a matter of matching known supply to known demand. Opportunity discovery, on the other hand, is born of the view that informational imperfections exist in markets and that to discover an opportunity, an unknown supply or an unknown demand must be found for a known supply or demand. Firms may achieve realisation of such opportunities by following March's (1991) strategies of either exploitation, for opportunity recognition, or exploration, for opportunity discovery. Finally, opportunity creation happens when neither supply nor demand are known. While the nature of decision making with regard to opportunity recognition and discovery is characterised by risk, the nature of decision making for opportunity is characterised by ambiguity and uncertainty (Chandler, DeTienne, & Lyon, 2003).

Overall, effectuation theory, as a theory of opportunity creation, helps to explain how, often, entrepreneurs, who may start out with very few tangible resources or even clear ideas on what kind of product or service they want to provide, through the creation of networks of stakeholders, can create new and innovative firms reasonably quickly that serve markets that, before their creation, would have been difficult, if not impossible to predict (Sarasvathy, 2001). However, on review of the extant literature, it soon becomes apparent that the term 'effectuation' holds different meanings depending on the discussion. Effectuation can be used to describe three distinct but interconnected concepts that transverse different levels and units of analysis (Figure 7).

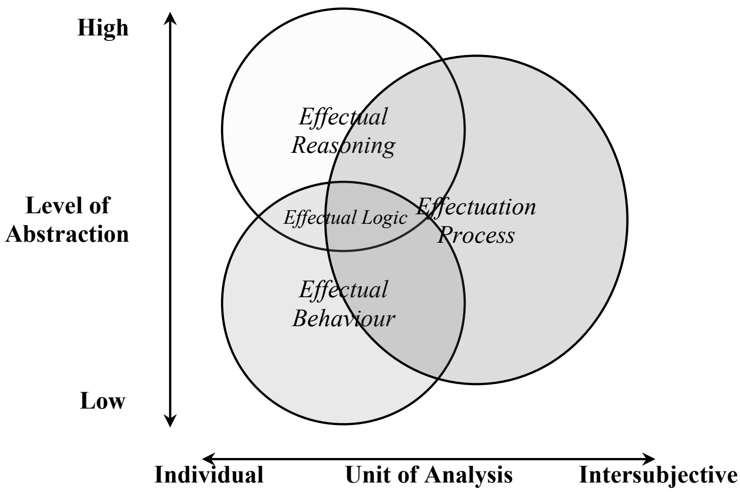

Figure 7 The components of effectuation theory

At the highest level of abstraction, effectuation describes a type of means-oriented rationality, or *effectual reasoning*, which is argued to be the inverse of the type of reasoning assumed under the long established rational choice theory of neo-classical economics – or *causal rationality* (Read & Sarasvathy, 2005). At a lower level of abstraction, and taking the decision maker as the unit of analysis, effectuation describes a set of heuristics or principles that guide the *effectual be-*

haviour that can be observed to be used by actors following effectual reasoning, and which form the 'principles of effectuation' (Read, Song, et al., 2009; Sarasvathy, 2001). Somewhere in between effectuation as a form of reasoning and effectuation as behaviour in terms of level of abstraction, but generally taking the intersubjective as the unit of analysis, is effectuation as a process, which describes a process of opportunity (or new market) creation that is initiated by an individual using effectual reasoning (and, thus, behaviour), but that also involves the enlistment of multiple different actors, loosely referred to as stakeholders, into an 'effectual network' (Sarasvathy & Dew, 2005b).

It is a useful exercise to separate effectuation theory out into its constituent parts as much of the development, or criticism, directed towards effectuation in the growing body of literature surrounding it is directed at one element or another. However, before I embark on a detailed discussion on the different uses of the concept of effectuation in the literature, I would first like to discuss the conditions under which effectuation is purported to take place, otherwise known as the 'market creation problem space'.

3.2 The Market Creation Design Space

The use of effectual reasoning, acting effectually, and the creation of effectual processes, is associated with a higher level of expertise in entrepreneurship and new venture/market opportunity creation (e.g. Dew, Read, Sarasvathy, & Wiltbank, 2009; Sarasvathy, 2001; Sarasvathy et al., 2008). It is argued that, by using effectual logic in such scenarios, entrepreneurs are able to overcome, mitigate, avoid, or even exploit the specific types of uncertainty that they are faced with in what has been labelled the 'market creation problem space' (Sarasvathy & Dew 2005) or the 'entrepreneurial design space' (Sarasvathy, Dew, Read & Wiltbank 2008). The three kinds of uncertainty that predominate this entrepreneurial design space are given as Knightian uncertainty, Marchian goal ambiguity and, environmental isotropy:

1. Knightian uncertainty: it is impossible to calculate probabilities for future consequences.
2. Marchian Goal ambiguity: preferences are neither given nor well ordered.
3. Environmental Isotropy: it is not clear what elements of the environment to pay attention to and what to ignore. (Sarasvathy et al. 2008, 337)

It is these uncertainties the render actions guided by casual rationality ineffective at best and impossible at worst.

Knightian uncertainty is the first element of Sarasvathy et al.'s (2008) 'entrepreneurial design space'. Knightian uncertainty, also sometimes referred to as ambiguity, is the situation in which the future is not only unknown, but fundamentally *unknowable*. Knightian uncertainty occurs when the situation is so unique that there are no *a priori* predictions that can be made, either through calculation or by reference to past experience. Knight contrasts this uncertainty with the concept of risk, in which distributions of outcomes *are* calculable *a priori*.

> The practical difference between the two categories, risk and uncertainty, is that in the former the distribution of the outcome in a group of instances is known (either through calculation a priori or from statistics of past experience), while in the case of uncertainty this is not true, the reason being in general that it is impossible to form a group of instances, because the situation dealt with is in a high degree unique. (Knight, 1921)

Throughout the effectuation literature, the metaphor of an urn containing coloured balls is often used to explain the Knightian distinction between risk and uncertainty. If an urn contains five green balls and five red balls, the probability of drawing a green ball from the urn can be calculated through statistical analysis. This is what Knight calls risk – where the distribution is known but the draw is not. Where the colour and number of balls within the urn is unknown, a number of balls will need to be drawn before estimates of what the distribution of balls within the urn could be. The probabilities for what will be drawn next can then be calculated. This is what Knight calls uncertainty – where both distribution and draw are unknown. Finally, when it is not known what the urn even contains, or whether there is an urn at all, this is Knightian uncertainty. In this situation the distribution does not exist or is unknowable. (Knight 1921; Dew et al. 2008)

The concept of Knightian uncertainty is inextricably related to entrepreneurship due to the fact that innovation underlies entrepreneurial activity. Whatever the form this innovation takes, it creates an undetermined number of new resources, both tangible and intangible (even invisible) that each generate *ex ante* uncertain returns (Amit, Glosten, & Muller 1993). Three types of these Knightian uncertainties are described by Amit, Glosten, and Muller (1993; 825): Technical uncertainty, demand uncertainty and, imitation and competing innovations. An example of demand uncertainty is the number of consumers that demand a new innovation and the price they are willing to pay for it. An example of technical uncertainty is that the production and cost functions may be unknown; how long the innovation takes to market, how much it will cost to produce, and will it even work. Finally, it is unknown whether or not competing or immitating innovations are on the horizon, and how long it will take for them to erode the network's advantatge.

Marchian goal ambiguity forms the second element of Sarasvathy et al.'s (2008) entrepreneurial design space, and the second construct of the market creation environment. Goal ambiguity poses a problem for rational choice for a number of reasons which are summarised by March (2006: 204):

> Preferences, in the sense of the values, wants, or utilities that are served by action, are unclear and inconsistent. Their summary and combination appear to demand metrics and procedures that are elusive ... They change, partly endogenously ... Since consequences unfold over time, intelligence requires intertemporal trade-offs that are neither trivially specified nor easily accomplished.

Marchian goal ambiguity occurs when decision makers do not have predetermined preferences or goals and, where they do exist, they are not clear or well ordered (Sarasvathy & Simon 2000; Sarasvathy et al. 2008). Marchian uncertainty is derived from the influential work of March (1982) on the 'technology of foolishness'. In his work, March makes a distinction between technologies of rationality, and technologies of foolishness. The former is built upon a consistent set of preferences and values that allow rational choice to be used in decision making, while the latter is built upon the absence of pre-existing goals, where experimentation or *playfulness* forms the basis of action.

Isotropy is the third and final element of the problem space faced by those who would create new markets (Sarasvathy et al. 2008). In the earlier effectuation literature, the third element of the problem space was generally more focused on the ideas of Weick (1979), where the environment "does not independently influence outcomes or even rules of the game" (Sarasvathy & Simon 2000, 5). This kind of 'Weickian' design space is based on Weick's (1979) argument that the decision makers themselves, by acting on whatever idiosyncratic criteria they choose, shape the environment and, therefore, the decision making criteria: "Furthermore, decision makers in organizations intervene between the environment and its effects inside the organization, which means that selection criteria become lodged more in the decision makers than in the environment" (Weick, 1979, 125).

Sarasvathy and Dew (2005) later introduced the concept of 'isotropy' which was the problem defined by philosophers such as Fodor[4] (see Sarasvathy & Dew 2005), as the situation in which it is not clear, *ex-ante,* which elements of the environment should be considered and which should be ignored when a decision needs to be made as to an action that needs to be taken (Sarasvathy & Dew 2005). By the time of Sarasvathy et al.'s (2008) article on designing organisations that design environments, isotropy became the clear third element of the entrepreneurial design space, and Weick's ideas remained as one of the foundations for the control construct of effectuation – a possible response to, and possible cause of, the problem of isotropy. A high level of isotropy combined with Knightian uncertainties is a situation which has been described by some authors as *unknown unknowns* or "unk unks" – the particularly problematic situation for

[4] Fodor J. A. (1987) Modules, frames, fridgeons, sleeping dogs, and the music of the spheres. In *The robot's dilemma: the frame problem in artificial intelligence*, ed. by Z. W. Pylyshyn, 139-150. Ablex Publications, Norwood, NJ.

many new ventures where, not only are the probabilities for future consequences incalculable, but future consequences are also unforeseeable (Loch, Solt & Bailey 2008).

3.3 Rationality and Effectuation as a Form of Reasoning

When we talk about 'rationality' in the context of any discipline relating to economics or organisational science, we generally mean the conception of the rationality employed by the model 'economic man', or *homo economicus,* of neo-classical economic theory; a goal driven and predictive actor "who is balancing probable result against disutility of effort" (Brouwer, 2002, p. 100). As the conduct of entrepreneurs often did not fit into this mould of a means to ends connecting, routine optimising economic man, Schumpeter believed entrepreneurial behaviour to be a deviation from this kind of 'formal' or 'objective' rationality (Brouwer, 2002; Endres & Woods, 2010). While Schumpeter considered entrepreneurial behaviour to be non-rational or, rather, it holds to a different 'subjective' rationality, Sarasvathy, Dew, Read, & Wiltbank (2008, p. 50) instead argue that effectuation is "neither 'rational' in the traditional sense nor a 'deviation' from rational behaviour". They consider the theory of effectuation to be a "straight inversion of rational choice theory" assumed under instrumental rationality (Read & Sarasvathy, 2005, p. 50). In effect, effectuation theory can be argued to have defined a new sub-category of what Weber (1978) calls instrumental rationality (Figure 8).

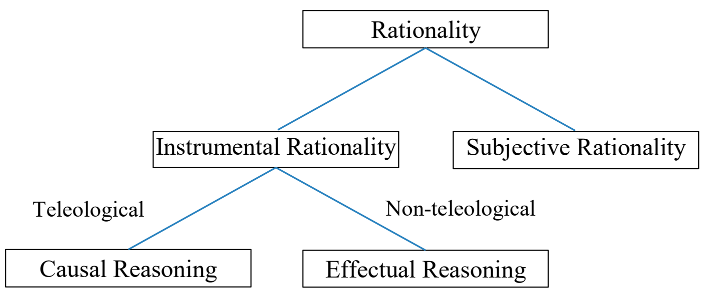

Figure 8 Causal and effectual sub-categories of instrumental rationality

I will enter into a more detailed discussion on the distinction between instrumental and subjective rationality later in Chapter 4, however, for now it is suffice to say that effectuation is instrumental in rationality (Weber, 1978) in that action taken under effectual reasoning is calculated and assumed to ultimately be concerned with some form of success. However, effectual reasoning is described as being opposite to the traditional goal-oriented, predictive or 'causal rationality' described by rational choice theory which has long dominated management and entrepreneurship literature (Read & Sarasvathy, 2005).

Despite effectuation being set opposed to 'causal rationality', it seems that those who have published works on the subject of effectuation theory have been cautious not to label it as 'effectual rationality'[5], at least in peer reviewed journal articles, and have instead taken to using terms such as 'effectual reasoning'- as first used in Sarasvathy (2001), or 'effectual logic' – a term first used in Sarasvathy & Dew (2005b). For example: Sarasvathy (2004, p. 256) explains: "…in my empirical investigations into the symbolic cognitive processes used by expert entrepreneurs in designing new firms, I discovered a set of principles and a logic of problem solving that I dubbed effectual reasoning"; while, according to Sarasvathy et al. (2008, p. 345): "Effectuation may be called a logic because it is a coherent system of principles that are inherently interrelated, internally consistent and collectively independent (i.e. do not rely on ad hoc outside assumptions)". Without wanting to wade into the vast and age old philosophical discussion on the distinction between 'reasoning' and 'logic', based upon my reading of the effectuation literature, it is my interpretation that 'effectual logic' is a mid-range concept that occurs at the interface between effectual reasoning and effectual behaviour – i.e. it represents the *decision rules* of effectuation. It is therefore located at a lower level of abstraction than effectual reasoning but higher in abstraction than effectual behaviour (as shown in Figure 7). To summarise, for the purposes of this thesis, when I refer to effectual reasoning, I mean the more abstract, cognitive, and internal to the individual manifestation of a non-teleological rationality, while when I refer to effectual logic, I mean the more concrete decision making rules and choices that such a form of reasoning denotes.

Instead of being a form of reasoning that follows neo-classical conceptions of rationality, effectual reasoning has been described as 'pre-rational' (Sarasvathy & Dew, 2005b) and 'non-teleological' (Sarasvathy & Dew, 2005b; Sarasvathy et al., 2008); its defining characteristic that sets it apart from rational choice theory being that it does not presuppose a concrete goal that guides action. Steyaert (2007, p. 466) believes that this "ability to account for the non-teleological aspect of entrepreneurial action" is "the single most important aspect of effectuation". There are others who have also touched upon this difference in rationality and reasoning between entrepreneurs and others, for instance, according to Schumpeter (1934): "The manager chooses from the most advantageous among the

[5] Only a limited number of works in my entire literature review, including Sharma and Salvato (2008) - in reference to Sarasvathy's unpublished doctoral dissertation of 1998, Dew, Sarasvathy, Read, and Wiltbank (2010) , Sarasvathy and Berglund (Foss & Klein, 2017), have explicitly used the term 'effectual rationality'. I believe this may be due to the considerable amount of theoretical justification that would be required to set up effectual rationality as being its own paradigm of rationality.

methods which have been empirically tested and become familiar at a certain point in time, whereas the entrepreneur looks for the best method possible at the times.” This phenomenon has similarly been described through the concept of ‘entrepreneurial bricolage’ or making do with what is at hand (Baker & Nelson, 2005; Fisher, 2012). As Stinchfield, Nelson, & Wood (2013, p. 890) note: “researchers have recently catalogued entrepreneurial behaviors that do not appear to be driven purely by economics. One of the most salient examples of this is emergence of research documenting bricolage as a unique form of entrepreneurial behavior". If we consider effectual reasoning to be a newly defined category of instrumental rationality, set inverse to causal reasoning, it enables the classification of many of these entrepreneurial behaviours as being the non-teleological actions of rational actors where previously such behaviours might have been considered aberrations to instrumental rationality or, instead, follow some form of subjective rationality[6].

Despite the evident importance of the identification, at a higher level of abstraction, of this means driven sub-category of instrumental rationality, most of the extant discussion on effectuation theory is directed towards the effectual behaviour constructs that I will presently discuss in the following section. Very little theorising has yet been dedicated to the broad ontological implications that the identification of effectual reasoning has for organisational science as a whole, and effectuation theory has only just recently begun to extend out of the domain of entrepreneurship studies.

3.4 Effectuation as a form of Behaviour

The vast majority of articles written on the subject of effectuation since it was first introduced by Sarasvathy (2001) have particularly focused on effectuation as behaviour, or how it constitutes a particular type of decision making strategy that can be used by an individual acting under uncertainty. There has been literature that has been dedicated to defining (Perry et al., 2012; Sarasvathy, 2001), validating (Chandler et al., 2011), comparing to other behavioural theories (Fisher, 2012), and critiquing (Arend et al., 2015; Baron, 2009) effectuation as an individual level behaviour, or collection of behaviours and heuristics. Behaviours and heuristics that account for the means-oriented, non-predictive logic and associated actions that have been empirically observed as being employed by ‘expert entrepreneurs’ who subscribe to effectual reasoning (Dew et al., 2009).

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[6] See Endres & Woods (2010) for a conversation on how Schumpeter contrasts entrepreneurship to rational economic behaviour.

It is in this literature that the use of the term ‘effectuation’ refers to the effectual behavioural construct that is comprised, generally, of five sub-constructs which have been variously been described, among other variations, as the ‘ principles’(Sarasvathy, 2001), ‘behavioural principles’ (Perry et al., 2012), ‘logical frames’ (Dew et al., 2009), and decision-making ‘heuristics’ (Werhahn, Mauer, Flatten, & Brettel, 2015) of effectuation. As each particular term is used by different authors and publications to qualify the constructs in particular ways, I shall simply refer to them using the blanket term of ‘behavioural constructs’. These behavioural constructs, contrasted against their inverses in the predictive strategies used by those following causal reasoning, are, at their most simple: a focus on means rather than goals; a focus on affordable loss, rather than expected returns; a reliance on strategic alliances (or, more recently, partnership) rather than competitive analyses; the exploitation of contingencies rather than preexisting knowledge; and an emphasis on controlling an unpredictable future rather than predicting an uncertain one (Dew et al., 2009; Perry et al., 2012; Sarasvathy & Dew, 2005b). A summarisation of these behaviours and associated issues is provided in Table 4, below.

Table 4 Differences between causal and effectual behaviours, adapted from Dew et al. (2009)

Issue	**Behaviour under Effectual Logic**	**Behaviour under Causal Logic**
View of the future	Predict	Control/Create
Basis for taking action	Focus on goals	Focus on means
Predisposition toward risk and resources	Evaluate expected return	Evaluate downside potential and determine affordable loss
Attitude towards outsiders	Engage in competitive analysis and avoid dilution of ownership	Seek out and combine partnerships, particularly equity partnerships, shape the direction of the venture and to create new markets.
Attitude towards unexpected contingencies	Contingencies should be avoided as they are seen as obstacles to careful prediction and planning	Contingencies should be seized upon as opportunities for novelty and creation.

In their validation study of causation and effectuation processes, Chandler et al. (2011) discovered strong empirical evidence showing that, while causation is a unidimentional reflective construct, effectuation is a multidimensional formative construct (Figure 9).

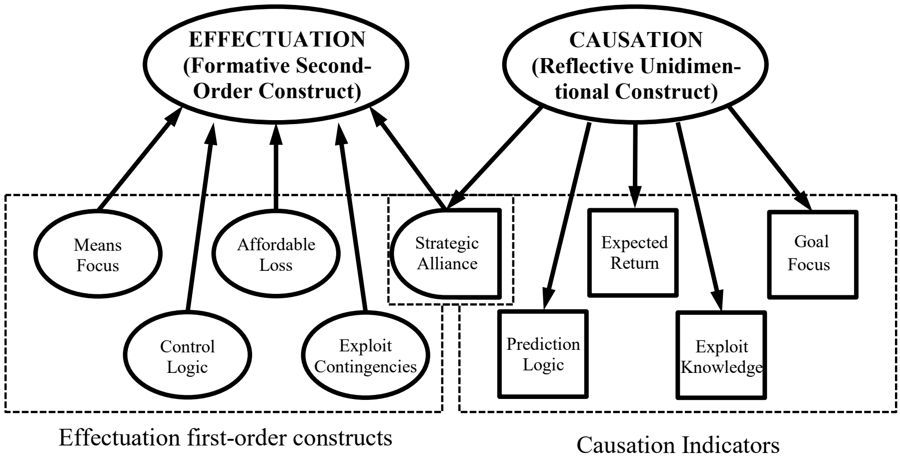

Figure 9 Causation and effectuation constructs. Based on Chandler et al. (2011)[7]

By using factor analysis, Chandler et al. empirically tested the validity of both the constructs relating to effectuation and those relating to causation. The principles on which they based conceptualisation of the constructs were as follows:

1. a focus on short-term experiments to identify business opportunities in an unpredictable future (effectuation) versus prediction of an uncertain future by defining the final objective up front (causation);
2. a focus on projects where the loss in a worst-case scenario is affordable (effectuation) versus maximization of expected returns (causation);
3. an emphasis on pre-commitments and strategic alliances to control an unpredictable future (effectuation) versus business planning and competitive analyses to predict an uncertain future (causation), and;
4. exploitation of environmental contingencies by remaining flexible (effectuation) versus exploitation of pre-existing capabilities and resources (causation). (Chandler et al., 2011, p. 377)

They found support for Sarasvathy's (2001) assertions that causation and effectuation should be treated as distinct constructs, however, while the sub-constructs that made up causation loaded together, the sub-constructs for effectuation did not. This supports the argument made by Perry, Chandler and Markova (2012) that the dimensions of effectuation are independent of one another. This also suggested to them that effectuation is a formative construct; a possibility that has important theoretical implications which are discussed in depth in the following paragraphs.

[7] Whether or not effectuation is 'truly' a formative second order construct or whether it might be a reflective unidimensional construct, or whether it exists at all, may be debateable, and different empirical studies may treat it as one or the other, or neither. However, from my nominalist position, these questions are immaterial, all that matters is that I have chosen Chandler et al.'s conceptualisation as that which best fits my discussion.

Constructs can be either reflective, or formative. Coltman, Devinney, Midgley and Venaik (2008) identify three theoretical considerations for a construct being either formative of reflective. They are: the nature of the construct, the direction of causality and, the characteristics of the indicators. The nature of the reflective construct is that it exists independently of its measures. Causality flows from the construct, down to the sub-constructs or indicators that describe it. In a reflective construct, any change in the sub-ordinate constructs or indicators must be preceded by a change in the main construct. A formative construct, on the other hand, does not exist independently from its measures; it exists as a composite of its elements. Causality flows to the construct from sub-constructs or indicators that define it. This means that the absence of one or more indicators or sub-constructs may result in a significant change in the conceptual domain of the formative construct. While the indicators of the reflective construct should be highly correlated, those of the formative construct will be independent of one another (Coltman et al., 2008; Jarvis, MacKenzie, & Podsakoff, 2003).

The use effectual logic is based upon the pragmatic desire to limit the negative effects of decisions taken where the consequences are not knowable - when causal reasoning is either impossible or the risk of using it is too great. This means that, rather than causation being the opposite of effectuation, I suggest that it may be useful to conceptualise causation as being the default decision making logic of any decision making actor, to which an absence of effectual rationale falls back to when it is not required or desired (if we assume that instrumental rationality underlies the decision). Causal logic is ever-present in an actor's mind (as indicated by its presentation empirically as a reflexive construct in Chandler et al., [2011], and as it is the default logic of novices [Dew et al., 2009; Read, Dew, Sarasvathy, Song, & Wiltbank, 2009]), however, the extent to which an actor behaves more causally or more effectually is determined by the number of, and extent to which, the actor emphasises effectual strategies over and above causal ones (as indicated by effectuation's presentation empirically as a formative construct. If we conceptualise effectuation as a formative construct, this implies that the absence of one or more of the effectuation first-order constructs of means focus, affordable loss logic, control orientation, contingency exploitation, and/or strategic alliance, will result in a construct that is not effectuation but something conceptually different. Causation, being reflective, reflects goal focus, expected return logic, prediction orientation, and knowledge exploitation but is not altered conceptually by one or more effectual first-order constructs being present. In other words, for an individual to be entirely effectual in behaviour, he or she will need to exercise all of the principles of means focus, affordable loss logic, control orientation, contingency exploitation, and willingness to engage in strategic alliances. Should the individual not exercise one or more of these principles, then he or she is no longer completely effectual in reasoning, but does exhibit some level of effectual logic. One criticism weighed at effectuation by Arend, Sarooghi, and Burkemper (2015) is that, as it represents an amalgam of a number of strategies rather than being a single unidimensional construct, it lacks *coherence* in its logic as a theory.

The argument that the effectuation construct is the inverse of causation construct has also come under some scrutiny in the literature. Some have argued that effectuation and causation have been incorrectly treated as dichotomous (Dave Crick & Crick, 2016; Kraaijenbrink, 2008). Indeed, Read and Sarasvathy themselves state that:

> It is important to note that the extreme dichotomy described [between causation and effectuation] is meant to create a powerful theoretical separation between effectuation and rational choice. Empirically speaking, of course, both causal and effectual processes would be at work in reality. We would expect, therefore, that the data entrepreneurship scholars gather would contain decisions and actions that confound the two. (Read & Sarasvathy 2005, 17)

This is evident when we consider that the behaviours implied by causation and effectuation given above do not preclude one another. One can be means focused but goal driven, be able make decisions based upon expected returns while also risking no more than they can afford, can conduct careful competitive analysis while at the same time being receptive to strategic alliance, etc. Instead, Perry, Chandler and Markova (2012, p. 855) argue that causation and effectuation should not be considered opposing constructs, but as *orthogonal* and "similar to satisfaction and dissatisfaction". Furthermore, in a validation study of causation and effectuation processes, Chandler, DeTienne, McKelvie and Mumford (2011) found that the construct of strategic alliance and pre-commitment was one that is shared by both effectuation and causation. While it may be so, as Sarasvathy (2001) argues, that strategic alliance is an important dimension of effectuation, to exclude strategic alliance as part of traditional competitive (i.e. causally rational) strategies belies the vast body of literature on that subject. A causally rational actor will use strategic alliance as a means to an end, while an effectually rational actor will use strategic alliance as a means to new means and ends.

Arend, Sarooghi, and Burkemper (2015, p. 642) argue that the specific context in which effectual logic occurs, i.e. in contexts of high uncertainties, make effectuation theory "tautological by *syllogism*: the specific context of effectuation implies particular rational responses that are embodied in specific units of effectuation theory; thus, the context implies the depicted behaviour, giving no possibility of falsification". This raises the interesting question of whether or not effectual or means-oriented logic might be applied in contexts of low uncertainty, and if so, for what reason and to what effect? It certainly might seem to be irrational for one to use effectual logic in circumstances in which reasonable predictions can made but, as many can attest, human decision making need not always be rational. Drawing from my systematic review of the literature, I will take a more in depth look at the five behaviours outlined in Table 4 in the following subsections, and provide a brief overview of their treatment in the extant literature.

3.4.1 Means orientation versus goal orientation

The first and most important sub-construct of effectuation, and what arguably makes effectuation ‘effectual’, is an orientation towards means driven action rather than goal driven. *Means focus* is different from the other constructs being examined in this study. Unlike the other four constructs, it is not a direct response to the environment (Sarasvathy & Dew, 2005a). Rather, it is an individual decision making construct that sets the user of effectual logic (as I shall henceforth simply refer to as the *effectuator*) firmly apart from the user of causal logic (henceforth, the *causator*). It can be summed up simply as the difference between a causator’s rationale of “how can I get from point A to point B using my means?” versus the effectuators rationale of “what are the possible points B that I can image I can produce from my means at point A?” This focus on imagination and subjectivity, as opposed to the predominantly goal focused, or teleological, model of entrepreneurship is considered a particularly strong point of effectuation in providing creative explanations for entrepreneurship.

Sarasvathy (2001) identifies the initial three categories of means available to an entrepreneur in pursuit of new venture/market creation:

> Entrepreneurs begin with three categories of "means": they know who they are, what they know, and whom they know-their own traits, tastes, and abilities; the knowledge corridors they are in; and the social networks they are a part of. (Sarasvathy, 2001, p. 250)

In short, they refer to the entrepreneur’s “Identity; Knowledge; and Networks” (Wiltbank, Dew, Read, & Sarasvathy, 2006, p. 991). Raised to a higher level of analysis, Sarasvathy (2001) continues, on the level of the firm, these means are its resources – physical, human, and organisational, as per the resource-based view of the firm (Barney, 1991) and on the level of the economy, means are demographics, technological trends, and socio-political institutions. Read and Sarasvathy (2005) argue that expert entrepreneurs are more likely to be means oriented in decision making due to their more extensive knowledge assets and their ability to integrate, synthesise, and use that knowledge to solve novel problems. Because this type of expertise is not available to novices, novices are simply limited to using goals as the basis of their decision making actions. Strong empirical support for the hypothesis that expert entrepreneurs were more likely to draw on their personal experience in decision making was uncovered in studies examining the differences between experts and novices (Dew et al., 2009; Read, Dew, Sarasvathy, Song, & Wiltbank, 2009). Empirical support for the importance of means focus in new venture performance was also found in a meta-study of entrepreneurial literature by Read, Song and Smit (2009).

3.4.2 Affordable loss versus expected return

The affordable loss principle is a response to environmental risk. While the causator focuses on maximizing potential returns through selection of optimal strategies, the effectuator's aim is to experiment using as many different strategies as possible, given his or her means, while investing only as much as he or she would be willing to lose (Sarasvathy, 2001). An effectuator will have a preference for actions that create more options in the future rather than greater returns in the present (Sarasvathy 2001). The projects that will be focused on will be limited to ones in which the worst-case scenario is affordable (Chandler et al. 2011).

Although there is empirical support for the affordable loss principle as being part of the larger effectuation construct (Chandler et al., 2011), a meta-analysis of entrepreneurship literature did not find support for it being positively related to new venture performance (Read, Song, et al., 2009). As Perry et al. (2012) argue – affordable loss is not the opposite of expected return. For instance, an entrepreneur faced with a number of potential directions in which to take the effectual network may indeed choose one based on affordable loss, in the event that the path taken will end in the worst case scenario, however, where two paths present themselves that can be pursued based on the same affordable loss principle, the entrepreneur would likely choose the one with the probability of greatest return. This is empirically supported, with Ketolainen, Nummela, and Kalinic (2016), in interviews with the entrepreneurial managers of Finnish biotech firms, finding that while affordable loss was emphasised for short term operative decisions, for decisions with longer term strategic impact, these managers would use affordable loss and expected return estimations simultaneously and complementarily.

3.4.3 Exploiting contingencies versus exploiting knowledge

Leveraging contingencies rather than trying to avoid them while utilising preexisting knowledge is the construct least discussed in the literature. Sarasvathy's (2001, p. 252) definition of this principle is simply: "When preexisting knowledge, such as expertise in a particular new technology, forms the source of competitive advantage, causation models might be preferable. Effectuation, however, would be better for exploiting contingencies that arose unexpectedly over time". By leveraging contingencies, effectuators are able to turn unexpected events from being risks that should be avoided, into opportunities that should be exploited (Sarasvathy & Dew, 2005a; Wiltbank et al., 2006).

This is a construct in response to both environmental uncertainty and risk. It has been suggested that leveraging contingencies means to remain flexible (Chandler et al., 2011) or, as Wiltbank et al. (2005) describe it, keeping open room for surprises. This can manifest itself in a willingness to modify products and embrace customisation, and to possess the characteristics of openness, organicity, and a transformational leadership style (Read, Song, et al., 2009). The effectual individual thrives on contingency, by transforming it into opportunity. The causator, on the other hand, treats contingencies as something unpleasant and risky, which should be avoided or neutralised (Sarasvathy & Dew, 2005a; Wiltbank et al., 2006).

Read and Sarasvathy (2005) claim that experts are able to intuitively recognise from past experience where failure is possible. To mitigate against failure they actively build contingency into their strategies. Strategies include: Deferring the elimination of options; selecting paths that result in multiple positive outcomes and; selecting strategies that result in multiple paths contingent on intermediate options. The meta-analytic study of entrepreneurships literature by Read et al. (2009) found that 'Leveraging Contingency' was positively and significantly related to new venture performance.

3.4.4 Control logic versus prediction logic

The final behavioural construct that is unique to effectuation is control logic; a response to an uncertain environment. Sarasvathy summarises the effectual logic of control through the statement: "To the extent that we can control the future, we do not need to predict it", as opposed to the causal logic of prediction, summarised by the statement: "To the extent that we can predict the future, we can control it" (Sarasvathy, 2001, p. 252). A causator might use detailed market analysis to attempt to predict market trends and consumer behaviour in order to decide what strategic path to take that results in the largest market share. The effectuator, on the other hand, avoids prediction altogether. By controlling the elements of the environment which he or she has control over (Sarasvathy & Dew, 2005b), the effectuator can guide the way in which the future unfolds. One way of doing this is by bringing potential stakeholders into the fold of the effectual network through strategic alliances and pre-commitments, so that their means and goals will together form both the product and the market. While control and prediction may not be opposites, an effectuator is distinguishable from a causator in that he or she is capable of employing control logic in an environment that precludes prediction. A causator, on the other hand, is unlikely to choose a course of action that relies on control rather than prediction.

Read and Sarasvathy (2005) claim that experts do not need to rely heavily on predictive information as they have amassed knowledge that allows them to make good decisions with limited information. They operate as filters, comparing their current environment against patterns from previous experience, and can ignore predicative information that is based on elements of their environment which will change anyway, based on the actions that the entrepreneur will take. This allows expert entrepreneurs to take creative, and realistic, courses of action which are not contingent on external factors outside of their control. In their empirical study of 'angel investor' behaviour, Wiltbank, Read, Dew, & Sarasvathy, (2009) found evidence for the argument that angel investors who exert control logic will experience fewer investment failures. However, there was no evidence for the argument that an emphasis on prediction would result in more frequent failures. Again, prediction and control are not opposites (Perry et al., 2012). Indeed, in their taxonomy of strategies along the dimensions of prediction and control, Wiltbank et al. (2006) describe a 'Visionary' strategy, which has a strong emphasis on both.

3.4.5 Strategic alliance versus competitive analysis

A focus on strategic alliances and pre-commitments from stakeholders, such as customers and suppliers, is a construct in response to environmental uncertainty. Sarasvathy (2001) contrasts effectuation against causation models such as those espoused by strategists such as Porter (1980) which emphasize detailed competitive analysis. Sarasvathy argues that effectuation emphasises strategic alliances, partnerships and pre-commitments as "a way to reduce and/or eliminate uncertainty and to erect entry barriers" (Sarasvathy, 2001, p. 252). Such partnerships can be both exogenous (partnerships with other organisations, both public and private etc.) or endogenous (partnerships with employees, paid researchers, firm partners etc.)(Read, Song, et al., 2009). In effectual networks the transactions between partners are not arm's length, and involve partners sharing both risk and gain. While effectuation emphasises that the stakeholders who commit to the effectual network determine the projects objectives, it is argued that in the causal model the project objectives determine who is to come on board. The causal model dictates that behaviour towards customers and suppliers is to limit task relationships with them to only those that are absolutely necessary, while the effectual attitude is to build your market with your customers, suppliers, and even possible competitors (Sarasvathy & Dew, 2005a). Empirical evidence from the meta-analysis of entrepreneurship literature by Read et al. (2009) supports the hypothesis that partnership is positively related to new-venture performance.

A final point to note from Chandler et al.'s (2011)validation study is that the construct of strategic alliance and pre-commitment was one that is shared by both effectuation and causation. While it may be so, as Sarasvathy (2001) argues, that strategic alliance is an important dimension of effectuation, to exclude strategic alliance as part traditional competitive (i.e. causal) strategies belies the vast body of literature on that subject[8].

3.5 Effectuation as a Process

Effectuation as a process is model of how opportunities are created and how firms and markets come to be. In Sarasvathy's (2001) original work, she conflated effectuation processes with the aforementioned effectual principles or behaviours. She describes effectuations processes succinctly, under what she entitled 'The Theory of Effectuation' as follows:

> Effectuation begins with a given set of means and contingent human aspirations to select from a set of possible effects imagined by the effectuator(s). Both means and aspirations change over time. The particular effect selected is a function of the level of loss or risk acceptable to the effectuator(s), as well as the degree of control over the future that the effectuator(s) achieves through strategic partnerships along the way. (Sarasvathy, 2001, p. 253)

This was in contrast to the typical kind of strategizing and decision-making advocated in economics and management (at the time) that she labelled as 'causation', for which she provided the following definition: "Causation processes take a particular effect as given and focus on selecting between means to create that effect" (Sarasvathy, 2001, p. 245). In later articles, a separate model for effectuation as a transformative, dynamic, iterative, and interactive process, derived from effectuation principles, was introduced (Read & Sarasvathy, 2005; Sarasvathy & Dew, 2005a, 2005b; Wiltbank et al., 2006). This model is illustrated below in Figure 10.

[8] See, for example, Hamel, Doz, & Prahalad (1989), Hamel (1991), Contractor & Lorange (1988)

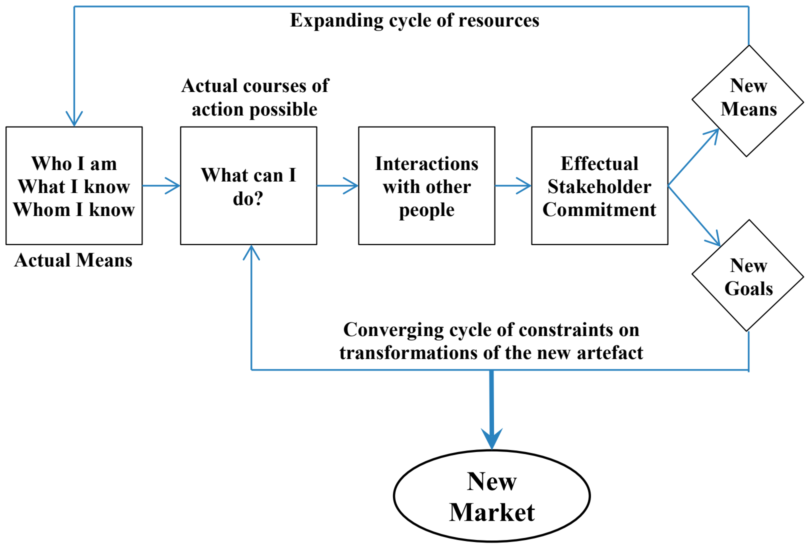

Figure 10 A dynamic model of the effectual network and the new market as an effectual artefact (Sarasvathy & Dew, 2005b)

The model describes how new markets can emerge as an outcome, rather than a goal, of a process based upon effectual logic and behaviour. A new market emerges endogenously through the expanding cycle of resources and converging cycle of constraints generated by a growing *effectual network* of stakeholder commitments. It should be noted, however, that Sarasvathy and Dew (2005b, p. 542) state in their article that:

> We are using a single instance (a thought experiment) of how the new market creation problem could be solved at the micro level to argue there exists a general theoretical solution. Actually proving that general solution itself is outside the scope of this article.

That is to say, the process they present through their model (and explicated in a thought experiment that I shall discuss in the following section) is an idealised sequence of events that may lead to a new market being created, rather than being an empirical certainty.

Market creation through effectuation is considered synonymous with opportunity creation because the end result is a new market that did not exist previously. However, rather than being a theory of how new markets are created from scratch, the effectuation does not treat markets as given and objective realities but, rather, as artefacts that can be created, destroyed, or transformed from being one form to being something entirely different through a form of evolutionary process (Dew et al., 2011; Sarasvathy, 2004; Sarasvathy & Dew, 2005b; Sarasvathy et al., 2008). In effect, effectuation describes how various actors or stakeholders, in a network revolving around, and guided by, an entrepreneur following effectual reasoning, iteratively transform extant realities into something new:

> By continuously and iteratively negotiating with those stakeholders who actually commit to particular elements of the design process, we make both new means and new goals possible and reshape reality as we go. Reality, in this worldview, is nothing but a negotiated set of constraints on our actions. We do not mold reality into some disembodied vision that we aspire to, but rather concurrently transform both constraint and aspiration by actively reimagining the possible through the actual (Sarasvathy, 2004, p. 525)

The result of the effectuation process is a new market that did not previously exist and, presumably, a new firm that serves that market, however, the result is neither predicted nor planed *ex ante*, but is contingent on the stakeholders who contributed to the process, their actions and goals (Read & Sarasvathy, 2005, p. 53).

Stakeholders are said to 'self-select' into the network in their initial commitments. Sarasvathy and Dew (2005b) reason that, as stakeholders self-select into the process without consideration of a particular goal or expected return, and only invest what they can afford to lose; there arise no issues of opportunism or opportunity cost on the part of the entrepreneur. I.e. the entrepreneur does not need to choose who their stakeholders should be, because all that matters is that the stakeholder wants to be part of the process, thus eliminating the opportunity cost of the possibility that there are other potential customers out there that they will ignore, and; because these self-selected stakeholders have to make actual commitments to, and be actively engaged in, a process leading to uncertain ends, the process itself selects out opportunists in favour of 'intelligent altruists'. As the network grows larger and the pool of means increases, constraints also increase and the form that will eventually be taken by the final artefact becomes clearer. Later members to the network are less able to negotiate the final form of artefact that the network will ultimately produce. The network becomes gradually less and less effectual until it eventually coalesces into a new market, at which point the firm will continue to operate and grow through a more causal approach (Read & Sarasvathy, 2005; Sarasvathy & Dew, 2005b).

The process described above by which the effectual network grows makes several key assumptions. These assumptions are: the process precludes assessment by members of expected return; the process ignores opportunity costs and; the process avoids opportunism (Sarasvathy & Dew, 2005b, 2008a). Further, for this to occur, they make it clear that the chain of commitments that form the effectual network are all assumed to be between stakeholders who share the same effectual logic to the exclusion of causal rationales (Sarasvathy & Dew, 2005b; Wiltbank et al., 2006). As I have already mentioned, opportunity cost is avoided because an effectual commitment does not require the entrepreneur to seek out all other potential customers before negotiating a commitment with the original potential customer. Note, however, that this assumption does not consider an opportunity cost on the part of the external party making the commitment – it assumes stakeholders who are concerned with opportunity cost are simply selected out. In fact, Sarasvathy and Dew mostly avoid questions of stakeholders' motivations. They make the rather tautological argument that the stakeholders who join the network do so effectually, thus identifying them as true customers (or suppliers or investors), while those who are causal self-select out. However, if we want to know how these different stakeholders may impact or affect the unfolding of this process, how they interact with the entrepreneur and one another, and how exactly the expanding cycles or resources and converging cycles of goals of the network emerge, this explanation remains unsatisfactory. I will expand on why I believe this is so in the following section by taking a closer look at what has been said about stakeholders and their commitments thus far in the literature.

3.5.1 Effectual stakeholder commitments

The role of the actors broadly referred to as 'effectual stakeholders' or simply 'stakeholders' in the theory of effectuation is a fundamental one, with the transformational effectuation process even being labelled 'stakeholder-dependent' (Dew et al., 2011; Dew & Sarasvathy, 2007; Read, Dew, et al., 2009). However, the role of stakeholders in this process remains fairly superficially understood and ill-defined. As stated above, the effectuation process model relies on these stakeholders to provide it with new means/resources, and new goals/constraints through their commitments. So, who are these stakeholders and what are their reasons for making commitments?

According to the literature, the only criterion for becoming an effectual stakeholder is that the individual in question has to 'buy into' the network with an actual commitment (Sarasvathy, 2001; Sarasvathy & Dew, 2005b). Other than that, potential stakeholders can be anyone, as (Wiltbank et al., 2009, p. 117) argue: "[Effectual entrepreneurs] work with any and all interested people – usually starting very close to home, inside their immediate social network – and work outward to expand the stakeholder network through a process of self-selection". Initially, pre-firm, an effectual entrepreneur's potential stakeholders may include "friends and family, or random people they meet in the routines of their lives" (Wiltbank et al., 2006, pp. 991–992), and later, as a new firm emerges, potential stakeholders could include other firms, including "customers, suppliers and even prospective competitors" (Read & Sarasvathy, 2005, p. 52), or internal stakeholders, such as employees (Read, Song, et al., 2009). On the subject of why a stakeholder may make a commitment to an unfolding effectuation process, Sarasvathy and Dew (2005b, p. 554) state, vaguely, that: "Reasons for making commitments may range from pre-existent preferences to docility, passions and convictions to self-interest and fun, reformatory zeal to indifference". For the extant effectuation literature, questions of who stakeholders are and why they choose to make their commitments are immaterial; what is important is the fact that they self-select by making an actual commitment (through the provision of new resources to be mobilised to new actions), and that the commitment is governed by effectual reasoning, i.e. it is an *effectual commitment* that is made. "What counts is the willingness of stakeholders to commit to the construction process; and not their fit with or alignment to some pre-conceived vision or opportunity" (Wiltbank et al., 2006, p. 992). So what is an effectual commitment?

An effectual commitment derives from the effectual principle of strategic alliance or partnership which I discussed in brief in Section 3.4.3. In effect, an effectual commitment is what cements an effectual partnership, regarding which Read, Song, and Smit (2009, p. 574) state: "an entrepreneur or a venture may build many relationships, but only those in which both parties share the risk of the venture and benefit from the success of the venture constitute effectual partnerships". The first detailed elaboration on what exactly an 'effectual commitment' constitutes is outlined by Sarasvathy and Dew (2005b). They illustrate through a thought experiment how the initial commitments of an effectual network likely eventuate. In the thought experiment outlined in Figure 11 (over the page), an entrepreneur approaches a customer with a product. The customer would like to purchase the product from the entrepreneur but with a specification to which modification of the product will cost the entrepreneur a significant amount of money. Three solutions are given; the first two of which keep the customer at arm's length, and a third, entirely effectual solution, which invites the customer to invest in the modification. While the arm's length transactions suggested in the first two solutions are described as being unlikely to succeed, the effectual solution is described as being mutually beneficial and eliminates uncertainty as it confirms the potential customer as a genuine customer. It is this kind of initial commitment between the entrepreneur and stakeholder to share in the future risk and reward of the forming network that I referred to, henceforth, as simply a 'commitment'.

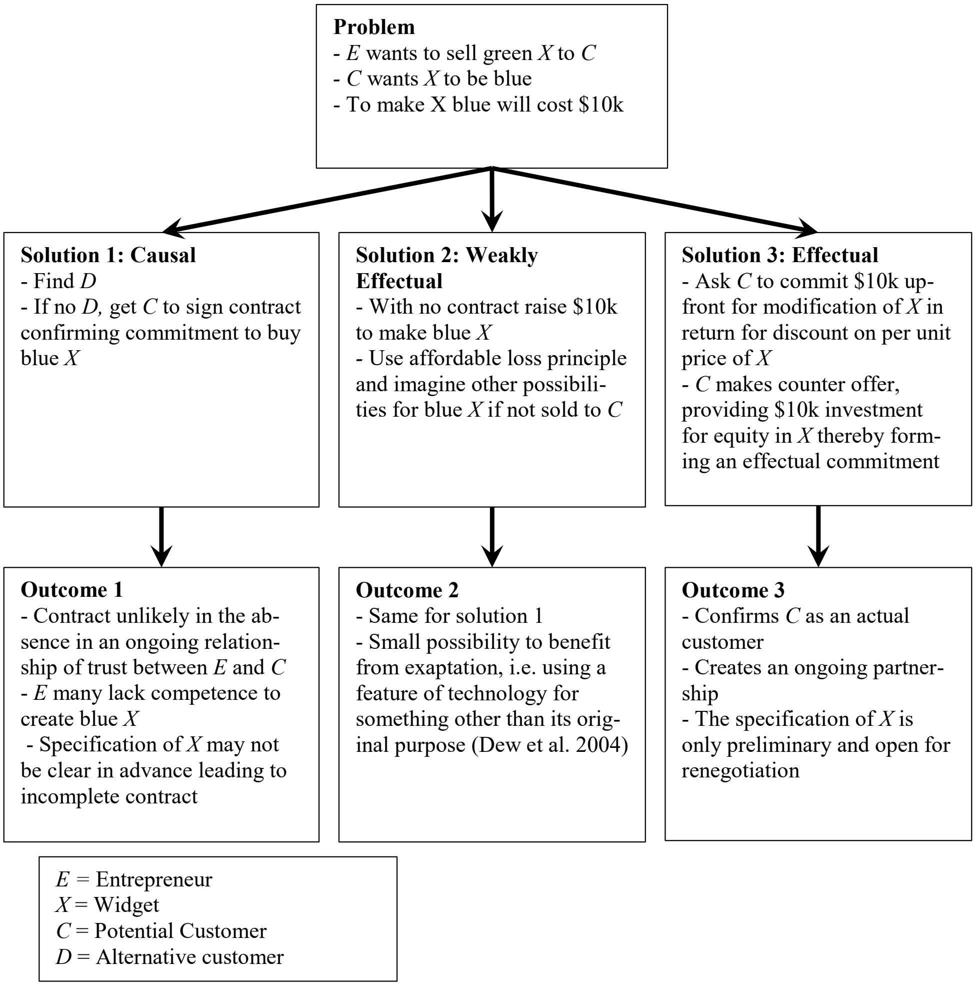

Figure 11 Effectuation vs. Causation in forming initial commitments. Based on Sarasvathy and Dew (2005)

Sarasvathy and Dew (2005b) offer three possible ways for how members of the effectual network can respond to interactions that do not become embodied in actual commitments - they can ignore them, they can begin exploring alternatives to growing the network effectually or, they declare the effectual transformation complete and begin competing with alternative markets. The second possibility, exploring alternatives to growing the network effectually, hints that there is the possibility that effectual commitments alone may not always be sufficient for a new market to emerge from an effectual network, but this subject is not explored. Karri and Goel (2008) disagree with the assumption that all parties, to a transaction leading to actual commitments to an effectual network adopt effectual logic (c.f. Dew & Sarasvathy, 2007). They argue that such an assumption places an unnecessary restriction on effectuation. Instead they claim that “a more defensible position is that effectuation allows entrepreneurs to bring several parties into their fold regardless of the motives or reasoning process of other parties as long as they can potentially contribute to the evolving vision of the entrepreneur" (2008, p. 742).

Aside from the very initial partnerships between the focal entrepreneur and his or her co-founders, such as those that led to the commercialisation of the internet as described in Sarasvathy and Dew (2005b), most of the other partnerships described in the effectuation literature are between the entrepreneur's nascent firm and other external stakeholders such as customer firms (as in the thought experiment above) or investors such as venture capitalists and angel investors (Wiltbank et al., 2009). It would be uncontroversial to assume that these stakeholders are likely to have their own, perhaps more pressing, interests outside the focal effectuation process (i.e. other investments in their portfolio; their own businesses, etc.). Because of this it is unlikely that most will be willing or able to choose to make a commitment of their own resources based purely on effectual logic alone, eschewing any predictive rationales. Indeed, even in the most effectual Solution 3 in the thought experiment in Figure 11 above, the customer *C* is making the commitment with the understanding that the outcome of the commitment will be access to a supply of a discounted widget *X* – suggesting a clear goal orientation. Furthermore, a potential stakeholder may choose to make a commitment in order to recognize and exploit causally deduced opportunities, e.g. a stakeholder may recognize that the development of the effectual artefact that is emerging is a potential new market for their existing products or services. What, then, determines how and why a potential stakeholder ultimately makes the decision to commit resources to the effectual cycle unfolding before them will be the potential opportunity they perceive it to represent, and the acceptable level of uncertainty they perceive in what can be called their *commitment decision space* at the time of commitment. Furthermore, what is the role and reasoning of those potential stakeholders who may not be instrumentally rational (neither causally nor effectually) but, instead, are subjectively or affectually rational in their decision making? What are the implications to effectuation processes of commitments coming from such individuals?

I would like to echo the argument made by Karri and Goel (2008) that it is unlikely that every stakeholder who makes any form of commitment towards an effectuation process will be him or herself an effectuator. On the contrary, effectuators, by definition, tend to be resource poor, and if one of the main purposes of stakeholder commitments is to provide resources to the effectual network then it seems more likely that those who have the resources will be more causally minded. Indeed, Read & Sarasvathy (2005) even propose that resources have a moderating effect on reasoning strategy, with more resources at hand corresponding to an increased likelihood that an individual will use causal logic, particularly if they have little entrepreneurial experience. If we are to assume that stakeholders within the effectual network can be both effectual stakeholders as well as causal stakeholders, we must return to the issue of uncertainty pertaining to the creation of new markets. Causal decision makers, by definition, base their decision making criteria on expected return (Sarasvathy 2001). How, then, can they make a commitment to the effectual network when, as Wiltbank, Dew, Read, and Sarasvathy (2006, p. 993) argue, "it is not clear at the early stages of the effectuation process what the pie will be, let alone how much each piece will be worth down the road, stakeholders cannot effectively use expected return as their immediate criterion for selecting resource investments"? Is it possible to believe that the effectual networks that create new markets are entirely made up of stakeholders who share the same effectual rationale? Are all dealings between the effectual network and external causally minded firms or individuals done at arm's length?

3.6 Limits of Current Theory – Stakeholder Involvement

As should be clear from the previous section, I believe that our understanding of effectuation as a process model for new market/new venture creation could benefit a great deal from further theoretical development, particularly with a focus on understanding stakeholder commitments.

Table 5 Problematisation of the issues and assumptions within effectuation process theory

Issues/Assumptions	**Problem**
Stakeholders will following effectual reasoning and will behave effectually	Limits potential stakeholders to only a narrow group of individuals who have the expertise or willingness to act effectually. Ignores the possibility that effectual commitments may be made by actors using causal, or some other form of reasoning.
Stakeholders self-select	Underemphasises the role of the entrepreneur in seeking out and selecting certain possible stakeholders for their fit with the emerging effectual artefact. Underemphasises the importance of knowing the motivations for why stakeholders make the decision to commit and the implications this has for the shape and trajectory of the emerging effectual network.
Effectuation processes negate issues of opportunism and opportunity cost	Maybe true for the very initial commitments, but once clearer goals emerge and constraints are established, opportunity costs and opportunism may arise in relation to existing stakeholders or potential new ones.
Effectuation processes become less effectual over time through the converging cycle of constraints	Theory relating to this proposition is underdeveloped. How do effectual processes make the transition to more causal processes?

In the following chapter I will draw upon the core concepts and constructs outlined above as the raw material from which to deduct a theoretical tool, a typology, which can be used to analyse and predict the kinds of commitment that we could expect to see contributing to an effectual process of opportunity creation.

4 TOWARDS A TYPOLOGY OF STAKEHOLDER COMMITMENTS

Following the review presented in the previous chapter, what does the literature tell us with regard to my central research question: How are stakeholder commitments engaged towards the process of opportunity creation through effectuation? We know that the process begins with a central figure, the effectual entrepreneur, who does not possess clear goals or a plan of how to achieve them, but may have a generalised aspiration to create a new venture or may simply be stimulated to create a new venture through random circumstances, such as being fed up with hearing members of the community complaining about garbage (as was the case of Tom Fatjo from Sarasvathy, 2001). In the next step, the entrepreneur approaches other members of his or her social network and negotiates with them an *effectual commitment*, one in which, going forward, both entrepreneur and stakeholder will share the risks and rewards of the emergent effectual network and the artefact at its heart.

It is assumed that stakeholders will self-select, or buy-in with their commitments, and that this self-selection process sifts out non-like-minded stakeholders (Sarasvathy & Dew, 2008b), and selects in stakeholders who will follow the same tenants of effectuation – means driven action, a focus on affordable loss rather than expected return, and the leveraging of contingencies (Wiltbank et al., 2006). However, what this fails to answer, or at least does not do enough to answer, is *why* these stakeholders would make such a commitment? Returning to the thought experiment of Sarasvathy and Dew (2005b) which describes three potential commitments – causal, weakly effectual, and effectual – why would the customer, who has an established business and is merely in search of a particular supply of widgets, invest ten thousand dollars to become part of a process, along with an entrepreneur, to produce a widget that does not yet exist? Furthermore, if we assume that, out of a number cold-calls and chance encounters, the entrepreneur does find a stakeholder who is willing to make a commitment of ten thousand dollars, what is to guarantee that this stakeholder, who has a clear goal of wanting a particular type of widget X, will share the entrepreneur's proclivity towards effectual behaviour?

4.1 Treatment of Stakeholder Commitments in the Extant Effectuation Literature

Examples of effectual stakeholder commitments, whether real or hypothetical, are few and far between in the core effectuation literature. Furthermore, descriptions of these commitments, except in the case of the thought experiment of Sarasvathy and Dew (2005b), are fairly limited, and often do not resemble this archetypal example. Let us review the few examples that exist, summarised in the table below.

Table 6 Examples of effectual stakeholder commitments in the effectuation literature

Example	Summary of Case and Relevant Stakeholder Commitments
Curry in a Hurry (Hypothetical) (Sarasvathy, 2001)	- An entrepreneur brings food for her colleagues to taste – they become her first customers. - The entrepreneur may develop her business in different directions depending on the characteristics of the initial customers.
U-Haul (Real) (Sarasvathy, 2001)	- An entrepreneur (Shoen) and his wife identify a need for "do-it-yourself moving equipment on a one-way, nation-wide basis". - At the wife's family ranch and with the family's help, beginning with $5000, they make use of the automobile garage to manufacture their first trailers. - He convinces family and friends to make down payments on trucks, and then borrows those trucks. - He contracts with service station outlets to merchandise trailer rentals. - He offers early customers discounts on trailer rentals if they establish a rental agent at their destination
RFID Industry (Real) (Sarasvathy & Dew, 2005a)	- Two MIT researchers (Brock and Sarma) become colleagues because they get along and worked together on developing RFID technology - A chance meeting between Sarma and a manager for P&G (Ashton) connected the researchers to Ashton's commercial and personal network. - A second chance meeting between the Ashton and a "champion of industry standards" (barcodes), named Haberman, eventually lead the four individuals to create a new organisation in MIT called the Auto ID Center - Ashton and Haberman persuade their respective organisations to put up an initial investment of $300,000 each.

"Initial commitments" thought experiment (Hypothetical) (Sarasvathy & Dew, 2005b)	- An entrepreneur secures an equity investment from a customer in exchange for "voice" in the co-development of a new product/service that will ultimately benefit the customer.
Mosaic (Real) (Sarasvathy & Dew, 2005b)	- An entrepreneur (Clark) is introduced to a new piece of software (Mosiac) by his assistant (Foss) and, on Foss's recommendation, contacts the software's designer (Andreessen). - Dissatisfied with his employer (NCSA), Andreessen departs the company and with Clark they form the Mosaic Communications Corporation – recruiting Andreessen's colleagues from NCSA
KEEP180 (Hypothetical) (Wiltbank et al., 2006)	- A radio station (KEEP180), when planning "what to do next" can pursue a *transformative* (effectual) strategy by securing stakeholder commitments. - Stakeholders imagine possible courses of action based on their means at hand. - They engage others "whose strategies are driven by other types of identity, knowledge, and networks" - New combinations are intersubjectively discovered to which stakeholders contribute those means that they possess which assist the process
The Simplot Case (Real) (Sarasvathy & Dew, 2008a)	- An entrepreneur (Simplot) began by collecting hogs during a pork surplus and sold them when the surplus was over, making a profit. - Using the profit he buys a potato sorter and began sorting and storing potatoes for other farmers, making a profit and expanding his potato and onion business during the great depression. - In a chance encounter with an onion powder and flakes trader (Sokol), he agrees to process onion powder and flakes and Sokol becomes a customer.
Starbucks (Real) (Sarasvathy et al., 2008)	- An entrepreneur (Schultz) opens a coffee bar (Il Giornale) to provide authentic, high quality coffee - He listened to his customers and staff and makes a number of changes to please them while not compromising on certain aspects that he held to be important. - The original founders of Starbucks (which at the time only sold quality roasted coffee beans along with tea and spices) did not agree to form it into and Italian-style coffee bar business but did provide advice and seed capital to Schultz to start Il Giornale - Schultz approached 242 men and women for funding. 217 did not provide funding but did purchase equity. - In 1987 Schultz acquired Starbucks for US $4 million.

“MetalWorking” (Real and Empirical) (Kalinic et al., 2014)	- An entrepreneur of an Italian machine producer (“MetalWorking”) is introduced to a decades old Slovakian company by one of his managers. - He initiates a long term relationship with the company for semi-manufactured products, replacing a number of small subcontractors. - The Slovakian company goes bankrupt and is acquired by MetalWorking.
“AirPress” (Real and Empirical) (Kalinic et al., 2014)	- An entrepreneur of a firm (AirPress) visits Serbia on a business mission organised by the Chamber of Commerce to find a potential distributor. - The entrepreneur meets a Bosnian seller of compressors with whom he soon establishes a joint venture.
“Plastikona” (Real and Empirical) (Kalinic et al., 2014)	- An Italian firm (Plastikona) establishes a green field operation in Serbia with the intent to produce there and sell abroad - The Serbian subsidiary gradually became more independent in its operations - Local firms began to contact the subsidiary, resulting in it acquiring raw materials and selling locally - After four years, one of the subsidiary’s employees started his own firm in the same sector, which Plastikona supported by providing him with small presses. - Supporting the former employee’s firm enabled the entrepreneur to establish a local network of subcontractors

Table 6 presents a broad range of different stakeholders, from other entrepreneurs, to friends and family, to customers and investors. How do they compare to the theoretical model for effectual stakeholder commitments postulated by the literature? To summarise, the following is the anatomy of a commitment, reconceptualised to the perspective of a stakeholder:

1) Effectual commitment forming process
   a) The stakeholder is either contacted by an effectual entrepreneur, comes into contact with him or her in the process of everyday life, or meets him or her in a serendipitous encounter.
   b) The entrepreneur, driven by a generalised aspiration, imagines a possible future in which his or her means are combined with those of the potential stakeholder, benefiting both parties.
   c) The entrepreneur opens up a negotiation or series of negotiations with the potential stakeholder during which the details of a potential commitment are clarified.
   d) Upon conclusion of the negotiation process, the stakeholder ‘self-selects’ into a commitment with the entrepreneur, and the greater effectual network, whereby the stakeholder will stake relevant means to the effectual

process in return for say in how the process shall proceed – thus sharing in the risk and reward of the venture.

2) The commitment is guided by the effectual principles:
   a) It is means-driven, rather than goal oriented
   b) It is based on affordable loss, rather than expected return
   c) It leverages contingency and control, rather than prediction and avoidance

Taking the above as the template, let us re-examine the examples described in Table 6, examples that are put forward explicitly as effectual commitments, or stakeholder commitments, by effectuation scholars.

Examining the examples provided in Table 6, we can separate the types of stakeholders described into three broad categories: *collaborators*, *investors*, and *customers*. Of these three groups, the one that mostly resembles the archetypical 'effectual stakeholder' are the collaborators. We have the RFID Industry case in Sarasvathy and Dew (2005a), with each of the stakeholders – the two researchers, Brock and Sarma, the P&G manager, Ashton, and the founder and honorary director of a standards organisation, Haberman – meeting at different points of time by virtue of common network affiliations. They all buy into a processes heading towards a generalised aspiration (i.e. the development of an 'internet of things') committing certain means (mostly their personal time and effort), and, from what is described, more or less following effectual principles rather than causal planning. The same can be seen in the relationship between the entrepreneur, Clark, and the software developer Andreessen in the case of Mosiac (Sarasvathy & Dew, 2005b). Lastly, is the "AirPress" case, in which an internationalising entrepreneur forms a joint venture with a Bosnian seller after a chance encounter through a Chamber of Commerce event. In each of these cases, the actors involved ended up founding new firms together as partners. However, there are a number of stakeholders briefly mentioned in these cases whom do not fit to the typical effectual stakeholder mould while not necessarily being merely causal actors connected to the process at arm's length – i.e. they likewise share a stake in the risk and return of the venture.

In the RFID case, it is mentioned that Ashton and Haberman negotiate investments of $300,000 each from their respective organisations. This is clearly a commitment of vital means that inextricably ties the economic fate of these two organisations to that of the new venture, however, was the reasoning behind these commitments effectual in nature? I.e. what logic did the decision maker (or makers) who signed off on the investments base the decision on? Did they base the decision on the downside consideration of affordable loss, or did make calculations of expected return? Did they believe that they would be able to exert control over the new venture in order to respond to any contingencies, or was their expected role more passive in nature? Without knowing the details of the negotiation, we cannot know for sure. Furthermore, in the Mosaic case, we have Andreessen's colleagues from the NCSA. What motivated their decision to commit to the new enterprise proposed by Andreessen and Clark (leaving their secure employment at the NCSA)? These stakeholders were also collaborators in the new venture created, but was their role an effectual one, or was it something else?

A number of the examples mention customers. Sarasvathy's "Curry in a Hurry" (2001) example has an entrepreneur bringing food to her colleagues, with those colleagues becoming her first customers from whom she gathers important information on preferences that will guide her actions going forward. In the same article, Sarasvathy notes that in the case of U-Haul, early customers were offered discounts on trailer rentals in return for establishing rental agents at their locations. Sarasvathy & Dew (2008a) describe the case of Sokol, an onion flake dealer who agrees to purchase onion flakes from an entrepreneur named Simplot, and in the Starbucks case described by Sarasvathy et al. (2008), the founder of Starbucks, Schultz, makes many changes early on in the firm's history by listening to the demands of customers. In each of these cases, these customers are indicated to be stakeholders important to the effectual process; however, they do not fit the conceptual mould of the effectual stakeholder. For instance, the initial customers of Curry in a Hurry are merely paying for a service which is rendered to them. Their relationship to the entrepreneur is a transactional one, and their commitment amounts to no more than what they pay for the food they receive. Likewise is the case of the initial customers of the coffee bar, Il Giornale, which would eventually become Starbucks. Sarasvathy & Dew (2008a) argue, in their debate with Goel and Karri (2006), that the onion flake dealer Sokol's willingness to wait for an absent supplier confirmed his commitment as a prospective customer to an entrepreneur, leading the entrepreneur to go into the onion flake business. However, it cannot be argued that Sokol's commitment to buy onion flakes was one based on effectual logic. He was a man who had a specific goal, to acquire onion flakes, and was willing to pay market value for them. Similarly, in the cause of U-Haul, these customers were clearly teleological. They were willing to establish local rental agents in exchange for a discount on rentals. In all of these cases, the most effectual action on the part of the customer may be a calculation of affordable loss with respect to the time and energy they expend to be at a certain place at a certain time with the expectation they will receive a certain service promised to them by an entrepreneur, perhaps under a certain measure of uncertainty. Beyond this, they are a lot more resembling of a causal, if not purely transactional form of stakeholder.

Finally, we have investors mentioned in the examples. In the U-Haul case these are the friends and family members whom the entrepreneur convinces to make down payments on trucks, which he will then borrow; they are the 217 men and women who purchased equity in the coffee bar that would eventually become Starbucks; and they are the aforementioned anonymous individuals who signed off on the $300,000 investments on behalf of P&G and the UCC to establish the Auto ID Center. In none of these cases is it suggested that these investors subsequently took an active role in decision making for the new ventures to which they were committed. If their roles were more passive in nature, how then are the hands on effectual logics of control and contingency exploitation exercised by these individuals? If they do not seek to actively drive the process through the voice bestowed upon them by their resource commitments, or if their voice is exercised through the commitment itself, by defining explicit goals as the basis for the investment made, does this not suggest more of a teleological, goal orientation on their part?

Other stakeholders mentioned in the literature, but that do not fall into any of the three broad categories I mentioned above include the internal stakeholders, such as the employees of the Slovakian firm acquired by the Italian firm "MetalWorking", or the former employee who's new firm was supported by "AirPress" in the cases described by Kalinic et al. (2014), and aforementioned former employees of the NCSA who defected to the Mosaic Communications Corporation (Sarasvathy & Dew, 2005b). These stakeholders beg the question, can an employer/employee relationship be an effectual commitment? Can the decision to accept or remain in employment be based upon effectual reasoning?

The purpose of this extended preamble to this chapter was not to try and deduce and categorise the entire range of potential stakeholders to effectual processes from examples in the extant literature, nor was it a critique of the theoretical effectuation process itself. I am merely trying to show that not all, or even most, of the important stakeholder commitments that contribute to the process fall neatly into the effectual stakeholder commitment as described conceptually in the literature. What this indicates is that it is clear we need to develop a more nuanced model for understanding stakeholder commitments and what role they play in the effectuation process.

4.2 Elements of a Commitment Decision

While, thus far, most of the discussions concerning the stakeholder commitment decision only consider the entrepreneur's point of view, in my discussion below I turn this around and reconceptualise the commitment decision, and related uncertainties in the decision space, to the potential stakeholder's perspective. As I will argue, an effectual stakeholder commitment is a form of entrepreneurial action, action taken under uncertainty in relation to the prospect of future profit (McMullen & Shepherd, 2006). It is also a form of social action. Social action is defined by (Weber, 1978) as follows:

> Social action, which includes both failure to act and passive acquiescence, may, be oriented to the past, present, or expected future behavior of others. …The "others" may be individual persons, and may be known to the actor as such, or may constitute an indefinite plurality and may be entirely unknown as individuals. …The economic activity of an individual is social only if it takes account of the behavior of someone else. Thus very generally it becomes social insofar as the actor assumes that others will respect his actual control over economic goods. Concretely it is social, for instance, if in relation to the actor's own consumption the future wants of others are taken into account and this becomes one consideration affecting the actor's own saving. Or, in another connexion, production may be oriented to the future wants of other people (Weber, 1978, p. 22).

Therefore, to know why any one of the myriad of potential stakeholders to effectuation processes might chose to make a commitment, how such commitments are secured by the effectually rational entrepreneur, and what the implications are for the effectuation process of each type of commitment, we must consider three things. Firstly, we must consider how they perceive uncertainty in their decision space regarding a potential commitment; secondly, we must consider the reasoning that guides their decision as a form of social action (i.e. it must be understood within the actor's social situation); and, finally, we must understand their motivation for ultimately making a commitment. If we are to understand these three elements, we will be able to predict why a stakeholder would make such a commitment, how a stakeholder would make such a commitment, and what kind of behaviour to expect from stakeholder in relation to other members of the network and the process going forward.

In the following sections, I examine each of these three elements of a potential stakeholder commitment in turn. From my analysis, I seek to derive a typology which will be useful for classifying different stakeholder commitments in a meaningful way.

4.2.1 Uncertainty perceived in the commitment decision space

Uncertainty is in the eye of the beholder and how it is perceived depends on the individual doing the perceiving, i.e. it is comprised of both subjective, objective, and, as I will argue below, intersubjective elements. Effectuation is a model for how entrepreneurs make decisions when facing uncertainty and, as such, it falls under the description of being a model for *entrepreneurial action*. Entrepreneurial action is defined by McMullen and Shepherd (2006, p. 134) as "behavior in response to a judgmental decision under uncertainty about a possible opportunity for profit". As discussed in detail in the preceding chapter, new market creation through effectuation is dependent on stakeholders providing the necessary resources and direction for the process to proceed through what is called 'effectual commitments' (Sarasvathy & Dew, 2005b); these are commitments made by stakeholders which enable them share in the potentially lucrative rewards of the process but, at the same time, also taking on the burden of risk should the process turn out unfavourable. This is what separates 'effectual stakeholders' from those stakeholders who are only connected to the process through arm's length transactions. What this essentially means is that effectual stakeholders are also taking entrepreneurial action when they choose to make such commitments. They are making a judgement, under uncertainty, that there is a possible opportunity for profit (although profit may not be the primary motivating factor behind the decision – as I shall discuss below). While they are not necessarily entrepreneurs themselves, they must have made the decision that the focal effectuation process that they chose to commit to represents a real opportunity for them in some shape or form.

For a potential stakeholder, a commitment decision represents an entrepreneurial opportunity. Whether the opportunity presented is one to be recognized, discovered, or created by the potential stakeholder[9] depends on the individual and the knowledge and resources that are available to them. Whether they perceive the potential opportunity as one they can create, or one that objectively exists waiting to be recognized or discovered, will depend on their own unique rationales and motivations[10]. This will also influence the logic by which they make the decision, whether it be predictively rational (causal), non-predictively rational (effectual), or perhaps the commitment decision is not rational at all (at least not instrumentally so, as we discuss in the following section).

Just as effectual entrepreneurs face Knightian uncertainty, Marchian goal ambiguity and, environmental isotropy in their entrepreneurial design space or the market creation design space (as I have discussed in chapter 3.2), potential stakeholders face much the same uncertainties in their decision on whether or not to make the transition from being simply at arm's length, to committing to a more effectual relationship with the entrepreneur and the existing committed stakeholders, albeit from a different frame of reference. This could be considered the potential stakeholder's *commitment decision space*.

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[9] See Sarasvathy, Dew, Velamuri and Venkataraman (2010) for a simple typology of entrepreneurial opportunity.

[10] In a forthcoming dialogue in the *Academy of Management Review*, Foss and Klein (2017, p. 735) in a critique of the delineation of entrepreneurial opportunity in the extant literature into separate phases of discovery evaluation, and exploitation, argue that: "Rather, "opportunity" is a metaphor, a shorthand for the entrepreneur's beliefs, or judgments, about the uncertain future." They make the argument that "opportunity" is not a useful construct when it judged independently of the entrepreneur's beliefs and actions and, instead, suggest that entrepreneurial phenomena are sufficiently explained by analysing entrepreneur's beliefs, actions, results, and adjustments. I agree with Foss and Klein, but go one step further and argue that it is not only the beliefs, actions, results, and adjustments of entrepreneurs that deserve attention, but those of all stakeholders in the entrepreneurial value creation process.

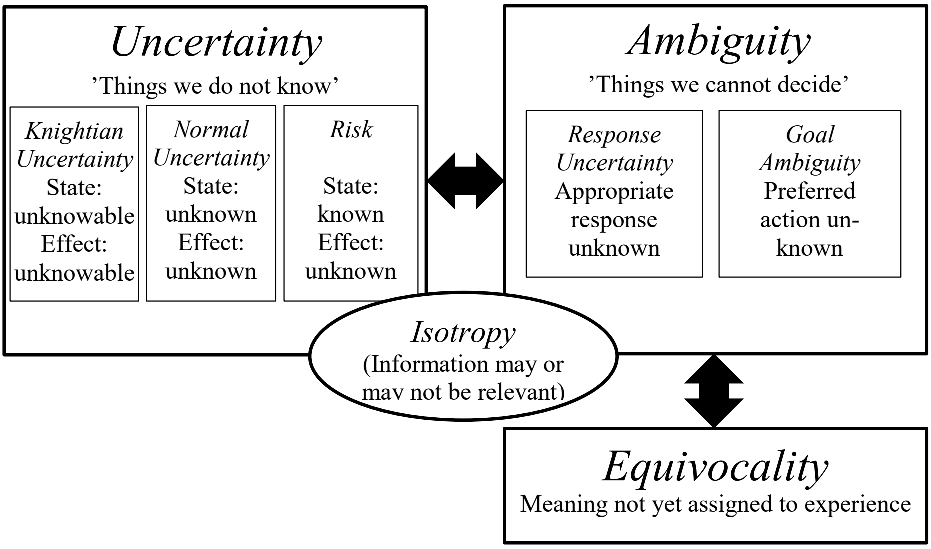

Figure 12 Uncertainty, ambiguity, and equivocality in the commitment decision space

Figure 12 combines the type of uncertainty of the market creation design space with notable typologies of uncertainty by Knight (1921) and Milliken (1987) and the concept of equivocality from Weick (1979). Milliken (1987) separates uncertainty into state, effect, and response uncertainty. State uncertainty is the recognition that the environment is unpredictable; effect uncertainty is the recognition that there is an inability to predict what kinds of impact the future environment or environmental change will have, and; response uncertainty is a lack of knowledge of what to do, or what the consequences of action will be (Milliken, 1987, p. 137). Although different authors use words such as uncertainty, ambiguity, and equivocality in different, sometimes contradictory ways[11], for the sake of this discussion, I define them simply as follows: uncertainty relates to things we do not know, ambiguity relates to what we cannot decide (i.e. there is more than one possible course of action between which we cannot chose one or the other), and equivocality relates to raw information we perceive but to which we have not yet had the opportunity to assign meaning, in the manner of Weick (1979).

Included under uncertainties are: Knightian, or true uncertainty, where both state and effect of any given situation, event, or environment is fundamentally unknowable; normal uncertainty, where both the state and effect of any given situation are unknowable, but ultimately discoverable; and risk, in which one the state of a situation is known, but it is effect is not (Knight, 1921; Milliken, 1987). Uncertainty, in the above framework, feeds into ambiguity in that a response to

[11] For instance Bennett and Lemoine (2014) define ambiguity as “unknown unknowns”, or what is here referred to as Knightian uncertainty

an uncertain situation may be ambiguous for two reasons – first, the decision maker does not know how to respond to the situation (Milliken's response uncertainty) and, second, the decision maker does not know how he or she wants to respond to an uncertain situation, or what outcome he or she would prefer (Marchian goal ambiguity). While Uncertainty in this framework is objective – it exists apart from the decision maker, ambiguity is subjective (it purely constructed by the decision maker's own mind). Isotropy, or "the fact that in decisions and actions involving uncertain future consequences it is not always clear ex ante which pieces of information are worth paying attention to and which not" (Sarasvathy & Dew, 2005b, p. 539), on the other hand, is both objective and subjective – the determination of whether or not a piece of information is worth paying attention to is determined both by what one does not objectively know, and what one cannot subjectively decide. Finally, there is equivocality. Equivocality, in the Weickian sense, is intersubjective (i.e. it is produced through the interactions between people), raw information is only assigned meaning through sensemaking discourse between actors, or as Weick (1979, p. 133) states: "How can I know what I think until I see what I say?"

To sum up uncertainty and ambiguity in the commitment decision space, when a stakeholder is faced with the choice to commit, or not to commit to an effectual process, he or she has a number of things to consider. McMullen and Shepherd (2006, p. 135) simplify Milliken's three types of uncertainty to questions a potential actor asks him or herself with regard to his or her relationship to the environment, questions which are very applicable to a potential effectual stakeholder when deliberating the commitment decision: (1) What's happening out there? (State uncertainty), (2) How will it impact me? (Effect uncertainty), and (3) what am I going to do about it? (Response uncertainty). These are the questions that a potential stakeholder likely considers, whether consciously or subconsciously, when making a decision on whether or not to make a commitment to an effectual network. We must remember that how he or she responds, or what he or she decides, according to effectuation theory, begins as a function of his or her identity, knowledge, and networks (Wiltbank et al., 2006). One stakeholder might experience very few uncertainties regarding a commitment because of specific insight and knowledge or 'What I know'. Another may have very clear goals that he or she wishes to fulfil through a commitment due to 'Who I am'. Another, still, may make a commitment by virtue of being part of a network inexorably caught up in the effectual process, or 'Who I know'. Uncertainties and ambiguities (i.e. response uncertainties) will be experienced by different stakeholders to different extents, and different stakeholders will also have different tolerances or 'willingness to bear' uncertainties (McMullen & Shepherd, 2006). The next step of the effectuation process is to ask one's self "what can I do?" The answer to this question will be a determined by both the stakeholder's reasoning, and motivation – which is what I shall discuss next.

4.2.2 Reasoning that guides stakeholder decisions

In the previous section I discussed how a stakeholder, when faced with the decision on whether or not to make a commitment to an effectual process underway, will be faced with a range of uncertainties and ambiguity. However, how that stakeholder will perceive those uncertainties, their form and intensity, and how he or she will respond will be determined through the stakeholder's internal reasoning strategy – which, in turn, is guided by that stakeholder's rational orientation. Entrepreneurship literature has discussed different forms of rationality at length, from the utility maximising conceptions of rationality of classical economics, the satisficing of bounded rationality of Simon (1955), the post-hoc rationalisation of sense-making described by Weick (1979), to the non-teleological creative rationality of effectuation (see a brief review of rationality as it applies to entrepreneurial decision-making in Sarasvathy & Berglund [2010]). Notwithstanding this, however, for the sake of parsimony, and for the purpose of defining a categorisation of rational orientation useful for understanding stakeholder commitments, I will draw from the classical works of Schumpeter and Weber. In these works, rational orientation, as I will argue presently, will either be instrumental in nature, measured through cold, dispassionate logic; will reflect the stakeholder's personal values, his or her subjective sense of what is right and desirable; or, more likely, will be some combination of both instrumentality and values.

As was discussed in Chapter 3.3, Sarasvathy et al. (2008) explain that effectuation is "neither 'rational' in the traditional sense nor a 'deviation from rational behaviour". This is because effectual reasoning can simply be understood as the reasoning a rational actor employs when the environment inhibits the use or utility of causal rationality. Rationality, in the sense of causation, refers to what Schumpeter distinguishes as *formal rationality*: "Formal rationality applies, if costs and benefits can be calculated accurately; a means-end relationship" (Brouwer, 2002, p. 91). Non-teleological effectual reasoning substitutes for causal rationality in cases in which uncertainty prevents costs and benefits from being calculated reliably – i.e. situations where telos cannot be rationally ascertained. However, by classifying commitment decisions as being either causal or effectual, we fall into the trap of unrealistically characterising these acts; as Weber discusses: "The ideal types of social action which for instance are used in economic theory are thus unrealistic or abstract in that they always ask what course of action would take place if it were purely rational and oriented to economic ends alone” (Weber, 1978, p. 21).

When we discuss rational orientation and its relationship to action, we cannot assume that all action will be based on causal or effectual rationality. To help in this exposition, I will turn to a classic classification of types of social action and their guiding rationales described by Weber (1978). Both causal and effectual rationality can also be described as forms of *instrumental rationality*, which forms the first of four types of rational orientation in social action described by Weber (1978, p. 24):

1. instrumentally rational (*zweckrational*), that is, determined by expectations as to the behavior of objects in the environment and of other human beings; these expectations are used as "conditions" or "means" for the attainment of the actor's own rationally pursued and calculated ends[.]

In a discussion on potential stakeholders to effectuation processes, on the other hand, it is often stated that stakeholders can be anyone. They can be individuals possessing varying degrees of business acumen, and they can be driven by any number of motivations and ideologies. Therefore, the assumption of instrumental rationality being exercised in the commitment decision is not a given. In that case, we must consider the other types of rationality as described by Weber (1978, pp. 24–25):

2. value-rational (*wertrational*), that is, determined by a conscious belief in the value for its own sake of some ethical, aesthetic, religious, or other form of behavior, independently of its prospects of success;
3. affectual (especially emotional), that is, determined by the actor's specific affects and feeling states;
4. traditional, that is, determined by ingrained habituation.

Types 3 and 4, according to Weber, are generally unconscious or uncontrolled responses; traditional behaviour often being an automatic response to routine experiences, while affectual behaviour may be an uncontrolled emotional response to some event. Both traditional and affectual behaviour, as they become more self-conscious, are not readily separable from value-rational behaviour, as the main distinguishing factor of value-rational action being that it is more self-conscious in its formulation. As such, consciously traditional, affectual, and value-rational behaviour all fall under what Schumpeter refers to as *subjective rationality*: “Subjective rationality refers to the achievement of absolute values irrespective of costs” (Brouwer, 2002, p. 91).

If we are to assume that stakeholders to effectuation process can be anyone, not just those seeking material gain (or even success), we must consider not only instrumentally rational reasoning, but value and affectual reasoning, or subjective rationality, as well. That is to say, while decision making can be either goal oriented or means oriented, with causal logic being the instrumentally rational decision making strategy for the former, and effectual logic being the instrumentally rational decision making strategy for the latter, there may be scenarios in which means oriented or goal oriented logics are employed by stakeholders in their resource commitments that do not fall within the bounds of what would be considered 'rational behaviour', but rather fall into the bounds of subjective rationality.

Sarasvathy and Dew's (2005b) thought experiment regarding stakeholder commitments clearly illustrates how a commitment may look, and differ, according to whether or not the actor making the commitment has a more causal or more effectual orientation. Simply put, a causal actor will make a commitment where the expected return of the commitment can be calculated, estimated, or predicted within bounds of that actor's risk tolerance. This means that a commitment is only likely if the commitment decision space is one of normal uncertainty or risk, and that ambiguity is low. On the other hand, an effectual actor will make a commitment based on the understanding that, even though the goals at this point in time are not necessarily well defined, it will allow him or her to become a member of a creative process that he or she will be able to exert some control over in order to shape a desirable future. This allows for a commitment being made in the face of true or Knightian uncertainty, and where ambiguity is something useful rather than being something to be avoided. This all brings me to the question of commitment decisions under subjective rationality, as defined above as rationality that does not account for any calculation of costs, affordable or otherwise, and a commitment taken irrespective of its prospect for success. Firstly, can such commitments be imagined? And, secondly, can such commitments, like those under instrumental rationality, be either teleological, emphasising ends, or non-teleological, emphasising means?

In Figure 13, below, I introduce two new types of reasoning in addition to causal and effectual reasoning which I have labelled *faith reasoning* and *self-belief reasoning*, to postulate what commitments may look like if they are made under teleological and non-teleological subjective rationality. As suggested by this naming, faith reasoning refers to the logic of a subjectively rational actor who puts their faith in some external ends, irrespective of the cost or likelihood of success, because those ends are somehow right in themselves, while self-belief reasoning refers to the logic of a subjectively rational actor who has an innate belief in their means (embodied within the actor) and is, again, willing to act on this basis irrespective of the cost or likelihood of success.

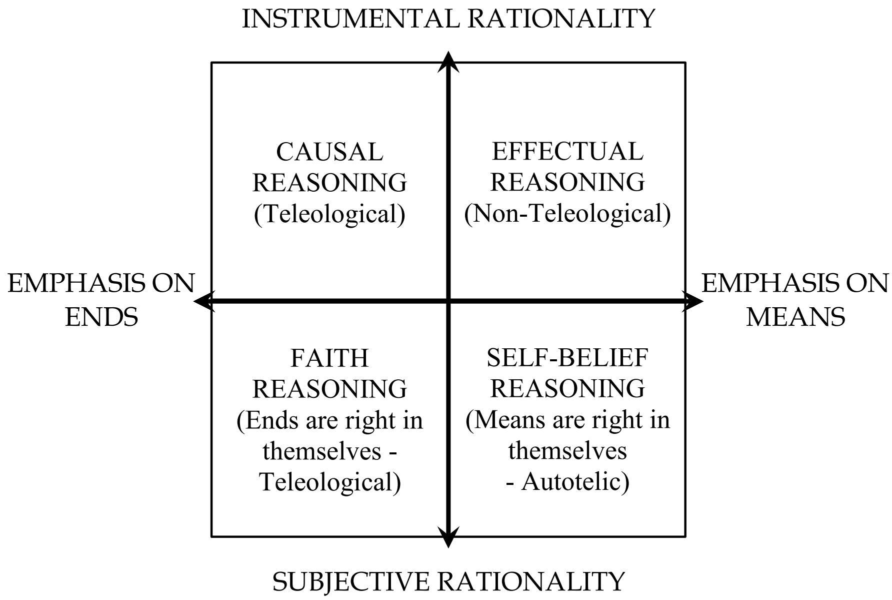

Figure 13 Four categories of reasoning guiding a commitment decision to an effectual network

To explicate further on *why* any potential stakeholder might use any one of the four reasoning types illustrated in Figure 13, I will turn my attention to their *motivation* for making a commitment.

4.2.3 On motivation

The extant effectuation literature does not explore the motivations behind stakeholder commitments in any particular depth; in fact, the core effectuation theorists argue that attempting to understand motivations is both impractical and not useful. Returning to Sarasvathy and Dew (2005b, p. 557):

> Both the volume of theorizing and the weight of empirical evidence suggest that it might be fruitful to move away from strong behavioral assumptions of either opportunism or trust-based ties toward a more realistic starting point – namely, that in most cases at the beginning of the formation of a network, actors simply cannot predict the motives of those they interact with nor can they always predict their own motivations. That is why it makes sense for effectuators to rely on actual commitments rather than on predictions based on past behavior, or promises endorsed by third parties.

So, while it may not be important for the entrepreneur to predict the motivations of the world of *potential* stakeholders that may be out there, as all that matters are those who make actual commitments, I would argue that to understand *why* an *actual* commitment was made will not only provide useful information for how future commitments might be made, but also elucidate how the present commitment may affect the intersubjective network behaviour going forwards – i.e. the new goals the commitment brings, as well as the new restraints. Take, for example, the effectual commitment described in Sarasvathy and Dew's thought experiment (which I discussed in section 3.5.1) – the entrepreneur would have needed at least a slight understanding of the customer's preferences in order to negotiate the win-win effectual commitment. Going forwards, the customer and the entrepreneur have committed to working together to create a collectively imagined future, but what does that mean for the other, previous commitments that the entrepreneur may have made that form the effectual network?

We can only answer why a potential stakeholder might make a commitment to an effectuation process, and what effect such a commitment will have, by exploring the stakeholder's individual motivation for making the commitment in the first place. While, certainly, we cannot possibly account for every motivation a stakeholder might have for agreeing to a commitment negotiated by an effectual entrepreneur, it may be possible, at least, to categorise motivations in a general, theoretical way that will be useful to us. While in practice motivations for making commitments will be innumerable, a large body of research in psychology broadly classifies motivation as being either *intrinsic* or *extrinsic*: "The most basic distinction is between *intrinsic motivation*, which refers to doing something because it is inherently interesting or enjoyable, and *extrinsic motivation*, which refers to doing something because it leads to a separable outcome" (Ryan & Deci, 2000a, p. 55). While, in organizational science, these definitions are usually applied to situations involving employee tasks and rewards within firms (Amabile, 1993, 1997), a situation which is not completely analogous to a stakeholder making a commitment, they still lend some explanatory power for helping us understand the commitment decisions. If a potential stakeholder is extrinsic in their motivation to make a commitment to an effectuation process, it means they are basing their decision on some perceived outcome which is separable from the process itself. On the other hand, if a potential stakeholder is intrinsic in their motivation to commit to the effectuation process, it is because *being part of the effectuation process* is the very reason for making the commitment.

If we take commitment decisions to be either intrinsic or extrinsic, these types of commitment are likely to look vastly different from one another, both in performance and in outcome. Intrinsic motivation is strongly linked to 'practiced creativity' and innovation while extrinsic motivation has been shown to have the opposite effect (Amabile, 1993, 1997; Sternberg, 1999). Furthermore, recent empirical research has shown that effectual logic positively impacts practiced creativity while causal logic inhibits it (Blauth et al., 2014). As such, it can be assumed that extrinsically motivated commitments will likely be more arms-length and material in nature, with a stakeholder merely making a commitment towards a particular outcome – being involved in the effectuation process only as much as necessary so as to attain that desired outcome. Due to the inherent ends orientation of an extrinsically motivated stakeholder, it is more likely they will either follow *causal reasoning* (e.g. a representative of an established firm commissioning an effectual entrepreneur to solve some problem for them) or *faith reasoning* (e.g. a philanthropic individual who provides funds to an effectual entrepreneur who is trying to establish a business that addresses some societal need). An intrinsically motivated commitment will be much more active, with the stakeholder's whole purpose being to actively involve him or herself in the creative effectuation process. Intrinsically motivated stakeholders will be more means oriented and, as such, will be more likely to follow *effectual reasoning*, *self-belief reasoning*, or some combination of the two.

4.3 The Typology

From the review of the extant effectuation literature and my discussion above, we now have the building blocks from which we can build a predictive model of the different types of stakeholder commitment that will prevail under different circumstances depending on the amount of uncertainty the stakeholder perceives in the commitment decision space and their underlying motivation for making the commitment. This model I have illustrated in Figure 14, on the following page. It is unlikely that pure effectuation and pure causation exist in reality; human action will always be coloured by subjective values, affect, and other non-economic rationales. In the model illustrated in Figure 14, I propose that, while an actor may simultaneously hold all four forms of reasoning I described in section 4.2.2 to varying degrees at any one time, commitments based on instrumental rationality will follow predominantly more causal logic the lower the uncertainty the stakeholder perceives in relation to the commitment decision space, and predominantly more effectual logic the greater the level of uncertainty they perceive in relation to the commitment decision space. However, in some circumstances, the strength of a particular stakeholder's motivations, either extrinsic or intrinsic, may push them to make a commitment to an effectuation process that is less instrumentally rational, and more subjectively rational; they may make a commitment based on their faith in an imagined but uncertain future coming to be or in the character and abilities of others who are already part of the process, or they may make a commitment based on the self-belief that they can influence a process which already seems to be heading down a fixed path.

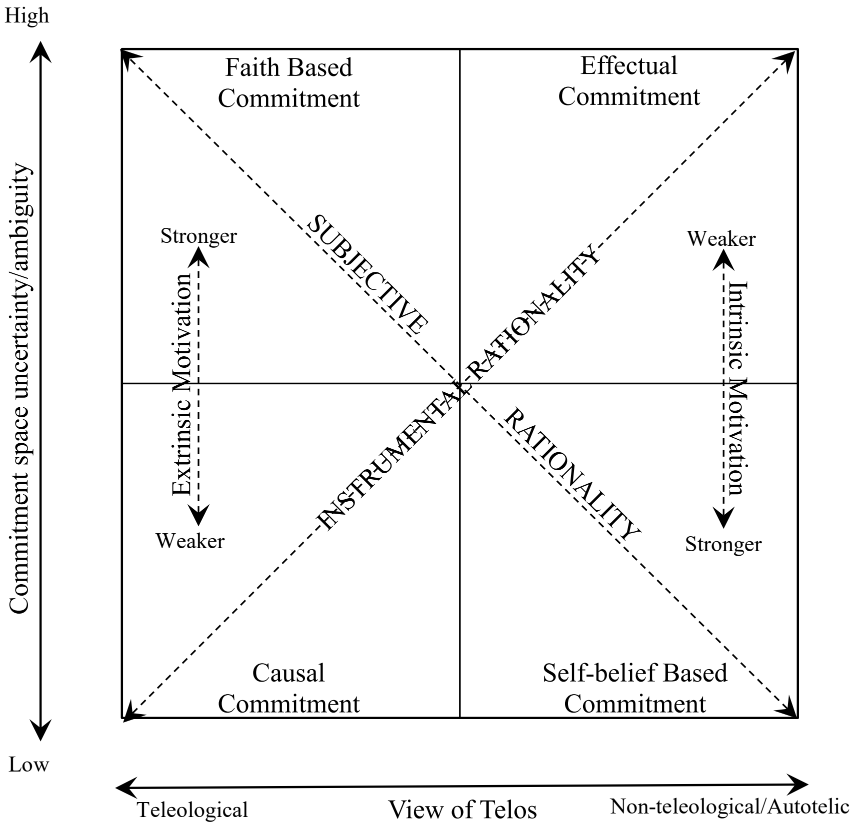

Figure 14 Four types of commitment decision to an effectual network

Below, I explicate these different types of commitment. I briefly compare each type to different conceptualizations of entrepreneurship and opportunity from the literature to describe their underlying motivation; I identify the committing actor's perception of uncertainty; and I discuss the form of reasoning denoted by each type of commitment.

4.4 Commitment Decisions Based on Instrumental Rationality

Commitment decisions predominantly based on instrumental rationality are distinguished from those based on subjective rationality by the fact that they are primarily economically motivated and involve some form of calculation on the part of the decision maker. It has been thoroughly established by effectuation literature that effectual logic is suited to situations characterised by true uncertainty and ambiguity, while causal logic is better suited to situations of normal uncertainty or risk. Given an instrumentally rational actor, whether a commitment to an effectuation process is based more upon causal decision making strategies or effectual decision making strategies will be dependent on the level of uncertainty perceived by the stakeholder in relation to their commitment decision space. Where uncertainty is low and calculation of risk and return is possible, an instrumentally rational actor will emphasise causal decision making reasoning, while high uncertainty dictates that effectual decision making reasoning will take over where their causal logic falls short, and calculation will turn to the downside potential with commitment relying on the potential loss being affordable. Under moderate uncertainty, some combination of the two decision making strategies is required i.e. prediction where prediction is possible, control and contingency exploitation where it is not.

4.4.1 Type 1: Causal commitments

A *causal commitment* to an effectuation process is simply one made by a stakeholder who sees the commitment as being the key to achieving some future end or goal, and this end or goal has been rationally calculated. In other words, the commitment is teleological. From an opportunity perspective, in this type of stakeholder's perception, a commitment to the effectual network represents opportunity recognition or discovery in the Kirznerian sense (Kirzner, 1997; Sarasvathy et al., 2010). As I previously noted, under opportunity recognition markets are allocative and to recognise an opportunity is simply a matter of matching known supply to known demand. In such a case, the potential stakeholder, due to his or her 'alertness' (Kirzner, 1973, 1997), is in possession of, or believes him or herself to be in possession of some known supply or some known demand, and for them the effectuation process to which they make the commitment represents the novel resource combination which will be the conduit through which they will satisfy that supply or demand – this is the goal or telos of the commitment.

A simple example of a commitment to an effectual process based upon causal logic would be one where the emerging artefact is some kind of technology that could potentially be merged, without much alteration, with a stakeholder's existing product or products which would result in financial gain – either increased profits or reduced costs. In such a case, with the artefact in its present state, and within the stakeholder's means and capabilities, it may be possible to make adequate calculations of expected returns and to conduct competitive analysis within a decision space characterised by normal uncertainty and risk, and with little ambiguity. The commitment, in the form of an equity investment, still represents one to share in the risk and return of the venture, however, it is clearly teleological. This may offer a suggestion as to why the unnamed decision maker or decision makers within P&G signed off on the commitment of $300,000 to found the

Auto ID Center in the RFID industry case described by Sarasvathy and Dew (2005a). While $300,000 is not a lot of money for a large corporation such as P&G, and a calculation of affordable loss may have registered strongly in the commitment decision, the decision may have still been predominantly causal in nature, based on the calculations of how much could be saved by utilising the emerging technology. According to a Forbes article from 2002 discussing the benefits of RFID technology:

> The benefits to manufacturers include far fewer wasteful inventory glitches; to retailers, lower losses to shoplifters. Procter & Gamble's goal is to use the intelligence provided by the tags to cut its inventory by 40%, some $1.5 billion. P&G's preliminary analysis is that they could lop 4 cents off the dollar per transaction (Schoenberger & Upbin, 2002).

While this article was written three years after the founding of the Auto ID Center, it is not hard to imagine that similar calculations would have been made in the decision to commit the initial $300,000.

Returning to McMullen and Shepherd's (2006) three questions concerning state, effect, and response uncertainty I introduced in Section 4.2.1, the answers this particular category of stakeholders are likely to give are along the lines of:

1. What's happening out there? The decision space surrounding my potential commitment is relatively unambiguous and predictable.
2. How will it impact me? If things go as I predict, my commitment will result in an increase in utility or a decrease in disutility for myself or my firm.
3. What am I going to do about it? I shall make a commitment based on my assessment of calculated risk and expected return.

A stakeholder who makes a causal commitment will, in the commitment, be emphasizing the causal reasoning constructs of goal focus, calculation of expected returns, reliance on preexisting knowledge, and the use of prediction. Where there is more uncertainty in the commitment decision space than warrants causal logic, the stakeholder may need to emphasize more of the effectual constructs to protect him or herself from potential downside effects; for example, where the future is not as readily predictable, the stakeholder may need to emphasize more affordable loss and control logic – thus making their overall rationale increasingly more effectual. However, a predominantly causal commitment requires, at a minimum, the stakeholder to emphasise a goal focus.

Proposition 1: Given a commitment decision space that, when judged through the lens of instrumental rationality, would be deemed to be characterised by normal uncertainty and risk – if a commitment is made by an instrumentally rational stakeholder with a teleological orientation, it will be based upon causal reasoning.

4.4.2 Type 2: Effectual commitments

In this second scenario, a stakeholder is presented with the opportunity to make a commitment to an effectual process, but his or her commitment decision space, how his or her means might contribute to the process in a profitable way, is perceived to be characterised by Knightian uncertainty and ambiguity. Reiterating effectuation theory, in such situations causal reasoning is not useful. Instead, the stakeholder might choose to make a commitment based upon effectual reasoning. This stakeholder may still have particular goals or aspirations in mind when making the commitment, but the probabilities and outcomes of the commitment are not guaranteed, and are not predictable. Instead, the stakeholder commits means on the basis that, by doing so, he or she will become part of the process as a partner and co-creator, and will be able to exert his or her control and preferences over it in a way that will ultimately, but not predictably, result in some benefit in the form of increased profit, or reduced costs.

With regard to opportunity, such a stakeholder resembles a Schumpeterian entrepreneur, who views opportunities as something that can be created as the product of an individual's intellect (Alvarez & Barney, 2007; Chandler et al., 2003; Sarasvathy et al., 2010). This stakeholder will engage with the effectual network to produce novel and unexpected resource combinations (Schumpeter, 1934). A clear example of this kind of commitment is the one described by Sarasvathy and Dew (2005b) that was formed between the entrepreneur Clarke and the software designer Andreessen who would go on to found the Mosaic Communications Corporation.

Stakeholders committing to an effectual process using this reasoning would answer McMullen and Shepherd's (2006) questions as follows:

1. What's happening out there? It is not clear how I might combine my means with those of others through a commitment, but I can imagine different ways in which mutually beneficial combinations might be possible.
2. How will it impact me? Although I cannot accurately predict what will happen following my commitment I am confident in my ability to control the future situation through my preferences in a way that will ultimately increase my utility or decrease my disutility.
3. What am I going to do about it? I will commit based on the understanding that by doing so I buy into a process that will allow me to use my identity, knowledge, and networks to successfully control the future in a way that will benefit me.

An effectual commitment is one in which a stakeholder chooses to make a precommitment to an effectual network despite a high level of perceived uncertainty in the commitment decision space. These individuals are willing to bear the risks associated with the uncertainty because they are able to rely on their effectual reasoning (an emphasis on the effectual decision making constructs over causal ones) to be able to mitigate them. The greater the uncertainty a stakeholder perceives, the more effectual decision making constructs they will promote over causal ones in order to limit the potential harm that may be caused by unexpected and unknown consequences resulting from their decision to commit. Effectual logic fills the gaps created by an absence of workable information that prevents the ability to make rational decisions based upon causal logic.

Proposition 2: Given a commitment decision space that, when judged through the lens of instrumental rationality, would be deemed to be characterised by true uncertainty and ambiguity – if a commitment is made by an instrumentally rational stakeholder with a non-teleological orientation, it will be based upon effectual reasoning.

4.5 Commitment Decisions based on Subjective Rationality

The commitments undertaken under instrumental rationality described in the previous section are nothing new or controversial. They are to be expected based on what we know from effectuation theory. Unlike these kinds of commitments, however, commitments under subjective rationality are not motivated by the likelihood for, or pursuit of success, but are instead based upon the pursuit of subjective values irrespective of cost. That is not to say that a commitment cannot be both instrumentally rational and subjectively rational in equal measure. I can imagine, for instance, that an individual could make a causally or effectually rational commitment to a venture based on the belief that that venture has some greater value over and above mere economic value. There are plenty of examples of wealthy entrepreneurs committing to philanthropic pursuits. Where instrumental rationality and subjective rationality begin to diverge in commitment decisions, however, concerns how much emphasis the individual places on uncertainty and ambiguity in the commitment decision space, and the decision maker's view of telos. Returning to Figure 14, what happens if we try to imagine a teleological commitment made under true uncertainty? How can you make an ends-oriented commitment when ends are impossible to predict? In such a case, action under instrumental rationality is impossible. On the other hand, non-teleological effectual commitments only make instrumentally rational sense where there is ambiguity about how the process is unfolding. If we imagine there is a mature process which has already produced a tangible artefact and is now proceeding down a course of strong path dependence, how would a stakeholder make a commitment that ignores the clear and present telos? The answers to these questions lie in subjective rationality.

There is a growing body of empirical research showing that the stakeholders to entrepreneurial and opportunity creating processes are not always instrumentally rational in their decision-making; affect/emotion can play an important role in entrepreneurial action (Baron, 2008; Cardon, Foo, Shepherd, & Wiklund, 2012; Cardon, Wincent, Singh, & Drnovsek, 2009; Foo, Uy, & Baron, 2009; Welpe, Spörrle, Grichnik, Michl, & Audretsch, 2012). It is not unimaginable that commitments by stakeholders to effectuation processes may sometimes be based upon subjectively rational criteria to a greater or lesser extent. If this was not the case, we would not have the old cliché of entrepreneurs seeking investment from the 'Three Fs', friends, family, and fools, all of whom are likely be the sort of stakeholders who would make subjectively rational commitments. Subjectively rational commitment decisions may include gambling, overconfidence, familial trust, gut feeling, etc. Strong extrinsic motivation may lead to an individual predicting (or hoping for) a future that is far from predictable; or strong intrinsic motivation may lead an individual to think that a commitment represents an opportunity for them to achieve creative self-actualisation, despite strong path dependence belying the fact.

4.5.1 Type 3: Faith based commitments

These are the commitments made by stakeholders who do not wish to take an active role in the opportunity creation process any more than contributing resources or goals that the process requires; i.e. they exercise the more passive (following commitment), predictive, ends-oriented reasoning strategies based upon a strong extrinsic motivation – they have a strong belief in, and desire for an outcome separable from the process itself. However, unlike instrumentally rational stakeholders, they do so in a commitment decision space where they perceive (or, should I say, an instrumentally rational actor would perceive) a high level of uncertainty that does not rationally justify the use or utility of causal logic. Instead, they are acting on faith that the venture will be successful or that commitment is somehow 'right' on an ideological level. A strong extrinsic motivation drives the decision maker to make a commitment while ignoring uncertainty or the necessity for any sort of logical calculation. Reasons for such commitments may be that the stakeholder has some form of close relationship with the entrepreneur (such as family members or romantic partners) and may believe, or wish, that he or she will be successful; they may be inspired by what the venture represents (in the case that it is addressing a perceived social need); they may have a tendency to gamble and anticipate lucrative returns based on some kind of gut instinct. Baron (2008) discusses the role of affect in acquiring such financial and human resources for new ventures and the role of an entrepreneur's capacity to inspire such contributions through *persuasiveness*.

A number of the examples from the literature provided at the beginning of this chapter resemble this kind of faith based commitment. In the U-Haul case from Sarasvathy (2001) there is the wife's family committing the use of the family ranch, as well as the friends and family who made the down payments on the trucks that were then lent to the entrepreneur, Shoen, so that he could grow his venture. These commitments were to the individuals, the entrepreneur and his wife, rather than the process. These commitments were likely to have been made based upon a certain type of self-determined extrinsic motivation, what Ryan and Deci call *regulation through identification*: "Identification reflects a conscious valuing of a behavioral goal or regulation, such that the action is accepted or owned as personally important" (Ryan & Deci, 2000b, p. 72). In other words, the end to which the stakeholders were making the commitment was to support their family member's venture as it was important for them to do so. In the Starbucks case from Sarasvathy et al. (2008) there were the 217 investors who purchased equity in Il Giornale. While we can imagine there was a certain element of affordable loss involved in the decision, it is unlikely that there would have been a more effectual reasoning used for the commitment to a process that they would have been fairly removed from in terms of control. Instead, they may have been inspired by Schultz the entrepreneur himself, especially if he came across as a 'Charismatic Leader' (Brouwer, 2002), or they may have had confidence (or overconfidence [Baron, 2000; Griffin & Varey, 1996]) in the concept of the coffee bar, or simply based their investment on an uncalculated gamble that it would make them wealthy.

Such stakeholders would answer the following questions like so:

1. What's happening out there? I do not have clear knowledge of, or understand well, the circumstances under which I will make a commitment.
2. How will it impact me? I do not know if my commitment will result in any material gain for myself.
3. What am I going to do about it? I shall make a commitment based upon my faith in the individual, venture, cause, or outcome that I am supporting as this is acceptable to me regardless of the chances of success and/or on an ideological level.

While the basic causally rational impetus of goal focus remains intact (i.e. the commitment is teleological in nature), for faith-based commitments to be made, this implies the stakeholder is acting upon reasoning strategies based on subjective rationality that supersede the causal decision making constructs. Such non-rational cognitive and behavioural constructs identified in the literature include, but are unlikely to be limited to: predictive 'overconfidence' (Baron, 2000; Griffin & Varey, 1996); various forms of trust, from the moderately subjectively rational 'over-trust' (Goel, Bell, & Pierce, 2005; Goel & Karri, 2006; Karri & Goel, 2008) and 'reflective trust' (Adler, 2001), to completely irrational 'blind trust', and; analogical reasoning or associative thinking, and heuristic reasoning[12] (Busenitz & Barney, 1997; Cornelissen & Clarke, 2010; Gavetti, 2012; Jones & Casulli, 2014). The effect of these decision making constructs being emphasised is that the holder of such logic eschews the need for calculating risk (or makes baseless estimations of expected return) without turning to more effectual strategies for avoiding the downside effects of failure – the potential for which is ignored.

Proposition 3: Given a commitment decision space that, when judged through the lens of instrumental rationality, would be deemed to be characterised by true uncertainty and ambiguity – a commitment may still be possible if the stakeholder is sufficiently extrinsically motivated, and that commitment will be subjectively rational and based upon faith, with the stakeholder having a teleological orientation.

4.5.2 Type 4: Self-belief based commitments

Commitments of this nature are made by arguably the most conceptually intriguing stakeholders. Stakeholders driven by self-belief are those who wish to directly influence the activities of the effectual network despite there being little ambiguity with regard to how the opportunity creation process is unfolding, e.g. the artefact, product, service that has emerged from the process is already fairly clear and path dependent, and/or there being little possibility that they would be able to personally exert much influences over the process themselves.

This type of stakeholder makes a commitment to the effectual network with the expectation that he or she will be able to exercise active, means oriented reasoning strategies such as control logic. They may be motivated by an intrinsic entrepreneurial passion (Cardon et al., 2009), and the belief that the effectual network represents opportunities that are not apparent to those already committed to it. Conceptually, this type of stakeholder resembles a Lachmannian entrepreneur; one intrinsically motivated to exercise 'creative imagination' and wishes to incite disequilibrating change (Chiles, Bluedorn, & Gupta, 2007; Chiles et al., 2008), or someone driven simply by the 'joy of creating' (Schumpeter, 1934, p. 93). In this case, these stakeholders may be either or both non-teleological in ori-

[12] Jones and Casulli (2014) Distinguish analogical reasoning from heuristic reasoning as two separate types of comparative reasoning based upon intuition developed through experience. They argue that heuristic reasoning is deductive and goal oriented while analogical reasoning is more inductive and non-teleological (therefore more in line with effectual reasoning).

entation, or *autotelic*: they simply want to be part of an effectual process as, for them, this kind of creative action is a reward in itself (Csikszentmihalyi, 2014).

We can imagine that this type of stakeholder may face some initial resistance from the extant effectual network. A commitment from such a stakeholder may not be perceived to be required by network members if the process has already reached a point of low uncertainty and high path dependency; other stakeholders may be unwilling to welcome in a new member who is disruptive to the network's now well defined goals; and, there may not be any possibility for a commitment to be received at all (the process is closed to outsiders beyond arm's length transactions). However, such stakeholders, who are likely to be serial or expert entrepreneurs, may also be important instigators of renewal, who restart (or simply start) effectuation processes from the beginning once a stable artefact has already emerged.

This category of stakeholders may answer the following questions as follows:

1. What's happening out there? The process towards which I am making a commitment has well defined goals, actors, and structure.
2. How will it impact me? Although I have a clear understanding of what kind of network/venture my commitment is contributing to, my interests lie elsewhere.
3. What am I going to do about it? I shall make a commitment to get a foothold in this network/venture in the self-belief that once I have done so, I will be able to use my influence to direct it towards a new course of my choosing.

As was the case with faith-based commitments, there must be other decision making strategies at play that allow for the stakeholder to exercise means oriented action despite the conditions not being favourable for such, i.e. strong path dependence, lack of ambiguity, limiting the potential to exercise control logic. These stakeholders will be driven by inward looking, intrinsically motivated reasoning, guided by a strong internal locus of control. In such a case, overconfidence may play a part once again, however, this time it is 'personal overconfidence' rather than 'predictive confidence' (Griffin & Varey, 1996; Sarasvathy, Menon, & Kuechle, 2013). Personal overconfidence is the "overestimation of one's knowledge (more generally, the overestimation of the validity of one's judgment) when there is no personally favored hypothesis or outcome" (Griffin & Varey, 1996, p. 228). Personal overconfidence may lead particular individuals to overestimate their ability to overcome the path dependence of a maturing effectuation process, and form a commitment to the network in the belief that they will somehow be able to exert control over it in a means rather than goal oriented fashion. Analogical reasoning may again also play a role, but will be in relation to action rather than prediction.

Proposition 4: Given a commitment decision space that, when judged through the lens of instrumental rationality, would be deemed to be characterised by path dependency and low ambiguity – a commitment may still be possible if the stakeholder is sufficiently intrinsically motivated, and that commitment will be subjectively rational and based upon self-belief, with the stakeholder having a non-teleological or autotelic orientation

4.6 Summary of Propositions

In this chapter I have attempted to answer the first of my research sub-questions: Why would stakeholders make commitments to effectual processes? The answer is, simply, that it depends on the individual, whether the individual is calculative and instrumentally rational, with success or survival being one of their primary motivating factors, or maybe they are subjectively rational, relying on personal feelings or emotion to guide their decisions. Motivation is a clear missing link when it comes to the black box of effectual stakeholder commitments. Here, I have attempted to show that motivation, whether it be intrinsic or extrinsic, will play an important role in not only determining how the stakeholder perceives the commitment decision space, but also what the purpose of the commitment means to them; whether it is a means to an end, or an end in itself. I summarise the four ideal types of stakeholder commitment I have deduced in the Table 7 below.

Table 7 A summary of four different possible commitment ideal types to effectual processes

Commitment Decision space	**Orientation to Telos**	**Category of Rationality**	**Commitment Logic**
Normal uncertainty/ Risk	Teleological	Instrumental	Causal
True Uncertainty/ Ambiguity	Non-Teleological	Instrumental	Effectual
True Uncertainty/ Ambiguity	Teleological	Subjective	Faith
Low Ambiguity/ Path Dependency	Non-Teleological/ Autotelic	Subjective	Self-belief

What I would like to reiterate here is that the ideal types shown in Table 7 are just that; empirically, a stakeholder commitment will based on a confluence of reasoning and logic that will contain elements of all four types. Commitment logic will also be dynamic and open to post-hoc rationalisation. Furthermore, because uncertainty in the commitment decision space is subjectively perceived, the causal link I have sought to draw between this and the commitment logic is a tenuous one, and something I believe to be fundamentally unmeasurable by any quantitative means.

The purpose I envisage for this typology is not one of a measurement tool, but more as useful conceptual device for generalising and grouping broad categories of stakeholders in a way that we might be able to distinguish and predict their present and future behaviours from one another in a meaningful way. My descriptions of these stakeholders thus far have been superficial. In the following chapter I will continue my reconceptualisation of causal and effectual behaviours to the perspective of the stakeholder, and I will also extend my theorising to the greater entrepreneurship literature in order to further inductively flesh out the vignettes of faith and self-belief based commitments I have introduced. Following on from this, I will theorise about what the effectual entrepreneur can do to secure commitments from these stakeholders, and what effect these commitments will have on the effectual process going forwards.

5 STAKEHOLDER COMMITMENTS IN OPPORTUNITY CREATION - A PROCESS MODEL

Effectuation theorists argue that pre-existent goals are not part of the rationale for self-selecting into the network by potential stakeholders. However, what stakeholders negotiate in terms of what kind of artefact they want to create is integral to the final artefact that is produced (Sarasvathy & Dew, 2005b). Stakeholders bring new means to the network, their identity, knowledge, and networks, as well as tangible resources such as access to capital, equipment, and real estate. However, with those new means come constraints on what can be created, imposed by the new stakeholder's values and beliefs, i.e. the "strings attached". The negotiation process occurs when stakeholders imagine the possible courses of action for the effectual network that become available when their own means are factored into the collective pool. When new, and possibly unexpected, synergies between the means of the network and the stakeholder become apparent, that stakeholder will then commit those elements of their means, and only those, which contribute to the new combination in a valuable way (Wiltbank et al., 2006).

The causation and effectuation decision making principles are not illogical or irrational. Both groupings of behaviour are utilised as responses to manage perceived uncertainty. While causation seeks to minimise uncertainty and optimise performance, effectuation seeks to embrace uncertainty, and set courses of action that trigger unanticipated contingencies that can be seized, adapted, or exapted[13] as the basis for further action. However, in the previous chapter I made the argument that causation and effectuation as reasoning strategies do not cover the full gamut of action under uncertainty. When a potential stakeholder's understanding or belief regarding the level of uncertainty they perceive with respect to the action they wish to take (i.e. the commitment decision) is incongruous with behaviour rooted in instrumental rationality, behaviours based on subjective rationality may serve as a stand in. Instrumentally rational risk calculation or affordable loss calculation may be replaced by subjectively rational biases and heuristics including, but not limited to, different forms and levels of trust, analogical reasoning, overconfidence, and altruistic desires.

[13] Exaption is a "feature co-opted for its present role from some other origin" (Dew, Sarasvathy, & Venkataraman, 2004, p. 69)

In this chapter I begin by taking the four ideal types of reasoning from the typology I established in chapter 4 – causal and effectual reasoning which have already been well defined in existing literature, and the two additional forms of faith and self-belief reasoning based on subjective rationality I have newly defined – and I translate them into different logical frames and associated behaviours that are likely to be exhibited by individuals guided by such reasoning. Following this, in the second half of the chapter, I return to a discussion on effectuation as a process. Updating Sarasvathy et al.'s 'dynamic model of the effectual network' to bring stakeholder commitments to the forefront, I theorise on how commitments from stakeholders following different reasoning strategies may influence how the process unfolds in different ways.

5.1 Pre-commitment Logic from the Stakeholders' Perspectives

In this subchapter, I will use a thought experiment akin to those used by Sarasvathy (2001) and Sarasvathy et al. (2008) to elaborate on stakeholder commitments, but I will extend it to include the faith based commitments and self-belief based commitments I introduced in the previous chapter. We begin with an effectual entrepreneur who has a generalised aspiration; in this case I will call the entrepreneur "Pat". Pat's generalised aspiration could be something to do with capitalising on a love of making Indian food as was the example used by Sarasvathy (2001), or it could be something more topical, such as creating some kind of mobile app based business – "Pat's Apps". Pat is at the beginning of his entrepreneurial journey, with a decade of programming experience in industry under his belt, and a modest €10,000 in savings. He either seeks out, or meets serendipitously, someone who he considers to be a potential stakeholder. Someone who may be able to help him in his endeavour by bringing to the process new means, financial or otherwise, and new goals. While Pat's problem space, his entrepreneurial design space, is characterised by Knightian uncertainty, Marchian goal ambiguity, and environmental isotropy, the potential stakeholder has his or her own problem space, the commitment decision space. In this commitment decision space the stakeholder has two sets of considerations. First are the means currently available to Pat, his identity, knowledge, and networks, as well as his stated aspiration. Second is the stakeholder's own identity, knowledge, and networks, and goals, preferences, and aspirations. Evaluating these considerations together, what does the stakeholder decide? Does the stakeholder commit and, if so, how will he or she behave following the act of commitment?

As I discussed in Chapter 2, Dew et al. (2009) argue that entrepreneurial experts and novices frame their problems differently from one another, and suggest that expert entrepreneurs, using effectual frames, and novices, who have a tendency towards using causal frames, will perceive and approach issues in different ways. They summarise five of these key issues as the decision maker's: 1) view of the future; 2) basis for taking action; 3) predisposition towards risk and resources; 4) attitude towards outsiders; and, 5) attitude towards unexpected contingencies. Generally, in effectuation literature, these issues are discussed from the entrepreneur's perspective, and where the self-selecting stakeholder to the effectual process is concerned they are generally assumed to share the entrepreneur's effectual orientation. In the following sections, I will return to these five issues, however, this time I will discuss them from the perspective of a stakeholder who is approached by the entrepreneur, Pat, about a possible commitment (in this scenario the commitment will be the possibility for an equity investment). I will explore alternative possibilities of how, given the same commitment decision, different stakeholders will frame their act to commit to the nascent effectual process represented by Pat, both before and after the commitment is made, in different ways. Furthermore, I will not assume the stakeholders will invariably be guided by effectual logic, but will explore the potential behaviours of stakeholders who may make commitments based on either effectual and causal reasoning, as well as the two new types of subjectively rational actor I introduced in the previous chapter, who make commitments based on faith or self-belief.

5.1.1 View of the future

An actor following causal logic is said to behave in a way that utilises their preexisting knowledge in order to make reasonable predictions about future, while an actor using effectual logic will instead seek to shape an unpredictable future through the exertion of control (Sarasvathy, 2001). For the potential stakeholder into the effectual network, as they are looking in from the outside before making a decision to select into the process, they may be well positioned to make their own analysis of predictive information before taking the plunge. This may be true *even if* the entrepreneur him or herself is faced with significant uncertainty (i.e. while the effectual network's own design space may be characterised by true uncertainty, ambiguity, and isotropy, the stakeholder's comment decision space, separately, may be characterised by normal uncertainty and risk). For instance, if we imagine that the stakeholder approached by the entrepreneur for a commitment represents a mature firm serving existing markets, that stakeholder may rely on his or her firm's existing market intelligence. In such a case, a commitment may be negotiated whereby the emerging artefact of the effectual network is combined with firm specific resources of the stakeholder to modify or enhance an existing product or service serving an existing market. For example, considering Pat's aspiration is to create an app based service, perhaps the stakeholder, I will call her “Kim”, will make a commitment in the form of an 50,000 euro equity investment of start-up capital so that Pat will develop an app based business that will provide services that Kim’s firm offers. Essentially the commitment will be one to outsource research and development and exploit a previously unknown opportunity. In this case, a commitment under instrumentally rational predictive logic would be possible – a future can be reasonably predicted where Pat creates an app based platform as a new channel to distribute the stakeholder’s products or services to an existing market. For Kim the commitment, and Pat himself, is a known quantity or state, from which an effect, though not necessarily known, is predictable within normal uncertainty. However, though her main focus is prediction, this does not mean she will eschew control logic to steer the action of the effectual process towards her future goal.

If the stakeholder considering a commitment is more partial to control logic (i.e. if they possess entrepreneurial expertise) then, as argued by Read and Sarasvathy (2005), prediction and predictive information may not be important in their decision on whether or not to make a commitment. Such a stakeholder will be more amenable to open discussion with the entrepreneur and existing network members about different possible futures towards which collaboration could possibly aspire. This is Sarasvathy and Dew’s (2005b, p. 550) archetypical effectual stakeholder commitment where: “It focuses on what is controllable about the future and about the external environment, irrespective of their predictability; it also explicitly eschews predictive information that cannot be encapsulated into controllable events”. The stakeholder approached by Pat might be an experienced entrepreneur, “Nick”, who wishes to branch out into new ventures. Having walked the entrepreneurial path before, Nick is an expert entrepreneur who frames issues effectually. His area of expertise is in fish farming. He doesn’t know how fish farming and mobile apps go together per se, but he can imagine a number of potential possibilities. He is not concerned by the uncertainty in this commitment decision space as he has experienced this kind of thing before. He invests €50,000 for an even stake in the venture, understanding that by having this stake, he will be able to control events as they unfold.

A stakeholder who makes a commitment as a matter of faith may exhibit one or both of two potential views of the future: they may submit to the view of the future as presented to them by the entrepreneur to whom they are making the commitment, as their commitment is based on faith in that person, or; they make a commitment in the *belief* or simple hope that the future they predict or envisage will come to pass. Both cases are subjectively rational. The former, which I call a *Type A* faith based commitment, is based upon the subjectively rational, heuristic of ‘personal trust’ which is noncalculative (or nearly noncalculative) (Williamson, 1993) while the second, which I call a *Type B* faith based commitment, is based upon a subjectively rational belief in an imagined future outcome which, unlike prediction under causal reasoning, is likewise noncalculative and may be based on one or a combination of 'non-rational' heuristics or biases such as 'predictive overconfidence' (Sarasvathy et al., 2013), 'analogical reasoning' (Gavetti, Levinthal, & Rivkin, 2005), or 'associative thinking' (Cornelissen & Clarke, 2010).

Williamson (2000, p. 73) makes a distinction between two broad types of trust, 'calculative trust' and 'personal trust' which correspond, respectively, to Dunn's (2000, p. 73) treatment of trust as either being a 'modality of human action' versus a 'human passion'. Calculative trust is the trust utilised by an instrumentally rational actor in decision-making, e.g. an individual making a conscious calculation, under bounded rationality, about the likelihood that another actor will fulfil their contractual obligations. Personal trust, on the other hand, is 'nearly noncalculative'[14]. It is characterised by "(1) the absence of monitoring, (2) favorable or forgiving predilections, and (3) discreteness" " (Williamson, 1993, pp. 483–484). As such, he argues, it is a "very special" form of trust and is "reserved for very special relations between family, friends, and lovers" (Williamson, 1993, p. 484). Take, for example, Pete is Pat's father. Pat tells Pete about his plan to start a new venture developing a new app. As Pat is Pete's son, he has faith in him and faith that he will be successful i.e. Pete, as a father, has personal trust in his son. He has no problem providing a 10,000 euro investment for a small amount of equity in Pat's venture[15].

Type B commitments are based upon the decision maker's subjective belief (or hope) that an imagined future outcome will eventuate. Unlike an actor using causal reasoning, there is no objective reason for believing that the future will unfold as predicted (no calculations have been made as to the likelihood of future events occurring). The stakeholder making the commitment may be doing so due to personal 'overconfidence': "Overconfidence exists when decision makers are overly optimistic in their initial assessment of a situation, and then are slow to incorporate additional information about a situation into their assessment because of their initial overconfidence" (Busenitz & Barney, 1997, p. 15). Griffin & Varey (1996, p. 228) argue that it is likely that overconfidence is manifested in two distinct forms, with the most dramatic being 'optimistic overconfidence' or the "the tendency to overestimate the likelihood that one's favored outcome will occur". The second type of overconfidence is the "overestimation of one's knowledge (more generally, the overestimation of the validity of one's judgment) when there is no personally favored hypothesis or outcome" (Griffin & Varey, 1996, p. 228). Sarasvathy, Menon, and Kuechle (2013) relabel these two types of overconfidence, I believe appropriately, as 'predictive overconfidence' and 'per-

[14] Williamson (1993, p. 479) asserts that it is "mind-boggling" to imagine purely noncalculative trust, but gives "noncontingently selfless behaviour of a Good Samaritan kind" as an example.

[15] Alternatively, Pete may simply provide Pat with an unsecured personal loan.

sonal overconfidence'. It is predictive overconfidence which relates more to commitments made as a matter of faith while, as I will argue below, personal overconfidence is more likely to be involved in commitments made on the basis of self-belief.

Predictive overconfidence itself may be a result of analogical or associative thinking; where the decision maker is consciously or unconsciously comparing the current situation to situations experienced previously, and predicts that events will therefore unfold in the same or a similar manner (Cornelissen & Clarke, 2010; Gavetti, 2012). Alternatively, predictive overconfidence may simply be predicated on a strong personal desire for, or normative belief in, a particular outcome, such as in the case of philanthropic investment. "Phoebe", for instance, is one of a number of individuals in Pat's extended network from his previous life working in industry whom he approaches for financing. As a distant acquaintance, she has no motivation to finance Pat on a personal level like Pete does. However, when Pat tells her his aspiration is to develop a firm that addresses a social need, such as an app platform for connecting lonely pensioners, she is motivated to make a small equity investment towards this vision of the future, as it is a cause that is close to her heart[16].

A stakeholder who makes a commitment based on self-belief may not really be concerned with any clear predictions about what the future will look like, but neither may they fall back on control logic. Their only concern is that they see an opportunity to be part of a process that is exciting or appealing to them. As these stakeholders, by the definition I have drawn above, are subjectively rational and non-predictive, the heuristics they employ reflect this fact. Instead of the personal trust utilised by faith reasoning stakeholders, they instead may rely on, or be susceptible to, 'over-trust' as described in relation to effectual processes by Goel and Karri (Goel & Karri, 2006; Karri & Goel, 2008), and instead of being predictively overconfident, they may be more prone to the overconfidence in their personal abilities that has been described by Griffin & Varey (1996) and Sarasvathy, Menon, and Kuechle (2013).

Unlike personal trust, *over-trust* does not hinge upon there being some kind of special personal relationship between the trustor and the trustee. According to Goel, Bell, and Pierce (2005): "Over-trust reflects a condition where one chooses, either consciously or habitually, to trust another more than is warranted by an objective assessment of the situation". According to Goel and Karri, in the context of entrepreneurship:

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[16] I use an altruistic example here, however, a commitment of this nature might just as well be based upon selfish desires. E.g. a person making an investment in a company seeking to develop flying cars might invest simply because he wants to own one one day.

> We observe that some people can trust in contexts where others may urge caution and seek cautionary safeguards. In this respect, over-trust can be viewed as instrumental in making deals under the assumption that the other parties will keep their end of the bargain. … [O]ver-trust suggests either an unwillingness to predict the future by taking into account the potential risk involved in the relationship or an inability to assess the intentions of the other party and the nature of the relationship. From a rational perspective, such a situation may be labeled as a case of willful negligence of risk resulting from overconfidence or naivety. We propose that entrepreneurs choose not to predict the future. They are often confronted with situations where they are not in a position to make any objective assessments of the risk involved, thereby denying them the ability to predict the future.

Sarasvathy and Dew (2008a) make the argument that the concept of over-trust is unnecessary in effectuation. While this may be true for understanding effectuation as a form of *behaviour*, over-trust may be an important concept for understanding how certain individuals, novices in entrepreneurship, who have not developed the effectual reasoning of Sarasvathy et al.'s 'expert entrepreneurs' still may make commitments to, or induce, *effectual processes* under the uncertainty conditions of the entrepreneurial design space.

For example, "Boris" is a business student. His driving passion is to become an entrepreneur. Although he believes he has got what it takes to be an entrepreneur, he does not really know what sort of venture he would like to form. In a chance encounter with Pat at a start-up event, he hears about Pat's intention to start an app based business. He convinces Pat, who likes his ideas and attitude, to bring him on board to be one of the founders. At the same time, he places over-trust in Pat. He has no way to evaluate what outcome their relationship will have, or even if it will be a positive one. Despite this, he makes a commitment simply to see what the future will bring. Boris doesn't really know what the future holds for the venture and, as he is not an expert entrepreneur, he has not developed the expertise associated with effectual reasoning and control logic. He believes in what he has learned in business school, business model canvasses, business plans, and competitive analysis.

5.1.2 Basis for taking action

As was mentioned in the review in Chapter 2 and the introduction to this subchapter, according to Dew, Read, Sarasvathy, and Wiltbank (2009), action by those who exhibit causal reasoning, or a 'predictive frame', is determined by goals (i.e. it is teleological), while those with an 'effectual frame' will act on the basis of imagining what they can do with their given means (i.e. it is not teleological). What this means for the commitment decision problem is that, if the stakeholder possesses a means focus, the stakeholder has compared his or her own means or resources against those already available to the entrepreneur and nascent effectual network, and has been able to envisage (though not necessarily very clearly) how these means combined may lead to a number of appealing possibilities. Nick, the former fish farming mogul, as a seasoned effectuator, has a strong means orientation. He can already imagine a number of ways in which Pat's experience as an app developer can be combined with elements he can draw from his current identity, knowledge, and networks. He is ready to make some calls and send some e-mails to people he knows to get things rolling and to see where they take him.

If the stakeholder does not possess a means focus, but still makes a commitment, this means that he or she has a particular goal in mind, and believes that this goal can be achieved through a pooling of resources. Kim has been on the lookout; alert for any new ways that her firm, which sells high-end pet supplies and accessories, can extend its market share. Upon talking with Pat during a trade show (Pat owns a couple of designer dogs – Chihuahuadoodles), she has the idea that using a mobile app is the perfect way to achieve her goal of connecting her firm's customers and marketing their products.

Just as in the case of an individual utilising causal logic, a decision maker using faith reasoning is similarly teleological – their action is determined by goals. As I suggested in the previous section, these individuals can be broadly classified into two groups, those who are committing on a personal level to those who they have faith in, and those who are committing to a future outcome they have faith in. The goal or telos of the first group is to support individuals within the effectual network – the telos is satisfied by the commitment itself. Beyond that, they are passive or naïve to the goals or aspirations of the entrepreneur and other previously committed stakeholders and do not anticipate the need to act or exert any form of control. Pete's goal, for example, is simply to help his son realise his aspiration of starting a new venture. Beyond investing the initial €10,000, and offering moral support from time to time, he has no further intention of being actively involved in the process. He trusts in Pat's, and his other collaborators, judgement. The second group take the stated generalised aspirations of the entrepreneur and effectual network as a concrete goal, or have their own imagined goal which they believe a commitment is the key to achieving. Phoebe made the commitment towards the goal of addressing a social need, connecting lonely pensioners. Aside from her initial commitment, however, she takes a passive back seat to the process in the faith that the goal will eventually be fulfilled.

If the stakeholder who is approached by the entrepreneur decides to make the commitment on the basis of self-belief, the motivation for the commitment itself can be considered teleological, but action by the stakeholder subsequent to the commitment being made will have a non-teleleological or autotelic basis. The stakeholder's goal or telos is to be committed to a non-teleological creative process as he or she has a sense of subjective intrinsic reward by doing so. The stakeholder's goal, in this case, is to be in the position of being creative with his or her means and engaging with others, and their means, to create novel and unanticipated artefacts, products, services, markets, or other business model innovations. Boris's initial telos is satisfied once Pat accepts him on board as a collaborator. While, initially, as he remains a novice entrepreneur he may resort to carefully drafting business plans and other causal, goal oriented behaviours, he will soon learn that those behaviours are ineffective given the entrepreneurial design space. As he gains experience he gradually becomes more effectual and develops an orientation of choosing what to do with the means available to him.

5.1.3 Predisposition toward risk and resources

According to Dew et al. (2009, p. 290), a causally logical decision maker "frames the new venture creation problem as one of pursuing the (risk-adjusted) maximum opportunity and raising required resources to do so", i.e. they focus on the upside potential. On the other hand, an actor using effectual logic "frames the problem as one of pursuing adequately satisfactory opportunities without investing more resources than stakeholders can afford to lose", i.e. they focus on the downside potential. This suggests that in the case of a stakeholder deciding whether or not to make a commitment to an effectual network, if he or she is uses causal logic, he or she will make the commitment based upon an evaluation of the upside potential of being part of the effectual process, and will mobilise resources to ensure that the upside is realised. On the other hand, a stakeholder using effectual logic will simply assess that the commitment does represent an opportunity or opportunities and, in the worst case, if the commitment falls through or leads ultimately to failure, that the failure was affordable and the loss can be absorbed.

While empirical research, such as the 'think aloud' experiments conducted by Dew et al. (2009) and Read, et al. (2009), indicated that expert entrepreneurs tended to focus on affordable loss more than MBA students and managers, who tended to focus more on earning potential, in reality, when it comes to a commitment decision, it is hard to imagine that the decision maker would not consider *both* expected return *and* affordable loss. Kim, the causal stakeholder in my narrative, may be able to use her firm's resources and knowledge to make some predictions about the return they could expect from the partnership she has made a commitment to. These calculations may be an important, if not the most important, consideration behind her commitment. However, it would be entirely irrational to invest the 50,000 euro commitment if those €50,000 are not, in the worst case, affordable. After this commitment has been made, however, Kim's focus and influence over the process would certainly be to direct resources towards achieving maximal returns. On the other hand, for Nick, the expert entrepreneur, any calculations of expected return are likely to be inaccurate if not impossible because, for him, it is remains unclear what the end artefact, product and market, will be. A focus on affordable loss will certainly be the most logical choice for him, as both a basis for his commitment, as well as directing his post commitment behaviour.

For a stakeholder who chooses to make a commitment on the basis of faith, considerations of affordable loss or expected return are irrelevant, at least to post commitment behaviour. The reason for making the commitment may be based on either or both logics, however, as these stakeholders take no active role in post commitment decision making, they do not influence the entrepreneur's, or network's, focus on the upside or downside potential. Pete's decision to provide €10,000 of capital to Pat may certainly be based upon his own calculation or subjective attitude towards what he considers to be affordable. Phoebe's investment is likewise based on the fact that even if she receives no return on it, it will not adversely affect her life beyond what she has deemed to be acceptable to her. On the other hand, in a possibly rare but not unimaginable scenario, an individual who, perhaps under the influence of Pat's boundless charisma, might invest his entire life's savings on the gamble that he will make it back tenfold (an irrational commitment).

A self-belief reasoning individual will not make the decision to commit based on expected return because, as discussed above, his or her commitment is non-predictive. However, it is not necessary that he or she have an affordable loss focus either. To illustrate the difference between causal and effectual logic in relation to affordable loss and expected return, Dew et al. (2009, p. 293) give the following example: "One example of this is the entrepreneur who refuses to leave a well-paying job until he finds an opportunity that he predicts will pay more (causal) versus one who decides to invest a small portion of her savings and two years of her life on a project that she believes is worth that amount of time and money—irrespective of whether it will pay more than what she currently earns (effectual)". A subjectively rational individual exhibiting high intrinsic motivation to involve him or herself in the creative effectual process may make a commitment to the network without considering whether or not the commitment is expected to result in a greater earning potential *or* is affordable. In the case of Boris, he may not incrementally invest in the venture, but he may still quit his current job and throw himself headfirst into the unknown without a parachute. One could argue, however, that he has still made his commitment based upon affordable loss, but his subjective determination of what is affordable or not is much higher than someone who does not share his strong intrinsic motivation.

5.1.4 Attitude towards outsiders

Causal actors are argued to favour competitive analysis in their altitude towards outsiders, while effectual actors are said to favour partnerships. Obviously, if a stakeholder makes a commitment to an effectual process, this indicates that the individual must have at least a minimal predisposition towards partnership, otherwise a commitment greater than an arm's length transaction would not even be considered. For a causal actor, however, a commitment represents just another means to a predicted and planned end. Their behaviour following commitment will likely be oriented towards competitive analysis. For example, Kim, having made a significant investment of her firm's resources into the partnership with Pat to develop an app platform for her firm's products, will not likely be agreeable to including competitors into the venture as she would not want them diluting her firm's ownership and threatening her perceived version of the future. Nick, on the other hand, following his effectual reasoning, will not only be open to any additional partnerships to contribute new means and new goals to the process, but he will be actively on the lookout for them.

The first type of faith reasoning stakeholder is not concerned with either competitive analysis or partnership. Beyond his or her initial commitment, he or she is happy to 'go with the flow' on who later joins the process, and is not protective over the investment – letting the entrepreneur and the more active members of the effectual network decide who to bring on board, or who to compete against. Pete, for example, does not mind if Pat forms a partnership with Kim, or with Nick, he trusts in Pat's judgement to make the right choices. A faith based stakeholder who made a commitment based on a particular view of the future, however, may be antagonistic towards the inclusion of partners who may be opposed to, or may threaten that stakeholder's view. For instance, the socially conscious Phoebe who has made a commitment based on her principles, in this case her desire to improve the lives of the elderly, will no doubt be strongly be opposed to the venture forming a partnership with a firm known to exploit the elderly.

As I discussed in section 5.1.1, a self-belief reasoning stakeholder will have the tendency to over-trust. As such, this type of stakeholder will have a naturally more collaborative attitude towards outsiders than a stakeholder following causal reasoning, at least in their initial commitment. However, there is a possibility that given a self-belief driven individual is a novice entrepreneur, immediately following commitment they may tend towards the more causal reasoning of competitive analysis. This is more likely the greater their access to resources (Read & Sarasvathy, 2005). However, as they increase in entrepreneurial expertise, they will gradually become more effectual in reasoning and, as such, more open to collaboration. For example, Boris is over-trusting in his initial commitment, and may be open to other collaborators in the pre-firm stage, however once the startup is established, he may revert to his business school knowledge of market research, positioning, and competitive analysis, particularly if he has control over a large number of tangible resources. However, he will quickly begin to convert to a more effectual form of reasoning once experience shows him that those strategies are prohibited by the uncertain and ambiguous market creation design space, and he will once again be oriented towards collaboration.

5.1.5 Attitude towards unexpected contingencies

The final issue identified by Dew et al. (2009) to be framed differently by those using causal logic compared to those using effectual logic is their attitude towards unexpected contingencies. Causal actors try to avoid contingencies because they interfere with the careful planning they rely on to drive them towards their clearly predicted future goal. Effectual actors with their open view of the future see contingencies as opportunities for being creative and novel, and seek to leverage them in a productive way. From a stakeholder perspective, Kim will want to avoid any contingencies that throw the effectual process off course from her primary goal of developing an app platform to advertise and sell her firm's products. Her actions as a committed member of the effectual process will be to try her best to shut down unpleasant surprises before they occur. Nick, on the other hand, can be expected to readily seize upon contingencies that come the way of the effectual process. If his and Pat's initial idea was to develop apps to help fish farmers monitor their fishes' health and wellbeing, but the fish farmers pull out because of an unfavourable economic climate, they might instead team up with other stakeholders they met while working with the fish farmers to develop apps that integrate their water analysis devices for use in other industries such as waste water treatment.

As I previously discussed, in relation to their view of outsiders, we can expect that stakeholders who have made faith rational commitments to individuals within the effectual process will be ambivalent to contingencies as they are not necessarily concerned about the success of the process, or if they are, they do not have the knowledge, means, or desire to have any effect over how the process unfolds. Pat may tell Pete that the fish farmers pulled out of the process, and this may concern Pete, but he is not equipped, or at least he does not believe he is equipped, to offer any practical advice on what to do next. The same applies to those who have made a faith based commitment to a particular view of the future. After trialling a beta version of his pensioner social network app, Pat might find that usage and ownership among pensioners of mobile devices is not at a level high enough to sustain the enterprise. When he informs Phoebe of this, she may express some concern, but she is unable to help as she does not have the time in addition to her full time job and family obligations. Pat will have to find his own way to leverage this contingency, but if he does find a solution, he would need to ensure that it remains in line with the view of the future imagined by Phoebe, or she may resist any diverging actions (or simply divest herself of the nascent firm).

If the stakeholder has made a commitment based on self-belief, as he or she does not have a concrete vision of the future, there is no basis, at least early on in the process, for avoiding contingencies as everything at that point is a contingency. As goals become clearer, perhaps in discussions with the entrepreneur, how the self-belief stakeholder views contingencies may be depend on his or her entrepreneurial experience, or the amount of resources at hand. As Dew et al. (2009) and Read, et al. (2009) found, novices tended to rely on planning and avoiding contingencies while expert entrepreneurs tended to view them as opportunities, while Read and Sarasvathy (2005) propose that the more resources are available to a novice, the more causal they are likely to be, i.e. the less likely they will seek to leverage contingencies. Boris, in discussion with Pat, might initially come up with a detailed business plan, relying on guesswork and instinct to fill in the blanks where their combined knowledge is insufficient. However, he might soon discover that such careful planning in useless given the entrepreneurial design space of true uncertainty, goal ambiguity, and isotropy, and, as he gains experience, he will begin to use the effectual logic of leveraging contingencies – as proposed by Read and Sarasvathy (2005).

5.2 Implied Post-commitment Stakeholder Behaviour

A summary of the frames, interests and behaviours of the different types of stakeholders addressed above is provided in Table 8 on the following page. At the risk of being somewhat repetitive, to put the discussion from the preceding chapter and the paragraphs above most simply, teleological vis-à-vis non-teleological stakeholders are distinguished from one another by whether or not they possess a clear goal, while instrumentally rational vis-à-vis subjectively rational stakeholders are distinguished from one another by whether or not they are (borrowing Williamson's [1993] term) "calculative" in their decision making. Although, if the conditions are right (as I discuss in the following section), any of these different types of stakeholders may make a commitment to an effectual network at any point in time, because the basis for making their respective commitments are different, their post commitment behaviours may also be radically different from one another.

Table 8 Different stakeholder behaviours depending on commitment type

	Commitment Type			
Issue	**Causal**	**Effectual**	**Faith Reasoning**	**Self-belief Reasoning**
Basis for Commitment	Exploitation, Instrumentality	Collaboration, Co-Creation, Partnership	**Type I:** Faith in the entrepreneur **Type II:** Faith in imagined or predicted outcome	Intrinsic desire to be part of a creative process
View of the Future	Predict the future: Evaluate how own resources can be combined with those of the entrepreneur or network using pre-existing knowledge and predict a desired future. Negotiate with existing members specific desired future	Create the future: Discuss with existing network members possible futures that can be achieved together Try out different things, see what works and what does not work	**Type I:** Subscribe to the entrepreneur's view of the future (personal trust) **Type II:** Believe in a future imagined at time of commitment (Predictive overconfidence)	Believe in own ability to create the future (personal overconfidence and over-trust) Convince existing network members of new potential futures.
Basis for Taking Action	Goal focus: Create a plan of how own means can be combined with network's to achieve goal	Means focus: Imagine how own means can be combined with network's to create different possibilities to be tested	Naïve goal focus: **Type I:** Goal focus where commitment is the goal **Type II:** Naïvely contribute means towards imagined goal	Naïve means focus: Seek to actively engage personal means in the creative process
Predisposition Toward Risk and Resources	Evaluate expected return	Determine affordable loss	**Type I:** Acceptable loss **Type II:** Expected return	Acceptable loss
Attitude Towards Outsiders	Competitive	Collaborative	Passive	Collaborative
Attitude to Unexpected Contingencies	Avoid	Leverage	Let others handle (unless, for Type II, contingencies result in a radical divergence from original predicted outcome)	Avoid or leverage depending on experience
Probable Post-Commitment Behaviour	Seek to regulate or coerce the entrepreneur's, or network's, action towards desired ends	Actively work together with the entrepreneur to test out different futures	Passively accept the entrepreneur's and network's will until trust is betrayed or prediction is proven false.	Attempt to influence entrepreneur's or network's action towards imagined possibilities

A causal stakeholder's basis for making a commitment is, at its heart, predicated upon calculatedly achieving a clear desired end. As such, it can be expected that such a stakeholder's post-commitment behaviour will be characterised by a strong will to direct the subsequent actions of the effectual process, and the network of actors that embodies, it towards that end. Here I return to the notion of 'voice' as mentioned by Sarasvathy and Dew (2005a, 2008a):

> … effectual negotiations are about what the pie could, should, and would be rather than about how large it will be or how to divide it among the stakeholders. Therefore, each effectual commitment involvees both the recognition (1) that the pie does not exist and all investments are merely tickets to buy "voice" in shaping what that pie might eventually turn out to be and (2) that there will be several more negotiations and transformations as new stakeholders self-select into the process. (Sarasvathy & Dew, 2008a, p. 729)

The causal stakeholder knows exactly what they want "the pie" to be, and they will purchase and exercise their voice through their commitments to regulate or coerce the entrepreneur and other stakeholders to take actions that will lead to their calculated goal.

An effectual stakeholder's purpose is to engage in productive and mutually beneficial collaboration towards unknown ends. As effectual behaviour, like causal behaviour, is nevertheless routed in instrumental rationality, it can be assumed that effectual stakeholders will still be calculative in their actions. However, as clear goals cannot be ascertained right away, there is no benefit in coercing existing actors towards predefined ends. While the causal stakeholder's reasons for commitment, and post-commitment behaviour, are likely to be opportunistic and coercive, the effectual stakeholder is more likely to engage in what is described by Simon (1993) as 'intelligent altruism'. That is, behaviour based upon reciprocity. As argued by (Sarasvathy & Dew, 2008a):

> … effectuation does not assume intelligent altruism. It simply makes intelligent altruism a rational criterion for action in the face of Knightian uncertainty and goal ambiguity—not only for entrepreneurs but also for all their early stakeholders.

Of course, although Sarasvathy and Dew make the assumption that intellegent altruism is a rational criterion for all early stakeholders, that is contingent on them being faced with Knightian uncertainty and goal ambiguity – which is not necessarily the case for the causal stakeholders, as I explained above. To summarise the likely post-commitment behaviour of stakeholders whose commitments are founded upon instrumentally rational criteria, the causal stakeholder is likely to set clear goals and demands and do everything they can to direct the future actions of those already within the effectual network towards those ends, while the effectual stakeholder is more likely to engage in open negotiation and discussion with the entrepreneur and other existing actors to begin to generate mutually beneficial ideas about what to do next.

For the subjectively rational, faith reasoning stakeholder, a naïve goal focus takes the place of the causator's calculative goal focus. It can be expected that this type of stakeholder, including both sub-types, will be the least actively engaged in post commitment decision making within the effectual network. This is because, for Type I, their goal was fulfilled by the commitment itself, while for Type II, the decision to commit was based upon the expectation that their goal will be fulfilled regardless of their own input to the process. As such both these sub-types of stakeholder will merely be a passive, background presence within the effectual network whose support (provision of means) is guaranteed for as long as their trust is not betrayed or their predictions seem to be on track.

For the stakeholder who has made a commitment on the basis of self-belief, as the commitment itself was made for the purpose of buying into and becoming part of the process (for the sake of being part of the process), it can be assumed that these types of stakeholders' post-commitment behaviour would be to actively engage in and/or attempt to influence decision making. If these stakeholders appear towards the latter stages of an effectual process (at a point where strong path dependencies are already present for the extant members of the effectual network) they may act as disruptive change agents, and may not be welcomed with open arms. Their ability to influence the effectual network will depend on the amount of voice they purchased through their commitment. Ultimately, if they are able to influence the network in such a way that stimulates additional transformation, and as they gain entrepreneurial expertise, their behaviour will become indistinguishable from those who made their initial commitments based upon effectual logic.

5.3 Negotiating Commitments

Connecting causal and effectual reasoning to firm lifecycle, Read and Sarasvathy (2005) propose that: "Successful firms are more likely to have begun through effectual action and grown through causal action as they expand and endure over time". The logic behind this is that, as firms grow, they accumulate greater resources and form clearer goals (by securing stakeholder commitments) – attributes which are more commensurate with causal rationality.

If we assume that uncertainty, ambiguity, and environmental isotropy are all at their highest in the beginning of an effectuation process, this begs the question: will commitments invariably be impossible between an entrepreneur, guided by effectual reasoning, and potential stakeholders who do not share that same reasoning? Not at all. Taking a generic potential stakeholder we may assume that they are neither an expert entrepreneur, emotionally invested in the stated aspirations of the entrepreneur, nor do they have a pre-existing personal relationship with anyone already involved in the current effectual process. In this case, as I discussed in chapter 3, they will invariably begin from the default causal in their reasoning that most human beings prefer. In such a case, the actor within the extant effectual network (usually the focal entrepreneur, but not exclusively so) seeking to negotiating a new valuable commitment from the potential stakeholder must turn to one or a combination of three different recourses. They can either: 1) reduce the uncertainty perceived by the stakeholder, 2) induce effectual reasoning, or 3) increase the stakeholder's willingness to bear uncertainty. I shall discuss these different recourses in the figures illustrated below.

5.3.1 Failure to secure commitment

As I mentioned at the beginning of Chapter 4, a commitment decision constitutes an entrepreneurial action on the part of the stakeholder, defined by McMullen and Shepherd (2006) as "behavior in response to a judgmental decision under uncertainty about a possible opportunity for profit".

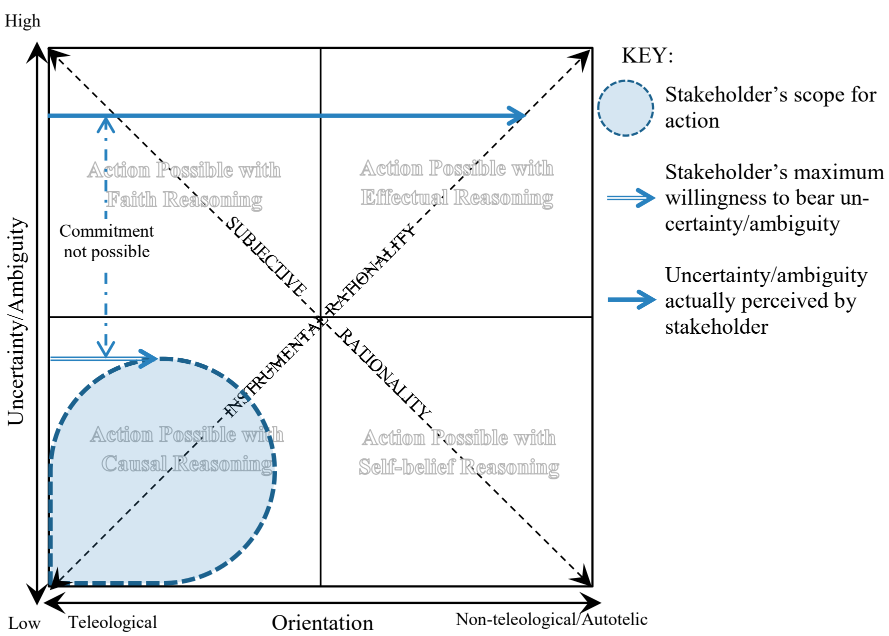


Figure 15 Scenario 1 – No commitment

As such, there are two important elements of the decision, uncertainty perceived by the stakeholder, and the willingness of the stakeholder to bear uncertainty (McMullen & Shepherd, 2006). If the uncertainty the stakeholder perceives is greater than what he or she is willing to bear, a commitment is impossible. Such a situation is illustrated in *Scenario 1* in Figure 15, above. In this scenario, an entrepreneur approaches a potential stakeholder with the possibility for a mutually beneficial commitment to be formed. The entrepreneur recognises the uncertainty inherent in the commitment decision space, however, his or her ability to rely on effectual courses of action ensures that he or she will be able to mitigate the uncertainty in the future or even exploit it. The stakeholder in this case, however, is not an 'expert entrepreneur' and is therefore less likely to be able or willing to employ effectual reasoning (Baron, 2009; Dew et al., 2009). As such, the uncertainty is above the tolerable limit below which the stakeholder would be willing to make a commitment based on predictive logic, and the calculated risk is either too high or the expect return is not evident enough to make the commitment worthwhile. A commitment is not made.

Proposition 5: Where a causally rational actor perceives a high level of uncertainty in a potential commitment decision to an effectuation process they will not form a commitment due to their low willingness to bear uncertainty.

5.3.2 Reducing uncertainty to secure commitment

In *Scenario 2*, illustrated below in Figure 16, if the initial request for a commitment is rejected by the stakeholder, the entrepreneur has the option to reduce the uncertainty perceived by the potential stakeholder. This could mean limiting the extent of the commitment, e.g. having the stakeholder simply make a commitment to a small element of the overall effectual process, the outcome of which is relatively predictable and calculable (or, at least, the cost of which is readily affordable), allowing the stakeholder to exercise causal logic. This is a common way of securing many small stakeholder commitments through crowdfunding sites such as Kickstarter.com. Alternatively, if the stakeholder is large and powerful, it may mean shaping the effectual process more towards the stakeholder's goals, but without the stakeholder taking an active effectual engagement in the co-creation process. The danger of this approach is that, firstly, the entrepreneur is submitting the effectual network to resource dependence on a single powerful stakeholder (Pfeffer & Salancik, 1981), which may alienate previously committed stakeholders within the network and lead to failure if the stakeholder chooses, in the future, to dissolve the commitment and; secondly, as the stakeholder has not actively engaged in the effectuation process, the end artefact may not be what they expected, leading them to ultimately withdraw their commitment.

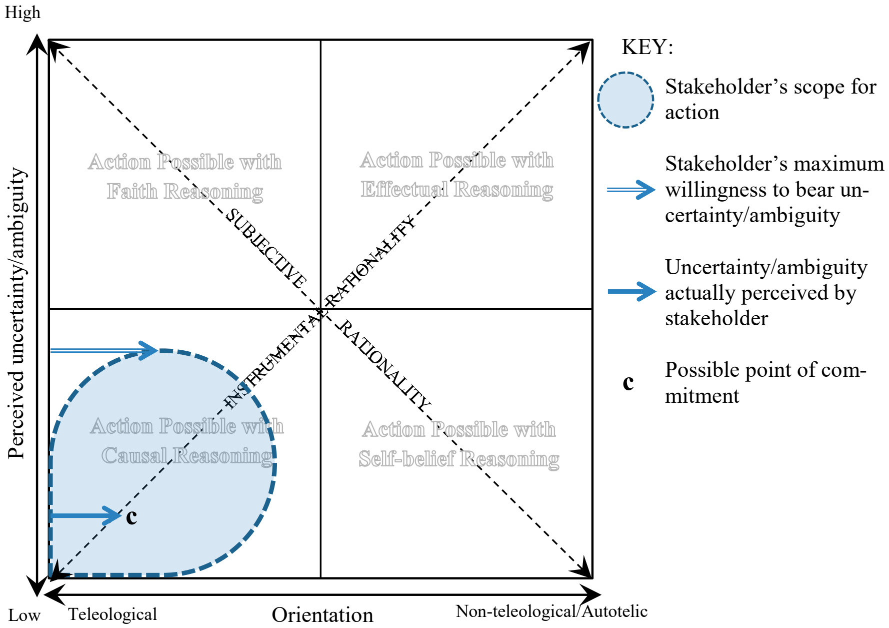


Figure 16 Scenario 2 – Reduce uncertainty

Such circumstances were common to failures in major innovations by young technology firms investigated by Coviello and Joseph (2012).

Proposition 6a: A causally rational actor may be prompted to make a commitment to an effectuation process if the commitment is minor in nature.

Proposition 6b: A causally rational actor may make a significant commitment to an effectuation process if the effectual network acquiesces to the stakeholder's goals; however, such a commitment comes with substantial risk to the effectual network.

5.3.3 Promoting effectual reasoning to secure commitment

If the entrepreneur is unable to reduce the level of uncertainty that the instrumentally rational stakeholder perceives, *Scenario 3* in Figure 17 suggests that he or she could attempt to bring the potential stakeholder around to a more effectual way of reasoning. This would be a matter of prompting the stakeholder to promote effectual decision making constructs over causal prediction.

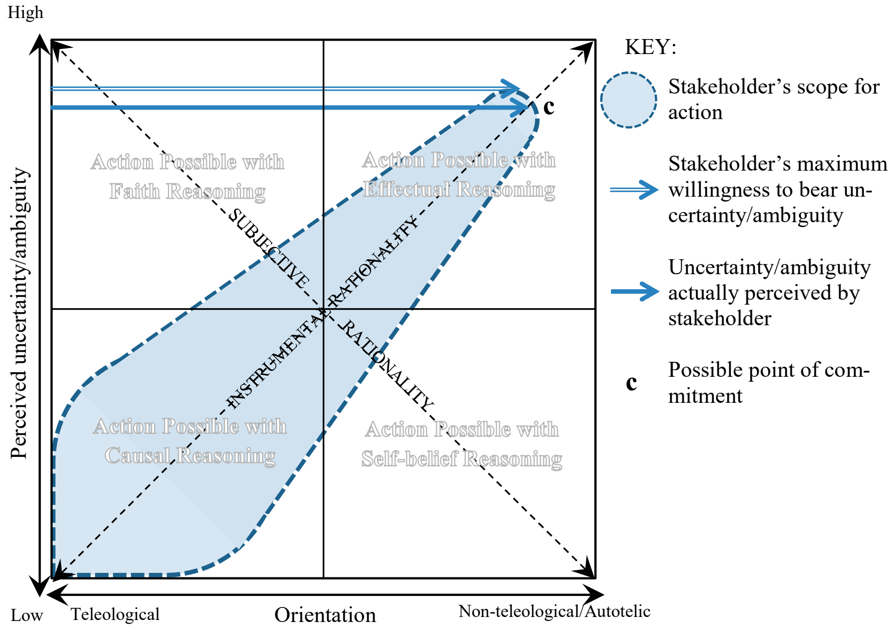


Figure 17 Scenario 3 – Promote effectual reasoning

This may be a hard sell for a firmly causally rational actor, and may take interaction between the entrepreneur and stakeholder over a long period of time (perhaps while their business relationship remains at arms-length) during which the potential stakeholder becomes familiarized with the benefits of non-predictive action. Read and Sarasvathy (2005) suggest that entrepreneurial novices will gradually transition to be increasingly effectually rational as they gain entrepreneurial expertise. If this is successful, the potential stakeholder's increased ability or willingness to act effectually will allow him or her to bear additional uncertainty while still being within the realms of instrumental rationality. The stakeholder makes an effectual commitment.

Proposition 7: Through an ongoing but arms-length relationship between entrepreneur and causally rational stakeholder, the stakeholder may be prompted to gradually become more effectually rational, ultimately leading to a commitment being made.

5.3.4 Influencing affect and extrinsic motivation to secure commitment

The fourth and final option available to an entrepreneur seeking a commitment from a hesitant potential stakeholder is that he or she could try and increase the potential stakeholder's willingness to bear the uncertainty beyond what would be instrumentally rational by adopting an affectual approach, as shown in *Scenario 4* of Figure 18.

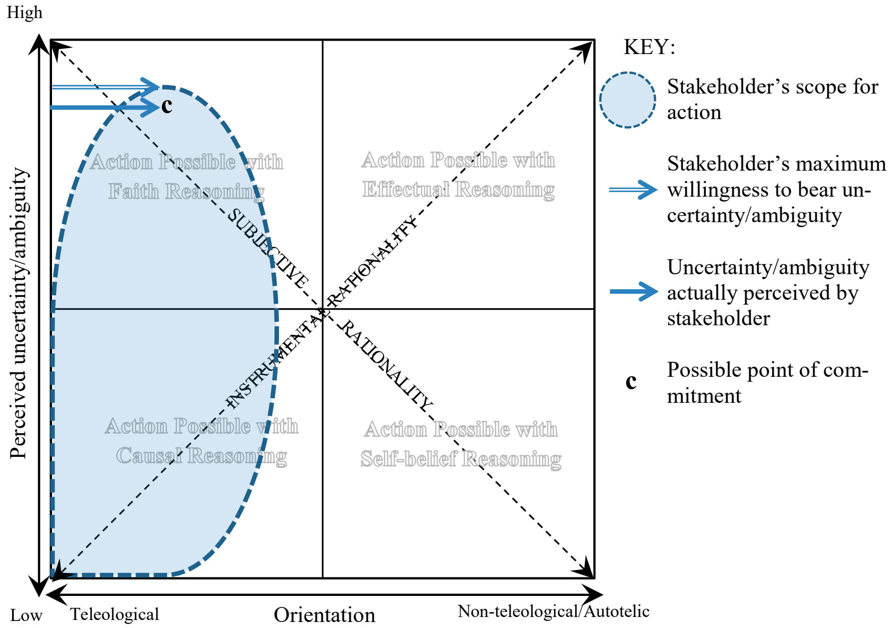


Figure 18 Scenario 4 – Increase willingness to bear uncertainty

This could be done through affective means, by appealing to the individual's emotions; by generating feelings of trust or love, or convincing the individual of the social value of the enterprise. Baron (2008, p. 334) proposes that "Positive affect may enhance entrepreneurs' capacity for acquiring essential financial and human resources by contributing to their persuasiveness and by increasing the breadth of their social networks". Through 'persuasiveness' (Baron, 2000, 2008), an entrepreneur may be able to persuade a potential stakeholder to promote more subjectively rational decision making criteria, such as reflective trust or over-trust, over the calculative and predictive criteria of causal rationality. There is no shortage of anecdotes in which certain individuals have managed to drain the bank accounts of others who they have seduced using their charm, or televangelists who have bought private aircraft using donations from their audiences. The contagious nature of the enthusiasm of the entrepreneur (and others already part of the effectual network) may also stimulate potential stakeholders to make a *wertrational* commitment towards an effectual process, as Weber says, "independently of its prospects of success" (Weber, 1978, p. 25). It may simply be a matter of convincing the potential stakeholder of the value of the cause to which the new venture aspires (e.g. the effectuation process is directed towards addressing a social need), or the personal capability of the entrepreneur him or herself. If such actions result in a commitment, that commitment will be a faith based one, more reliant on subjective rationality than instrumental rationality.

Proposition 8: A member of an effectual network may use affective means to prompt a potential stakeholder to use more subjective rationality over instrumental rationality in their commitment decision, enabling a commitment to be made to an effectual process irrespective of the likelihood of this resulting in a positive outcome for the stakeholder.

5.4 The Accumulation of Stakeholders in the Opportunity Creation Process

Thus far I have only been discussing stakeholders and their commitments on an individual basis. Now I would like to turn my attention to the way in which stakeholders interact with one another on an intersubjective level, and how this affects the effectual process of opportunity creation as it unfolds. In the following discussion I will attempt to shed some light on how commitments from different stakeholders following different forms of reasoning may influence the effectual network's general progression from uncertainty and ambiguity towards goal clarity and path dependence in different ways, and not necessarily in a linear fashion. Commitments from some stakeholders may reduce uncertainty and ambiguity more rapidly, while others may in fact increase the uncertainty and ambiguity perceived by others involved in the effectual process, at least temporarily.

The accumulation of stakeholders into an effectual network from which a new firm eventually emerges is an example the concept of collective structure. As such, Weick's (1979) work on 'The Social Psychology of Organising', particularly his discussion on interlocking behaviours and organising in Chapter 4 of his book, provides an ideal starting point around which to structure this discussion. Each stakeholder commitment is a commitment to engage in an ongoing set of interlocking behaviours with the focal entrepreneur and other members of the extant network. The process of effectuation is the organising of these interlocking behaviours into a collective structure, the effectual network, from which a novel organisational form emerges, the new firm serving a new market.

Drawing from Allport's concept, Weick (1979) states that collective structure can be understood as what we mean by the word group when used in a sentence such as "the group imposes norms on its members". He points out that the sequence described by the sentence, a group exist then its members converge towards its set of norms, in reality is more likely to be the opposite. The convergence precedes and is necessary for the emergence of groups; i.e. when individuals meet who could possibly be of benefit to one another, and have a similar understanding of how this could be so, they then enter into a repeated series of interlocking behaviour from which a collective structure is formed. In other words, individuals converge on means first and, from this, through a series of interactions, their behaviours narrow and a group forms after. This precisely describes the dynamic model of the effectuation process illustrated by Sarasvathy and Dew

(2005b) in Figure 10, that I previously presented in Chapter 3, by which stakeholders, their individual means, and their diverse goals, are brought into the fold of the effectual network.

Weick uses a simple model to illustrate the process of group development (Figure 19, below).

Figure 19 A model of group development (Weick 1979, 91)

In this four stage model of Figure 20, people first exchange means towards accomplishing their own diverse goals before proceeding to exchange ends towards which a common group goal is formed. This runs against the grain of common theorising (at the time of Weick's writing) that groups form around common goals and instead suggests that they form around common means. In the early stages, individuals pursuing diverse ends are brought together in an interdependence through which they converge towards common means. This emphasises the point that "people create social structure" (Weick 1979, 92). Following the convergence on interlocked behaviours to utilise common means, Weick states that there is a subtle shift away from diverse to common ends. This is not to say that the original diverse ends no longer exist; they simply become subordinate to an emerging set of shared ends. This leads to one of the key ideas that Weick espouses: that meaning is often applied retrospectively to organising by groups, or the concept of *sensemaking*; i.e. the meaning a person retrospectively attaches to a group's past behaviour may assume the existence of common goals all along, when in fact common ends merely emerge to preserve a collective structure and that they then make sensible all the collective behaviours made by the group immediately prior (Weick, 1979, 1995).

Diverse means may follow common ends primarily because, at this stage, a durable collective structure has formed. The durable collective structure allows members of the group to explore other, perhaps more effective, ways of fulfilling their roles (division of labour) within the group towards its achievement of shared goals. Two further reasons why diverse means follow common ends are that: (1) the stability imposed by the collective structure makes the rest if the world more ambiguous in contrast (within individuals' perceptions), thereby leading to a higher level of idiosyncratic behaviour exhibited by individuals in response; and, (2) as a reaction to the pressures towards convergence, concessions and compromise, there is an opposite pressure towards re-establishing and asserting uniqueness among the members so they can hedge the costs of interdependence. This shift towards diverse means completes the model in Figure 19, as it entails, and results in, new diverse goals.

Adapting Weick's model of group development to effectual networks and their stakeholders produces the sequence illustrated in Figure 20, below.

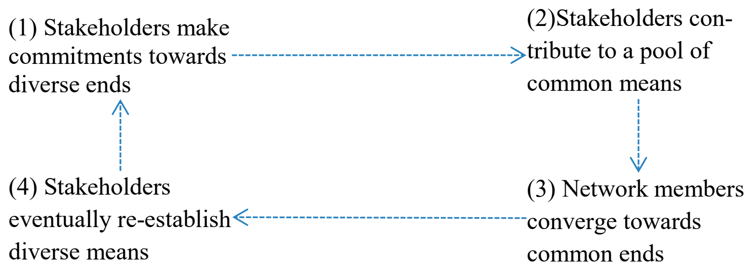


Figure 20 Effectual network development (Based on Weick 1979, 91)

Following a successful negotiation, the entrepreneur and target stakeholder identify a mutually beneficial arrangement, the commitment, which allows them to pursue their respective desired ends. For the causal stakeholder, this end is a particular outcome they wish to achieve, for the effectual stakeholder it is the opportunity to pursue a their aspirations, for the faith-based stakeholder it is the opportunity to contribute to an imagined desirable future, and to the self-belief driven stakeholder it is the opportunity to exercise their entrepreneurial passion. They pay for this opportunity by purchasing voice; buying their way into the group, the effectual network, by contributing their valuable means to the group's common pool. At this stage, it is in everyone's interest that they converge towards common ends – in this case, it is the development of the effectual artefact; the new market that emerges from the network's interactions. Once a durable collective structure has been established, the new organisation that serves the new market (i.e. the *effectual artefact*), the stakeholders are once again free to focus their attention back on their diverse means.

A final important implication from Weick's discussion on collective structure is the concept of *partial inclusion.* This is the concept that organisations are formed of interlocked behaviours, not interlocked people. People are only involved in a group to the extent that their behaviours are interlocked with those of other members of the group (or other actions aimed at preserving the stability of the collective structures). Individuals are members of many different groups and may simultaneously be engaged in one group through interlocking behaviours while on the lookout for people with whom to engage in reciprocal behaviour. An important point made by Weick (1979, 96) is that "to predict [a] person's behaviour in any one group, we must know the investment that person has in the behaviours interlocked in the group *plus* the extent to which significant behaviours are tied up elsewhere". Applied to committed stakeholders in effectual networks, this suggests that to understand stakeholder behaviour within the network, we must also seek to understand the other interests and commitments they possess that may be more or less important to them than their commitment to the effectual process.

In addition to being only partially included, it can be said that stakeholders to effectual processes are only loosely coupled (Weick, 1979, pp. 111–112) to the network, and the network as a whole is *nearly-decomposable* (Sarasvathy & Simon, 2000). That is, the stakeholders are stable subassemblies of the larger system of the effectual network and, while they are loosely interdependent, they still retain a large amount of independence. Like the analogy of the watchmakers used by both Weick and Sarasvathy and Simon, the effectual network resembles a watch made of a number of nearly-decomposable subassemblies rather than a large assemblage of individual parts. If a watchmaker is interrupted during the assembly process, a watch made of 1000 individual parts will need to reassembled slowly, piece by piece, from the beginning, while a watch made of 10 subassemblies which in turn are comprised of 10 sub-subassemblies, will be able to be reassembled much more quickly. It is this independence of stakeholders in addition to their interdependence which gives effectual processes an evolutionary character. If the process is interrupted by various exogenous contingencies, and if one stakeholder or another drops out from the network, this does not mean the whole network will collapse, but it may adapt and evolve.

To summarise, prospective stakeholders begin with diverse, subjective ends in mind when deciding whether or not to make a commitment to an effectual process. This is their commitment *motive*. They will evaluate how their means can be combined with those they believe to be under the control of the effectual network. A combination of how important their means are to existing members of the network and the power of their own motives will determine how much they will be included in, and how strongly they will be coupled to, the network's activities. Once committed, their means are combined with those of the network and they must converge towards common network goals that are intersubjectively negotiated and made sense of by all affected network members.

Combing the preceding discussion from this chapter and Chapter 4 together with the dynamic model of the effectual network and the new market as an effectual artefact from Sarasvathy and Dew (2005b) illustrated in Figure 10 back in chapter 3, I have remodelled the process with a focus on the accumulation of stakeholder commitments and their effects, illustrated in Figure 21, below.

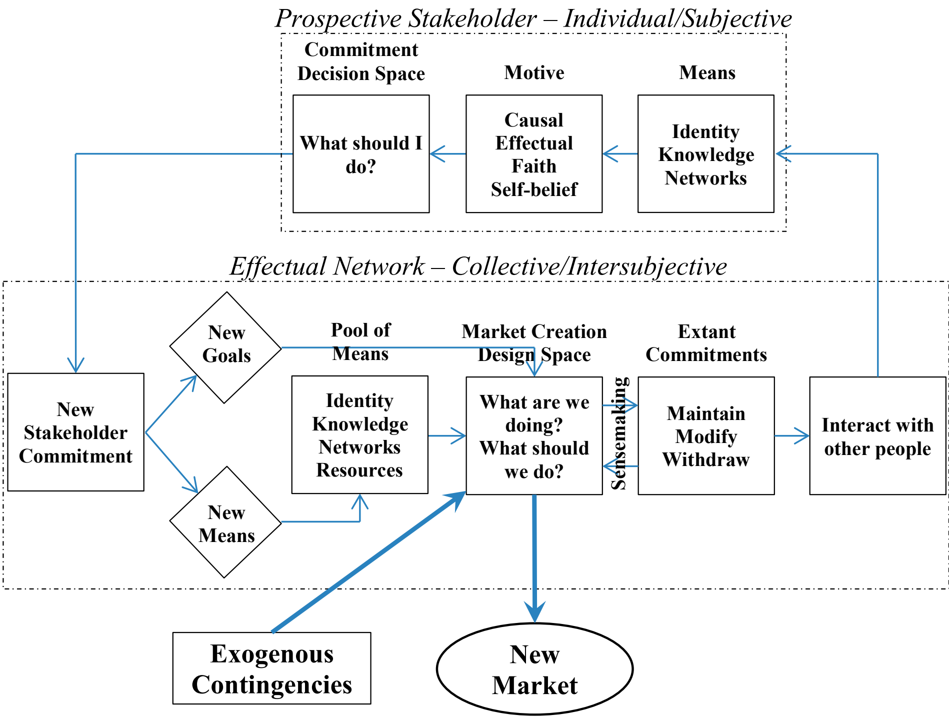


Figure 21 A dynamic model of the accumulation of stakeholders in an effectual process

Figure 21 shows that stakeholders' decisions to make their commitments to effectual processes will be subjective and individual, depending on their idiosyncratic motives and personal means. Following commitment, however, decision-making becomes intersubjective; an ongoing negotiation and collective sensemaking about what the ultimate artefact of the process should be. This negotiation is not, however, democratic, nor is it between parties of equal importance as different stakeholders will each have different strengths of voice depending on the centrality and importance of the means they have thus far contributed. Each new commitment disrupts the existing ecology and alters the intersubjective market creation design space by increasing or decreasing uncertainty, and creating equivocality surrounding the questions of "what are we doing?" and "what should we do?" This sends a ripple of enactment and sensemaking activity through the community of stakeholders beginning with those whose commitments are most affected by the new reality. Extant stakeholders must decide whether to maintain their commitments at the status quo, to modify their commitments, or to withdraw their commitment from the effectuation process altogether. Once the cycle of sensemaking is complete, the consensus among stakeholders might be that this particular effectual process is complete (the stakeholders are satisfied that the purpose of their commitment has been fulfilled) in which case the effectual artefact has reached its final form and now services a new market, or the process continues through interactions with other potential stakeholders.

Each new stakeholder commitment alters the market creation design space in three main ways (to a greater or lesser extent depending on the stakeholder): new goals are introduced or existing goals are strengthened or modified, new means are made available and, new constraints are imposed on the behaviour of others. Goals are affected depending on what the new stakeholder wants from the process. New means are the identity of the stakeholder, their knowledge, access to their networks, and other resources that are potentially useful to the existing network members, that the stakeholder will make available to the network, and are the currency by which the stakeholder purchases voice. Constraints depend on how important others feel it is to satisfy that stakeholder's desires in order to ensure that the stakeholder will contribute and behave in a certain way that benefits them and, in turn, lock other members into a particular way of behaving thereby gradually increasing overall path dependence for the network. I believe that by using the typology of different stakeholder commitments I developed in chapter 4 I can draw some general propositions about how each type of commitment will affect the effectual process in relation to goals, means, and constraints, and, in turn, will affect the type of commitments the network is subsequently able to attract. I discuss these propositions and summarise them at the conclusion of the following four sections.

5.4.1 General effect of causal commitments to effectuation processes

A stakeholder who makes a causal commitment to an effectual network introduces clear goals by definition. For example, in the case of Kim, the causal stakeholder given above, she knows exactly what she wants from the commitment, and her commitment commissions Pat and his extant network to fulfil this goal. To this end she will provide the network with new means. However, these means will be limited only to what she believes is required to achieve her goal, e.g. monetary investment, market data etc. The effect of such a commitment will be that it places significant constraints on what the network is able to do, subject to how important other extant members of the network believe the commitment to be, i.e. how much voice the stakeholder has purchased through her commitment. For example, if Kim's goal of having a marketing platform for dog products is easily achieved by the network as a peripheral activity, then it will establish firm constraints only for that area. However, if the commitment is significant in relation to the network's overall activities, it will, of course, result in firm constraints across the board. For example, if Kim is one of Pat's first stakeholders to come on board, and is financing his entire venture, he will be restricted to only taking actions that serve Kim's purposes.

Such a stakeholder's effect on the network's market creation design space will likewise be dependent on the overall significance of the stakeholder's commitment. If it affects only a small part of the extant network's activities then it will reduce uncertainty, ambiguity, and isotropy for only that area. However, if the stakeholder purchases significant voice, then the stakeholder's goals become the network's goals and uncertainty, ambiguity, and isotropy are significantly reduced or even eliminated. The same effect will occur if many stakeholders each purchase a small amount of voice, but all share the same goals.

In any case, the significant reduction in, or elimination of, uncertainty will increase the attractiveness of network membership to prospective causal stakeholders who share the same goals. On the other hand, the path dependence that such a commitment places on an effectual process, particularly if it affects the entirety of the network, will reduce the attractiveness of the network to potential stakeholders who are effectual in their reasoning. Furthermore, if the new goals that a causal commitment introduces to the process are at odds with the goals or sensibilities of existing members, those extant stakeholders may withdraw their commitments.

Proposition 9a: A commitment based on causal reasoning will introduce one or more new, clear goals.

Proposition 9b: A commitment based on causal reasoning will provide new means to the network but they will be limited to only that which the stakeholder deems specifically necessary to achieve their goals.

Proposition 9c: A commitment based on causal reasoning will place firm constraints on the network in relation to the stakeholder's desired ends. How much of the network's activities these constraints apply to will depend on how much voice the stakeholder purchased through their commitment.

Proposition 9d: A commitment based on causal reasoning will reduce uncertainty, goal ambiguity, and environmental isotropy significantly in relation to the stakeholder's desired ends.

Proposition 9e: As a result of a commitment based on causal reasoning, the reduction in uncertainties in relation to the new stakeholder's goals will make commitment more attractive for causally minded individuals who share the same goals. The increase in path dependence may reduce the attractiveness of network membership to effectually reasoning individuals. Existing members of the network who do not share these goals may end their commitments.

5.4.2 General effect of effectual stakeholder commitments to effectuation processes

As previously noted, effectual reasoning begins with a generalised aspiration or aspirations rather than concrete goals. As such, a commitment based on this form of reasoning may introduce one or more goals to the effectual network, but they will not be clear or well formed, e.g. Nick's ideas regarding how mobile apps may be developed to service the fish farming industry. Likewise, because a stakeholder using effectual reasoning is not guided by clear goals, the means that they will contribute are unlikely to be particularly specific or tangible beyond whatever personal financial resources they are willing to put forward in order to purchase equity and, consequently, voice. The means that such stakeholders will contribute are more likely to be embedded within their identity, knowledge, and networks. Furthermore, because the goals they contribute are vague, and means they contribute are nonspecific, it is not in their interest to impose constraints upon the network to any great degree. They will be flexible and open to negotiation about possible trajectories for the effectual process.

As for the effect of the effectually reasoning stakeholder on the intersubjectively negotiated market creation design space; reductions in uncertainty, goal ambiguity, and environmental isotropy will only be marginal. Who the stakeholder is might establish certain bounds around isotropy i.e. in the case of Nick, the network should focus its attentions on information in the environment relating to fish farming. Uncertainties are reduced through Nick's knowledge of aquaculture, and introducing this industry as a potential target industry will somewhat reduce goal ambiguity. However, it is not set in stone that a fish farming app is what the effectual artefact will ultimately be; it is only one possibility and will be subject to exogenous contingencies and subsequent stakeholder commitments (such as the fish farmers withdrawing as potential customers).

The marginal reduction in uncertainty, ambiguity, and isotropy represented by an effectually reasoning stakeholder making a commitment to an effectual network may increase, slightly, the network's attractiveness to potential stakeholders who follow causal reasoning. For example, Nick joining the network and announcing that he intends to steer the process towards servicing the aquaculture industry may make commitment more desirable to potential customers within that industry. They may approach or be approached by Nick or another member of the network with clear goals on how they believe the network could develop a particular artefact that will be of benefit to them.

Proposition 10a: A commitment based on effectual reasoning will introduce new potential goals; however, they will not be well formed.

Proposition 10b: A commitment based on effectual reasoning will contribute various new means in the form of the stakeholder's identity, knowledge, and networks, and how much they choose to pay, in terms of capital investment, for voice.

Proposition 10c: As a result of a commitment based on effectual reasoning, the network will become only slightly more constrained insofar as the new stakeholder indicates a potential desirable trajectory.

Proposition 10d: A commitment based on effectual reasoning will reduce uncertainty, goal ambiguity, and environmental isotropy, but only slightly.

Proposition 10e: As a result of a commitment based on causal reasoning, the overall slight reduction in uncertainties may make commitment to the network a little more attractive to causally minded individuals.

5.4.3 General effect of faith-based commitments to effectuation processes

In subchapter 5.2, I discussed how, unlike all the other types of commitment which involve the stakeholder taking some kind of active role in the network in their post commitment behaviour, stakeholders who make their commitments to effectual processes on the basis of faith will likely only play a passive role in subsequent network activity. Combining this with the fact that a faith based commitment is made to either a person, as in the case of a Type A faith based commitment, or the belief in an imagined future, as in the case of a Type B faith based commitment, both types of commitment only reflect the network goals that exist at the time the commitments are made. Neither type of commitment adds any new goals. The existing goals or aspirations of the effectual network remain unchanged in the case of a Type A commitment, or may potentially be strengthened in the case of Type B commitments, as Type B commitments indicate that current goals hold at least some value to certain individuals.

Commitments made by faith reasoning stakeholders will provide the network with new means; however, these means are likely to merely be whatever material resources the stakeholders choose to invest, whether it be cash, or some non-monetary contribution (such as free advertising or the use of real estate). They are unlikely to contribute access to new identity, knowledge, and network based means as all of these means suggest more active participation in subsequent network activity.

Faith reasoning stakeholders' passive stance toward decision-making in subsequent network activity also means that these types of stakeholders impose few new constraints on the network. The constraints they represent extend only as far as decision makers within the network not wanting to betray their trust and confidence. These constraints may, however, be magnified through the accumulation of larger numbers of faith reasoning stakeholders who share the same personal trust in those to whom they are making their commitments, as in the case of Type

A, or predictive overconfidence in a particular imagined future, as in the case of Type B, simply because this increases the negative consequences of betrayal.

Faith based commitments have little effect on the effectual network's market creation design space other than a slight increase in goal ambiguity. Goal ambiguity is slightly reduced due to the fact that such commitments indicate that the stated goals or aspirations of the network or entrepreneur at the time of commitment hold at least some value (in the case of Type B) or are not foolish enough to discourage confidence (in the case of Type A). This slight reduction in goal ambiguity may make the effectual network more attractive to causally reasoning individuals who share the same imagined goals. As more stakeholders make commitments, either faith based or causal, towards these goals, this has a compounding effect in reducing goal ambiguity and uncertainty. For example, a prototype product on a crowd funding website with few or no initial contributions may only attract investors with faith in the concept, but as more and more individuals invest, the decrease in uncertainty will attract investments from more causally minded individuals.

Proposition 11a: A commitment based on faith reasoning will either strengthen, or will not alter, existing goals.

Proposition 11b: A commitment based on faith reasoning will make new means available to the network, but these may be limited to only the material resources invested by the stakeholder.

Proposition 11c: As a result of a commitment based on faith reasoning, few new constraints are placed on the network as the stakeholder takes a passive stance towards decision making.

Proposition 11d: A commitment based on faith reasoning indicates a particular set of desired ends, thereby slightly reducing goal ambiguity.

Proposition 11e: As a result of a commitment based on faith reasoning, the small reduction in goal ambiguity may make commitment slightly more attractive to causally reasoning individuals who share the same goals.

5.4.4 General effect of self-belief based commitments to effectuation processes

A commitment from a self-belief reasoning stakeholder will have an effect on goals and means more or less indistinguishable from that of the effectual stakeholder. They may introduce one or more new potential goals to the network, though they will not be well formed, and the means they contribute will be nonspecific and mostly embedded within the individual's identity, knowledge, and networks. These means will be supplemented by whatever additional tangible resources, such as cash, they bring to the network that they will use to exchange for voice.

Where the self-belief reasoning stakeholder differs from the effectual stakeholder is that, as I discussed in chapter 4, unlike effectual stakeholders, self-belief reasoning stakeholders are undeterred by apparent path dependence within the effectual process. This means that, should a self-belief based commitment be allowed by existing network members during a time that uncertainties, ambiguities, and environmental isotropy within the market creation design space are few, this represents the loosening of constraints on the network; i.e. a self-belief driven commitment at a time of high path dependence for an effectual network means that at least some network members are willing to explore new courses of action.

The upshot of a self-belief based commitment being made to a formerly path dependent process is that it will introduce new uncertainties, goal ambiguities, and isotropy to the network's market creation design space. This will open the network up to the possibility of attracting new commitments from prospective effectually reasoning stakeholders to take the process in new directions. However, change to the network's direction may be met with resistance from previously committed causal stakeholders, and some may even withdraw their commitments.

Proposition 12a: A commitment based on self-belief reasoning will introduce new potential goals; however, they will not be well formed.

Proposition 12b: A commitment based on self-belief reasoning will contribute various new means in the form of the stakeholder's identity, knowledge, and networks, and how much they choose to pay, in terms of capital investment, for voice.

Proposition 12c: If a self-belief driven stakeholder is allowed to make a commitment, it represents a loosening of constraints on the existing network.

Proposition 12d: A commitment by a self-belief driven stakeholder will create new uncertainties for a relatively stable and path dependent existing network. Uncertainty, goal ambiguity, and isotropy will all increase.

Proposition 12e: Existing causally minded stakeholders may resist the change caused by the self-belief driven stakeholder. On the other hand, the change may make membership to the network more appealing to new, effectual stakeholders.

5.5 Summary of the Theoretical Propositions of this Chapter

In this chapter I have sought to answer the second and third sub questions I posed at the beginning of this dissertation: *How are commitments secured by an effectual entrepreneur?* And *how do different stakeholder commitments impact the way in which the opportunity creation process unfolds?* The answers to these questions are summarised in Table 9 and Table 10 below.

Table 9 Securing stakeholder commitments under uncertainty - three actions

Action	How	Result
Do nothing	N/A	No commitment secured
Reduce uncertainty	Induce minor commitment	A small causal commitment that will introduce limited means specific to a particular goal.
	Submit to stakeholder's goals	A large causal commitment that places significant constraints on the effectual network and limits the network's ability to manage contingencies.
Promote effectual reasoning	Over time by developing a working relationship	An ongoing, collaborative effectual partnership.
Appeal to affect	Persuasiveness	A faith based commitment that imposes few constraints, provides new, tangible means, but little collaboration in decision-making.

In subchapters 5.1 and 5.2 I explained how different stakeholders may make commitments to an entrepreneur and associated effectual network at any time depending on the decision-making frames they employ based on the reasoning strategies they possess. In such cases, it is only up to the entrepreneur (or whomever actor is involved in the interaction with the stakeholder) to simply recognise the potential stakeholder's general predilection towards reasoning so they might be able to negotiate the commitment with the stakeholder based on a shared understanding of what a potential commitment might mean for both parties. The very basic strategies summarised in Table 9 may be utilised by an entrepreneur where a stakeholder is initially more reluctant to make a commitment due to high perceived uncertainty combined with a low tolerance to bear it. These strategies may seem self-evident, however, the utility in visualising these different courses of action in the way that I have done in subchapter 5.3 is in the recognition that the person negotiating the commitment has the potential to influence the underlying motive of the commitment, and is therefore able to exert some control over how the process of effectuation proceeds rather than simply 'going with the flow'.

If the focal entrepreneur of an effectual process recognises his or her ability to influence the motive and reasoning under which a stakeholder makes their commitment to an effectual network, he or she then has the ability to control, to a certain extent, how the process unfolds in ways that might be preferable. This is done by understanding the generic effects on the network that different types of reasoning may have, as shown in Table 10, and then negotiating or choosing between commitments depending on what effects are deemed to be preferable at any point in time.

Table 10 Effect on effectual network of stakeholder commitments based on different motives

	Generic Commitment Motive			
Effects on -	**Causal**	**Effectual**	**Faith**	**Self-belief**
Goals	New goals. Few but clear.	New goals. Many ideas but all vague.	Existing goals strengthened or unchanged	New goals. Many ideas but all vague.
Means	New means specific to goals.	New means mostly nonspecific and intangible.	New means mostly tangible resources e.g. cash.	New means mostly nonspecific and intangible.
Constraints	Strong constraints proportional to voice.	New weak constraints	Few new constraints	Existing constraints weakened
Market Creation Design space	Uncertainty, ambiguity, isotropy relating to goals all strongly reduced.	Overall uncertainty, ambiguity, isotropy slightly reduced.	Reduce ambiguity.	Overall uncertainty, ambiguity, isotropy increased.
Subsequent Stakeholder Interactions	Attract new stakeholders who share goals. Alienate existing stakeholders with divergent goals.	Attract slightly more goal oriented stakeholders.	Attract slightly more goal oriented stakeholders who share the same goals.	Alienate existing causal stakeholders. Attract new effectual stakeholders.

For instance, if an entrepreneur recognises the risks inherent in becoming dominated be a limited number of stakeholders with a lot of voice and causal reasoning, he or she might instead negotiate smaller commitments from the same stakeholders, or negotiate the commitments to be based upon effectual reasoning instead. Alternatively, an entrepreneur who wishes to maintain control over decision-making and the flexibility to respond to contingencies may want to seek out a large number of smaller commitments based on more passive faith based reasoning.

Combining the simple propositions of this chapter summarised in in Table 9 and Table 10, and using them as a tool for analysis and decision-making, opens up a large number of potential courses of action for entrepreneurs or other actors who are aware that they are engaged in processes of effectual transformation. Different outcomes can be imagined for different combinations of stakeholders, for the order in which stakeholder commitments are agglomerated, and for which stakeholders' diverse ends or motives are emphasised over others.

6 CONCLUSIONS

The primary aim of the analysis I have presented in the previous two chapters is to elaborate on the possible effects that different categories of committed stakeholders may have on the new market creation process under uncertainty – particularly with a focus on how these commitments resolve the effectual entrepreneur's issues of resource scarcity and the effectual network's transition from general aspirations towards concrete goals. Now that my analysis is complete and my findings have been presented, I would like to return to the metaphor of an entrepreneur being akin to a person tasked with deciding what to cook for dinner, and extend it to take into account these considerations. As I established in Chapter 1, the cook in question is resource poor and has access to only salt, a pot, and a spatula with which to prepare an entire dinner to a party of guests. Let us now say that the cook lives with four housemates who each have their own utensils and sections of the refrigerator and pantry. Let us also say that each of the housemates is of a particular mind when it comes to the subject of dinner – each corresponding to one of the ideal types I described in Chapter 5.

The first housemate (housemate #1) is predominantly causal in reasoning. She is also in possession of a whole turkey. The second housemate (housemate #2) is an experienced chef, an effectuator just like our cook. He has a variety of kitchenware and a cupboard full of herbs and spices. The third housemate (housemate #3) is the cook's best friend. She has absolute faith in the cook and confidence in the cook's abilities, and has a fridge drawer full of root vegetables. The fourth and final housemate (housemate #4) is an enthusiastic novice cook who is motivated by a strong sense of self-belief in his cooking abilities. He has been watching Youtube videos of different recipes all week, has a particular interest in Moroccan cuisine, and has a mishmash of different cooking implements and ingredients.

From this scenario we can imagine a number of different outcomes depending on the sequence in which the different housemates are enlisted into the cooking process. If the cook first approaches housemate #1, housemate #1 might decline participation right off the bat, because she has no reason to believe that the cook will be able to transform her precious turkey into the roast dinner she wants. If the cook approaches housemate #2 first, he may be happy to ride the effectual wave to see what sort of dinner it turns out. Though, with housemate #2's help, they still only have a range of herbs, spices, and utensils, but nothing substantive to cook. Housemate #3 is happy to hand over her vegetables at any time, because she has faith that the cook will produce a lovely meal no matter what (and is always prepared to forgive a poorly made meal out of friendship). Housemate #1 may be willing to contribute the turkey at this point, because having housemate #2's expertise as a chef and housemate #3's vegetables, has drastically increased the chances that they will be able prepare the roast turkey dinner she so desires. Of course, if she does provide her turkey, this means that housemates #2 and #3 have to also settle for a standard roast turkey dinner and not something more adventurous. It also means that housemate #4 may be less than welcome to join in, because his liberal use of spices is worrisome to housemate #1's blander tastes.

If the cook and housemates #2 and #3 decide that they do not want a simple roast turkey, they can still prepare a variety of vegetarian dishes. They could also team up with housemate #4 to prepare a spicy vegetable tagine. If they do, however, settle for the turkey, and everything turns out successfully, for future dinners, housemate #1 may be more receptive to alternative suggestions. The cook of the hour would have proven him or herself to be capable of cooking a nice dinner and, through an ongoing relationship with the cook and housemate #2, housemate #1 may learn to be more experimental in the kitchen.

The (possibly overlong) metaphor above is simply one of a number of scenarios for cooperation between an effectual actor and committed stakeholders holding different reasoning strategies that can be imagined by using the typology and process I have explicated within this study. I believe I have shown a hopefully convincing argument for a more complex understanding of the role of stakeholders in effectual processes than the simple 'self-selected' effectual stakeholder that has been presented within the extant literature thus far. In the remainder of this, the final chapter, I will identify and explore some of the theoretical and primary practical implications of this study.

6.1 Theoretical Implications

This study has shed light on opportunity creation as an *intersubjective* process. It has laid the foundations for understanding how different actors with significantly different logics may be able to cooperate, collaborate, and contribute to common, mutually beneficial ends. While previous theorising on the subject assumed that entrepreneurs and committed stakeholders would share similar rationales and decision making strategies, this study has theorised that this is an unnecessary assumption to make. In Table 11, on the following page, I present a summary of the main contributions of this study as answers to the main research question and sub-questions I outlined in Chapter 1.

Table 11 Summary of contributions of the study

RQ 1: How are stakeholder commitments engaged towards the process of opportunity creation through effectuation?		
SQ1: Why would stakeholders make commitments to effectual processes?	*SQ2: How are commitments secured by an effectual entrepreneur?*	*SQ3: How do different stakeholder commitments impact the way in which the opportunity creation process unfolds?*
A stakeholder's commitment logic can be more causal, effectual, faith reasoning, or self-belief reasoning depending on: - Their perception of uncertainty and ambiguity in their commitment decision space - Their orientation towards teleological or non-teleological action - Whether they are motivated by instrumental or subjective rationality Chapter 4 **Proposition 1-4**	If a potential stakeholder perceives more uncertainty and ambiguity than they are willing to bear, they will not make a commitment. To remedy this, an entrepreneur can: - Attempt to reduce the uncertainty for the stakeholder - Promote effectual reasoning in the stakeholder, increasing their willingness to bear uncertainty - Influencing the stakeholder through affect towards a more subjectively rational orientation, increasing their willingness to bear uncertainty Subchapter 5.3 **Propositions 5-9**	Stakeholders who make their commitments based on different logics and motives affect the opportunity creation process by: - Introducing new goals - Introducing new means - Imposing constraints - Altering uncertainty and ambiguity in the intersubjective market creation design space - Influencing subsequent stakeholder interactions Subchapter 5.4 **Proposition 9-12**

The key theoretical implication of this study is the argument that given a multi-actor, intersubjective process of entrepreneurial new market creation as is described by effectuation, we must go beyond the assumptions of reasoning as being classified as either effectual or causal, and consider also reasoning and logic that may not be based upon instrumental rationality, but subjective rationality instead. While different actors in entrepreneurial processes may be motivated by any of an infinite number of different reasons, the typology presented in this study offers a parsimonious yet conceptually powerful and meaningful way for categorising them and predicting their common behaviours.

Not only does this recognition of subjective rationality (of both a teleological and non-teleological kind) contribute to a more sophisticated understanding of the process of effectuation, it also provides a new link between effectuation theory and other entrepreneurship and decision-making theories. It opens effectuation theory up to recent developments in entrepreneurship relating to the role of affect, of trust and persuasive leadership, and shows how these different concepts and constructs can be connected to it in a systematic and logical way. Furthermore, by contributing to effectuation theory in a way inspired by, and consistent with, the principles of pragmatism, this study helps to reorient effectuation back to its pragmatist roots.

6.1.1 Implications for international entrepreneurship

In Chapter 2, I explained how the routine behaviours and decision making heuristics that are employed by actors in their day to day lives can be understood as habits – habits that are acted upon as a matter of course until a problem is faced where the habit no longer offers an acceptable solution. These habits are very contextual in their manifestation and need to be understood in terms of the actors situatedness in a stream of experience and within the actor's unique social context. The conditions under which actors use or develop certain forms of decision-making rationales as a matter of habit are particularly relevant in an international or cross-border context. The main implications for international entrepreneurship of the theory developed within study is that it can be used to generate a new set of research questions relating to engaging stakeholders in international entrepreneurship. In Chapter 1, I discussed the three branches of international entrepreneurship research identified by Jones et al., (2011). Type A studies, which concern entrepreneurial internationalisation; Type B studies, which are international comparisons of entrepreneurial behaviours by countries or cultures, and; Type C studies, which compare how entrepreneurial internationalisation differs across countries or cultures. I will now briefly explore some potential research questions that can be generated towards each of these three branches.

Type A studies examine entrepreneurial internationalisation or, in other words, they are concerned with how individuals create international opportunities. Mainela et al. (2014, p. 16) define international opportunity as: "a situation that both spans and integrates elements from multiple national contexts in which entrepreneurial action and interaction transform the manifestations of economic activity". This study has shown that the process of opportunity creation involves a continuous interaction and sense-making between multiple actors in the construction of an intersubjective market creation design space. This raises questions such as:

- How does cultural or geographic distance affect the type of reasoning stakeholders use when making commitments to international opportunity creation processes?
- How do institutional differences across different national contexts affect the type of reasoning stakeholders use when making commitments to international opportunity creation processes?
- How does cultural or geographic distance affect an entrepreneur's ability to modify the reasoning strategies used by stakeholders in international opportunity creation processes? Or,
- How do entrepreneurs and stakeholders in international opportunity creation processes intersubjectively perceive their market creation design space?
- How does stakeholder reasoning influence entry mode for entrepreneurial new ventures?

Research on entrepreneurial internationalisation and international opportunity creation should consider how cross-cultural, cross border intersubjectivity affects these processes.

Type B research looks at international comparisons of entrepreneurial behaviours by countries or cultures. Synthesising the theorising of this study with cultural dimensions (e.g. Hofstede, 1984) might generate some novel insights. For example, one could imagine that cultures which tend to be more collectivistic or family oriented in their social actions may exhibit more faith based stakeholder orientations in commitment forming. Furthermore, studies that compare how the stakeholder accumulation process might differ across countries and cultures (i.e. how commitments are negotiated, what are the expectations of stakeholders, how do they perceive their commitment decision space etc.) may also lead to greater understanding of how cross-cultural ventures face challenges, and further develop theories and concepts such as cultural and psychic distance[17]. We can use this study to generate novel research questions that examine the role of culture in stakeholder behaviour in entrepreneurship. For example:

- How do stakeholder reasoning strategies differ across different cultures or countries?

[17] See Sousa and Bradley (2006) for a relatively recent comparison of the two concepts.

- How does the interaction between entrepreneur and stakeholders differ across different cultures or countries?
- How do stakeholders in different cultures or countries perceive their commitment decisions spaces?

Finally, Type C studies compare how entrepreneurial internationalisation differs across countries or cultures. Taking the findings of this study, we can examine entrepreneurial behaviours in different cultural contexts by observing how entrepreneurs in these contexts engage stakeholders in the internationalisation of their firms. Do entrepreneurs in different countries interact with potential foreign stakeholders in ways that can be understood using the typology of stakeholder commitment rationales? Possible research questions include:

- How do entrepreneurs in different country and cultural contexts present international opportunities to potential stakeholders at home?
- How do entrepreneurs in different country and cultural contexts present international opportunities to potential stakeholders overseas?
- Are there patterns to the ways in which firms in different country and cultural contexts accumulate and engage stakeholders towards international opportunities?

Studies on different entry modes and how they are utilised differently across countries and cultures could potentially be enhanced by utilising a commitment rationale lens based upon the typology developed in this study.

6.1.2 Limitations and suggestions for future research

There are two principal limitations to this study. The first is the fact that I have taken a very narrow focus in selecting the literature and theoretical discussion I have utilised in my analysis and the second is the fact that I have not conducted an empirical investigation to test the validity and reliability of my theoretical arguments. In relation to the first limitation, by taking this narrow focus on effectuation, I have chosen to ignore, or only give a cursory treatment to, potentially rich and relevant streams of literature that may help our understanding of stakeholder behaviour and the stakeholder commitment decision. This includes, from economics, 'prospect theory', which illustrates behaviour on the part of decision makers in response to future prospects of different probabilities for gains and losses which are inconsistent with standard economic rationality (leading to risk seeking and risk aversion in situations such as purchasing insurance and gambling). Incorporating prospect theory into the typology I have developed in this study could potentially create greater insight into the decision-making behaviour of those extrinsically motivated, faith-rational individuals. Another stream of literature that I have only touched upon briefly is motivation. While I have focused on the distinction between intrinsic and extrinsic motivation, the study of motivation is, on the whole, much richer than just this, and there has been calls for more research into entrepreneurial opportunity that pays particular attention to the heterogeneous motivations of individuals within the entrepreneurial process. For example 'prosocial motivation', defined as "the desire to expend effort based on a concern for helping or contributing to other people" (Shepherd, 2015, p. 500), could potentially contribute to better understanding the reasoning of stakeholders driven by both faith and self-belief.

The most obvious limitation to this study is the fact that it is not based upon empirical observation, but has been deduced, and induced, from a meta-analysis of extant academic literature. This essentially means that the findings of this study, though they may be logically sound, remain rudimentary and unverified, and should be treated with caution until they undergo empirical testing. But how should the theory development of this study be tested empirically? I envisage a number of ways in which the theorising of this study can be tested and further developed empirically, using both positivist and constructivist epistemologies, and qualitative and quantitative methods, however care must be taken to make sure that, whichever method is used, it is applied correctly. I believe that the typology itself should be investigated using a variance approach based upon cross sectional, qualitative data. The process model will, of course, be best suited to a process research approach, also using qualitative data. Quantitative approaches using positivist epistemology may be useful in measuring and verifying the discreet psychological variables that form the second-order behavioural and heuristic constructs that are predicted by the ideal types of reasoning strategies.

In relation to the development and testing of the typology presented in this study, I return to Doty and Glick's fifth guideline for typology development: "Typological theories must be tested with conceptual and analytical models that are consistent with the theory". The ideal types described in the typology developed in this study are very complex and multidimensional first-order constructs. They predict a range of different heuristics and behaviours, and assume that these are highly context specific. As such, I do not believe they are well suited for testing using quantitative methods. Instead, I believe that it will be possible to investigate the typology empirically by gathering detailed qualitative data from subjects identified as stakeholders within opportunity creation processes. The data should be real-time rather than retrospective, and should include a great deal of contextualisation. For example, to determine a stakeholder's orientation towards teleology and rationality, detailed and open questions should be asked about what are their expectations regarding their commitment, what are their reasons for making their commitment, and how do they perceive their commitment decision space in terms of uncertainty and ambiguity. Contextual data would be on issues such as the stakeholder's relationship, and history, with the focal entrepreneur, their preferences and normative beliefs, and the various other commitments they are simultaneously engaged in. Future studies in this vein should be able to uncover the relationships between different forms of reasoning and how they translate into behaviour, specifically in relation to how they contribute to the creation of new entrepreneurial ventures. This study has only suggested a limited number of behaviours associated with each ideal-type of reasoning; empirical studies conducted in the manner suggested above will undoubtedly uncover others.

To explore the processes described in this study, event driven, process research using longitudinal case studies such as those described by Aldrich (2001), Van de Ven and Engleman (2004) Van de Ven (2005) should be used to collect detailed qualitative data. The data collected should be real-time and should encompass a number of details, such as: how the stakeholder perceived the commitment at the time it was made; how the stakeholder perceived uncertainty and ambiguity in relation to the commitment decision at the time in which it was made, and the present time; details about the stakeholder's networks, knowledge, and resources at the time in which the commitment was made, and the present time; the other commitments they had at the time the commitment was made, and the present time (including personal and family commitments, as well as professional commitments) and; their expectations and intentions going forwards as they remember them at the time the commitment was made, as well as the present time. Each new commitment and major network decision should be treated as an event, and the aforementioned sets of data should be, if possible, collected for each focal stakeholder. Studies conducted in this manner will be able to generate rich narratives on how stakeholder reasoning and behaviour changes over the course of a new venture creation process, and how this, in turn, shapes the process. There are currently no studies I am aware of that take such a firmly stakeholder oriented focus.

Finally, I believe that experimental research designs to uncover the relationships between the cognitive, psychological variables denoted by the different behaviours and heuristics predicted by the different types of reasoning strategies could provide valuable insight into stakeholder decision making. Such studies would involve carefully controlled experiments, in which the subjects are asked to make decisions (which have positive or negative consequences) under certain conditions of uncertainty, and in relation to another individual who will be the analogue for an entrepreneur. The aim will be to discover how these decisions will differ depending on contextual factors connecting the decision maker and the other individual. This is the type of research that is typical for the field of social psychology[18]. Using these methods, researchers could test various causal rela-

[18] See, for example, the work of the work of Ajzen, (2002), and Madden, Ellen, and Ajzen, (1992) on the theory of planned behaviour.

tionships, such as: between different forms of rationality, and orientation to teleological or non-teleological action; affect and decision-making under conditions ambiguity, and uncertainty; social norms and commitment decisions etc. Experimental research such as this will be able to contribute more explanatory power and resolution to the typology I have described in this study and, in my opinion, is the best way in which positivist science is able to contribute to the understanding of organisational phenomena – superior to that of large scale quantitative research using survey data.

6.2 Practical Implications

In Chapter's 1 and 2, I discussed how an important aim of this study was for it to be problem driven, with an emphasis on practical utility (Corley & Gioia, 2011), and that it should have pragmatic utility (Worren et al., 2002). As such, the theory building and propositions generated by this study are designed to have as much practical utility as theoretical utility. How this practical utility, or pragmatic validity, was sought in this study is shown in Table 12, below.

Table 12 Representing theory as tools for practitioners within this study (adapted from Worren et al., 2002, p. 1232)

Mode of representation	**Description**	**Requirements for achieving pragmatic validity**	**Use in this study**
Propositional	Prescriptive statements about potential managerial outcomes	Testability through explicit, causal propositions	One set of explicit causal propositions relating to commitment ideal types Second set of propositions relating to process outcomes of ideal-type commitments
Narrative	Stories and anecdotes that illustrate a particular concept or suggested course of action	- Operational definitions of constructs - Descriptions of how implementation is to proceed to achieve desired outcomes - Vivid imagery and persuasiveness - Plausibility through logical consistency in the ordering of the underlying plot	A narrative based thought experiment throughout the study, used to show the relationships between ideal types and second-order logics and behaviours, how to understand and use the typology, and how the ideal types create different process outcomes.

Visual	Diagrams and other visual depictions of conceptual models	Appropriate symbolic and iconic representation of concepts and relationships	A typology along dimensions of rationality and teleology showing four ideal types of reasoning that may be used in making commitments A process model showing the way in which commitments affect the intersubjective process problem-space and collective decision-making

Worren et al. (2002) describe three different modes that can be used represent theory so as to assist practitioners. These are propositional, narrative, and visual. I have used all three in this study, as is shown in Table 12. The 'products of theorising' I promised in subchapter 2.3, a typology, a process model, and a set of propositions, can be used in the continued theoretical development of our understanding of the entrepreneurial creation of new markets, and are also intended to be directly relevant to practice as tools that can assist in decision-making, and analysis. The narrative I created through the thought experiment of "Pat's Apps" contextualises the propositions of this study in realistic scenarios and, hopefully, in a persuasive way. In the following two sections I will describe the implications of this study for practitioners, including active and prospective entrepreneurs, managers, and policy makers.

6.2.1 Implications for active and prospective entrepreneurs, and managers

The introduction of effectuation theory provided entrepreneurs with a persuasive alternative to the teleological, planning and predicting strategies that long dominated entrepreneurship theory. Effectuation offered a detailed explanation for how, in the pursuit of creating a new venture, a non-predictive action oriented approach may in fact be more useful. To a certain extent, the contribution of this study shifts this focus back towards prediction – suggesting that even though the uncertainties and ambiguities of the market creation design space limits the predictability of future outcomes significantly, there are still aspects of entrepreneurial decision making in which prediction may be useful. Certain general process outcomes can be anticipated when the natures of different stakeholder commitments are considered. An entrepreneur will be better able to *control* the way in which an effectual process unfolds (control being an essential criterion of effectual logic), if A) they understand how to attract and secure commitments from different types of stakeholders, and B) if they are able to anticipate how different stakeholders will behave subsequent to commitment.

The process of opportunity creation described by extant effectuation theory suggests that entrepreneurs first evaluate their means, (identity, knowledge, and networks); secondly they evaluate what they can do with those means and; thirdly, they seek out stakeholder commitments by interacting with people within their networks. This study offers practical implications on this third point, by offering additional insight on *who to interact with* and *how to interact with them*. Returning to our hypothetical prospective entrepreneur, Pat, consider the situation in which he has already passed through the first two steps, and is now interacting with potential stakeholders within his immediate network. What happens if his network includes Kim, Nick, Pete, Phoebe, and Boris simultaneously? While the extant effectuation literature suggests that Pat should (or will) interact with each of them in turn in his daily life, and whoever makes a real commitment will be the one who becomes part of the effectual process, an approach based on the propositions of this study suggests that it may be a useful exercise for him to consider, in his interactions, how commitment from these individuals may affect his venture creation process going forwards, and how it may affect those commitments he has already secured.

If Pat meets Kim first, he may be tempted to do everything he can to secure a commitment from her in order to secure the resources she has at her disposal (i.e. money) so that he can quickly forge ahead with establishing a firm. However, that may put him at significant risk should she, at a later time, decide that the relationship is too costly and opts to terminate it. To protect himself and his nascent firm from this eventuality, it may be wise for him to negotiate a smaller commitment initially (using the affordable loss principle), in such a case he may somehow have to bring Kim around to a more effectual way of reasoning and behaving.

Alternatively, he may choose to keep a potential commitment from Kim in mind, but first approach other types of stakeholders. While he could approach a fellow effectuator like Nick, he (or Nick) might find that there is not much utility in a commitment between them both given that neither of them have access to any substantial amount of real resources. Access to Nick's network may present more opportunities for interacting with a larger range of individuals and a commitment from a self-belief driven individual like Boris might give Pat some new ideas about potential goals; however, the issue of resources remains. If, on the other hand, Pat has a number of people from whom he is able to secure faith based commitments, such as the Petes and the Pheobes, then he could begin to accumulate resources while keeping constraints to a minimum. This may put him in a better position for negotiating more instrumentally rational commitments at a later time from potential stakeholders such as Kim and Nick.

Pat should also carefully consider the different ways in which he identifies and interacts with potential collaborators. Certain forums and contexts may present a greater number of certain kinds of potential stakeholder. This includes contexts for face to face interaction such as conferences and tradeshows, cold-calling, and science parks, or online, on internet forums, blogging, and social media. There are significant differences between, for example, seeking equity investments from business angels and venture capitalists, or crowdsourcing finance for a new venture on websites such as GoFundMe, Kickstarter, or Patreon. While there is new research emerging about the effect partners using different forms of logic and reasoning have on the entrepreneurial processes of new firms (for example, Pahnke, Katila, & Eisenhardt, 2015), I believe that all of these differences can potentially be analysed using the typology from this study. In doing so, an entrepreneur will be better able to anticipate potential threats or opportunities, and will be able to better evaluate potential courses of action.

Based on the contributions of this study, I would recommend to any prospective or active entrepreneur, or manager, that in your interactions with anyone who could potentially be a benefit to, or could benefit from, your enterprise, you should consider three things in relation to that person: what are their *means*? What is their *motive*? And, how would they perceive a commitment to your enterprise as an *opportunity*? Essentially, you should ask yourself:

1. Means –
    a. What kind of new means could this individual contribute to my enterprise?
    b. How will these new means affect those with whom I have already formed commitments?
2. Motive –
    a. By what reasoning could this individual plausibly contribute new means to my enterprise?
    b. How does their reasoning affect the way in which I should interact and negotiate with them?
    c. How will their reasoning affect those with whom I have already formed commitments?
3. Opportunity –
    a. How might this individual perceive a commitment to my enterprise as an opportunity
    b. How does this perception affect the way in which I should interact and negotiate with them?
    c. How will this perception affect those with whom I have already formed commitments?

By asking these simple questions, one can quickly develop a mental representation of their own entrepreneurial process and the various individuals who form the network of stakeholders committed to the process. In addition to this, these questions offer an intersubjective perspective to plural meanings and objectives that the process represents to all of the different actors, actual and prospective.

For managers, this study highlights how external actors, specifically entrepreneurs, can potentially be used by established firms to co-create mutually beneficial opportunities. Managers within established firms should also understand how their rationales and those of entrepreneurs may differ, and how this translates into different behaviours and different manifestations of decision-making. If managers are able to see a common problem-space with an entrepreneur, and if they are able to evaluate it from the perspective of the entrepreneur and of other actors, they will be in a better position to negotiate commitments and act in ways that are more effective for all parties. This study suggests that while managers in established firms may prefer the instrumental, teleological rationale of causation, when they are engaged in co-creation with external actors, it may pay to adopt the more non-teleological decision making strategies from effectual reasoning.

6.2.2 Implications for policy makers

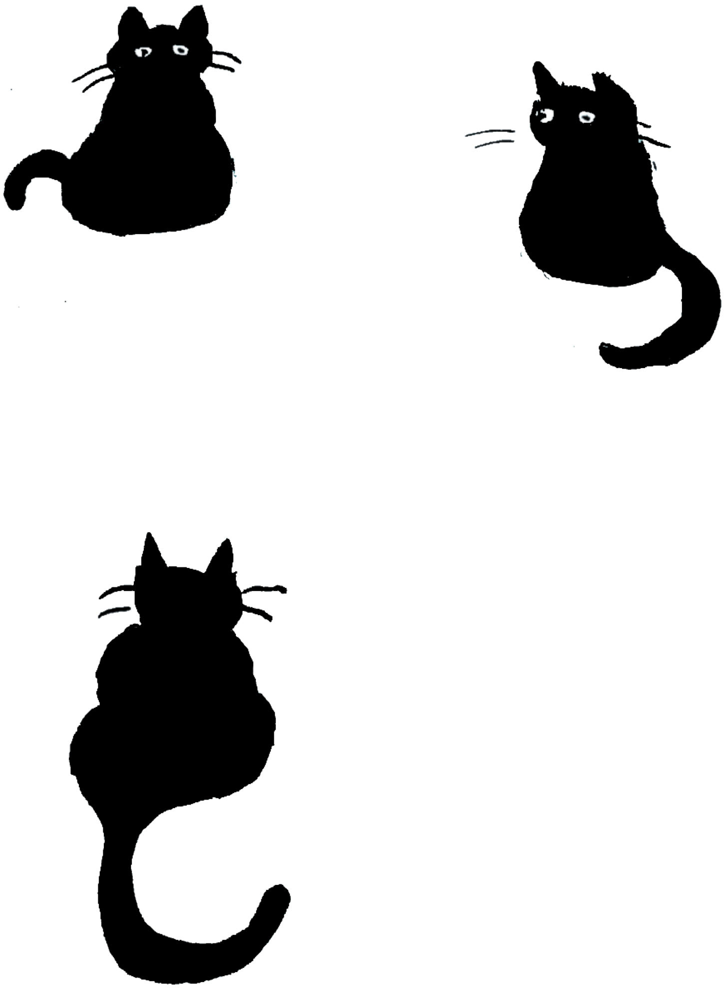
Stimulating and supporting an effective national innovation system is a vital goal for any country's policymakers; even more so for small, open economies such as Finland or New Zealand. The theory development in this study offers a number of implications for policy makers towards these ends. A broad implication is that a wide variety of different stakeholders who hold very different rationales may all be important in the process of new venture creation. For example, potential stakeholders may be categorised as:

- Groups who may make causal commitments
    - Established firms seeking new opportunities
    - Venture capitalists
- Groups who may make effectual commitments
    - Other entrepreneurs
    - Business angels
- Groups who may make faith commitments
    - People who share specific niche interests
    - People who support particular causes
- Groups who may make self-belief commitments
    - Aspiring entrepreneurs
    - Individuals with specific skill-sets

A perennial issue in policy-making is the limited access to capital, with stakeholders on one side arguing that there is not enough capital, and stakeholders on the other side arguing that there are not enough opportunities to invest in. The problem is not so much that there are neither opportunities nor capital, but that the heterogeneous ways that stakeholders reason about these issues are often incongruous with one another. For instance, a potential investor's causal focus will lead them to turn away entrepreneurs seeking capital based on effectually created opportunities. In this case, the role of policy makers should be to, firstly, be aware of these different types of potential stakeholders, and understand their motivations, expectations, potential benefits and potential risks, and; secondly, to enact policies and policy instruments that connect entrepreneurs to these groups where positive interactions are possible. This suggests the need for a broader understanding of who the valuable supporters of new ventures are, and how they can be brought into the fold. For some entrepreneurial new firms, it may be beneficial to connect them early on with providers of venture capital. For others, the nature of the new venture might mean that a better place to start would be with certain niche interest groups, or other entrepreneurs. The theorisation I have conducted in this study has the potential to provide policy makers with a richer understanding of the ways that entrepreneurs can secure the resources (including, but not only, capital) necessary to grow the business – this contributes to the policy analysis process, including problem identification having regard to the policy goals, which is the first stage in the policy process.

Another policy implication is that different stakeholders may be important at different times, and that it is not necessary for an entrepreneur to have a particularly clear goal or clear plans before support should be given. A good place to start in supporting entrepreneurship may be to provide different forums where aspiring entrepreneurs are able to meet one another, and a wide range of potential stakeholders. Programmes could be organised at physical locations, such as science parks or universities, or searchable databases could be created linking entrepreneurs and stakeholders by skills, needs, or interests. In many cases, linking prospective entrepreneurs with tangible resources, such as access to finance, may not be as important as helping them expand their networks, and familiarising them with latent needs or goals that may exist in the social environment.

Finally, this study suggests other possible policy interventions which would make the government itself an active stakeholder in effectual processes as a collaborator, funder, or customer. Policy makers should contemplate where they would, or could, locate the government as a network creator, funder and customer, both within the matrix and along the way, to secure maximum leverage of government capabilities. This research may help those public sector actors involved in active facilitation roles of public/private partnerships and collaborations to better understand the characteristics and hence needs of both their target firms (many of whom will follow effectual logic) and the potential stakeholders of these firms. This improved understanding can then be reflected in more effective facilitation strategies.



Collaborating Cats

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ANNEX A: REVIEW OF EXTANT EFFECTUATION LITERATURE

Author/s (Year)	Title	Type	Description and Main Contribution to Effectuation Theory	Journal	AJG[†]
Sarasvathy (2001)	Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency	Conceptual	Introduces effectuation and contrasts it with causation.	Academy of Management Review	4*
Sarasvathy (2004)	Making It Happen: Beyond Theories of the Firm to Theories of Firm Design	Conceptual	Introduces the entrepreneurial design space, though does not call it that.	Entrepreneurship Theory and Practice	4
Read & Sarasvathy (2005)	Knowing What to Do and Doing What You Know	Conceptual	Discusses effectuation as a theory about entrepreneurial expertise and makes some propositions with regard to the differences between experts and novices. Effectuation is a mostly a learned process and novices will move from being causal to being effectual as they gain experience. Novices will be more causal the more resources they possess. Successful firms are more likely to have begun effectually and become more causal over time. Expert entrepreneurs, being effectual, are not likely to make the transition to causal firms.	The Journal of Private Equity	0
Sarasvathy &	New market creation through	Conceptual	Argues that effectual networks create new markets through a	Journal of Evolu-	2

[†] Ranking by the Chartered Association of Business Schools (CABS) Academic Journal Guide (AJG) 2015; 4* being the highest rank and 1 being the lowest. The guide, and its methodology for ranking, can be found at https://charteredabs.org/.

Author/s (Year)	Title	Type	Description and Main Contribution to Effectuation Theory	Journal	AJG†
Dew (2005b)	transformation		process of transformation. Explains how transformation is achieved through effectual commitments with a network of stake-holders the result in expanding resources and converging con-straints. Argues that the effectuation process avoids issues of opportunity cost and opportunism due to the self-selection nature of the effectual commitment.	tionary Economics	
Sarasvathy & Dew (2005a)	Entrepreneurial logics for a technology of foolishness	Conceptual	Combines the studies by Sarasvathy (1998) and Dew (2003) to create a theory of how entrepreneurs use a "technology of fool-ishness" based on non-predictive knowledge to create new mar-kets.	Scandinavian Jour-nal of Management	2
Goel & Karri (2006)	Entrepreneurs, effectual logic, and over-trust	Conceptual	Argues that the process of effectuation demands over-trust on the part of the entrepreneur. Outlines propositions for the kinds of entrepreneur who are likely to be more inclined to over-trust.	Entrepreneurship Theory and Practice	4
Wiltbank, Dew, Read, & Saras-vathy (2006)	What to do next? The case for non-predictive strategy	Conceptual	Introduces a framework of four different strategies for decision making along the dimensions of prediction and control, Planning, adaption, visionary and transformative. Differentiates between positioning (low emphasis on control) and construction (high emphasis on control) strategies. Identifies effectuation as a trans-formative strategy with a high emphasis on control and low em-phasis on prediction.	Strategic Manage-ment Journal	4*

Author/s (Year)	Title	Type	Description and Main Contribution to Effectuation Theory	Journal	AJG†
Chiles, Bluedorn, & Gupta (2007)	Beyond Creative Destruction and Entrepreneurial Discovery: A Radical Austrian Approach to Entrepreneurship	Conceptual	Draws parallels between effectuation and Lachmannian entrepreneurship which focusses on subjectivism rather than the more objectivist theories of Schumpeter and Kirzner.	Organization Studies	4
Dew & Sarasvathy (2007)	Innovations, Stakeholders & Entrepreneurship	Conceptual	Discusses how to manage the differential impact of true novelty (resulting from innovation) using three frameworks: pre-commitment; contractarian; and entrepreneurial (effectual). Repeats the thought experiment from Sarasvathy and Dew (2005b) to show how effectuation processes limit the negative effects of true novelty.	Journal of Business Ethics	3
Steyaert (2007)	'Entrepreneuring' as a conceptual attractor? A review of process theories in 20 years of entrepreneurship studies	Conceptual Review	A review of the theoretical development of entrepreneurship which positions effectuation among other process approaches to entrepreneurship as the pragmatist approach.	Entrepreneurship & Regional Development	3
Chiles, Gupta, & Bluedorn (2008)	On Lachmannian and Effectual Entrepreneurship: A Rejoinder to Sarasvathy and Dew (2008)	Conceptual	Reasserts the connections between Lachmannian entrepreneurship and argues that effectuation may not and should not be based on Davidsonian inter-subjectivity, which is rooted in objectivity, but on Penrosean inter-subjectivity, which is rooted in subjectivity.	Organization Studies	4

Author/s (Year)	Title	Type	Description and Main Contribution to Effectuation Theory	Journal	AJG†
Dew, Sarasvathy, Read, & Wiltbank (2008)	Immortal firms in mortal markets?: An entrepreneurial perspective on the “innovator's dilemma”	Conceptual	Discusses from the perspective of effectuation how firms and markets are temporary artefacts. This leads to the problem of the “innovator’s dilemma” where existing firms markets are impinged upon by entrepreneurial firms’ inferior products. Argues that established firms need to realise that markets are both mortal and artificial, and for firm’s to succeed they must work towards creating markets, not just exploiting them.	European Journal of Innovation Management	1
Karri & Goel (2008)	Effectuation and over-trust: Response to Sarasvathy and Dew	Conceptual	Argues that the assumption that all parties to an effectual commitment will be effectual in their reasoning is unnecessary and restrictive” Argues that effectuators purposefully over-trust and then avoid issues related to over-trust through effectual methods.	Entrepreneurship Theory and Practice	4
Politis (2008)	Does prior start-up experience matter for entrepreneurs' learning?: A comparison between novice and habitual entrepreneurs	Empirical Quantitative	A study of 231 Swedish entrepreneurs. Provides some empirical support for the hypothesis that effectual reasoning is something that is developed over time by habitual entrepreneurs.	Journal of Small Business and Enterprise Development	2
Sarasvathy & Dew (2008a)	Effectuation and over-trust: Debating Goel and Karri	Conceptual	Argues that over-trust is irrelevant in effectuation because effectuation avoids issues of opportunism and opportunity cost through stakeholder self-selection.	Entrepreneurship Theory and Practice	4

Author/s (Year)	**Title**	**Type**	**Description and Main Contribution to Effectuation Theory**	**Journal**	**AJG**[†]
Sarasvathy & Dew (2008b)	Is Effectuation Lachmannian? A Response to Chiles, Bluedorn, and Gupta (2007)	Conceptual	Argues that while effectuation and Lachmannian entrepreneurship begin at the same point, true uncertainty, there are several differences. Argues that "effectuation is based on a Davidsonian view of knowledge, a Penrosian view of resources and a Lachmannian view of institutions".	Organization Studies	4
Sarasvathy, Dew, Read, & Wiltbank (2008)	Designing Organizations that Design Environments: Lessons from Entrepreneurial Expertise	Conceptual	Builds on Wiltbank et al.'s (2006) framework by applying the four different rationales to "alternate histories" of Starbucks. Argues that the effectual approach enables firms to design the environments in which they operate.	Organization Studies	4
Baron (2009)	Effectual versus predictive logics in entrepreneurial decision making: Differences between experts and novices. Does experience in starting new ventures change the way entrepreneurs think? Perhaps, but for now, "Caution" is essential	Conceptual	Comments on Wiltbank et al. (2009) that directly preceded it in the same issue. It is a methodological critique of the Wiltbank et al. article and questions the validity of the focal article's findings. It questions whether there is such a thing as entrepreneurial "expertise" and if the use of such is superior in the activity of venture creation.	Journal of Business Venturing	4

Author/s (Year)	Title	Type	Description and Main Contribution to Effectuation Theory	Journal	AJG†
Dew, Read, Sarasvathy, & Wiltbank (2009)	Effectual versus predictive logics in entrepreneurial decision-making: Differences between experts and novices	Empirical Quantitative	A study that finds further empirical support that expert entrepreneurs think more effectually than novices.	Journal of Business Venturing	4
Frishammar & Andersson (2009)	The overestimated role of strategic orientations for international performance in smaller firms	Empirical Quantitative International	A quantitative study of 188 Swedish SMEs. Finds that successful small international firms are likely to rely on effectuation logic.	Journal of International Entrepreneurship	1
Mainela & Puhakka (2009)	Organising new business in a turbulent context: Opportunity discovery and effectuation for IJV development in transition markets	Empirical Qualitative	A longitudinal case study of a Polish international joint venture (IJV) in a turbulent, transitional market context. Found leveraging personal relationships and credibility, and relationship building with stakeholders were essential elements of all the entrepreneurial behaviours examined – not just in the explicitly theorised relationship-based entrepreneurial behaviour of partnering.	Journal of International Entrepreneurship	1
Read, Sarasvathy, Song, & Wiltbank (2009)	Marketing Under Uncertainty: The Logic of an Effectual Approach	Empirical Mixed Method	The same as for Dew et al. (2008) but in the context of marketing.	Journal of Marketing	4*
Read, Song, & Smit (2009)	A meta-analytic review of effectuation and venture performance	Empirical Quantitative	A meta-analysis of entrepreneurship literature testing the effectual constructs found a significant correlation between new venture creation and effectuation for all the constructs except for affordable loss.	Journal of Business Venturing	4
Wiltbank, Read,	Prediction and control under	Empirical	A study of angel investors found that those who use control logic	Journal of Business	4

Author/s (Year)	Title	Type	Description and Main Contribution to Effectuation Theory	Journal	AJG†
Dew, & Sarasvathy (2009)	uncertainty: Outcomes in angel investing	Quantitative	experience fewer investment failures while still experiencing as many "home-runs" as those who used prediction logic.	Venturing	
Endres & Woods (2010)	Schumpeter's 'conduct model of the dynamic entrepreneur': Scope and distinctiveness	Conceptual	On the theoretical positioning of Schumpeter's conduct model of the dynamic entrepreneur among more contemporary entrepreneurship literature - including Kirzner, Simon, and Sarasvathy.	Journal of Evolutionary Economics	2
Andersson (2011)	International entrepreneurship, born globals and the theory of effectuation	Empirical Qualitative	A single case study of a Swedish born global. Finds effectuation, rather than causation, offers good insight into how born global firms can make rapid entry into many markets through partnering local firms. Emphasises the promise of effectuation for explaining the growth of born globals.	Journal of Small Business and Enterprise Development	2
Chandler, DeTienne, McKelvie, & Mumford (2011)	Causation and effectuation processes: A validation study	Empirical Quantitative	Tested the construct validity of the effectual and causal constructs. Found effectuation to be a formative construct while causation is unidimsional and reflective.	Journal of Business Venturing	4
Dew, Read, Sarasvathy, & Wiltbank (2011)	On the entrepreneurial genesis of new markets: Effectual transformations versus causal search and selection	Empirical Quantitative	A study of 27 expert entrepreneurs and 37 MBA students. Identifies and describes several different ways that "expert entrepreneurs" (entrepreneurs with significant experience in creating new ventures) conduct effectual transformations as opposed to the standard search and selection processes used by novices (in this case, MBA students).	Journal of Evolutionary Economics	2
Evers & O'Gorman	Improvised internationalization in new ventures: The role of	Empirical Qualitative	Case research on three international new ventures – Irish-owned shellfish processors. Found effectual logic, improvisation, and	Entrepreneurship & Regional Develop-	3

Author/s (Year)	Title	Type	Description and Main Contribution to Effectuation Theory	Journal	AJG†
(2011)	prior knowledge and networks.		network bricolage provided explanations for the idiosyncratic nature of the process and growth of small and new firms (or INVs).	ment	
Fischer & Reuber (2011)	Social interaction via new social media: (How) can interactions on Twitter affect effectual thinking and behavior?	Empirical Qualitative	A study conducted using in depth interviews with 12 entrepreneurs who engage in social interaction through the online social media platform Twitter, and seeks to understand how such social interaction might help or hinder effectual processes. Suggests social interaction, despite being an integral aspect of effectuation, has thus far been neglected in the theoretical discussion. Proposes that: social interaction via Twitter triggers an entrepreneur's assessment of their means and effects that these means might produce; moderate social interaction on twitter is likely to positively influence effectual process on a cognition level, but too much may result in unproductive 'effectual churn'; greater 'community orientation' and 'community norm adherence' of an entrepreneur to the social media community will positively influence an entrepreneur's effectual process.	Journal of Business Venturing	4
Gabrielsson & Politis (2011)	Career motives and entrepreneurial decision-making: Examining preferences for causal and effectual logics in the early stage of new ventures	Empirical Quantitative	An empirical study, quantitative hypothesis testing, which links a typology of career motives to a preference for the use of causation or effectuation in decision making.	Small Business Economics	3
Hayton, Chandler, &	Entrepreneurial opportunity identification and new firm	Empirical Quantita-	An empirical, quantitative article looking at entrepreneurial opportunity identification by family firms. Main points to take away	International Journal of Entrepreneurship	1

Author/s (Year)	Title	Type	Description and Main Contribution to Effectuation Theory	Journal	AJG[†]
DeTienne (2011)	development processes: a comparison of family and non-family new ventures	tive	are that family firms are more likely to use effectuation for a variety of reasons.	and Innovation Management	
Sarasvathy & Venkataraman (2011)	Entrepreneurship as Method: Open Questions for an Entrepreneurial Future	Conceptual	Argues that entrepreneurship should not be treated as a sub-set of any discipline but should be treated as a method, as much so as the scientific method. Compares and contrasts the notion of an entrepreneurial method with scientific method. Argues that effectuation is a possible candidate for the dominant logic underlying entrepreneurial method.	Entrepreneurship Theory and Practice	4
Sharma & Salvato	Commentary: Exploiting and exploring new opportunities over life cycle stages of family firms	Conceptual Commentary	Just a commentary concerning family firms and opportunity. Discusses how family firms simultaneously use both causation and effectuation and ties this in with the innovation (product/service) lifecycle model.	Entrepreneurship Theory and Practice	4
Brettel, Mauer, Engelen, & Küpper (2011)	Corporate effectuation: Entrepreneurial action and its impact on R&D project performance	Empirical Quantitative	A study of effectuation in a corporate context using a sample of 123 senior R&D managers. Seeks to develop measures of the effectuation and causation behavioural constructs. Finds support for the positive impact of goal orientation on R&D output and efficiency for projects of low innovativeness, but no support for a means orientation having a positive impact on R&D output and efficiency of projects with high innovativeness. Affordable loss positively impacts projects of high innovativeness and expected return positively impacts projects of low innovativeness. Partnership has a positive impact on projects of high innovativeness, but	Journal of Business Venturing	4

Author/s (Year)	Title	Type	Description and Main Contribution to Effectuation Theory	Journal	AJG†
			competitive market analysis does not positively impact projects of low innovativeness. Acknowledging the unexpected has a positive impact on the output, but not efficiency, of highly innovative projects, while overcoming the unexpected has a positive impact upon both the output and efficiency of projects of low innovativeness.		
Chandra & Yang (2012)	Managing disruptive innovation for corporate longevity	Conceptual	A conceptual study that applies, among others, an effectual lens to the impact of disruptive innovation on corporate longevity. Proposes that incumbent firms are more likely to follow causal logic while disruptive new entrants are more likely to follow effectual logic. Proposes that the incumbent firms that are able to survive the threat of these effectual new entrants are likely to adopt both effectual and causal logics.	Journal of General Management	2
Coviello & Joseph (2012)	Creating major innovations with customers: Insights from Small and young technology firms	Empirical Qualitative	An empirical case study of six new venture (three that resulted in success and three in failure) which looks at Major Innovation (MI) by relatively new firms. It focuses on the role of customers in New Product Development (NPD) and MI and creates a taxonomy of different customers. It finds that those firms that were successful in their MI used effectuation.	Journal of Marketing	4*
Evers, Andersson, & Hannibal (2012)	Stakeholders and Marketing Capabilities in International New Ventures: Evidence from	Empirical Qualitative Internation-	Case research of six international new ventures in Ireland, Sweden, and Denmark. Identified three types of stakeholders: ‘allied’, ‘cooperative’, and ‘neutral’, and finds they have affect firm dy-	Journal of International Marketing	3

Author/s (Year)	Title	Type	Description and Main Contribution to Effectuation Theory	Journal	AJG†
	Ireland, Sweden, and Denmark.	al	namic capability processes in different ways, through ‘triple’, ‘double’, and ‘single-loop learning’. The way in which entrepreneurs engaged these stakeholders was consistent with effectuation process.		
Fisher (2012)	Effectuation, causation, and bricolage: A behavioral comparison of emerging theories in entrepreneurship research	Empirical Qualitative	A comparison of effectuation, causation, and bricolage which is then operationalised to identify these behaviours within six existing cases.	Entrepreneurship Theory and Practice	4
Harms & Schiele (2012)	Antecedents and consequences of effectuation and causation in the international new venture creation process	Empirical Quantitative	A simple quantitative study focusing on the causation and effectuation based approaches to international new venture creation. The most important contribution to effectuation of this study is that it finds evidence that companies seem to use both causation and effectuation depending on the context.	Journal of International Entrepreneurship	1
Mort, Weerawardena, & Liesch (2012)	Advancing entrepreneurial marketing: Evidence from born global firms	Empirical Qualitative	More of an effectuation applied article than one directly relating to effectuation. A qualitative case study of nine cases of born global firms from Australia. They showed effectual tendencies in their development. A useful discussion on effectuation in the context of IE and INVs.	European Journal of Marketing	3
Nielsen & Lassen (2012)	Identity in entrepreneurship effectuation theory: A supplementary framework	Empirical Qualitative	A narrative study of ten novice student entrepreneurs. Finds that entrepreneurial identity in effectuation is not a fixed 'means' to the process, but changes constantly as a result of entrepreneurial action. The effectuation process itself is a process of identity	International Entrepreneurship and Management Journal	1

Author/s (Year)	Title	Type	Description and Main Contribution to Effectuation Theory	Journal	AJG†
			construction and sensemaking in relation to the individual's context and social interactions. The authors argue for a more social constructivist approach to identity to support effectuation theory.		
Perry, Chandler, & Markova (2012)	Entrepreneurial Effectuation: A Review and Suggestions for Future Research	Conceptual Review	Used Edmondson and McManus' (2007) framework to test the state of effectuation theory. Found that it fits the criteria as nascent theory transitioning to intermediate. Offered suggestions of future research possibilities for effectuation.	Entrepreneurship Theory and Practice	4
Politis, Winborg, & Dahlstrand (2012)	Exploring the resource logic of student entrepreneurs	Empirical Quantitative	A study of 325 entrepreneurs, 151 of whom are student entrepreneurs, which seeks to examine whether student entrepreneurs are socialised into a certain way of thinking and behaving with regard to resource acquisition in the startup process. Surprisingly, finds that student entrepreneurs are not more likely to favour causal reasoning and in fact have a higher preference for effectual logic than non-student entrepreneurs and student entrepreneurs favour 'bootstrapping'. However, individuals with less industry experience favour causation.	International Small Business Journal	3
Evald & Senderovitz (2013)	Exploring Internal Corporate Venturing in SMEs: Effectuation at work in a new context	Empirical Qualitative	Study based upon 153 firms and three in-depth case studies into internal corporate venturing (ICV). Does not contribute significantly to effectuation, only finds that owner managers of SMEs tend to use effectuation in their ICV activities.	Journal of Enterprising Culture	1
Fiet, Norton, &	Search and Discovery by Re-	Empirical	Not specifically focussed on effectuation, however, I include this	International Small	3

Author/s (Year)	Title	Type	Description and Main Contribution to Effectuation Theory	Journal	AJG†
Clouse (2013)	peatedly Successful Entrepreneurs	Qualitative	study based upon interviews with 10 serial entrepreneurs who have created 47 ventures between them, because it finds support for Fiet's model of constrained, systematic search – a more teleological model – to explain their opportunity pursuing behaviour. Suggests that effectuation theorists do not adequately address the boundary conditions of their theory (or outright ignore them).	Business Journal	
Nowinski & Rialp (2013)	Drivers and Strategies of International New Ventures from a Central European Transition Economy	Empirical Qualitative International	A multiple case study of four different international new ventures in Poland. Finds support for effectuation-based behaviour patterns (particularly the 'affordable loss' principle) being used by these firms.	Journal for East European Management Studies	1
Schirmer (2013)	Partnership Steering Wheels	Empirical Qualitative	A study of four German cases of social entrepreneurs forming partnerships with corporations. Found that partnership formation could be goal driven (consistent with causation) or means driven (consistent with effectuation). The different partnership formation processes resulted in different forms of governance, with means driven partnerships leading to governance through social control combined with trust, and goal driven partnerships being governed through formal control, behaviour control, in particular.	Journal of Corporate Citizenship	1
Berends, Jelinek, Reymen, & Stultiëns (2014)	Product innovation processes in small firms: Combining entrepreneurial effectuation and managerial causation	Empirical Mixed Method	A study based on interviews with managers of 16 high-tech SMEs that have undergone rapid internationalisation. Found that both causation and effectuation-based thinking influenced the planning of a number of firm's internationalisation strategies.	Journal of Product Innovation Management	4
Blauth, Mauer,	Fostering creativity in new prod-	Empirical	Finds that effectuation decision making orientation positively	Creativity and Inno-	2

Author/s (Year)	Title	Type	Description and Main Contribution to Effectuation Theory	Journal	AJG†
& Brettel (2014)	uct development through entrepreneurial decision making	Quantitative	impacts, and causal decision making orientation negatively impacts, practiced creativity by firm employees.	vation Management	
Crick & Crick (2014)	The internationalization strategies of rapidly internationalizing high-tech UK SMEs: Planned and unplanned activities	Empirical Qualitative International	Study based upon interviews with managers of 16 UK based high-tech SMEs. Found that their decision-making in relation to both planned and unplanned internationalisation strategising included aspects of both causation and effectuation.	European Business Review	2
Kalinic, Sarasvathy, & Forza (2014)	Expect the unexpected': Implications of effectual logic on the internationalization process	Empirical Qualitative International	Case study research of five manufacturing companies which connects the theory of effectuation to "unplanned" internationalisation processes. It illustrates how entrepreneurs quickly transition to effectual logic from causal logic when internationalising due to a lack of knowledge and information. In this article, "effectual stakeholders" often seem to be acquired employees of firms that have been taken over. In this case, the stakeholders do not so much make the decision to commit, but instead the decision is more or less made for them. Essentially, effectual logic helps fill the lack of knowledge that prevents (preferred) causal planning. Entrepreneurs then simply act, and in doing so gather the new goals and means they need to operate internationally.	International Business Review	3
Mthanti & Urban (2014)	Effectuation and entrepreneurial orientation in high-technology firms	Empirical Quantitative	Basic qualitative study statistically links effectuation to Entrepreneurial Orientation (EO) of established firms. Effectuation is correlated with EO, but only significantly in relation to one sub-construct of "Experimentation". Effectuation seems to positively moderate the performance of firms using EO. However, no relationship was found	Technology Analysis & Strategic Management	2

Author/s (Year)	Title	Type	Description and Main Contribution to Effectuation Theory	Journal	AJG†
			between the use of effectuation and dynamism and uncertainty in the environment - important to note, as supposedly, effectuation is a rational approach to be taken under uncertainty.		
Nummela, Saarenketo, Jokela, & Loane (2014)	Strategic Decision-Making of a Born Global: A Comparative Study From Three Small Open Economies	Empirical Qualitative International	Case study research of three 'born global' software companies, in Finland, Ireland, and Israel. Finds that while these companies are most likely to begin with effectuation, they soon entered into alternating periods of causation and effectuation based logics. However, decision making becomes gradually more causal as more stakeholders (those who provide venture capital in particular) came on board. Also found that personalisation is important in applying effectuation theory as effectual decision-making was very actor-dependent.	Management International Review	3
Sarasvathy (2014)	The downside of entrepreneurial opportunities	Conceptual Commentary	A less formal discussion piece by Sarasvathy that discusses the imagined examples of four different prospective student entrepreneurs and how their personality differences would respond to the downside potential of pursued opportunities. Ultimately advocates for aspiring entrepreneurs to emphasise a focus on evaluating the downside potential of opportunities based upon the affordable loss principle.	Management (France)	0
Arend, Sarooghi, & Burkemper (2015)	Effectuation as Ineffectual? Applying the 3E Theory-Assessment Framework to a Proposed New Theory of Entrepreneurship	Conceptual Review	The most comprehensive critique of effectuation to date. Applies a '3E framework of theory evaluation' based upon the work of Dubin, and finds effectuation falls short of theory based upon several assessment criteria.	Academy of Management Review	4*

Author/s (Year)	Title	Type	Description and Main Contribution to Effectuation Theory	Journal	AJG†
Chetty, Ojala, & Leppäaho (2015)	Effectuation and foreign market entry of entrepreneurial firms	Empirical Qualitative International	Multi-case study of 10 international, entrepreneurial, leading edge technology firms; five in Finland and five in New Zealand. Based primarily on interviews with CEOs, found that these firms interweave effectuation and causation logics during decision making in the internationalisation process (foreign market selection and entry) depending on level of uncertainty and existing relationships within those foreign markets.	European Journal of Marketing	3
Crick & Crick (2015)	Learning and decision making in marketing planning: a study of New Zealand vineyards	Empirical Qualitative	Study based upon 12 interviews with owner/managers of vineyards in New Zealand. Finds individual differences in perceptions of the effectuation constructs of affordable loss, needs for relationships, and contingency. Affordable loss was subject to re-evaluation depending on personal situation. Managers combined and moved between causation and effectuation logics.	Marketing Intelligence & Planning	1

Author/s (Year)	Title	Type	Description and Main Contribution to Effectuation Theory	Journal	AJG†
Dutta, Gwebu, & Wang (2015)	Personal innovativeness in technology, related knowledge and experience, and entrepreneurial intentions in emerging technology industries: a process of causation or effectuation?	Empirical Quantitative	A study based upon the survey of 164 students in a United States based public university examining their entrepreneurial intention in the context of 'virtual worlds' - engaging in entrepreneurship online in a virtual game. Combines concepts of personal innovativeness in technology and related knowledge and experience with perceived feasibility and perceived desirability. While the study draws on the theoretical lens of causation and effectuation and how they might be incorporated simultaneously in the development of entrepreneurial intentions in emerging technology industries, the results were rather inconclusive.	International Entrepreneurship and Management Journal	1
Galkina & Chetty (2015)	Effectuation and Networking of Internationalizing SMEs	Empirical Qualitative	A multiple-case study of seven internationalising SMEs based in Finland which combines effectuation with the Uppsala model of internationalisation as a theoretical framework. Finds evidence that foreign market entry by SMEs is more likely to occur through effectual logic and through opportunities arising network relationships rather than predetermined goals. Effectual logic may be employed during foreign market entry at any time during a venture’s development, not just during the early stages.	Management International Review	3
McMullen (2015)	Entrepreneurial judgment as empathic accuracy: a sequential decision-making approach to entrepreneurial action	Conceptual	Argues that entrepreneurial judgement involves empathic accuracy, enabled by empathic imagination, on the part of the entrepreneur to imagine the opportunity beliefs of potential stakeholders.	Journal of Institutional Economics	3

Author/s (Year)	Title	Type	Description and Main Contribution to Effectuation Theory	Journal	AJG†
Reymen, Andries, Berends, Mauer, Stephan, & van Burg (2015)	Understanding Dynamics of Strategic Decision Making in Venture Creation: A Process Study of Effectuation and Causation	Empirical Mixed Method	A study that analyses 385 decision events across the cases of nine technology-based ventures drawing upon effectuation and causation and how they are used and combined (in relation to planning and flexible decision-making by entrepreneurs). Finds decision-making logic shifts and re-shifts over time under certain conditions of uncertainty, resource position, and stakeholder pressure, and develops a dynamic model of how this happens in strategic decision-making in a venture creation process.	Strategic Entrepreneurship Journal	4
Werhahn, Mauer, Flatten, & Brettel (2015)	Validating effectual orientation as strategic direction in the corporate context	Empirical Quantitative	A study that specifically examines effectuation as a collection of entrepreneurial heuristics and attempts to elevate them to the level of the firm in a corporate context while developing a reliable and valid multidimensional scale to measure the effectuation construct. The study uses three qualitative pre-tests with PhD level effectuation researchers and 12 CEOs of German firms, followed by two quantitative analyses to refine a scale and validate it.	European Management Journal	2
Garud & Gehman (2016)	Theory Evaluation, Entrepreneurial Processes, and Performativity	Conceptual	A response to Arend et al. (2015). Argues that the 3E framework applied by Arend et al. is not suited to the evaluation of performative and process theories such as effectuation.	Academy of Management Review	4*
Alsos, Clausen, Høyvarde, & Solvoll (2016)	Entrepreneurs' social identity and the preference of causal and effectual behaviours in start-up processes.	Empirical Mixed-methods	A mixed-methods study that produces a typology of three different entrepreneurial identities. Finds quantitative support for the hypothesis that entrepreneur's will differ in their preference for causal or effectual logic depending on their identity.	Entrepreneurship & Regional Development	3
Appelhoff,	The conflict potential of the	Empirical	A study based upon the survey of 141 German firms which inves-	International Entre-	1

Author/s (Year)	Title	Type	Description and Main Contribution to Effectuation Theory	Journal	AJG[†]
Mauer, Collewaert, & Brettel (2016)	entrepreneur's decision-making style in the entrepreneur-investor relationship	Quantitative	tigates the relationship between effectual and causal decision making constructs and conflicts between entrepreneurs and their venture capitalist firm investors. Finds that fewer task conflicts arise in firms focusing on the causal logic of avoiding unexpected contingencies, and the effectual logic of focusing on affordable loss.	preneurship and Management Journal	
Arend, Sarooghi, & Burkemper (2016)	Effectuation, not being pragmatic or process theorizing, remains ineffectual: Responding to the commentaries	Conceptual Commentary	In this commentary, Arend, Sarooghi, and Burkemper re-assert their criticism of effectuation, arguing that it is not a theory. Instead, they argue it should be considered as a "but, rather, as a collection of marketing choices that includes its construction as an umbrella of previously established concepts, its misrepresentation of what it contrasts with, and its “form” as the kind of message that people want to hear."	Academy of Management Review	4*
Ciszewska-Mlinaric, Obloj, & Wasowska (2016)	Effectuation and causation: Two decision-making logics of INVs at the early stage of growth and internationalisation*	Empirical Qualitative International	A single case study of a Polish audiobook firm’s internationalisation in relation to causal and effectual decision-making. Found that the firm alternated between effectual and causal decision making, with the firm's pre-startup and creation phase characterised by effectual logic, its pre-internationalisation preparation phase characterised by causal logic, and its post-internationalisation growth and development phase characterised by a combination of both logics. A stakeholder, in the form of a venture capitalist, influences the level of uncertainty as well as the shift in decision-making logic.	Journal of East European Management Studies	1

Author/s (Year)	Title	Type	Description and Main Contribution to Effectuation Theory	Journal	AJG[†]
Crick & Crick (2016)	An appreciative inquiry into the first export order	Empirical Qualitative International	A simple single case study of a UK firm's first foray into exporting. Finds that the firm combines causal goal orientation with an effectual affordable loss emphasis.	Qualitative Market Research	2
Guo, Cai, & Zhang (2016)	Effectuation and Causation in New Internet Venture Growth: The mediating effect of resource bundling strategy	Empirical Quantitative	A study based on the survey of entrepreneurs and top executives of new internet firms in China. Simply finds that both effectual and causal principles are positively associated with the growth of these ventures, and advocates that entrepreneurs growing internet firms should utilised both logics and neglect neither.	Internet Research	2
Gupta, Chiles, & McMullen (2016)	A process perspective on evaluating and conducting effectual entrepreneurship research	Conceptual Commentary	A commentary in defence of effectuation theory from the critique by Arend et al., arguing that their 3E framework is not suitable for evaluating a process theory such is effectuation. They call for a greater emphasis on process theory and research to be made in the investigation of effectuation. They argue that a process-theoretic approach to effectuation has been inhibited by an underlying emphasis on an equilibrium perspective. Instead, they argue that "effectuation scholars may want to rethink their affiliation with equilibrium, which relies on variance theory and methods, and embrace the many disequilibrating aspects of entrepreneurship, which are better suited to process theory and research" (2016, p. 542)	Academy of Management Review	4*
Read, Sarasvathy,	Response to Arend, Sarooghi, and Burkemper (2015): Cocre-	Conceptual Commen-	The leading effectuation theorist's defence of effectuation theory against the critiques of it brought by Arend et al. Argue that Ar-	Academy of Management Review	4*

Author/s (Year)	Title	Type	Description and Main Contribution to Effectuation Theory	Journal	AJG[†]
Dew, & Wiltbank (2016)	ating Effectual Entrepreneurship Research	tary	end et al.'s positive critique is not suitable for effectuation as a pragmatist theory.		
Reuber, Fischer, & Coviello (2016)	Deepening the dialogue: New directions for the evolution of effectuation theory	Conceptual Commentary	Taking a more pragmatic stance in this commentary concerning the debate between Read et al. and Arend et al., Reuber et al. argue that effectuation theory is in a state of evolution. They suggest bringing effectuation back to its roots in pragmatism, with an emphasis on examining the role of ‘habit’ in the theory, where it has been neglected in favour of effectuations focus on ‘creativity’	Academy of Management Review	4*
Roach, Ryman, & Makani (2016)	Effectuation, innovation and performance in SMEs: an empirical study	Empirical Quantitative	A quantitative study surveying 169 electronic product manufacturing-based firms to explore the connection between effectuation and SME innovation. Finds that means focus and leveraging contingency play a mediating role in innovation orientation which increases firm performance, and affordable loss has a direct impact on firm performance.	uropean Journal of Innovation Management	1
Welter, Mauer, & Wuebker (2016)	Bridging Behavioral Models and Theoretical Concepts: Effectuation and Bricolage in the Opportunity Creation Framework	Conceptual	A single case study of a Polish firm in the early stages of growth and internationalisation. Finds that causal and effectual logic are not separable in the firm’s decision making, and that the firm’s decision makers will alternate between the two logics, as well as occasionally using them concurrently, depending on characteristics of the problem space being faced (such as uncertainty).	Strategic Entrepreneurship Journal	4
Ye (2016)	Effectual approaches and entrepreneurship outcome: from a	Conceptual	A brief conceptual study which connects effectuation theory to other literature on heuristics and biases. Proposes that the influ-	Journal of Small Business and Entre-	1

Author/s (Year)	Title	Type	Description and Main Contribution to Effectuation Theory	Journal	AJG†
	perspective of behavioral biases		ence of these biases, such as ‘threat bias’ and ‘over-trust’, may lead entrepreneur to certain less desirable outcomes such as underinvestment in good opportunities, escalating commitment to less than ideal partnerships, and pursuing less than ideal opportunities.	preneurship	

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